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Sensemaking in the Process of Inquiry: A Qualitative Case Study of a Networked Improvement Community

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A Qualitative Case Study of a Networked Improvement Community

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by

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ABSTRACT

Sensemaking in the Process of Inquiry:

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There are persistent and pervasive issues plaguing American education, and almost seventy years of educational reform efforts have failed to adequately improve educational outcomes for many of America's children. Networked improvement communities (or NICs) are a type of social organization created to address such problems and are proposed as an effective and efficient way to organize improvement efforts. The purpose of this qualitative case study was to explore the sensemaking experience of a newly-formed networked improvement community as members engaged in inquiry around a chosen problem of practice. During network initiation, NIC members engage in experiences to collaboratively identify and collectively articulate a central problem of practice, and these intentional inquiry processes are a critical step for newly-formed networks. The study was designed to answer the following questions about this research case:

1. What initial understandings emerged about the networked improvement community's chosen problem of practice?
2. How did members of a newly-formed networked improvement community begin to make sense of their organizational problem of practice through inquiry?
    a. What cues triggered member sensemaking?
    b. What actions propelled member sensemaking forward?

Data collection methods included the selection of naturally occurring network inquiry documents originating from member-generated student and teacher journey map experiences and corresponding member reflections and discussion via a network blog (or discussion forum). The data were analyzed utilizing both deductive and inductive strategies across multiple phases of analysis. Likewise, the data were reviewed against the study's conceptual framework, which was based on current research on networked improvement communities and the sensemaking process. Measures of rigor were achieved through multiple strategies, including triangulation, disconfirming evidence, rich descriptions, theory-based sampling strategy, and peer debriefing/expert review. The data revealed not only a rich understanding of the network's problem of practice but also provided a window into what types of cues triggered member sensemaking in this social structure and what actions propelled member sensemaking forward in this ongoing process.

DEDICATION

To my sweet Hudsun and little Rorie...
Impossible things are happening every day. Now it’s your turn!

To my little boy from your little girl...
Love is all that I need, and I found it there in your heart.
It isn't too hard to see, we're in heaven.

To my mom...
No more somedays.
It’s time for that adventure!

ACKNOWLEDGMENTS

With God, all things are possible (Matthew 19:26). There are not words to express how my relationship with God has supported me (and grown!) during this process. When there didn't seem to be a way, there was a way! God is who He says He is. He can do what He says He can do. I am who He says I am. I can do what He says I can do. I am loved. And, you are loved, too.

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And to my friends and family... thank you so much for your unconditional love during this time. Let's face it, you saw the good, the bad, and the ugly – and were still always there with a hug. From the highs of "getting it right" to the lows of self-doubt, you loved me and saw me through this journey. Scottie, thank you for helping me remember what matters – time with our little family. Sweet Hudsun, thank you for always cheering me on! Little Rorie, you are my little reminder that all things are possible! And to my mom, thank you for the countless Saturdays of help, the hundreds of pages read, and a love of learning. You will forever be my favorite teacher.

TABLE OF CONTENTS

Page

LIST OF TABLES

Table Page

LIST OF FIGURES

Figure Page

CHAPTER 1

INTRODUCTION

There are persistent and pervasive issues plaguing American education, and almost seventy years of educational reform efforts have failed to adequately improve educational outcomes for many of America's children (LeMahieu, Grunow, Baker, Nordstrum, & Gomez, 2017; McFarland et al., 2017; Nayfack, Park, Hough, & Willis, 2017; O'Day & Smith, 2016). Reform efforts in the past have focused on such issues as the role of a national curriculum, individualized instruction, fidelity of implementation to programs, school climate and culture, school leadership, school and class size, teacher coaching and evaluation, and performance-based incentives (Bryk, 2015; Fullan, 2012; O'Day & Smith, 2016). Policymakers, state education agencies, local school districts, educators, and reform leaders have contributed a substantial amount of energy, time, resources, and expertise to shepherding these various improvement efforts in and across various contexts (Cannata, Cohen-Vogel, & Sorum, 2017).

For many of America's most disadvantaged students, however, educational reform has resulted in little change with aspirations for the nation's schools continue to grow faster than the current rate of school improvement (Bryk, 2017; Russell, Bryk, Dolle, Gomez, LeMahieu, & Grunow, 2015). According to the U.S. Department of Education's *The Condition of Education 2017* report (2017), "Closing achievement gaps is a goal of both national and state education policies"(p. 158); however, recent national assessment outcomes show mediocre progress for America's students in general, with even less progress for minority children and those with disabilities. Furthermore, national performance outcomes continue to lag those seen internationally (Equity and Excellence Commission, 2013; McFarland et al., 2017; O'Day & Smith, 2016; The Annie E. Casey Foundation, 2013). Furthermore, these issues are in inexorably

intertwined with factors such as high rates of child poverty, poor nutrition, increased homelessness, and home and school violence (Children's Defense Fund, 2017; Equity and Excellence Commission, 2013; McFarland et al., 2017, O'Day & Smith, 2016).

In efforts to solve these problems new kinds of reform efforts, designed to not only improve the fundamental opportunity of America's educational system but also support effectively scaling those improvement efforts, are emerging and these efforts have garnered national attention (Cannata et al., 2017; Elmore, 2016; O'Day & Smith, 2016; Redding, Cannata, & Taylor Haynes, 2017). Both the nation's *Race to the Top* grant program and most recent national education law, the *Every Student Succeeds Act (ESSA)*, provide states with a greater level of discretion over state standards and models for accountability and school turnaround processes. In addition, they have offered significant resources and levels of authority to states and their school districts to implement reform models that were evidence-based and promised to engage educators in continuous improvement methodologies (Peurach, 2016; Russell, Meredith, Childs, Stein, & Prine, 2015). In response, ESSA also introduced new grant opportunities to states and school districts via the Education Research and Innovation program, designed to support new and innovative pathways to achieve and engage in continuous school improvement (Peurach, 2016). Over the last five years, there has been growing collaboration among both public and private educational entities and interested states, districts, and schools choosing to apply innovative, continuous improvement approaches in local contexts (Cannata et al., 2107a; Tichnor-Wagner, Wachen, Cannata, & Cohen-Vogel, 2017). Innovation, collaboration, and evidence serve as the focus for America's next phase of reform efforts (Bryk, 2018; Peurach, 2016).

While innovation and collaboration focused on evidence-based practices are key components to current school reform initiatives, how those practices are adopted and scaled in new settings is an important factor to consider (Bryk, 2017; Elmore, 2016; Nayfack et al., 2017). Innovative and evidence-based practices proving successful in one context are too often "transported wholesale [into other contexts] without examining why it worked and what conditions made it work" (Nayfack et al., 2017, p. 31) and lack attention to what structures might serve to facilitate or hinder improvement efforts (Cannata & Rutledge, 2017; Cohen-Vogel et al., 2015). There is a growing awareness that the challenge of improving student outcomes extends beyond the identification and implementation of effective improvement interventions (Cannata & Rutledge, 2017; Cohen-Vogel, Cannata, Rutledge, & Socol, 2016; Lewis, 2015; Redding et al., 2017). According to Elmore (2016), "if we have learned anything from 25 to 30 years of attempts to 'reform' education it is that every effort at reform is heavily influenced by the contexts, micro and macro, in which it exists." (p. 531). What is required for innovation, collaboration, and evidence-based practices to markedly change America's educational system, corresponding student outcomes, and educational disparities is a fundamental shift in the way educational leaders and practitioners work - the education system must become *a learning system* (Bryk, 2015; Elmore, 2016; Fullan, 2016). *Continuous learning stance* and a corresponding *continuous improvement methodology* have recently become catchphrases in the field of education. While there is large body of research related to continuous improvement in the advancement of healthcare and industry, there is much to learn about how this model of reform could support improvement efforts in education and ultimately improve outcomes for students (Cohen-Vogel et al., 2016; LeMahieu, Bryk, Grunow, & Gomez, 2017; Park, Hironaka, Carver, & Nordstrum, 2013; Redding et al., 2017).

Statement of the Problem

Since 2010, Tennessee has made historic gains in student achievement across multiple subject areas, and performance on National Assessment of Education Progress (NAEP) exams has put the state within reach of a strategic goal: to rank in the top half of states on NAEP by 2019. Likewise, from 2010 to 2015, student outcomes on the state's Tennessee Comprehensive Assessment Program (TCAP) have also improved across grades 3-8 math, science, high school math, high school science, and high school English. In contrast, the state has not celebrated the same gains in grades 3-6 literacy on the TCAP. In fact, grades 3-6 ELA scores have stagnated or declined over the same time period.

In February 2016, the Governor's Office and the Tennessee Department of Education launched the *Read to be Ready* campaign, signaling a statewide focus on increasing grades 3-8 reading achievement for Tennessee students. Reading proficiency is an important early indicator identified in the state's strategic plan (Tennessee Department of Education, 2015), as national research links failure to read proficiently by the end of third grade with:

> ongoing academic difficulties in school, failure to graduate from high school on time and chances of succeeding economically later in life — including individuals' ability to break the cycle of intergenerational poverty and the country's ability to ensure global competitiveness, general productivity and national security (Casey Foundation, 2013, p. 3).

As described in the state's report, *Setting the Foundation: A Report on Elementary Grades Reading in Tennessee* (Tennessee Department of Education, 2016), Tennessee was on the verge of moving to the top half of states in student performance on the National Assessment for Educational Progress assessment (NAEP), however, reading proficiency remained a challenge in

achieving this goal. A majority of students were continuing to score below grade level on state reading assessments and large achievement gaps with historically disadvantaged students were persisting. The consequences were notable and would, ultimately, be severe as many of Tennessee students were not on track across all grade levels, particularly regarding this prominent third-grade indicator (Tennessee Department of Education, 2018; Tennessee Department of Education, 2016; The Annie E. Casey Foundation, 2013).

Around the same time and in conjunction with launching the *Read to be Ready* campaign, the TDOE also began a partnership with the Carnegie Foundation for the Advancement of Teaching (Carnegie Foundation) in an additional and coordinated effort to improve student reading proficiency. Throughout the state each year, school systems were implementing numerous improvement efforts to increase reading proficiency with little to no evidence of increased student outcomes. As described in the *Setting the Foundation* report, "The stakes are too high for this to continue to be the case" (Tennessee Department of Education, 2016, p. 21). To this point, the partnership between the TDOE and the Carnegie Foundation sought to provide an initial cohort of seven school districts and twelve schools with the tools and autonomy they needed, via a collaboration structure known as a networked improvement community (NIC), to improve reading proficiency across their districts and schools and "collaborate to identify and test effective and practical strategies for improving elementary literacy practices that can eventually scale across the state" (Tennessee Department of Education, 2016, p. 25). The TDOE would partner with the state's educators to build local capacity to lead improvement efforts in ways the state department, districts, and schools had not previously undertaken. This would be a fundamental shift in both the collaborative nature of this partnership between school districts and the state and the learning approach that would be used.

The state's networked improvement community, or *Tennessee Early Literacy Network* (TELN) as members named it, sought solutions to organizational problems through the use of a process called improvement science. The improvement science process offered the NIC a continuous improvement methodology used to govern their work as a scientific learning community (Bryk, Gomez, Grunow, & LeMahieu, 2015). According to Tony Bryk, the President of the Carnegie Foundation, improvement science methods provided a structure to allow Tennessee's schools "to get better at getting better" (Tennessee Department of Education, 2016, p. 21).

Navigating the path to true and meaningful educational improvement, one that allows all students to be successful, is a complex and often formidable task, and a myriad of stakeholder groups consistently invest time, energy, and money to conduct and examine scientific research for what works regarding school improvement (Bryk, 2015, Fullan, 2016; Glazer & Peurach, 2013; Hargreaves & Ainscow, 2015). As Fullan (2016) contends, the overarching question now centers around how to facilitate a "deep change in the culture of learning, local ownership of the learning agenda, and a system of continuous improvement and innovation" (p. 543) across these interested parties. While there are inherent challenges in almost all types of reform across a wide array of sectors, facilitating change in school improvement is often more challenging than reforms for other sectors. As Gomez and colleagues (2016) point out, "The problems of achievement, attainment, and equal opportunity that educators grapple with today weren't created by individuals. They were created by systems." (p. 8); thus, it is this focus on the system that is producing the current results that networked improvement communities (through the use of improvement science), are seeking to better understand (LeMahieu et al., 2017b).

Purpose Statement

The purpose of this qualitative case study was to explore the sensemaking experience of a newly-formed networked improvement community as the members engaged in inquiry around a chosen problem of practice. As networked improvement communities seek to identify and collectively articulate their central problems of practice, or the "quantifiable gap between the desired state of a system's performance and its current performance" (LeMahieu et al., 2017b, p. 13), this inquiry process is critical for making the work problem-specific and user-centered, identifying the variation that currently exists in the system, as well as supporting the network in seeing the system that produces the current outcomes (LeMahieu et al., 2017b). The intent of this study was to learn more about how one networked improvement community engaged in this process.

Research Questions

For this case study, the following definition of sensemaking guided the research investigation: sensemaking is an ongoing and social process through which people work to understand novel, ambiguous, or confusing issues by attending to cues and enacting a more ordered environment from which further cues can be drawn (Maitlis & Christian, 2014; Weick, 1995). Networked improvement community members engaged in specific inquiry processes via journey mapping, personal reflection, and network discussion, and the study was designed to answer the following questions about this research case:

1. What initial understandings emerged about the networked improvement community's chosen problem of practice?
2. How did members of a newly-formed networked improvement community begin to make sense of their organizational problem of practice through inquiry?

a. What cues triggered member sensemaking?

b. What actions propelled member sensemaking forward?

Significance of the Study

There is a growing interest in how networks as structures for continuous improvement can support organizational learning in the education sector (Cannata et al., 2017b; Hannan, Russell, Takahashi, & Park, 2015; Kolleck, 2014; Redding, Cannata, & Miller, 2018; Russell et al., 2015b; Tichnor-Wagner et al., 2017). This type of "innovative and collaborative approach to educational change remains uncommon in the United States" (Redding et al., 2018, p. 79), and likewise, little research has been conducted to better understand how the sensemaking process occurs in groups and communities within novel situations (Brown, Colville, & Pye, 2015; Ganon-Shilon & Schechter, 2017). To that point, one of the primary ways in which sensemaking researchers are continuing to expand on this theoretical construct within organizational studies is "through work that shows how sensemaking enables other important organizational processes and outcomes" (Maitlis & Christian, 2014, p. 89). Two prominent scholars of educational reform have also recently emphasized that the current types of improvement efforts needed in education require developing true learning communities that engage stakeholders across multiple contexts (Elmore, 2016; Fullan, 2016). This study is significant because it not only explores a new and promising methodology for school improvement (networked improvement communities) but also seeks to understand how educators utilizing this methodology make sense of an educational problem of practice through one of the model's central activities of network inquiry. Lastly, the specific case selected as the sample for the present study was a unique and research-worthy context not yet explored in other studies (Cannata et al., 2017b; LeMahieu et al., 2017a).

Addressing these research questions and corresponding findings will bring additional depth to both the networking and sensemaking bodies of research with insights from this novel context.

Definition of Terms

The following terms are defined for the purpose of this study. As this TDOE partnership was guided by a process and set of principles developed by the Carnegie Foundation, the following operational terms are defined utilizing one of the foundation's key resources *Learning to Improve* were (Bryk et al., 2015), as well as research published about the Carnegie Foundation's work (specifically noted below as from LeMahieu et al., 2017b). Two additional terms, taken from the key research questions for this study, were also defined and are noted as *defined by the researcher*.

1. Continuous improvement: improvement research that involves multiple iterative cycles of activity over extended time periods
2. Evidence-Based Practice: tools, materials, or sets of routines, typically grounded in theoretical principles, that has been subject to rigorous empirical study. Their use is warranted by results from a rigorous field trial that demonstrated that the intervention can work because it has somewhere
3. Improvement research: particular acts of inquiry, or projects, that aim for quality improvement
4. Improvement Science: improvement science is a broad field that encompasses a wide-range of tools and methodologies to support improvement of processes and outcomes through organizational learning (LeMahieu et al., 2017b, p. 10)

5. Initial understanding: the early and developing understanding that evolves as members of the networked improvement community engaged in their first set of activities designed to help them better understand their chosen problem of practice (*defined by the researcher*)
6. Inquiry: the act of engaging in activities that are designed to help a networked improvement community better understand their chosen problem of practice (*defined by the researcher*)
7. Journey Map: an inquiry tool used to look "closely at the problem from the perspective of users and those whose work it impacts" (LeMahieu et al., 2017b, p. 14)
8. Network Hub: a core group formed either as a single organization or distributed across network members that carry out critical functions necessary for the support and effective operations of a networked improvement community. These functions include, but are not limited to improvement science expertise, analytics, knowledge management, convenings, communications, and technological support
9. Networked Improvement Community: an intentionally designed social organization with a distinctive problem-solving focus; roles, responsibilities and norms for membership; and the maintenance of narratives that detail what they are about and why it is important to affiliate with them. A NIC is marked by four essential characteristics:
    - focused on a well-specified common aim;
    - guided by a deep understanding of the problem, the system that produces it, and a shared working theory to improve it,
    - disciplined by the methods of improvement research to develop, test and refine interventions, and

    - organized to accelerate their diffusion out into the field, and effective integration into varied educational contexts
10. PDSAs (Plan-Do-Study-Act Cycles): a pragmatic scientific method for iterative testing of changes in complex systems. Each cycle is essentially a mini-experiment where observed outcomes are compared to predictions and discrepancies between the two become a major source of learning
11. Quality improvement: the science and practice of continuously improving programs, practices, products, processes or services within organized social systems (LeMahieu et al., 2017b, p. 5)
12. System: an organization characterized by a set of interactions among the people who work there, the tools and materials they have at their disposal, and the processes through which these people and resources join together to accomplish its work

Limitations and Delimitations

Context is a central feature in case study research and the benefits include an in-depth investigation and rich description of individuals or groups as well as organizations, activities, and particular phenomena of interest in their natural settings (Hancock & Algozzine, 2016). While a strength of this exploratory research was the focus on a particular context, this focus might also be seen as a limitation. The research was purposefully and narrowly designed to better understand the sensemaking process of networked improvement community members as they engaged in initial inquiry processes as part of NIC initiation (LeMahieu et al., 2017b; Marshall & Rossman, 2011). Both research questions were focused on exploring this specific time frame in NIC development (initiation). Likewise, methodological choices related to informed consent also limited how the researcher examined member reflections and discussions, as data were examined

from the perspective of the network as a whole or concerning various role-levels versus an individual member-level. Although some of the findings could be transferable to how other social structures engage in similar early learning exercises, there was a specific methodology by which networked improvement communities engaged with one another and their own environments during this sensemaking process that may not be applicable elsewhere (LeMahieu et al., 2017b). This limiting factor should be taken into consideration as others seek to transfer findings and conclusions to other contexts (Miles, Huberman, & Saldana, 2014; Patton, 2015).

Several delimiting factors should also be considered. First, the researcher narrowed the focus of the study to the first cohort of networked improvement community members to join the *Tennessee Early Literacy Network*, extending to their representative districts and schools. Secondly, the researcher intentionally chose to use historical documents to answer the research questions, as the data consisted of member-generated artifacts, reflections, and discussions created during the sensemaking process. Although these documents represented and captured the authentic and real-time interactions of the case participants as they engaged in understanding their chosen problem of practice, additional findings could be possible in future research if accompanying real-time personal interactions, such as interviews or focus groups, were also conducted as a way to further elicit participant understandings, beliefs, and actions associated with the sensemaking process explored (Creswell, 2015; Maitlis & Christian, 2014; Peng, 2018). Likewise, via research question two, the researcher also placed an emphasis on exploring the cues members perceived and the actions members took in the process of social and ongoing sensemaking.

Overview of the Study

The researcher sought to better understand the role of networked improvement community inquiry as a sensemaking process that supports the articulation and understanding of a network's chosen problem of practice. Chapter 1 includes an introduction to the study and case, statement of the problem, research questions, significance of the research, definitions of terms in the context of this study, and limitations and delimitations. Chapter 2 offers a review of the relevant literature focusing on networked improvement communities as facilitators of change and organizational sensemaking theory as process for building understanding. Chapter 3 provides an explanation of the methodology used to conduct the research in this study. Chapter 4 presents the data analyses and findings. Chapter 5 outlines the summary of findings, conclusions, and recommendations for further research.

CHAPTER 2

REVIEW OF LITERATURE

The purpose of this qualitative case study was to explore the sensemaking experience of members of a networked improvement community as they engaged in inquiry around a chosen problem of practice. The researcher sought to understand how the sensemaking process would unfold for an organization during this defined time of inquiry. To accomplish this investigation, it was necessary to complete a critical review of the current concepts, theories, and data relevant to the sensemaking process, as well as position this information in the context of the networked improvement community structure.

This literature review outlines the connection between processes and outcomes of two inquiry events for the networked improvement community via a sensemaking perspective. This chapter reviews two major areas of literature: (1) educational improvement via networked improvement communities and (2) sensemaking theory. The literature on networked improvement communities provides the evolution, foundational attributes, structures, processes, and intended outcomes of these types of communities of practice. This information is critical for understanding the role and process of inquiry for these organizations and illuminates additional context about the sample for the study. As networked improvement communities are new to the field of education, there is much to learn about this type of improvement community as it continues to grow as a viable process for educational improvement (LeMahieu et al., 2017b). In this same manner, the literature on sensemaking provides a brief historical account of the theory's early and most recent development as well as outlines four recurring themes that serve as the basis for the study's underpinning theoretical framework for how organizations

collectively make sense of novel issues or events, information that is ambiguous or confusing, or circumstances of unmet expectations (Maitlis & Christian, 2014; Weick, 1995).

To complete this literature review, the researcher used multiple information sources, including books, scholarly journals, dissertations, online resources (such as websites and blogs), and other relevant periodicals. These sources were accessed through ETSU's library and Google Scholar. A delimiting timeframe of the most recent 5 years was initially utilized, although the researcher was open to exploring other resources as the need dictated (ie: ascertaining historical context, reviewing other researchers' cited texts, building researcher knowledge on the topic, etc.). Throughout the review, the researcher also highlighted gaps in the literature, as well as discussed contested areas or issues from within the areas of focus. For each section, a closing synthesis was also provided, and research implications were shared.

Improvement Reform

Innovation and collaboration focused on evidence-based practices is key to current school improvement reform initiatives (Bryk, 2017; Elmore, 2016; Nayfack et al., 2017), and there is a growing awareness that the challenge of improving student outcomes extends beyond the mere identification and implementation of effective, evidence-based improvement interventions (Cannata & Rutledge, 2017; Cohen-Vogel et al., 2016; Cohen-Vogel et al., 2015; Lewis, 2015; Redding et al., 2017). To this point, other factors include local context (Elmore, 2016; Nayfack et al., 2017; Nordstrum et al., 2017), the partnership between researchers and practitioners (Cohen-Vogel et al., 2015; LeMahieu et al., 2017b), and the field's capacity and infrastructures present to capitalize on local improvement efforts as a catalyst for collective improvement across the field (Cannata et al., 2107a; Hannan et al., 2015; Russell at el., 2015a). One proposed avenue

to advance improvement reform on all these fronts is the use of improvement science through networked improvement communities.

Networked Improvement Communities

An Introduction

Networked Improvement Communities (NICs) are an approach to quality improvement in education "aimed at continuously improving the quality of practices, processes and outcomes in targeted problem areas in education systems" (LeMahieu et al., 2017b, p. 6). Developed by the Carnegie Foundation for the Advancement of Teaching, NICs are designed to accelerate the field's ability to "get better at getting better" (Bryk, Gomez, & Grunow, 2010 citing Englebart, 2003) by providing members with a social support structure in which they can plan, carry out, reflect, and consolidate their local improvement efforts in a disciplined way (LeMahieu et al., 2017b; Russell et al., 2015a). Fundamental to a NIC's success are its four key characteristics (Bryk et al., 2015, p. 144). NICs are:

1. focused on a well-specified, common aim;
2. guided by a deep understanding of a targeted problem, the system that produces it, and a shared working theory of how to improve it;
3. disciplined by the rigor of improvement science principles and methods; and
4. coordinated as networks to accelerate the development, testing and refinement of the interventions, their rapid diffusion out into the field and their effective integration into varied educational contexts.

NICs are also guided in their operation by six CORE principles of improvement, which state concisely (Bryk et al., 2015, p. 172-173):

1. Make the work problem-specific and user-centered

2. Focus on variation in performance
3. See the system that produces the current outcomes
4. We cannot improve at scale what we cannot measure
5. Use disciplined inquiry to drive improvement
6. Accelerate learning through networked communities

NICs are scientific learning communities that enable and support members to collaboratively identify and articulate an important and common problem of practice; independently and collectively develop, test, and iterate on innovative tools and practices to address their network's key problem; spread learning that surfaces from network inquiry; support the uptake of practice-based evidence in new contexts; and continually analyze and use data to monitor progress toward a network-wide improvement goal (Bryk et al., 2015; Cannata et al., 2017b; Gomez, Russell, Bryk, LeMahieu, & Mejia, 2016; LeMahieu et al., 2017b; Russell et al., 2015a). NICs blend two key concepts: the power of individual educators or organizations tackling educational problems in a networked way and the disciplined approach to improvement via improvement science.

The Power of Networks

Embedded in NIC design and operation is the assertion that there is power in shared learning experiences both to support improvements around persistent educational problems as well as day-to-day educational practice (Cannata et al., 2017b; Elmore, 2016; LeMahieu et al., 2017b; Rogers, 1983). Bryk (2018), Elmore (2016), and Gomez and colleagues (2016) contend that educators working in isolation lack the capacity to adequately improve today's educational landscape, and the necessary large-scale improvements needed will come from "establishing powerful learning communities that engage around central ideas of practice" (Cannata &

Rutledge, 2017, p. 563). NICs intentionally bring together and focus the efforts of a diverse array of individuals in collective action, in a way that specifically brings knowledge and context to understanding and solving the network's problem of practice (Cannata et al., 2107a; Russell et al., 2015a).

Learning communities in education are not new, as collaborative structures such as professional learning communities, hub organizations, and communities of practices have all been utilized to support school improvement efforts (Brown, Horn, & King, 2018; Cannata et al., 2107a; DuFour, 2004; Easterday, Gerber, & Lewis, 2018; Farnsworth, Kleanthous, & Wenger-Trayner, 2016; Hoaglund, Birkenfeld, & Box, 2014; Peurach & Glazer, 2012). Though these improvement communities vary in form, they tend to have some common features regarding structure, membership, member behavior and interaction, and organizational purpose (Bryk, 2015; Cannata et al., 2107a). Traditionally, these communities are intentionally formed and are designed based on the purpose, or core issue, of the group. Likewise, these organizations outline requirements for membership and communicate norms for interaction. In addition, as these communities are usually formed around a common interest, they often share similar tools and practices related to the organization's focus. Lastly, these kinds of learning communities are not reserved only for education; many sectors have sought to capitalize on the power of these types of collective action networks as they have the potential to influence how improvement work is taken up, diffused, and sustained (Gomez et al., 2016; Kolleck, 2014; Rogers, 1983; Russell et al., 2015a).

Specific to NICs is a three-tiered learning structure that is central to the way that this type of improvement community operates, and one that Douglas Engelbart - engineer, inventor, and the first to use the phrase "networked improvement community" - spoke of to refer to groups

collectively engaged in pursuit of organizational learning and improvement (Bryk et al., 2015; Engelbart, 1992; LeMahieu et al., 2017b). As outlined by the Carnegie Foundation, NICs provide an intentional organizational structure that includes processes for accumulating, making sense of, sharing, and consolidating learning across all three of these levels (see *Figure 1*).

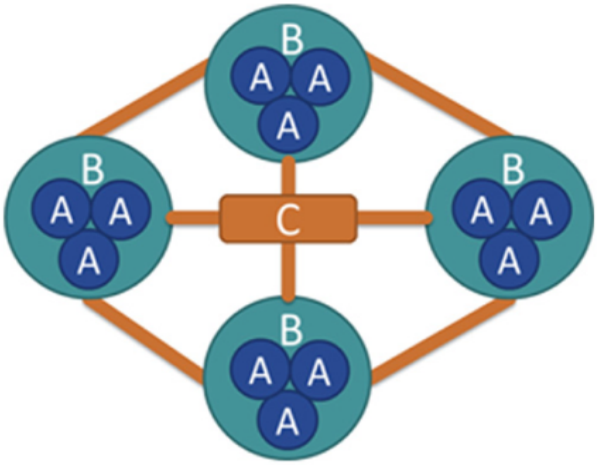

Figure 1. Three interrelated levels of learning in NICs (used with permission from LeMahieu et al., 2017b, p. 6; adapted from Engelbart, 1992)

Level A learning is situated on the front line, where practitioners are engaged in improving the processes and practices of the work in the context of the local environment and represents the knowledge gained with these individuals. *Level B* learning occurs when level A practitioners share knowledge gained in their improvement efforts and, when reflected on within the organization, is designed to increase the organization's capacity to perform Level A responsibilities. *Level C* learning is unique to network structures and is especially powerful form of learning as ideas from *Level A* and *Level B* learning are further developed and refined through testing these ideas out across many different contexts. In addition, while *Level A* and *Level B* learning happens more naturally in and across organizations, Level C learning takes deliberate

planning, facilitation, and maintenance from all improvers involved and specifically from a network hub designed to support this process. As LeMahieu and colleagues (2017b) contend, learning communities that support and guide intra- and inter-institutional learning also develop a sense of collective agency, complete with shared organizational aims, measurable goals, common measures and indicators for success, and a shared theory of how they may make the improvements they seek. The key result of this multi-tiered approach is not only accelerated organizational learning but also accelerated improvement (Bryk et al., 2015; Engelbart, 1992; LeMahieu et al., 2017b).

Improvement Science

In addition to Engelbart's ideas about accelerating social learning, NICs are designed to use the methods and principle of improvement science to guide the development and refinement of improvement work within both the individual contexts of members' organizations but also across the network as it collectively works to achieve its common aim (Bryk et al., 2015; Cannata et al., 2107a; Lewis, 2015; Tichnor-Wagner et al., 2017). Improvement science is described as a "broad field that encompasses a wide-range of tools and methodologies to support improvement of processes and outcomes through organizational learning" (LeMahieu et al., 2017b, p. 10; Marshall, Pronovost, & Dixon-Woods, 2013), and it "draws on, and aims to contribute to, clear and explicit theories of how change happens" (Marshall et al., 2013, p. 420). Known as an applied science, it emphasizes the prototyping of innovative ideas, the use of rapid-cycle testing of those ideas in diverse settings, and the spread of that learning to others so as to generate learning about what changes worked and in which contexts. (Bryk et al., 2015; Cohen-Vogel et al., 2015; Marshall et al., 2013).

Based on pioneering quality improvement work by W. Edwards Deming, a core precept of improvement science is that organizational problems are not the product of an inferior knowledge-base or workforce, but instead are the result of the ways organizational systems are designed and how they in turn support individuals in doing their day-to-day work (Bryk et al., 2015; Deming, 1993; Langley et al., 2009). This understanding is central to the way NICs engage in their improvement work, and it is the use of improvement science methodologies and network operation under the six core principles of improvement that acknowledges educational improvement cannot be advanced through disciplinary knowledge alone (LeMahieu et al., 2017b; Lewis, 2015). For the purpose of this study, which is to better understand how NICs make sense of their chosen problems of practice, the first three principles of improvement are discussed next, as the methods, tools, and activities associated with these principles are critical for NICs working in this context. NICs place a specific and explicit emphasis on improvement teams understanding "how problems are identified, specified and thought about" (LeMahieu et al., 2017b, p. 13) and engaging in "activities to deliberately arrive at a collective and deep understanding of the problem to be solved" (LeMahieu et al., 2017b, p. 14).

Make the work problem-specific and user-centered. NIC members, observing this first improvement principle in their practice, work in contrast to how the field of education typically functions when a problem emerges, which is to offer a myriad of solutions and jump quickly to using one (Bryk et al., 2015; Marshall et al., 2013). This tendency to offer and use a solution before fully understanding the problem is referred to as *solutionitis*. NICs, in contrast, spend a great deal of time and energy engaging in discussion, activities, and reflection in collectively articulating the specific problem the community is seeking to solve, and this serves as a strong foundation for future NIC work. For NICs, problems are generally defined as "a quantifiable gap

between the desired state of a system's performance and its current performance" (LeMahieu et al., 2017b, p. 13). Problems are framed as key challenges that network members face but are also chosen as ones that can realistically be addressed given the time and resources of the network. In developing a deep understanding of the problem, NICs examine the problem from the perspective of the *user* - or the individuals who are experiencing the problem in the context and environment where it exists. Being *problem specific and user-centered* typically involves members conducting interviews with users, eliciting various stakeholder perspectives about the problem, observing users engaged in practice in the context of the problem and co-developing potential solutions with these key participants. User-centered design is a growing sector of improvement research, and there are a variety of tools and methodologies improvement research uses for this purpose (e.g. journey maps, empathy interviews, fly-on-the-wall observations, etc.) (Bryk et al., 2015; LeMahieu et al., 2017b; Russell et al., 2015a).

Focus on variation in performance. Understanding *what works, for whom, and under what set of conditions* is central to NIC learning. Common to the field of education is repeated examples of improvement efforts working for some but not others (McFarland et al., 2017; Nayfack et al., 2017, O'Day & Smith, 2016) and understanding this variation consists of examining both the processes and outcomes related to educational performance. One common representation of variability used by many fields, including education, is the bell-shaped curve, but improvement research seeks to "reshape this distribution" (Bryk et al., 2015, p. 54) by identifying and targeting for change from where major differences in key processes and conditions stem. NICs take time to examine how educational processes either align to or deviate from defined plans of operation, while also exploring related fluctuations in educational outcomes for use in both the design and redesign of educational systems (LeMahieu et al.,

2017b; Lewis, 2015). Although variability is expected in any complex system, NICs aim to reduce harmful process and outcome variation as key levers to reaching overall network goals (Bryk et al., 2015). Practically speaking, improvement research seeks to highlight where effective practices are producing positive results for students and then learn more about those process and outcomes with aspirations to spread that learning in new conditions and contexts. Exploring variation in performance in education could include examining variation in outcomes within and across districts, schools, classrooms or subgroups of students, and learning derived from these types of investigations, help inform NIC members where to invest limited time, energy, and resources to maximize benefits for those involved (LeMahieu et al., 2017b).

See the system that produces the current outcomes. The third improvement principle key to NICs understanding their chosen problem of practice is focused on systems dynamics. As Bryk et al. (2010) share from their experiences at the Carnegie Foundation, the word *system*, to educators often translates to *school system* (p. 57). For NIC members, however, improvement work leads to a new appreciation for this term, as captured in the following well-recognized expression from Paul Batalden, considered one of the founding fathers of the movement to improve healthcare quality: "Every system is perfectly designed to get exactly the results it gets" (LeMahieu et al., 2017b, p. 14). In NICs, members presume that problems of practice are most often attributable to *the system* itself, which sharply differs from the way many educational improvement efforts are viewed, explicating outcomes as derived from the people involved in the reform. NICs define systems as the "interactions between people, tools and materials, and work processes intended to produce a common goal within an organizational entity" (LeMahieu et al., 2017b, p. 15), and *seeing the system* involves closely looking at how these components come together to produce results and what factors, such as organizational history, changing

environments, and leadership, influence them (Berwick, 2008). NICs use a variety of tools and processes to support how members effectively inquire and think about and act on the complex system they are seeking to improve, such as efforts to better understand the problem through causal system analysis and developing a working theory of improvement (or driver diagram) (Bryk et al., 2015; Cohen-Vogel et al., 2015). These processes typically happen early in NIC development and assist NICs in clarifying their chosen problem of practice and hypothesizing possible drivers for improvement. As Gomez et al. (2016) explain, "The fact is, the problems of achievement, attainment, and equal opportunity that educators grapple with today weren't created by individuals. They were created by systems." (p. 8) and appreciating and recognizing the influence system dynamics has on improvement work is critical to NIC success.

Disciplined Inquiry

The engine for NIC learning is disciplined inquiry, and an organizing structure borrowed and slightly adapted from healthcare improvement work, or the *Model for Improvement*, guides these efforts. The first part is a set of guiding questions that asks improvers to continuously consider:

1. What specifically are we trying to improve?
2. What changes might we introduce and why?
3. How will we know that a change is actually an improvement?

These guiding questions are connected to the six core principles of improvement and are useful as an anchor whether talking broadly about a team's improvement plans or more specifically about the changes they are trying in their context. This focus on changes in local context and real-time settings leads to the second part of the organizing structure and is a method called the

Plan-Do-Study-Act cycle, or *PDSA* (Bryk et al., 2015; Langley et al., 2009; Tichnor-Wagner et al., 2017). A set of general principles provides the NIC with some thinking about its use: (1) whenever possible, learn quickly and cheaply, (2) be minimally intrusive - as some changes to our processes and system will inevitably fail and we want to limit negative consequences on people's time and efforts, and (3) build and use evidence at every stage of improvement learning and then use that learning to guide subsequent improvement cycles (Bryk et al., 2015, p. 120; Berwick, 2008).

The PDSA cycle supports a disciplined approach in everyday practices. It is similar to action research and consists of four parts known to improvement teams as *a test* (Bryk et al., 2015; Langley et al., 2009; Tichnor-Wagner et al., 2017). First, improvement teams *plan* the test, asking what change to the current practice will be tested, with whom and with what measures will it be tested, and what changes do the improvement team expect to see as the result of trying out this new practice. The heart of the cycle, and process as whole, asks improvement teams to state a prediction about what they believe will happen when running this test, and then comparing this prediction, later on in the cycle, to what actually happened. As the team works to *do* the test, they gather information on what happened during the test and what outcomes emerged as a result of it. Third, the team then takes time to *study* the information gathered during the test and compare it with predictions made about the potential for this change to cause an improvement. Having studied the information, the team then *acts*, making informed decisions about whether to abandon the new change because it was ineffective, collaborate to revise it as data showed potential for its use, or continue with it *as is* and try it in additional contexts (Berwick, 2008; Bryk et al., 2015; Langley et al., 2009; Tichnor-Wagner et al., 2017).

The *Model for Improvement* and the *PDSA Cycle* (along with the six core principles of improvement), provide an integrated set of guidelines and methods that can be used flexibly to support educational improvement efforts, as this discipline approach "places short inquiry cycles and the analysis of data in the center of the improvement agenda" (Cohen-Vogel et al., 2015, p. 262). In addition, this method offers improvement teams a framework and process that serves to coordinate network-wide improvement activities and keeps them focused on solving the network's problem of practice (Gomez et al., 2016). As NICs use the Model for Improvement directly with the rapid-cycle PDSA structure (see *Figure 2*), improvement teams build both technical knowledge about improving everyday practices in their specific contexts how changes can be modified to fit those contexts, as well as capacity to support the use this type of improvement methodology to new problems of practice (Langley et al., 2009; LeMahieu et al., 2017b).

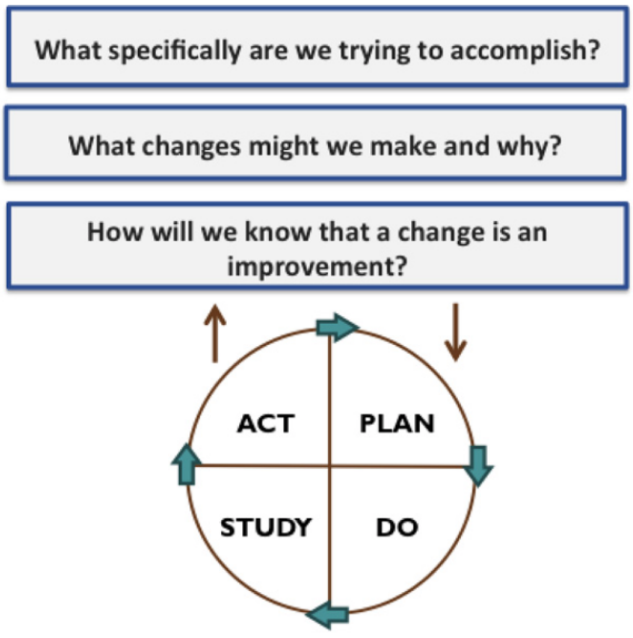

Figure 2. The Model for Improvement in conjunction with the PDSA Cycle (used with permission from LeMahieu et al., 2017b, p. 6; adapted from Langley et al., 2009)

More to Learn

While improvement science methodology has supported improvement in healthcare and manufacturing for decades, it is still relatively new in education only surfacing around ten years ago (Cohen-Vogel et al., 2015; LeMahieu et al., 2017a; LeMahieu et al., 2017b; Marshall et al., 2013; Moonesinghe & Peden, 2017; Proger, Bhatt, Cirks, & Gurke, 2017). The partnering of improvement science and networked learning has already begun to show promising outcomes. One of the first NICs led by the Carnegie Foundation, *Pathways*, included networks of educators across 19 community colleges in five states. Designed to test a new approach for teaching developmental mathematics, the *Pathways* NIC was an initiative focused on solving the problem of low developmental math completion rates. Since launching in 2011, the *Pathways* initiative has served over 27,000 students. Those students who enroll in one of the program's two innovative course tracks consistently demonstrate significantly higher success rates than students enrolled in a traditional developmental math course sequence. Likewise, the 2016-2017 data shows that, even as the program was serving nearly five times as many students than it was in its first year, success rates increased further, supporting thousands of college students in their endeavors to "make it through college math". (Huang, 2018; Sowers and Yamada, 2015; Tichnor-Wagner et al., 2017).

Similarly, Hannan and colleagues (2015) used qualitative comparative case study methods to understand what progress the *Building Teaching Effectiveness Network* had on its network's collective aim. BTEN focused on the needs of new teachers in three urban districts, Austin (TX), New York City (NY) and Baltimore (MD), "as they learned to teach, engage with colleagues and navigate district policies and procedures" (LeMahieu et al., 2017b, p. 12). In organizing schools to establish supports for beginning teachers, Hannan and colleagues (2015)

found that the BTEN NIC saw a positive shift in how early career teachers perceived feedback as well as in new teachers' perception of school leaders' supportiveness. In addition, BTEN was successful in improving the support structures offered to new teachers, such as the importance of structuring, facilitating, and maintaining quality feedback process for novice teachers and the positive impact building relationships had on this process, the value all parties recognized in specificity in feedback within coaching conversations, and the challenges and possible ways forward that emerged as network members worked to embrace counter-normative practices within the school environment, particularly concerning data and documentation (Hannan et al., 2015; LeMahieu et al., 2017b).

The change in outcomes associated with these examples and the few other formal NICs like these, and the methods these communities used to achieve these results, are making a valuable contribution to how the education field views and accepts this type of collaborative and innovative reform effort (Marshall et al., 2013; Russell et al., 2015b). With this in mind, however, there is still much to learn about how NICs develop and begin to outline their problems of practice (Russell et al., 2015a), the use of social connections to effectively engage in improvement work (Kolleck, 2014; Russell et al., 2015b), the cost and benefits to continuous improvement in the education setting (Cohen-Vogel et al., 2016; Park et al., 2013; Tichnor-Wagner et al., 2017), how NICs may challenge long-held, traditional norms and belief systems about improvement and local contexts (Hannan et al., 2015), the application of this methods and its impact on teacher and school practices (Redding et al., 2018), and the internal working dynamics and processes of these types of communities (Proger et al., 2017).

This present research intends to address four of these areas directly: (1) how NICs develop and begin to outline their problems of practice, (2) the use of social connections to

effectively engage in improvement work, (3) how NICs may challenge long-held, traditional norms and belief systems about improvement and local contexts, and (4) the internal working dynamics and processes of these types of communities. One way to accomplish this is to understand NICs and the processes they use to facilitate, engage in, and mobilize collective learning (Cannata et al., 2017), as well as better understand how they articulate their network's specific problem of practice, make sense of the variation that is present, and come to appreciate the role the organizational system plays in producing the results (Bryk et al., 2015). To understand how a NIC makes sense of their chosen problem of practice, a theoretical framework guided the study (Maitlis & Christian, 2014), and was used to elicit both an understanding of the sensemaking process that takes place during network inquiry practices as well as the network's emerging understanding of the community's problem of practice. Maitlis & Christian (2014), in their extensive review of both seminal and recent sensemaking literature, outlined the sensemaking process as 1) social in nature, 2) triggered by cues, 3) driven by action, and 4) ongoing and dynamic. Each of these will be explored in subsequent sections.

Sensemaking in Organizations

Sensemaking is an important topic in the study of organizations and has been researched and discussed across a variety of fields, including but not limited to healthcare (Jørgensen, Jordan, & Mitterhofer, 2012; Konlechner, Latzke, Güttel, & Höfferer, 2018; Wolbers & Boersma, 2013), business (Asik-Dizdar & Esen, 2016; Cornelissen, 2012; Maclean, Harvey, & Chia, 2012; Peng, 2018; Stigliani & Ravasi, 2012), education (Coulter, 2016; Ganon-Shilon & Schechter, 2017; Hayes, 2016; McCauley-Smith, Williams, Gillon, & Braganza, 2015; Rigby, 2015; Shaked & Schechter, 2018), government (Klein, Wiggins, & Dominguez, 2010) and

organizational studies in general (Brown et al., 2015; Colville, Pye, & Brown, 2016; Holt & Cornelissen, 2014; Maitlis & Christianson, 2014; Sandberg & Tsoukas, 2015; Weick 2017). Although the roots of sensemaking theory can be recognized in the early twentieth century, it was in the 1960s through separate works by Garfinkel (1967) and Weick (1969) that sensemaking began to emerge as a focused topic for study. In the decades to follow, researchers would examine the concept in numerous ways, including how it is conceptualized as a process and how to define it, where and when it originates, and how it is accomplished both individually and collectively (Brown et al., 2015; Holt & Cornelissen, 2014; Maitlis & Christianson, 2014; Sandberg & Tsoukas, 2015).

Organizations in today's ever-changing landscape face almost daily occurrences of uncertainty and ambiguity related to learning and change, and how these organizations make sense of uncertainty and ambiguity is critical to their ongoing organizational development. Understanding how the process of organizational sensemaking evolves, and what outcomes emerge, has been a focus within the area of organizational theory in the last several decades, and includes topics such as the change process, identity formation and revision, response to organizational crises, the development of organizational norms and culture, and organizational learning and innovation (Brown et al., 2015; Holt & Cornelissen, 2014; Maitlis & Christianson, 2014; Sandberg & Tsoukas, 2015). In fact, the concept of sensemaking is so fundamental to organizational processes and success, as organizations spend much of their time either knowingly or unknowingly engaged sensemaking activities (Asik-Dizdar & Esen, 2016; Brown et al., 2015; Introna, 2018; Maitlis & Christianson, 2014; Sandberg & Tsoukas, 2015). To that end, those that find a way to use this process to their advantage, tend to outlast and outperform organizations that remain stagnant or unaware (Klein et al., 2010), and understanding how

organizations “learn to make sense and make sense to learn” is not only of theoretical importance but relevant to daily practice as well (Colville et al., 2016).

As this theoretical construct has been used to support a vast amount of research across a diverse number of fields and contexts, the review and discussion for this study was necessarily selective based on the focus of the guiding research questions, the general nature of four recurring themes within organizational sensemaking, and how inter-organizational teams engage in this process. A vast number of definitions have also been used describe the nature of sensemaking (see Maitlis & Christianson, 2014 for an extensive list; Weick 2012), but for the purpose of this study, sensemaking was defined as an ongoing and social process through which people work to understand novel, ambiguous, or confusing issues by attending to cues and enacting a more ordered environment from which further cues can be drawn (Maitlis & Christian, 2014; Weick, 1995). The following sections serve to elaborate on this definition and its central concepts more fully.

The Nature of Sensemaking

Sensemaking as a Concept

As one of the most influential researchers of sensemaking theory, Karl Weick, stated in one of his many widely referenced texts on the topic (1995), “The concept of sensemaking is well named because, literally, it means the making of sense” (p. 4). He also offers that the central focus for researchers exploring sensemaking should entail work to better understand how and what sensemaking was constructed, why sensemaking was sought, and what effects sensemaking had on the organization (Weick, 1995). Across Weick’s work as well as many others, sensemaking is generally seen as process that entails noticing and bracketing cues from the

environment, interpreting that information, and then acting to resolve uncertainty (Asik-Dizdar & Esen, 2016; Brown et al., 2015; Maitlis & Christianson, 2014; Sandberg & Tsoukas, 2015; Weick 2012). Similarly, sensemaking is seen as an organizing model providing opportunities for the co-creation and negotiation of knowledge (Colville et al., 2016; Cornelissen, 2012; Ganon-Shilon & Schechter, 2017; Klein et al., 2010; Wolbers & Boersma, 2013). Furthermore, sensemaking is seen as a balancing or stabilizing act cycling between perceived ambiguity and desired certainty (Maclean et al., 2012; Maitlis & Hernes, 2010; Peng, 2018; Stigliani & Ravasi, 2012; Weick, 2008).

Like the variation that is present in the definition of sensemaking, researchers also vary on how they define and explain the essence of *meaning*, an important noticing as the two words are often used interchangeably (Maitlis & Christianson, 2014). Weick (1995) shares that "meanings people develop and attach to their experiences are fundamentally fluid, unstable and idiosyncratic" (p. 188), and are neither "theory-neutral" nor "sealed off from serial effects" (Weick, 2017). He also provides that sense, or meaning, could also be seen as an intellectual grasp of an ambiguous or uncertain situation, a perception, a denotation of meaningfulness, an understanding, or a reflection (Weick, 1995). Others outline how meaning involves the structuring of information into something useful to guide sense, inferences, and behaviors (Holt & Cornelissen, 2014), but that individuals within organizations may not come to the same understandings about an experience or event, and so this multiplicity of stories means there is no *one right meaning* attached to a given experience (Helms Mills, Thurlow, & Mills, 2010; Maitlis & Christianson, 2014; Stigliani & Ravasi, 2012). Lastly, meaning is also believed to be processual in nature (Asik-Dizdar & Esen, 2016; Holt & Cornelissen, 2014; Maitlis & Hernes, 2010; Thomas, Sargent, & Hardy, 2011; Weick, 2008).

What Sensemaking is Not

In delineating what the concept of sensemaking entails, it is also useful to note what sensemaking is not (Weick, 1995). Noted often in the research was the claim that sensemaking is not merely interpretation (Brown et al., 2015; Colville et al., 2016; Maitlis & Christianson, 2014; Maitlis & Hernes, 2010; Sandberg & Tsoukas, 2015; Weick, 2008), but is instead a interweaving and ongoing process of creation, interpretation, and enactment, where "actors first create what they subsequently focus on for interpretation and act on those interpretations" (Sandberg & Tsoukas, 2015, S14). This thinking pushes the field to acknowledge that sensemaking is not merely a linear, interpretive, or cognitive act (Colville et al., 2016; Coulter, 2016; Holt & Cornelissen, 2014; Maitlis & Hernes, 2010; Sandberg & Tsoukas, 2015; Weick, 1995). Sensemaking is also not an individual, or solitary, act, and while more attention will be devoted to this topic in a subsequent section, the fact that sensemaking is a social process was explicitly clear. Conceptually, sensemaking involves co-constructing meaning between people (Ganon-Shilon & Schechter, 2017; Hayes, 2016; Maitlis & Christianson, 2014; Stigliani & Ravasi, 2012; Weick, 1995). Lastly, Weick (2008) contributes a lengthy list of considerations for what sensemaking *is not* as he also provides follow up for each about what *it is* instead (paraphrased from p. 1404):

- Sensemaking is not about getting it right, but is instead about the story that emerges.
- Sensemaking is not about discovery of preexisting meaning, but is instead about creating meaning.
- Sensemaking is not about decision making, but is instead about decision creation.
- Sensemaking is not about mere thinking, but is instead about thinking in action and acting to think.

- Sense making is not focused on the question, "What's the answer?" but is instead about "What's the story?".

Examining what sensemaking is not provides researcher with a richer knowledge base from which they can conduct future explorations utilizing this concept.

Four Themes Emerge in Sensemaking Research

Four recurring themes emerged regarding sensemaking theory in the organizational context. Researchers agree that individuals and groups engaged in the sensemaking process do so *via a social context*, in *an ongoing process* that is *triggered by cues* in their environments, and by *using action* in an effort to restore sense (Maitlis & Christianson, 2014). This process includes interrelated steps of creating an initial sense from a multitude of environmental cues, interpreting initial understandings while working to make those more plausible with previous understandings, and enacting a new reality to make sense of by which the process most often starts again (Weick, 1995; Sandberg & Tsoukas, 2015).

Sensemaking is Social

Sensemaking has been defined in numerous ways, and that is partly due to varying ontological beliefs concerning where the process takes place: one proposing sensemaking as a cognitive, individual act and the other outlining the process as social and intersubjective in nature (Ganon-Shilon & Schechter, 2017; Maitlis & Christianson, 2014). Researchers who believe sensemaking is a cognitive act, situate their exploration of the topic in how individuals develop schema and mental models and maps around new, ambiguous, or confusing ideas and how they connect their thinking back to pre-existing ideas and beliefs (Elsbach, Barr, &

Hargadon, 2005; Hill & Levenhagen, 1995). From this perspective, organizational sensemaking is viewed as a collection of individual cognitive experiences (Maitlis & Christianson, 2014).

Researchers who believe sensemaking is a fundamentally social process, however, propose that even as individuals make sense of things independently of others, the process is couched in the context of their social realities (Asik-Dizdar & Esen, 2016; Goretzki & Messner, 2016; Maitlis & Christianson, 2014; Stigliani & Ravasi, 2012), and therefore socially constructed and influenced through interactions between individuals (Peng, 2018, Weick, 2008). In this way, meaning is then "negotiated, contested, and mutually co-constructed" in the space of this context (Maitlis & Christianson, 2014, p.66). Regarding the outcomes of these two viewpoints, the cognitivist view of sensemaking proposes that the process leads to the formation of shared "mental maps" of information among individuals (Elsbach et al., 2005; Hill & Levenhagen, 1995), whereas the in the constructivist view, sensemaking is co-constructed through interaction, language, and intersubjective action (Cornelissen, Mantere, & Vaara, 2014; Sandberg & Tsoukas, 2015).

For the purpose of this study, sensemaking is viewed as constructivist in nature (Asik-Dizdar & Esen, 2016; Maitlis & Christianson, 2014; Sandberg & Tsoukas, 2015; Stigliani & Ravasi, 2012; Weick, 2012), and from this perspective, organizational sensemaking occurs and can be studied via the interactions between individuals or groups, the spoken and written language of organizations, and actions of organizational members as their sensemaking is a socially generated, co-constructed result of expression (Cornelissen et al., 2014; Coulter, 2016; Ganon-Shilon & Schechter, 2017; Maitlis & Christianson, 2014; Maclean et al., 2012; Sandberg & Tsoukas, 2015; Stigliani & Ravasi, 2012; Weick, Sutcliffe, & Obstfeld, 2005; Weick, 1995).

Furthermore, these facets provide crucial sites in organizing collective sense and where people make recurring sense of prior actions in ways that influence subsequent actions (Weick, 2017).

Collective sensemaking processes. Researchers have specifically examined how meaning is collectively negotiated, contested, and constructed (Maitlis & Christianson, 2014). Collective sensemaking develops as members of a group exchange early and or tentative understandings and try to agree and/or negotiate shared meanings and future courses of action (Klein et al., 2010; Maitlis & Christianson, 2014; Stigliani & Ravasi, 2012; Thomas et al., 2011; Weick et al., 2005). Stigliani & Ravasi (2012), based on their study of an innovative design team, offer one very concrete example for how collective sensemaking can evolve, which also aligns to the aforementioned research, *Sensemaking as a Concept,* noted at the start of this chapter. They describe four macro-phases of sensemaking: (1) *noticing and bracketing,* where individuals take in a variety of cues from the environment and begin the process of identifying, clustering, and naming new information; (2) articulating, where individuals begin to develop a provisional understanding of new information and share those with others; (3) elaborating, where individuals continue to refine and add to their growing understanding and link this understanding to their own and others' knowledge; and (4) influence, where individuals feel confident in their ideas and begin to formally share as representative of their organization. This concrete example provides the field an organizing frame for this complex process.

Given the definition of sensemaking, and the role confusing or ambiguous events or issues play, perception of *ambiguity* has emerged as an influencing factor for collective process of sensemaking. Merkus and colleagues (2017) explored collective sensemaking and found ambiguity can be both intrinsic or constructed, meaning that some situations are inherently ambiguous or, due to individuals having varying understandings of the situation, situations are

made ambiguous because of the multiplicity of meanings generated (Farnsworth et al., 2016; Goretzki & Messner, 2016; Maitlis & Christianson, 2014). In addition, when intrinsic ambiguity was either very high or very low (meaning, as a whole, most individuals either had lots of knowledge or very little knowledge about the situation or issue), collective sensemaking is almost automatic and quite common (Allard-Poesi, 2005; Merkus et al., 2017). Here, collective sensemaking happens quite easily. On the other hand, when the level of ambiguity falls in the middle of this continuum or very high to very low, and some members of the collective have knowledge and others do not, or in general most members of the group of have a partial understanding of the situation or issue, there is an increased level of contesting and negotiating that happens as the group work to co-construct a collective understanding (Goretzki & Messner, 2016; Merkus et al., 2017). In this vein, Wolbers & Boersma (2013) describe the process of collective sensemaking using the metaphors *information warehouse* and *trading zone*. Here, collective sensemaking is about navigating ambiguity by combining individual knowledge (from the warehouse) into a co-constructed sense of collaborative understanding (via the trading of information). By engaging in the sharing and trading of accounts, information, and ideas, members of the group are able to confront variations in both understanding and expression of knowledge and achieve collective sensemaking (Klein et al., 2010; Stigliani & Ravasi, 2012; Wolbers & Boersma, 2013).

There are additional influencing factors that impact collective meaning construction. One, meaning is influenced by organizational context and structure, such as an organization's rules, routines, symbols, values, and traditions (Helms Mills et al., 2010; Ganon-Shilon & Schechter, 2017; Maitlis & Hernes, 2010; Majchrzak, Jarvenpaa, & Bagherzadeh, 2015; Russell et al., 2015b); individuals' role-situated commitments within the organization (Cornelissen et al., 2014;

Cornelissen, 2012), power or political structures and collective dynamics, (Brown et al., 2015; Ganon-Shilon & Schechter, 2017; Maitlis & Christianson, 2014), and the provision for environmental conditions that coordinate and are open to meaning-making discussions where plausible expectations, calculative reasoning, and the filtering of ideas is accepted (Goretzki & Messner, 2016; Wolbers & Boersma, 2013). Two, meaning is impacted by the various kinds of resources provided or embedded in sensemaking efforts, such as communicative resources present to support the transition from individual to group-level sensemaking (Jørgensen e al., 2012; Maitlis & Christianson, 2014; Majchrzak et al., 2015; Stigliani & Ravasi, 2012), material resources in the form of supplies or artifacts (Maitlis & Christianson, 2014; Pratt & Rafaeli, 2006; Stigliani & Ravasi, 2012; Weick, 2015). In addition, sensemaking is influenced by who is involved in the process, such as happens when groups, whether formal or informal, have power-oriented roles and influences (ie: leader, follower, veteran, newcomer, etc.) (Dawson & Sykes, 2018; Maitlis & Christianson, 2014; McCauley-Smith et al., 2015; Wolbers & Boersma, 2013), adjust and/or shift personal accounts of sensemaking experiences toward the view of others (Cornelissen, 2012), are influenced by the real or perceived involvement of others (Sandberg & Tsoukas, 2015), and whether there is an active or passive stance to how sensemaking evolves (Maitlis & Christianson, 2014). Furthermore, collective sensemaking is impacted by member knowledge boundaries, where knowledge is limited or constrained by such factors as individual interpretive schema, personal willingness to share knowledge and experiences, communication, emotion, materiality, social identity, and ambiguous or novel situations, (Cornelissen et al., 2014; Smith, 2016).

Inter-organizational considerations. Lastly, as inter-organizational collaborative structures have increasingly become relevant in organizational operation and innovation, so has

the need to better understand how knowledge is generated, shared, and used in these types of multi-organizational structures (Baker & Faulkner, 2017; Dooley, Kenny, & Cronin, 2016; Goretzki & Messner, 2016; Jørgensen e al., 2012; Loebbecke, van Fenema, & Powell, 2016; Merkus et al., 2017; Popp, Milward, MacKean, Casebeer, & Lindstrom, 2014; Russell et al., 2015b; Smith, 2016). Information exchange and co-constructed knowledge development are central how effectively organizational members can thus coordinate their actions (Wolbers & Boersmal 2013), as well as cross-organizational trust and cohesion as either a facilitator or hindrance to this exchange (Bridwell-Mitchell & Cooc, 2016; Popp et al., 2014; Russell et al., 2015a). Inter-organizational sensemaking is coordinated and co-constructed based on *the stories* members share about their sensemaking experiences, and from there information is traded based on its contextualized meaning (Colville, Brown, & Pye, 2012; Dawson & Sykes, 2018; Long, 2016; Maclean et al., 2012; Weick, 1995; Wolbers & Boersma, 2013). Long (2016) describes it in this way: "collective narratives [stories] create shared meaning, produce concordance from discordance and unite organizational members" (p. 177). In addition, the nature of the relationships, and the emerging trust that evolves between actors (individuals and organizations) as a part of this sensemaking process, is believed to have direct impact on inter-organizational success (Dooley et al., 2016; Popp et al., 2014; Russell et al., 2015a).

Additional considerations for inter-organizational sensemaking, some of which were also noted for collective sensemaking in general, include recognizing the impact similarities and differences in organizational context has on how these multi-organizational teams work (Bridwell-Mitchell & Cooc, 2016; Dooley et al., 2016; Majchrzak et al., 2015; Popp et al., 2014acknowledging how members navigate a dual loyalty to goals with respect to both their home organization as well as the inter-organizational unit (Merkus et al., 2017; Popp et al.,

2014), and the use of collectively generated information as a springboard to future action (Maitlis & Sonenshein, 2010; Sandberg & Tsoukas, 2015; Wolbers & Boersma, 2013).

Synthesis, implications, and future research. Sensemaking is clearly a process dependent on interactions with others, and meaning is co-constructed and evolves through the sharing of experiences. Some factors that impact the social aspect of sensemaking include context, relationship dynamics, resources, and structures designed to support collaboratively making sense of ambiguous or novel events or issues. The implications noted are vast, as much of organizational life is rooted in social interaction. Future research regarding the social aspect of sensemaking includes continued emphasis on how power and politics within social entities affects member sensemaking (Brown et al., 2015; Ganon-Shilon & Schechter, 2017; Helms Mills et al., 2010; Maitlis & Christianson, 2014; Thomas et al., 2011; Weick, 2012), the role of narratives and the stories people share when engaged in the sensemaking process (Cornelissen, 2012; Maitlis & Christianson, 2014), the use of language structures and artifacts as a window into and support of collaborative sensemaking (Cornelissen et al., 2014; Cornelissen, 2012; Karreman & Alvesson, 2001; Maitlis & Christianson, 2014; Stigliani & Ravasi, 2012; Wolbers & Boersma, 2013), and the impact inter-organizational collaborations have on the goals and collective processes of that social structure (Dooley et al., 2016; Loebbecke et al., 2016; Merkus et al., 2017; Popp et al., 2014; Sandberg & Tsoukas, 2015).

Sensemaking is Triggered by Cues

Another recurring theme from sensemaking literature is that the meaning making process is triggered and sustained by cues. Leading researcher Karl Weick (1995) offered this metaphor for describing cues: “Extracted cues are simple, familiar structures that are seeds from which

people develop a larger sense of what may be occurring." (p. 50). To carry the metaphor forward, these "seeds" - or cues - can either be nurtured or neglected, and they develop or not, based on numerous factors. Before exploring what these factor include, however, one other prominent finding across the research worth noting is that individuals or groups engaged in instances of sensemaking build their emerging sense of an event or issue based on plausible ideas over accurate ones (Helms Mills et al., 2010; Weick, 2008; Weick, 1995) and as cues are critical for evoking action, their plausibility is enough of a stimulant to propel the sensemaking process forward.

For organizations, the impact of cue perception creates an environment where there are multiple plausible meanings for a given situation. In their exhaustive literature review, Maitlis & Christianson (2014) offer a reminder: not all unexpected, uncertain, or ambiguous events lead to sensemaking experience, but there are common organizational contexts in which surprise or confusion arise and therefore lead to organizational sensemaking, including environmental jolts or crisis, such as an office location being lost to a natural disaster; threats to organizational identity, such as a newly published report showing an organization once performing at the top of the ranks now at the bottom; and planned organizational change initiatives, such as state department of education introducing a new reading initiative. In continuing Weick's "seeds" comparison, cues are what get planted and these plausible ideas are what sprout, and because they do not exist in isolation, they are greatly impacted by a host of factors (Colville et al., 2016; Helms Mills et al., 2010; Holt & Cornelissen, 2014; Klein et al., 2010; Maitlis & Christianson, 2014; Maitlis & Sonenshein, 2010; McCauley-Smith et al., 2015; Sandberg & Tsoukas, 2015; Stigliani & Ravasi, 2012; Weick, 1995).

The main factor that affects the way cues are perceived and used throughout the sensemaking process is personal identity, which is influenced by aspects such as personal belief systems, relationships and power dynamics, and past experiences. As the sensemaking process involves noticing and bracketing certain cues from the environment, some cues are completely ignored or minimized, in order to support a plausible interpretation of an event (Helms Mills et al., 2010; Holt & Cornelissen, 2014; Maitlis & Christianson, 2014; Weick, 1995). Holt & Cornelissen (2014) describe the impact of personal beliefs in this way: "We approach and understand things on our terms; they are shackled to us, to our language, our interests, our qualms" and shares that frames of reference are habitual, often latent or invisible, and usually only surface when there is breakdown in understanding (p. 537). At times, individuals may even find their frames to be incomplete or wrong, and in that case a form of unlearning occurs, as past frames are revised or even replaced (Holt & Cornelissen, 2014; Weick, 2012).

The relationships, and resulting power dynamics, embedded in daily organizational life also impact what cues are perceived. Most notable, the role of organizational leaders or other influential members is identified in regard to this facet of sensemaking, in that the general population of an organization may knowingly or unknowingly coordinate or push back against the types of cues the leader uses to support organizational sensemaking efforts (Brown et al., 2015; Cornelissen, 2012; Dawson & Sykes, 2018; Gawlik, 2015; Long, 2016; Maitlis & Christianson, 2014; Popp et al., 2014; Sandberg & Tsoukas, 2015). Maitlis & Sonenshein (2010) also found that the belief that others have already made plausible sense of the situation then prevents other individuals from seeking to do. Likewise, Farnsworth, Kleanthous, and Wenger-Trayner (2016) share that there is an inherent "claim to competence" within organizations seeking to make sense of an event or issue, as members explicitly or implicitly accept or discount

varying levels of member and/or organizational knowledge and abilities (p. 16). Taken together, relationships, politics, and power directly affects the how meaning is shared, negotiated, and co-constructed, as sensemaking in this context is rarely a neutral endeavor (Cornelissen, 2012; Dawson & Sykes, 2018; Maitlis & Christianson, 2014; Ganon-Shilon & Schechter, 2017; Merkus et al., 2017; Mills & Mills, 2012; Sandberg & Tsoukas, 2015).

Lastly, individuals' explicit or implicit use of past experiences, through the process of retrospection, impacts meaning making. Although more about retrospection will be addressed in a subsequent section (*Sensemaking is Ongoing*), it is important to note that one common occurrence is that individuals or organizations commonly default to making sense of a present experience through the frames of their past experiences, and in terms of organizational practice, this tendency to recognize what has been recognized before can have major and sometimes tragic consequences (Colville et al., 2016). One such case, Weick (2009) points out, was when members of NASA normalized early warning signs during the Challenger launch and explained away unexpected or unusual events and noticings. Colville, Pye, & Brown (2016) note a similar experience recognized in the wake of the 911 terrorist attacks, where CIA officials received a report in the weeks prior to the attacks headed *Terrorists learn to fly* but chose to dismiss the information. They suggest that, as this did not fit any pre-existing frames the CIA officials had regarding what terrorists did, they lacked the awareness or capability to understand the significance of the situation, in other words: "they had no story to go with it and failed to make sense of it." (Colville et al., 2016, p. 8).

Synthesis, implications, and future research. Choosing, whether consciously or unconsciously to notice and bracket certain cues from the environment, plays a crucial role in how the sensemaking process unfolds as well as what specific meaning is made during the

experience (Holt & Cornelissen, 2014; Maitlis & Christianson, 2014; Weick, 1995). The implications noted are vast, as the heart of the sensemaking process centers on the perception and use of cues in making meaning from uncertain, novel, or ambiguous events. There has been a call for additional research regarding the noticing and bracketing of cues, specifically regarding the effect emotions and resources have on cue perception. Regarding emotion, there is more to learn about how the emotion or mood of leaders or influential individuals in an organization affects the sensemaking process (Ganon-Shilon & Schechter, 2017). Also, how can emotion be used to augment sensemaking experiences (Holt & Cornelissen, 2014; Klein et al., 2010; Maitlis & Christianson, 2014) and what role emotion and embodiment of those emotions plays in which cues are noticed and bracketed (Cornelissen et al., 2014; Liu & Maitlis, 2014; Maitlis & Christianson, 2014; Sandberg & Tsoukas, 2015). Likewise, there is more to be learned about how the type, duration, and intensity of emotion impacts perception (Cornelissen et al., 2014; Maitlis & Sonenshein, 2010). In addition to emotions, the use of resources and artifacts and how they influence cue perception and use has also been noted as potential space for additional learning. Resources and artifacts serve as a common ground and support for the sensemaking process, and research could look specifically at the interactions that take place between individuals and the various resources and artifacts that they build, use, or surround themselves with in their sensemaking experiences (Jørgensen e al., 2012; Maitlis & Christianson, 2014; Stigliani & Ravasi, 2012; Sandberg & Tsoukas, 2015; Weick, 2015). Stigliani & Ravasi (2012) describe is this way: “material artifacts support practices of collaborative construction of new interpretations and enable members to ‘make sense together’ (rather than, or in addition to, ‘giving sense to one another’)” (p. 1253). Lastly, the level of efficiency and effectiveness resources and artifacts provide as a structure to enable individuals and groups to collectively

construct new understandings is also of interest (Maitlis & Christianson, 2014; McCauley-Smith et al., 2015; Sandberg & Tsoukas, 2015; Stigliani & Ravasi, 2012; Weick, 2015).

Sensemaking is Driven by Action

A third recurring theme within sensemaking theory outlines that the actions people take in order to make sense of ambiguous situations, in turn, serve to enact the environment that they seek to understand. In essence, action creates the cues used to make sense of the experience at the given time, and likewise, allows individuals to test out their early assumptions or thinking about the situation they to seek to understand (Colville et al., 2016; Maitlis & Christianson, 2014; McCauley-Smith et al., 2015). In this way, action and sensemaking are recursively linked as "action serves as fodder for new sensemaking, while simultaneously providing feedback about the sense that has already been made" (Maitlis & Christianson, 2014, p. 84).

It is further understood that thinking and action, and the resulting enactment of the environment, work to define one another in the process (Maitlis & Hernes, 2010; Tsoukas, 2017; Weick, 2009); however, as Weick (2009) points out, "Action is always just a tiny bit ahead of cognition." (p. 57). It is also worth noting that it is this process of enacting the environment that sensemaking proves to be different from mere perception, as action is a driving force behind meaning making and not solely engaging with and reflecting on meaning already present (Maitlis & Christianson, 2014; Sandberg & Tsoukas, 2015). Enactment is both a direct and indirect adjustment to what is learned, and any adjustments individuals or organizations make occur either through changing that which is confronted or changing oneself (Weick, 2009).

To this end, actions also shape the environment, causing it to constantly evolve, as the very actions people use to make sense of their experience, also change that environment over

time (Helms Mills et al., 2010; Maitlis & Christianson, 2014; Weick, 2017). As noted previously, the sensemaking process is guided by individuals seeking, not accurate, but instead plausible accounts in an effort to resolve the uncertainty that is triggered the sensemaking experience, and this same plausibility is all that is needed for action as well (Sandberg & Tsoukas, 2015; Weick 2008). In essence though, every action either facilitates greater understanding or hinders it, and any perceived limitations on acting are often individually or organizationally created (Weick, 2009).

Action is also seen as both a tool and leverage for organizational learning and adaptability, as organizations are rarely fixed, or static, entities (Asik-Dizdar & Esen, 2016; Ganon-Shilon & Schechter, 2017; Thomas et al., 2011). Regarding collective sensemaking and collective action, organizations are impacted by their ability to facilitate a process whereby individual can coordinate and, ultimately, identify a common path forward (Duffy, 2016; Klein et al., 2010). Klein and colleagues (2010) articulate this process as identifying *a suitable frame* - or *end point* - that most people in the organization can relate to or understand as the intended outcome of the given sensemaking experience (p. 307), and as Taylor & Van Every (2000) state, everyone "may not arrive at same understanding but it is enough for action" (p. 275). They go on to describe this process using the following metaphor: "sensemaking is a way station on the road to a consensually constructed, coordinated system of action." (p. 275). Practically speaking, for an organization to act, and therefore collectively make sense of uncertain or ambiguous events or issues, their knowledge must both be contextualized to represent the unique, albeit diverse, accounts of its members as well as be communicated in some form that is useful for further action (Hardy, Lawrence, & Grant, 2005; Taylor & Van Every 2000).

As organizations engage in sensemaking activities and enact their environments in various ways, sensemaking evolves in different forms. Peng (2017), in analyzing a public organization in France, found three possible scenarios: 1) members act but fail to get a sense of what is happening which leads to disorganizing behavior, 2) members act and decide to use their imaginations as a way to continue the sensemaking process, 3) members act, and when overcome by interpretable cues, decide on inaction. Interestingly, Weick (1995) also noted inaction as a form of action. In more recent work, Weick (2008) provides that actions, such as "asking questions, making declarations, or inserting probes to see reactions and then infer meanings" also serve as forms of enactment that organizations utilize in this process (p. 1404), and adds that action tends to "stir up information that can suggest direction and next steps" (p. 1405). Similarly, Cross & Sproull (2004) offer how knowledge formulation, as rooted in the relationships that exist in the organization, can be sought in five ways, which then provide organizational members possible next steps as they seek to resolve uncertainty. They propose five forms of "actionable knowledge": 1) offering direct solutions (both know-what and know-how), 2) utilizing referrals for specific people or databases of information that may provide assistance, 3) engaging in problem reformulation, 4) receiving validation for one's ideas, and 5) seeking the legitimization of one's ideas (Cross & Sproull, 2004). Similarly, concerning a connection with validation and legitimization, Weick (2012) adds that individuals and organizations will seek justification for their actions, as well, and this need to see one's actions as consistent with personal or organizational identity serves as a crucial "anchor in organizing" (Weick, 2012, p. 144).

Synthesis, implications, and future research. Weick (2017) summed it up in this way: "Enactment is about two questions: What's the story? Now what?". This recursive process of

action, resulting in an enacted environment, resulting in new meaning making, resulting in the need for more action, is key to the ongoing nature of sensemaking, and the implications of how this recurring process impacts organizational life is clear, as organizations themselves are ever-evolving. Future research on how action drives the sensemaking process should include studies on how professional identity, organizational learning, and context affect actions (Asik-Dizdar & Esen, 2016; Cornelissen, 2012; Maitlis & Hernes, 2010) and how a series of actions over time impact the meaning making of organizations (Dawson & Sykes, 2018; Sandberg & Tsoukas, 2015; Weick, 2008). Also, there is more to be learned about what role distributed sensemaking and corresponding distributed actions play in how organizations manage to collectively construct new meaning when different members of the organization have varying pieces of information (Brown et al., 2015; Maitlis & Christianson, 2014; Peng, 2018), and in what ways talk, and other communicative practices, establish the foundation for organizational action and effective collaboration (Hardy, Lawrence, & Grant, 2005; Maclean et al., 2012; Weick, 2009; Weick, 2017).

Sensemaking is Ongoing

The fourth recurring theme in sensemaking literature is that sensemaking is dynamic, and as such, is seen as an ongoing process (Asik-Dizdar & Esen, 2016; Balogun, Jacobs, Jarzabkowski, Mantere, & Vaara, 2014; Brown et al., 2015; Helms Mills et al., 2010; Maitlis & Christianson, 2014; Maitlis & Hernes, 2010; McCauley-Smith et al., 2015; Rigby, 2015; Sandberg & Tsoukas, 2015). It is also described as both a pervasive and subtle activity, taking place at the individual and organizational levels (Asik-Dizdar & Esen, 2016; Gawlik, 2015), with collective sense specifically constructed in this ongoing, iterative manner, as organizational

members shape and refine each other's understandings in "repeated cycles of sensemaking" (Brown et al., 2015; Maitlis & Christianson, 2014). Weick and colleagues (2005) describe a process of "progressive approximations," or refining sensemaking as the "redrafting of an emerging story so that it becomes more comprehensive, incorporates more of the observed data, and is more resilient in the face of criticism" (p. 415).

Emerging from the research is a clear debate about the nature of this *ongoing* process: is it continuous or episodic and is it always accomplished through retrospection? Both of these questions, and the larger debates as a whole, are rooted in the concept of temporality, which is broadly defined as an ongoing configuration of past, present, and future (Maitlis & Hernes, 2010). Taking this into account, Dawson & Sykes (2018) remind researchers, however, temporality should not be seen as purely linear in nature.

Many researchers view sensemaking as a never-ending, comparative process, where individuals are constantly making sense of what is happening and comparing it to past events as frames of reference for understanding (Brown et al., 2015; Gephart, Topal, & Zhang, 2010; Helms Mills et al., 2010). In this way, sensemaking is "the interpenetrating and indivisible flow of duration", and the sense-maker is inevitably enmeshed in these experiences (Introna, 2018). For others, however, sensemaking is viewed as episodic, project-specific, or as having an end-point (Klein et al., 2010; Sandberg & Tsoukas, 2015; Weick, 2012). In connecting to Weick's (2012) assertion that sensemaking can be project-specific, Maitlis & Christianson (2014) also note that in certain circumstances of collective sensemaking, this process "may pause when enough members engage in a discourse that allows them to act together" (p. 39). Interesting to note, is the duality of seminal researcher Karl Weick's take on this point. While he speaks of this process from a "perspective of episodic sensemaking" (Weick, 2012, p. 146), he has also, over

the years, held to the belief that others seeking to understand sensemaking should "be sensitive to the ways in which we chop moments out of *continuous flow*" (Weick, 1995, p. 43, emphasis added).

The other highly debated element of this recurring theme of sensemaking literature is whether the process is fundamentally retrospective or whether it can also be prospective, or forward-thinking and future-oriented. As one of Karl Weick's (1995) initial core elements of sensemaking, he described it as "Perhaps the most distinguishing characteristic of the present conceptualization" (p. 24), and given the phrase "present conceptualization" it is not surprising this concept and his view of it, have evolved since Weick's early work. Retrospection plays an important part in sensemaking theory (Brown et al., 2015; Gephart et al., 2010; Gioia, Corley, & Fabbri, 2002; Introna, 2018; Stigliani & Ravasi, 2012,Weick, 2008; Weick, 1995), as the concept presumes individuals and organizations make meaning through lived experiences; however, many recent scholars have called into question whether sensemaking can also be prospective in nature, supporting individuals and organizations in thinking about and making sense of possible future events or issues (Dawson & Sykes, 2018; Gephart et al., 2010; Introna, 2018; Sandberg & Tsoukas, 2015; Stigliani & Ravasi, 2012). The tension lies in how researchers think about the temporal conditions of the sensemaking experience, and the idea under question is if forward-looking sensemaking involves "future perfect" thinking. Gioia and colleagues described it this way (2002): "people envision a desired or expected future event and then act as if that event has already transpired, thus enabling a 'retrospective' interpretation of the imagined event" (p. 623). Here, retrospection accounts for this future-oriented thinking, and therefore does not necessitate further delineation. The sensemaking process is "embedded in past *and* present temporal states and uses past *and* present temporal orientations to provide contexts for proposed future entities"

(Dawson & Sykes, 2018, emphasis added). Consistent with this idea of embedded temporalities, Stigliani and Ravasi (2012), in their study of design teams, found that prospective organizational sensemaking was actually based on interrelated cycles of retrospection, and that in addition, the result was a more relaxed concept of time (as in thinking not about present but about the future), providing the team more opportunities for "prolonged and conscious articulation and elaboration of tentative interpretations" (p. 1250). Sensemaking happened regardless of temporal labels.

In addition to these debates, there are other considerations for the role of temporality in sensemaking as an ongoing and dynamic process, such as a detailed examination of *if and when* sensemaking starts and stops and how that impacts the overall process itself (Maitlis & Christianson, 2014), how the element of time is used to give meaning to previous constructions of understanding (Dawson & Sykes, 2018); and how the compression and expansion of time throughout the stories individuals and organizations tell about their experiences impacts sensemaking (Sandberg & Tsoukas, 2015).

Synthesis, implications, and future research. It is largely agreed that sensemaking is ongoing and dynamic, involving pervasive yet subtle activity taking place at both the individual and organizational levels. While there is some debate about the exact nature of the continuous versus episodic elements, as well as if sensemaking is inherently driven by reflections on the past, the implications for understanding how to make the most of ongoing sensemaking in organizations is evident. Future research on the role of temporality should include how individuals and organizations make sense about the future (Brown et al., 2015), how issues of time and pacing affect organizational members assessment their experiences (Wiebe, 2010), how the trajectory of prospective sensemaking changes over time, where there is a significant difference in initial expectations and current realities, impacting the way organizational members

view the result of the process (Konlechner et al., 2018), and how the separation of clock time (regarding expectation) and event time (regarding the unexpected) could be analytically helpful but not diminish the impact of lived reality (Introna, 2018).

More to Learn

Beyond the research areas noted within the four recurring themes of sensemaking research, some additional ways forward emerged. The field could benefit greatly from better understanding nuanced forms of sensemaking, such as sense-breaking and sense-giving, or the purposeful act of breaking apart previous understanding and strategically seeking ways to give others a specific sense about something. These two forms of sensemaking were of interest to those studying the role of leaders or other influential actors within organizations, how group members attempt to influence other actors' interpretations, and the conversational, narrative, and framing processes involved, (Balogun et al., 2014; Dawson & Sykes, 2018; Gawlik, 2015; Maitlis & Christianson, 2014; Shaked & Schechter, 2018; Stigliani & Ravasi, 2012). Regarding sensemaking in an inter-organizational context, Merkus and colleagues (2017) propose examining member motivation and its impact collective sensemaking. Loebbecke et al. (2016) made a plea for additional insights into challenges and opportunities concerning knowledge sharing within this context. Likewise, the role of artifacts, resources, and sensemaking frameworks could be further investigated, specifically the influence of socially discursive support structures (Balogun et al., 2014; Cornelissen, 2012; Pratt & Rafaeli, 2006; Stigliani & Ravasi, 2012; Weick, 2015), and the usefulness of prompts and the ways in which they could be utilized to aid in the sensemaking process (Smy, Cahillane, & MacLean, 2016). And lastly, Dooley, Kenny, & Cronin (2016) suggested examining how widespread the use of inter-

organizational organizations are, and how the organizational size and diversity of partnering organizations is being leveraged for innovation. Finally, as sensemaking theory is such a widely-used construct, there were calls for additional methodologies to be used in the course of future research, as new quantitative and qualitative methods help researchers explore new research questions (Maitlis & Christianson, 2014, Peng, 2018).

Summary

Sensemaking is undeniably an important topic in the study of organizations, not only as the vast amount of extant research in the field denotes, but also due to the implications this meaning making process has for both human existence and organizational life. As shown, it is a process dependent on social interactions, as meaning is co-constructed and evolves through the sharing of experiences. Factors that impact the social aspect of sensemaking include organizational context, relationships among individuals, and resources and structures designed to support the process in a collaborative setting. Noticing and bracketing cues from the environment plays a critical role in how the sensemaking process unfolds, as well as what specific meaning is made. As sensemaking experiences are triggered by uncertain, ambiguous, or novel events, these cues provide a springboard in the meaning making process. The recursive process of action, enactment, sensemaking, and more action is key to the ongoing nature of sensemaking, and this recurring process impacts organizational life as organizations themselves are ever-evolving. Finally, as sensemaking is ongoing and dynamic, it is an ever-present, albeit sometimes, subtle activity taking place individually and organizationally. In this way, the process both supports and constrains organizational activity, and organizational change, learning, and innovation are all

shaped by the socially-constructed, action-oriented, ongoing nature of the meaning making process.

CHAPTER 3

RESEARCH METHODOLOGY

The purpose of this qualitative case study was to explore the sensemaking experience of a newly-formed networked improvement community as the members engaged in inquiry around a chosen problem of practice. Networked improvement communities intentionally seek to identify and collectively articulate their central problem of practice and this inquiry process is a critical step for the network as they seek to make the work problem-specific and user-centered, identify the variation that currently exists in the system, and see the system that produces the current outcomes (LeMahieu et al., 2017b). According to prominent sensemaking theorist Karl E. Weick (1995), "problems do not present themselves to the practitioners as givens… they must be constructed from the materials of the problematic situations" and this takes a certain kind of work (p. 9). The intent of this empirical study was to learn more about how a networked improvement community engaged in this sensemaking process.

Research Questions

For the present case study, the following definition of sensemaking guided the research investigation: sensemaking is an ongoing and social process through which people work to understand novel, ambiguous, or confusing issues by attending to cues and enacting a more ordered environment from which further cues can be drawn (Maitlis & Christian, 2014; Weick, 1995). Networked improvement community members engaged in specific inquiry processes via journey mapping, personal reflection, and network member discussions, and the study was designed to answer the following questions about this exploratory case:

1. What initial understandings emerged about the networked improvement community's chosen problem of practice?
2. How did members of a newly-formed networked improvement community begin to make sense of their organizational problem of practice through inquiry?
    a. What cues triggered member sensemaking?
    b. What actions propelled member sensemaking forward?

Based on the theoretical framework that guided the study, the research questions and corresponding data analysis procedures were designed to elicit both an understanding of the network's emerging understandings of their community's problem of practice as well as the sensemaking process that takes place during their inquiry. (LeMahieu et al., 2017b; Maitlis & Christian, 2014; Weick, 1995).

This chapter outlines the research methodology and includes discussions specific to each of the following areas: (1) rationale for qualitative research design, (2) role of the researcher, (3) ethics, (4) sampling strategy, (5) data collection and management procedures, (6) measures of rigor, and (7) data analysis and presentation. The chapter culminates with a concluding summary.

Research Design

Qualitative research methodologies have become increasingly important modes of inquiry for the social sciences and applied fields, such as education, management, and organizational studies (Anfara, Brown, & Mangione, 2002; Marshall & Rossman, 2014), and are suited to promote a deeper understanding of various social settings, experiences, or activities from the perspective of the people involved (Bloomberg & Volpe, 2012; Patton, 2015). To this point, "knowledge-generating contributions" emerge from qualitative inquiry, illuminating

meaning, eliciting how processes work, and capturing people's perspectives and experiences (Patton, 2015, p.12). As Creswell (2015) describes, at the heart of qualitative research, there is a phenomenon one wishes to explore.

Within the framework of qualitative case study design, the researcher embodied a constructivist approach. The constructivist viewpoint puts forth that meaning is not objectively found, but socially constructed (Charmaz, 2008; Krotty, 1998; Patton, 2015), and this form of research "typically deals with the practical workings of *what* is constructed and *how* the construction process unfolds" (Holstein & Gubrium, 2013, p. 5). As the focus of the study was on how the members of a networked improvement community were working to make sense of their network's specific problem of practice through inquiry, this constructivist approach was an appropriate fit for the topic and research questions. The tenets of this approach acknowledge that reality is social in nature, defined by local culture, and historically constructed, and the intent of this research was to understand the phenomenon of social sensemaking from this context-specific perspective (Bloomberg & Volpe, 2012). The central assumption for this study, moreover, was that the networked improvement community's reality, via the sensemaking of the individuals involved as well as their collective sensemaking as an organization, was in the process of being socially constructed during the inquiry under study (Asik-Dizdar & Esen, 2016; Bloomberg & Volpe, 2012; Brown et al., 2015; Ganon-Shilon & Schechter, 2017; Koro-Ljungberg, Yendol-Hoppey, Smith, & Hayes, 2009; Maitlis & Christian, 2014; Patton, 2015; Stigliani & Ravasi, 2012; Weick, 2017).

The constructivist perspective also served as a framework by which the researcher could raise questions about the processes through which the networked improvement community made sense of their network's problem and how the initial understanding that emerged from their

network inquiry was constructed and further developed (Holstein & Gubrium, 2013; Silverman, 2015). Constructivist research looks critically at the experience of the participants, the social forces that lead to the experience's development, and how meaning is individually and socially created (Bloomberg & Volpe, 2012; Maitlis & Christian, 2014; Patton, 2015; Weick, 2017) and seeks to capture an array of understandings about participants' experiences (Patton 2015). Lastly, constructivism is widely used by qualitative researchers across varying topics (Brown et al., 2015; Creswell, 2002; Krotty, 1998) and as Charmaz (2008) points out, the constructivist approach posits that the research itself is socially constructed as well.

Role of the Researcher

In designing a qualitative study, and further acknowledging the constructivist approach, it is recommended that the qualitative researcher be authentic and "true to their social identities and their interests in the setting and/or topic" (Marshall & Rossman, 2014, p. 114) as well as "become involved in the reality of the participants and interact with them in meaningful ways" (Bloomberg & Volpe, 2012, p. 29). As an acting member of the networked improvement community under study, the researcher not only brought background knowledge, experience with the topic, specialized skills, and knowledge associated with the context of the setting, but also interpersonal competence and capacity for empathy with the participants through direct engagement in the field, all of which undergird the credibility of the research findings (Bloomberg & Volpe, 2012; Patton, 2015; Peng, 2018).

Direct gatekeeper access for this study was not available, and ultimately the researcher sought approval from various levels of leadership at the Tennessee Department of Education as well as with the networked improvement community executive director (Creswell, 2015). From

the time of the initial formation of the network, the researcher served in two roles: Literacy Consultant for the Upper Cumberland Center of Regional Excellence (UC CORE) and Director of Improvement Networks (Network Hub Leadership). The researcher transitioned roles from Literacy Consultant to Director of Improvement Networks fifteen months after the NIC's work began, as the network was expanding to include additional districts and school teams from across Tennessee. At the time the sensemaking experience under study took place, and the resulting archival data was created, the researcher served as the literacy consultant for one of two CORE regions selected for the networked improvement community's first cohort of members. It is important to note that while the researcher was not in a direct leadership role at the time the sensemaking experience under study took place, participants knew and related to her as a Tennessee Department of Education employee. More about this positional dynamic is discussed within the ethical considerations of the study.

Ethics

Consideration of ethics requires a qualitative researcher to be transparent, ensuring that participants involved understand the researcher's role, underlying attitudes and reasons for the research, and what is being asked of them as research participants (Bold, 2011). This study, through design and methodology, addressed ethical considerations in the following ways:

IRB Approval

First, the research process followed Institutional Review Board guidelines for approval. East Tennessee State University's Institutional Review Board process consisted of online training and submission of a new research proposal and corresponding documents. The following

guidelines were used in preparing for this research: (1) offering digital consent forms to participants through email statement, (2) assessing the harms, risks, and benefits of the research and minimizing any threat of harm to the participants, (3) selecting participants equitably within the sampling strategy, so that no groups of people were unfairly included or excluded from the research, and (4) assuring confidentiality about participant identities through specific data reporting strategies (National Research Council, 2003).

This study was classified as expedited given several determining factors. Archival data for the study came from the networked improvement community's blog (discussion forum). The discussion forum was created for members to share their emerging thinking about a variety of network topics focused on normal educational practices and generated in professional context for professional learning. In addition, there was no sensitive data, and information was analyzed and reported at group, rather than individual levels. The study involved no more than minimal risk to the participants.

Power Dynamics

As the study focused on reviewing archived organizational materials, there was a minimal amount of concern with power dynamics affecting the research. There are two ways, however, the research data and/or consent could have been affected by power dynamics, and those focused on the researcher serving in a leadership role for the network at the time the sensemaking experience occurred (Marshall & Rossman, 2011).

First, as shared previously, the has researcher served in two roles for the networked improvement community, both of which assumed some form of network leadership. At the time the network inquiry experiences were taking place, the researcher was serving as literacy

consultant for the Tennessee Department of Education. As with many state department of educations, there can be contentious relationships between school and district leadership and those who work for the department, largely stemming from compliance-focused traditions where the state department mandates improvement efforts for schools and districts (Russell et al., 2015b citing Consortium for Policy Research in Education [CPRE], 1989; Seashore Louis, Thomas, Gordon, & Febey, 2008; Manna, 2010; McDonnell & Elmore, 1987; McGuinn, 2012). One focus for the Tennessee Early Literacy Network was challenging this traditional top down way of working, as its structure placed state department personnel and school and district leaders in positions of partnership versus hierarchy. However, given that the experiences of the network were not happening in isolation of other school and district work, the potential for this power dynamic to affect the organization was still present. Although long standing professional relationships between the researcher and the members potentially helped to mitigate this dynamic with the Upper Cumberland leaders of the network, the researcher was only newly acquainted with network members from the East CORE region of the state upon the network's foundation.

A second way power dynamics potentially affected the study concerned the consent process. The researcher transitioned from literacy consultant to serve as Director for Improvement Networks for this community, and she served in this role when the research project was formally developed, participant consent was requested and obtained, and data analysis took place. Participants were informed in the consent form, as well as verbally, that their consent to allow or disallow personally produced archival data was voluntary. Requesting that the researcher not use personal discussion forum posts and discussions, at any time and for any reason, would be inconsequential for the participant (Creswell, 2002). The researcher had no

vested interest in the outcome of the study as it pertained to her leadership position (Creswell, 2015).

Expert Review of Protocol

To facilitate the ongoing development of the study, the researcher consulted with her research committee as well as with an additional expert, who specializes both in networked improvement communities and qualitative research and who currently teaches and leads research at a nationally recognized top-tier research university. All individuals have published numerous articles and studies in their fields and gave thoughtful feedback and direction toward the development of the study (Creswell, 2015). The researcher also engaged in regular peer debriefing, with colleagues who were knowledgeable about the research topic.

Risks

There were no physical, economical, or legal risks for participant in the study. Although the researcher had access to identifiable data, analysis and findings did not include members' identifiable information beyond the group level, noted as (1) school/district members, (2) department of education members, (3) network partner members. There included some potential risk that members within the organization might be able to conjecture how certain findings could be related to individual members, but given that the network's blog/discussion forum has always been open to the members for their review at any time and has been since the network's creation, the risk of any additional harm outside of what already existed was minimal. Individuals outside the network would not be able to link findings to individual members.

Benefits

There are no direct benefits to these participants as individuals. There is a growing interest, however, in how networks as organizational structures for continuous improvement can support organizational learning in the education sector. This study benefits society because it not only explored a new and promising methodology for school improvement (networked improvement communities), but it also sought to understand how educators engaged in this methodology make sense of an educational problem of practice through one of the model's central activities of *network inquiry*. While these members did not benefit from the study, future members of state and/or district-directed networked school improvement efforts could potentially benefit if state and district leadership consider the findings from this study and adjust practice to align to relevant recommendations.

Sampling Strategy

Qualitative research has traditionally focused on relatively small samples chosen purposefully to allow for inquiry into and an understanding of a specific phenomenon, or experience, in depth (Patton, 2015; Silverman, 2015). Marshall and Rossman (2011) explain that as a researcher chooses a topic of inquiry, sensitizing concepts from the literature review or pertaining the phenomenon under study, along with the research questions, provide the focus for the site and sample selection. They also explain that "decisions about sampling people and events are made concurrently with decisions about specific data collection methods to be used" (Marshall & Rossman, 2011, p. 105). With this focus in mind, it is important to return to the purpose of this study: *the intent of this qualitative case study was to explore the sensemaking experience of a newly-formed networked improvement community as they engaged in inquiry*

around a chosen problem of practice. The sampling strategy for this study included a central focus on a sampling event and the sensitizing concept of network inquiry (*the sensemaking experience… in inquiry around a chosen problem of practice*) and therefore included a sensitizing concept strategy for selecting a research site and set of participants who would engage in such an event (*a newly-formed networked improvement community*). As Patton (2015) explains, "Sensitizing concept sampling involves finding information-rich cases that can illuminate the use and meaning of particular concepts within particular settings" (p. 291).

The sample becomes, by definition and selection, illuminative of the sensitizing concept of interest, and in this case, the networked improvement community engaging in specific inquiry practices associated with NIC membership, were fertile ground to explore the sensemaking process as it relates to this context. Patton's (2015) clarification of sensitizing concept sampling, in conjunction with how a networked improvement community defines the *inquiry process,* align to the sample selection. There was an intentional focus on how particular concepts were used, what it meant for study design and data analysis, and how it provided "insight into the perspectives and behaviors of the people using the concept" (Patton, 2015, p. 291). Networked improvement communities specifically use the term *inquiry* to mean processes by which a network seeks to better understand its central problem of practice. LeMahieu et al. (2017b) explain that the NIC approach "promotes a collective investigation into the problem at local sites and highlights the importance of the resulting common understanding of the problem to guide the work of the NIC" (p. 14). This strategy allowed the researcher to elicit understanding about the sensemaking process of network members during the inquiry event, and moreover, the researcher attempted to address the issue of transferability by way of thick, rich descriptions of the inquiry

event itself as well as the context in which it occurred (Bloomberg & Volpe, 2012; Miles et al., 2014). More about transferability is noted later in this chapter.

Sampling Strengths and Limitations

Given the sampling strategy, there were strengths and limitations that affected the design of the study as well as the findings (Patton, 2015). The strengths of this design included alignment to well-established theoretical constructs (NIC operations and sensemaking) as well as the use of an *emic* approach, where the researcher focused on how concepts were used by the people in a particular context (Patton, 2015). While the strength of this research was the focus on a specific context, the focus was also seen as a limitation. The research was narrowly designed to better understand the sensemaking process of networked improvement community members as they engage in the inquiry process, and although some of the findings could be transferable to how others in social structures engage in similar learning exercises, there was a specific framework for how networked improvement communities engage with one another and their own environments in the sensemaking process (LeMahieu et al., 2017b). This limited context should be taken into consideration as others seek to transfer findings and conclusions to other contexts (Miles et al., 2014; Patton, 2015).

Data Collection Procedures

Given the social constructivist approach applied to this qualitative research study, as well as the sampling selection of participants in a networked improvement community, it was important to investigate the process by which the individuals and the organization sought to make sense of a central phenomenon in the social setting it which it was enacted (Maitlis &

Christian, 2014). Social settings are often replete with documents that can provide a window into the social world (Coffey, 2014), and for this study, the intentional meaning-making activities that supported the organization's efforts were of central interest (Jørgensen e al., 2012; Klein et al., 2010; Lincoln, Lynham, & Guba, 2016). Moreover, "many social settings are self-documenting and there is considerable methodological potential to study the documentary realities of social worlds" (Coffey, 2014, p. 367). In this case and to that point, primary documentary data, consisting of network archived artifacts, member reflections on the inquiry experience in which they engaged, and corresponding discussion posts were analyzed. The organizational blog, or more accurately described for the purpose of the study as a *discussion forum*, consisted of the aforementioned participant reflections on the inquiry experience in which they engaged (student and teacher journey mapping), as well as related participant-generated conversations among network members (Gall, Gall, & Borg, 2007; Pitts 2010; Rudestam & Newton, 2015; Silverman, 2015).

The data sources were purposefully selected based on the intent of the study and anchoring conceptual framework, the organizational setting from which they originated, and because they could not be reproduced (Koro-Ljungberg et al., 2009; Rudestam & Newton, 2015). In addition, these data sources were chosen because the blog/discussion forum was the source by which the research questions could be explored, as this platform and corresponding discursive activity served as the avenue through which network members were intentionally engaged in exploring, negotiating, contesting, and mutually co-constructing understanding around their problem of practice and connecting this meaning to their own and others' social and organizational processes (Cornelissen, 2012; Im & Chee, 2012; Maitlis & Christian, 2014; Weick, 1995).

The data sources also provided rich qualitative data collected, recorded, shared, and discussed without the intervention of a researcher which allowed for a rich member-generated context for exploring the sensemaking experience associated with the specific sample (Silverman, 2015). The table below includes the name of each data source component, a brief description, and the purpose of each as used in this study.

Table 1

Data Source Descriptions

Data Source Component	**Description**	**Purpose**
Network Blog (or discussion forum)	Online platform by which network members shared experiences, reflections, and artifacts of work and engaged in interaction with one another	Provide a space for member interaction
Journey Map	An inquiry process that supports NIC members in analyzing three fundamental principles of improvement science: 1) be user-centered and problem-specific, 2) attend to variation, and 3) see the system that's producing the problematic outcomes For this NIC, their journey mapping experience included: 1. description (map) of a struggling student's progress from Pre-K to 3rd grade, looking at school records and talking with the student's previous teachers 2. interview of the struggling student for which the NIC member did the progress map 3. teacher interview, including questioning regarding how the teacher learned to teach reading	Provide an experiential avenue for NIC members to build empathy for those individuals within the system of study, attend the variation that exists within the system of study, and identify components of the system that are producing the problematic outcomes they wish to address

	and their successes and struggles in teaching students to read	
Personal Reflections on teacher and student map experiences	A response by a NIC member as he/she reflected on the experience of conducting a journey map and what most resonated about the experience	Provide both an individual reflection point and collective starting place for network members to engage in discussion about what information and learning resulted from engaging in the network inquiry process of journey mapping
Discussions	Comments and response from network members regarding journey map reflections; both organic and solicited in nature	Provide opportunities for discourse around the network's chosen problem of practice Support emerging sensemaking of both individuals and the network as a whole

Data Management

The following list summarizes the specific data collection and management methods used in this study (Bloomberg & Volpe, 2012; Creswell, 2015; Patton 2015):

1. Following the proposal defense, the researcher acquired approval for data collection via the IRB process.
2. The researcher sought gatekeeper access from relevant TDOE leadership (senior executive team as well as CORE regional office leadership) and the executive director of the networked improvement community.
3. Network members were then contacted and presented with the rationale of the study and consent was obtained. Two members excluded themselves from the study.

4. All blog/discussion forum content related to the networked improvement community journey mapping experiences were downloaded via PDF file from the blog platform and saved via the researcher's password protected ETSU OneDrive for Business Account.
5. Blog/discussion forum content was de-identified as the researcher transferred the data from PDF file to Microsoft Word. She exchanged individual member identifiers (names) with sub-group level identifiers: (1) school/district member (SDM), 2) department of education member (DOEM), 3) network partner member (NPM). These identifiers were used during the data analysis process and to report findings. The data was also transferred from PDF to Word format to allow the researcher to upload data into a data analysis software platform called *Dedoose*. Word files were stored via the researcher's password protected ETSU OneDrive for Business Account and within the password protected qualitative software program.
6. Journey maps, member reflections, and corresponding discussions were analyzed, via *Dedoose*, given the specified research questions and conceptual framework derived from the literature review and were used in conveying findings and recommendations for further study.

Measures of Rigor

The four criteria used to establish rigor in the study were credibility, transferability, dependability, and confirmability (Miles et al., 2014). To achieve these elements of rigor, and in line with Creswell's (2015) recommendation to use two to three strategies to increase rigor of a qualitative study, the following strategies were used: triangulation, disconfirming evidence, rich descriptions, theory-based sampling strategy, and peer debriefing/expert review (Bloomberg &

Volpe, 2012; Creswell, 2015; Creswell, 2002; Marshall & Rossman, 2014; Miles et al., 2014; Patton, 2015; Silverman, 2015).

Credibility

Credibility refers to how believable the findings are to the research participants and to readers of the study (Miles et al., 2014). The researcher used triangulation and disconfirming evidence to increase the credibility of the findings.

Triangulation. For the purpose of this study, and based on its constructionist design, it was important to use triangulation as a method by which the researcher could paint a picture of the sensemaking process from the multiple perspectives of the participants and therefore not try to create a singular "overarching reality to which data, gathered in different contexts, would approximate" (Silverman, 2015, p. 47). Instead of looking to triangulate across multiple data collection methods (such as interviews, focus groups, document analysis, etc.), the research design for this study included triangulation by data source and member-levels (Miles et al., 2014), via two different inquiry experiences in which members of the networked community engaged (teacher and student journey map participant reflections as well as corresponding discussion forum conversations). These sources highlighted various foci and strengths and therefore complemented each other and the design of the study (Miles et al., 2014), and more about how the researcher confirmed findings across these data sources is included in Chapter 4.

Disconfirming evidence. As the researcher examined emerging themes in the process of data analysis, she searched for and explicitly shared disconfirming evidence with regard to those emerging themes as one strategy to increase the credibility of the study's findings. As Creswell

(2015) notes, “the importance of disconfirming evidence is that it helps establish a realistic (and accurate) picture of the theme” (p. 191). Patton (2015) describes the strategy in this way:

> Where patterns and trends have been identified, our understanding of those patterns and trends is increased by considering the instances and cases that do not fit within the pattern. These may be exceptions that illuminate the boundaries of the pattern. They may also broaden understanding of the pattern, change the conceptualization of the pattern, or cast doubt on the pattern altogether (p. 654).

The researcher included this evidence alongside other data analysis and findings in Chapter 4 of the study.

Transferability

Miles et al. (2014) describe transferability as the process by which the reader is able to see “relevance or applicability of our findings to other similar settings, to transcend the particular in order to understand the general” (p .101). The current study uses two methods to enhance the transferability of the findings: rich, thick descriptions and a theory-based sampling strategy.

Rich, thick descriptions. Patton (2015) notes that, based on constructionist approach, the qualitative researcher is “more interested in deeply understanding specific cases within a particular context than in hypothesizing about generalizations and causes across time and space” (p. 684). To this point, the researcher did not seek to provide findings and conclusions that could be directly applied to other contexts without question, but instead offer up rich descriptions of participants, setting, context - along with a theoretical framework - that could make it possible for readers to decide whether similar processes might be at work in their own settings and

communities (Bloomberg & Volpe, 2012). For this study, thick, rich descriptions were central to describing the case, qualitative analysis, and reporting the findings (Patton, 2015).

Theory-based sampling strategy. Marshall and Rossman (2014) suggest the researcher can increase transferability of the research findings by stating the theoretical parameters of the research and explicitly making connections to those parameters in meaningful ways. For this study, both the sensitizing-concept sampling strategy (which is theory-based) and the data analysis were directly informed by research on networked improvement communities, key improvement science principles, and the sensemaking process. While the researcher was careful to stay open to emerging and differing ideas from those of the conceptual framework (Miles et al., 2014), the explicit connection between the framework and findings, as well as the process by which the data collection and analysis were guided by those concepts and models, served to counter some transferability challenges inherent in qualitative studies (Marshall & Rossman, 2014).

Dependability

Dependability in qualitative research deals with the level of its replicability, in that future research could produce similar findings, interpretations, and claims (Silverman, 2015). To increase the dependability of the study, the research questions were clear and the qualitative design, approach, and methodology were aligned. Likewise, the researcher's role was explicitly articulated and information regarding power dynamics and relationships to participants was shared (Miles et al., 2014). Lastly, the researcher utilized expert review/peer debriefing with individuals who were familiar with the central experiences explored and who also provided

support, challenged the researcher's thinking, and helped refine the study over time (Creswell, 2015).

Confirmability

Miles and colleagues (2014) describe confirmability as the process by which the study is relatively neutral and reasonably free from unacknowledged researcher biases, and at the minimum, there is an explicitness about the inevitable or natural biases that do exist. To accomplish this neutrality, the study described how data sources were "chosen, collected, processed, analyzed, and presented" as well as how the "data and records were kept so another researcher could repeat the study" (p. 311). In addition, conclusions were explicitly shared in tandem with data, and researcher bias was made clear throughout the study. Likewise, two code maps (see Appendix A) were created and presented as a strategy to openly share the researcher's analytic processing (Anfara et al., 2002). Lastly, the researcher followed two recommendations from Marshall and Rossman (2014) for limiting bias: utilizing a research partner (see *Expert/peer debriefing*) and describing how the data analysis used, but was not limited to, previous literature and processed through multiple rounds of data analysis (see *Data Analysis*).

Data Analysis

In qualitative research, data analysis and resulting presentations are often conducted through a coding process and the development of visual representations of large amounts of data in tables, charts, graphs, or matrices (Handcock & Algozzine, 2016; Miles et al., 2014). Likewise, the choice to use multiple analysis methods within the same study aims to allow the researcher "to obtain more analytical results through possible complementarities and/or

interactions" between the results emerging from different data analysis processes (Peng, 2018, p. 8). The aforementioned processes were utilized in this study as part of three phases of data analysis. The researcher also used a qualitative software program, *Dedoose*, for data management, excerpting, coding, and data analysis.

Phase 1: Initial Analysis and Code Development

The researcher began data analysis by carefully reading over all the data collected, to "get some feel for the 'storyline,' including the major and minor stories that [were] being told within the data" (Bloomberg & Volpe, 2012, p. 139). Utilizing the study's research questions and conceptual framework, careful thought was given to the development of two analytic categories that would be the basis for code development (3 Core Principles of Improvement and 4 Themes of Sensemaking research), each one serving to support one research question.

In developing codes for the study, the researcher utilized both deductive and inductive analysis. A test coding cycle was conducted, allowing for a subset of data to be deductively analyzed according to the study's literature-based, conceptual framework (Creswell, 2015; Miles et al., 2014; Patton, 2015; Rigby, 2015; Saldaña, 2013). The researcher was interested in exploring an initial application of the key conceptual framework elements (3 Core Principles of Improvement and 4 Themes of Sensemaking research) to a test cycle with three student journey map reflections and subsequent discussion among members as well as the same for three teacher journey map experiences. Parent codes, and a small set of child codes, were derived from the conceptual framework, and additional child codes emerged through inductive considerations of early analysis. Subsequently, in Phase II and Phase III of the data analysis, additional inductively generated child codes emerged as the coding process continued.

Miles et al. (2014) describe this process as *hypothesis coding*, or "the application of a researcher-generated, predetermined list of codes onto qualitative data specifically to assess a researcher-generated hypothesis" (p. 78). Codes and sub-codes are developed from a theory, or prediction about what will be found in the data before any data have been collected and/or analyzed. In addition, the researcher sought an opportunity to understand and reflect on how her own interpretive ideas might emerge as she engaged in the coding process (Creswell, 2015; Saldaña, 2013). As a result of ongoing code development and multiple phases of data analysis conducted, the researcher had the opportunity to consider and articulate the broader implications of the findings, and recommendations for practice and future research are shared in Chapter 5 of the study (Bloomberg & Volpe, 2012).

Phase II: Analysis for Research Question 1

The second phase of data analysis consisted of coding participant reflections for teacher and student journey maps, as well as corresponding participant comments in discussion forum conversations for emerging understanding about the network's problem of practice. This phase of analysis was designed to answer research question number one: *What initial understandings emerged about the networked improvement community's chosen problem of practice?.* The researcher designed and followed a set of code descriptions (or decision rules) to aid in the identification of NIC member understanding (Bloomberg & Volpe, 2012; Kounios & Beeman, 2014; Miles et al., 2014; Saldaña, 2013), grounded in the first three core principles of improvement: (1) Make the work problem-specific and user-centered (2) Variation in performance is the core problem to address (3) See the system that produces the current outcomes. A total of three parent codes were created (derived from the conceptual framework of

the first three core principles of improvement). Twenty-three child codes evolved within the parent codes, fifteen and four for *Make the work problem-specific and user-centered* (numbers aligned respectively), two for *Variation in performance is the core problem to address*, and two for *See the system that produces the current outcomes*. The researcher's code map for question one can be found in Appendix A. Content analysis led to the development of 28 codes, 6 themes, and 6 findings for research question one. Analysis of code application presence and code co-occurrence also brought additional insight to the development of the findings and recommendations and is discussed in more detail in Chapter 4.

Phase III - Analysis for Research Question 2

The third phase of data analysis consisted of coding participant reflections for teacher and student journey maps, as well as corresponding participant comments in discussion forum conversations, for understanding about the sensemaking process. This phase of analysis was designed to answer research question number two: *How did members of a newly-formed networked improvement community begin to make sense of their organizational problem of practice through inquiry?.* The researcher designed and followed a set of code descriptions (or decision rules) to aid in the analysis of the sensemaking experience under study (Bloomberg & Volpe, 2012; Kounios & Beeman, 2014; Miles et al., 2014; Saldaña, 2013). The focus on four themes of sensemaking research included sensemaking as (1) social, (2) triggered by cues, (3) driven by action, and (4) ongoing. A total of four parent codes were created (derived from the aforementioned conceptual framework) and twenty-two child codes evolved within the parent codes of *Triggered by Cues* and *Driven by Action*. Thirteen child codes evolved from *Triggered by Cues*, and eleven child codes evolved from *Driven by Action*. There were no child codes for

Social or *Ongoing*. The researcher's code map for question two can be found in Appendix A. Content analysis led to the development of 26 codes, 2 theoretical themes tied to the study's two sub-questions, and 6 findings for research question two. Analysis of code application presence and code co-occurrence also brought additional insight to the development of the findings and recommendations and is discussed in more detail in Chapter 4.

Data Presentation

The primary focus of data presentation was on NIC member understanding as a whole, specificaly what collective understanding emerged about the NIC's problem of practice and how their sensemaking unfolded during network inquiry. The researcher included additional case descriptions, including information about NIC member role groups, number of data peices analyzed, and rich, thick descriptions including excerpts of member artifacts, reflections and discussion. Finally, findings for each of the two research questions, along with both code and code occurrence data, are presented in Chapter 4.

Summary

In summary, this chapter provided an explicit outline of the research methodology used to explore how the sensemaking process unfolds for members of a networked improvement community engaged in inquiry around a chosen problem of practice. Data collection methods included the selection of naturally occurring network inquiry documents originating from member-generated student and teacher journey maps and corresponding member reflections and discussion via a network blog (or discussion forum). The data were reviewed utilizing both deductive and inductive strategies across multiple phases of analysis, as well as reviewed

against the study's conceptual framework based on current research on networked improvement communities, improvement science, and the sensemaking process. Key themes in the data were identified over multiple phases of analysis, and interpretations and conclusions were drawn leading to recommendations for practice and additional research. Measures of rigor were achieved through multiple strategies, including triangulation, disconfirming evidence, rich descriptions, theory-based sampling strategy, and peer debriefing/expert review.

CHAPTER 4

DATA ANALYSIS AND FINDINGS

This case study examined the sensemaking process of a newly-formed networked improvement community. No previous studies have been conducted to explore how newly-formed networked improvement communities collectively make sense of their chosen problem of practice, and research on both networked improvement community operations and sensemaking were used to answer two research questions: (1) *What initial understandings emerged about the networked improvement community's chosen problem of practice?* (2) *How did members of a newly-formed networked improvement community begin to make sense of their organizational problem of practice through inquiry?*. The chapter includes rich, thick descriptions (Patton, 2015) of the case as it relates to data analysis and key constructs for answering each research question. The chapter also presents key findings that emerged from the analysis of primary documentary data, consisting of network archived artifacts, member reflections on the inquiry experience in which they engaged, and corresponding member discussions via the network's discussion forum.

To complete the research study, a qualitative research methodology was utilized as outlined in Chapter 3. The research study entailed examining network member reflections and discussions generated in response to formal networked improvement community inquiry activities, called *journey mapping*, conducted in the early stages of network development (or network initiation). The inquiry process is seen as a critical component of network initiation, serving to help members (1) begin to understand their chosen problem of practice from a user-centered perspective, (2) articulate specific facets of the problem for later exploration, (3) identify the variation that currently exists in the system(s) the members are analyzing, and (4)

support network members in understanding the system that produces current outcomes. The data from the network journey mapping inquiry experiences yielded rich sources of qualitative data, as inquiry artifacts, reflections, and subsequent discussions were collected, recorded, and shared without the intervention of a researcher. Utilizing these archived member interactions provided a detailed member-generated context for exploring the sensemaking experience in this new context.

Description of the Case

The Tennessee Department of Education (TDOE), in partnership with the Carnegie Foundation for the Advancement of Teaching (Carnegie Foundation), initiated the development of a networked improvement community (NIC) to improve historically low reading proficiency rates for across Tennessee. The NIC was the first improvement network launched and run by a statewide department of education and included an initial cohort of seven rural school districts with twelve schools, as well as two of the TDOE's eight Centers for Regional Excellence offices (CORE). In conjunction with the informed consent process for this study, network membership description is provided at the role-group, rather than individual levels, and member connection to district/school or specific TDOE office is de-identified. Table 2, following the description of membership roles, outlines the membership of the network at the time the sensemaking experience under study took place. For data analysis, however, one district (comprising of two school/district members) asked to be excluded from the study.

Members from schools or districts were identified as *School/district members (SDM)* and included two to three members from each of the participating districts/schools. Each district that applied for membership in the network named these *district leads* to coordinate and lead the

district/school participation in the network. District leads could be district-level or school-level leaders. All district leads for each district engaged in network membership, participated in network inquiry practices and the journey mapping experiences under study.

Members from the Department of Education were identified as *Department of Education members (DOEM)* and included both department-wide leaders as well as regional CORE staff. Department-wide members include leaders within the academic and data divisions as well as network hub grant-provided staff, and CORE members included the regional executive directors, literacy and data consultants for each region, and a mixture of intervention and math consultants. Some senior-level DOE members of the network did not participate in the journey mapping experience and reflection/discussion due to their positions.

Members who served in support of the network were identified as *Network partner member (NPM)* and included various partners from both the Carnegie Foundation and a well-known research university from Tennessee. There were additional support members for the network from the Carnegie Foundation and an out-of-state research university, but not all participated in the journey map sensemaking experience.

Table 2

Network Members Participating in the Network Inquiry Experience

Network Member Role	Numbers of members
School/district member (SDM)	15
Department of Education member (DOEM)	10
Network partner member (NPM)	3
Total	*28*

The network-wide sensemaking experience took place via a Network Blog (or named for the purpose of this study, discussion forum). The discussion forum served as an online platform by which network members shared experiences, reflections, and artifacts of work and engaged in interaction with one another as they sought to make some initial sense of their network's problem of practice. Members were asked to complete two journey map experiences, and then post their reflections. Likewise, they were asked to read each other's reflections and post discussions to at least two fellow members' reflection posts.

Members shared reflections on two network inquiry activities, called student and teacher journey mapping, and also engaged in rich discussions about these reflections with one another. School/district members completed both student and teacher journey map reflections and discussions. Department of Education members (CORE and network hub staff), due to their positions outside districts and/or schools, did not complete student journey maps but did engage in reflection and sensemaking discussion on these student journey maps with fellow school/district members and each other. Department of Education members did complete teacher journey maps, including reflection and discussion posts. The combined journey mapping activities consisted of the following elements and Table 3 outlines an overview of member-generated data sources and directions for both student and teacher journey maps can be found in Appendix B.

- Description (or *map*) of a struggling student's progress from Pre-K to 3rd grade, looking at school records and talking with the student's previous teachers
- Interview of the struggling student for which the NIC member did the progress map
- Teacher interview, including discussion regarding how the teacher learned to teach reading and their successes and struggles in teaching students to read

- Reflections on both journey mapping experiences
- Discussion with fellow NIC members about the experience and initial understanding of the network's problem of practice

Table 3

Data Source Overview

Source	Count
Student Journey Maps/Reflection Posts	15
Student Journey Map Discussion Posts	47
Teacher Journey Maps/Reflections Posts	23
Teacher Journey Map Discussions Posts	61
Total # of member-generated posts	*146*

In addition, the case for this study, by definition and selection, was illuminative of the sensitizing concept of interest - *a networked improvement community engaging in specific inquiry practices associated with NIC membership*, and the aforementioned sample was critical to exploring the sensemaking process as it related to the networked improvement community context.

The following sections of the chapter outline the findings from this study with details that support and explain each finding. In continuing with rich, thick descriptions (Patton, 2015), the researcher set out to share a broad range of member experiences, and thereby allow the reader to experience the sensemaking process like he/she is making sense of the network's problem of practice alongside the members themselves. To accomplish this, the researcher wove together member experiences from both student and teacher journey maps, via member artifacts, reflections, and discussions, throughout the presentation of the findings. The researcher sought to "present the reader with the stories identified throughout the analytical process, the salient

themes [findings], recurring language, and patterns of belief linking people and settings together" (Anfara et al., 2002, p. 31). The emphasis for presenting these findings (via triangulation) was to portray multiple member perspectives from across all three role groups via their own reflections and discussions about their sensemaking experiences, to convey the richness and complexity of the sensemaking process, and to explore what initial understanding emerged about the NIC's problem of practice as a result of these network inquiry experiences.

Research Question 1: Exploring the Network's Problem of Practice

Launching the *Read to be Ready* campaign in 2016, the Tennessee Department of Education (TDOE) signaled a statewide focus on increasing reading achievement for Tennessee students. While students across the state were making gains across many subject areas, proficiency rates in reading were largely stagnant; and for many of Tennessee's most disadvantaged students, reading proficiency rates were declining. In fact, data showed that every year, despite school, district, and statewide efforts, almost half of Tennessee students were leaving third grade without becoming proficient readers (Tennessee Department of Education, 2016). In acknowledging national research on the impact of third-grade reading proficiency rates on later life milestones (Casey Foundation, 2013; Tennessee Department of Education, 2016) the TDOE identified early literacy as a priority in the state's strategic plan (Tennessee Department of Education, 2015) and set a course for improving this pervasive problem.

In one effort to better understand why Tennessee proficiency rates were stagnant, the TDOE began a partnership with the Carnegie Foundation for the Advancement of Teaching (Carnegie Foundation). Throughout the state each year, school systems were implementing numerous improvement efforts to increase reading proficiency with little to no evidence of

increased student outcomes, and department leaders believed a coordinated effort between local educators, state leaders, and the Carnegie Foundation's improvement specialists might help the state better understand why the state was routinely getting the results it was getting. In a pioneering approach, a new state-supported networked improvement community (NIC) would seek solutions to this organizational problem of practice through the use of a process called improvement science. Furthermore, the networked improvement community, named the *Tennessee Early Literacy Network* (TELN), would begin its work by collaboratively identifying and collectively articulating a detailed description of the problem, building on the findings and recommendations from a recent state research report on reading outcomes.

In the department's *Setting the Foundation: A Report on Elementary Grades Reading in Tennessee* (2016), released in conjunction with the start of the *Ready to be Ready* campaign and the initiation of the state's networked improvement community, key findings were presented, and several recommendations were made (Table 4). Taking these findings and recommendations into account, the NIC began its efforts to further define the literacy problem using *improvement science methodology* learned in their ongoing work with the Carnegie Foundation. In fact, building this improvement science skill set was the focus behind the *Setting the Foundation* fourth recommendation for Tennessee's educators and school systems to "get better at getting better" (Tennessee Department of Education, 2016, p. 21). The NIC would take the lead in this process.

Table 4

Setting the Foundation Key Findings and Recommendations for TN Educators

Report Findings	Report Recommendations
1. At the K–2 level, classroom time in Tennessee tends to be centrally organized around skills-based competencies. 2. K–2 reading lessons are rarely structured to expose students to complex texts and their vocabulary, ideas, and content knowledge. 3. At the 3–5 level, students spend relatively little time reading during school literacy blocks. 4. Most instruction is focused on mastery of individual skills in isolation, rather than on deep comprehension of texts and their content. 5. Ten percent of Tennessee third graders have missed almost half a year of school between kindergarten and third grade. 6. Students who have fallen behind are less likely to have access to our most effective teachers. 7. Early intervention is taking place through RTI2, but most schools haven't moved beyond "checkbox implementation" to a place where RTI2 meaningfully includes core classroom instruction. 8. Schools that are making the greatest gains through RTI2 use it as a comprehensive tool for ensuring student success, not just another supplemental support program.	1. Support deeper literacy instruction to ensure that students learn decoding within the context of broader comprehension. 2. Increase schools' and teachers' ability to differentiate instruction in the early grades and to target students' academic and non-academic needs as early as possible. 3. Improve RTI2 implementation for students who need greater support in specific skill areas. 4. Get better at getting better.

Developed by the Carnegie Foundation, NICs are offered as a structure to accelerate the field's ability to "get better at getting better" (Bryk et al., 2015). Members are provided with a social support structure in which they can investigate their problems of practice and then plan, conduct, reflect on, and share and consolidate their local improvement efforts in a disciplined

way (LeMahieu et al., 2017b; Russell et al., 2015a). Included in this process, are core principles of improvement, that serve to guide NICs in their operation (Bryk et al., 2015, p. 172-173):

1. Make the work problem-specific and user-centered
2. Focus on variation in performance
3. See the system that produces the current outcomes
4. We cannot improve at scale what we cannot measure
5. Use disciplined inquiry to drive improvement
6. Accelerate learning through networked communities

NICs form, first and foremost, to solve important and persistent problems of educational practice. In the early months of NIC development, or initiation phase, teams collaborate to identify the core problem the NIC wants to solve, and network members unite their efforts to achieve a guiding aim (LeMahieu et al., 2017b, p. 12-13). The first three core principles of improvement serve as key constructs for members during times of learning and reflection during the chartering phase, as the network members explore their problem of practice from these varying perspectives. The NIC under study spent the early months of their improvement work thinking about Tennessee's stagnant reading scores, exploring their own and others' thinking about early literacy best practices; identifying student, teacher, and school-level needs; and examining the systems it takes to support Tennessee's youngest students in learning to read. While doing so, they kept the following framework in mind (core principles for improvement in italics):

1. *Make the work problem-specific and user-centered.* It starts with a single question: "What specifically is the problem we are trying to solve?"

2. *Variation in performance is the core problem to address.* The critical issue is not what works, but rather what works, for whom and under what set of conditions.
3. *See the system that produces the current outcomes.* It is hard to improve what you do not fully understand.

As a part of the network's early inquiry experiences exploring their problem of practice, members participated in a sequence of inquiry activities designed to aid the network defining its central problem more fully ahead of specific improvement work the network would collectively initiate at a later date. In the late spring of 2016, members engaged in their first network inquiry experiences. For these first experiences, members were asked to complete two journey map experiences and then post their reflections. Likewise, they were asked to read each other's reflections and post discussions to at least two fellow members' reflection posts. What emerged from learning and reflecting on the three core principles of improvement through engaging in network inquiry experiences, was an initial understanding of the NICs core problem to address (LeMahieu et al., 2017b). In answering the research question *What initial understandings emerged about the networked improvement community's chosen problem of practice?*, six key findings emerged:

1. Teachers feel unprepared to teach reading and local support for them varies.
2. Instructional design and processes, along with teacher practice, are often misaligned to state instructional guidance and seem particularly harmful to struggling readers.
3. Educators lack self and system awareness to guide best practice.
4. Struggling students share similar early educational experiences.
5. Educators exhibit a lack of trust and/or understanding of how to use instructional data.
6. School and school district policy and/or practice impacts early literacy experiences.

Data were analyzed, and findings were developed, based on content analysis, code application, and code co-occurrence analysis (Bloomberg & Volpe, 2012). Table 5 shows the application of codes for *Understanding the Problem*, highlighting what number and corresponding percent of both student and teacher journey maps (SJMs and TJMs) had each code applied at least once. Given that network members were using both student and teacher journey mapping experiences to uncover specific aspects of the literacy problem in their local contexts, the researcher examined codes applied across the greatest number of journey maps.

Table 5

Code Application Numbers and Percentages for Understanding the Problem

Aspects of the Problem that Emerged	**SJM (n/15)**	**TJM (n/23)**
CP1_PS_Attendance	5/15 @ 33%	0/23 @ 0%
CP1_PS_Child Compensates	2/15 @ 13%	0/23 @ 0%
CP1_PS_Child Diagnosis	4/15 @ 27%	0/23 @ 0%
CP1_PS_Conflict in beliefs/approach	0/15 @ 0%	2/23 @ 9%
CP1_PS_Declining Results	5/15 @ 33%	0/23 @ 0%
CP1_PS_Educational Purpose	0/15 @ 0%	1/23 @ 4%
CP1_PS_Home/Community	11/13 @ 73%	5/23 @ 22%
CP1_PS_Initial Skill Level	2/15 @ 13%	0/23 @ 0%
CP1_PS_Instruction	15/15 @ 100%	20/23 @ 87%
CP1_PS_Missed Opportunity	8/15 @ 53%	2/23 @ 9%
CP1_PS_School/System Policy and or Practice	6/15 @ 40%	13/23 @ 57%
CP1_PS_Teacher Self/System Awareness	9/15 @ 60%	14/23 @ 61%
CP1_PS_SummerSlide/Transitions	3/15 @ 20%	1/23 @ 4%
CP1_PS_Teacher Prep/Ongoing Support	1/15 @ 7%	22/23 @ 96%
CP1_PS_Trust in/Use of Data	9/15 @ 60%	5/23 @ 22%

The researcher also further explored the data for code co-occurrence *within each of the six highest frequency code applications* for specific connections between the various aspects of the network's problem of practice. Meaning, what specific topics - about and within the network's larger problem of practice of literacy - were often referenced together within and across members-generated journey map reflections and posts. Table 6 outlines the aforementioned code co-occurrence, and to what degree, for each of the six findings. A researcher-generated code co-occurrence scale was created for each code and included a calculation of (1) total code applications within the given code divided by three and (2) scaled equally to high (H), medium (M), and low (L) occurrence respectively for each third.

Table 6

Code Co-Occurrence for Understanding the Problem

Code	Code Co-Occurrence
Instruction	(H) Self and System Awareness; School System Policy and/or Practice; Trust In/Use of Data; Teacher Prep/Ongoing Support
Self/System Awareness	(H) Instruction (M) Trust in/Use of Data
Teacher Preparation and Ongoing Support	(H) Instruction
Trust in/Use of Data	(H) Instruction (M) Self and System Awareness
Home and Community	(M) Instruction
School/System Policy and Practice	(H) Instruction

Research Findings

Finding #1: Teachers feel unprepared to teach reading and local support for them varies.

By design, a key component of the teacher journey map inquiry experience called for an intentional focus on providing members a space to reflect on and discuss the impact of teacher preparation programs and ongoing educator support on student outcomes (see Appendix B). From these experiences, members surfaced how unprepared the teachers they interviewed felt and what supports these teachers sought as they designed lessons, provided scaffolds for struggling learners, and reflected on their teaching practices. While only one reflection and subsequent comment about teacher preparedness and effectiveness surfaced across student journey maps, a connection between teacher capacity and student outcomes was evident: "Having ineffective teachers back to back does seem to have affected this student." (SJM, SDM). The tie between teacher preparedness and ongoing support and resulting student impact emerged as a key issue to further explore for this network. Members expressed some of their reflections in the following ways:

> I've noticed that a lot of people felt like phonics was not taught in college. It seemed to be more of a children's literature class. (TJM, SDM)

> She [the teacher] was very transparent about the lack of confidence she had as a beginning reading teacher. (TJM, DOEM)

> … they both seem to think that they were ready to teach reading at the beginning but soon realized that their college didn't equip them with strategies that they may have needed to help those struggling students (TJM, SDM)

> … Mrs. Betty, like so many of her colleagues that we're learning about, felt "at a loss for how to help [her struggling student named] Andy". This seems like an urgent problem for us to solve: Where to go for help and expertise when we're teaching struggling students. (TJM, NPM)

A department of education member shared a teacher's wish to "go back to that first year and request a do over" as well other needs the teacher noted:

> Ms. Kaci noted that her preservice experience did not provide her the skills to teach phonics. "There are so many rules!" As a first year teacher, she felt she was unprepared and could not draw upon personal experiences to assist... She felt comfortable introducing literature and reading a loud with students, but did not feel prepared to teach phonics. She noted that the details of the special education referral process and RTI procedures were also new skills to learn in her first year. (TJM, DOEM)

Reflecting on this emerging trend, one network partner offered this reflection:

> I wasn't surprised that in [the teacher's] pre-service program she learned all about organizing instruction around a Valentine's book—everything that is except how to actually teach kids to read the text. Unfortunately, not teaching pre-service teachers how to actually teach reading is already showing up as a prevalent pattern. (TJM, NPM)

Two members, reflecting on personal experience, shared they did not feel prepared to teach reading either, noting:

> I feel like a can relate to Ms. North's experience in the first years. I don't think any of us are prepared. (TJM, SDM).

> I can identify with this [feeling of unpreparedness] because in my college classes I only had two reading courses, neither of which went in to detail on the different components of teaching a child to read. (TJM, SDM)

Member reflections and discussions also surfaced the types of survival techniques teachers depended on for support. One department of education member offered:

> I think her "love" for [a specific reading program] stemmed from the fact that it filled in gaps of her own knowledge and understanding that she did not receive in pre-service training. She does not use Saxon anymore, but she says that her learning from the program helped her understand phonics. (TJM, DOEM)

Similarly, a network partner member highlighted an early pattern regarding this issue:

> Even though it's only the second teacher map I've read, I can already see some patterns starting to emerge; ie Amelia didn't feel prepared to teach phonics, she followed the teacher's edition, and got support from her colleagues. (TJM, NPM)

From two network partner member comments, similar summaries emerged:

> Mrs. Carter is another teacher who thinks her pre-service training was remiss because it did not include enough phonics. And like many of her peers she learns where she can—from following the teacher manual and from her assistant. It's sad that she had to learn on her own about rhyming words and songs as a way to help young children with phonics, since this strategy has been well documented and supported in a lot of literacy programs for a long time. (TJM, NPM)

> I'm not surprised that Lindsey felt unprepared, early on, to teach reading, or that she followed the basal closely or learned from her colleagues. I suspect we will hear about

> those survival strategies over and over, as well as the question about why pre-service programs can't better prepare new teachers. (TJM, NPM)

While the majority of reflections and discussion called attention to a lack of teacher preparedness, especially with teaching phonics, one example surfaced counter to this trend. One school/district member noted:

> As an interesting aside, Mrs. K shared that one of her instructors at [college] used the dictionary as a textbook — she said that she learned more about word origins, roots, syllables, and decoding from the dictionary than from any other book she used in college! Listening for the sounds in words challenged and intrigued her, and she was able to carry over those skills into her teaching. She has always felt comfortable teaching phonics because of these early experiences. (TJM, SDM)

Local support efforts surfaced, as well, during member sensemaking on teacher preparation and support. These efforts ranged from non-existent to a number of varying school and district-level structures. This discussion also included requests from teachers for more professional growth opportunities. One department of education member noted a lack of collaborative support as a key issue:

> … it was also apparent that teachers do not always have an adequate support network. Janet's journey appears to have been largely one that she has traveled on her own through independent research. It does seem like we have done a better job of connecting teachers in recent years, but we still have work to do so that they feel supported. (TJM, DOEM)

A school/district member also recognized a lack of support, noting "Another take away I had was that she [teacher from teacher journey map] wasn't assigned a mentor teacher. Basically she reached out on her own with someone she knew well and was comfortable asking for help."

(TJM, SDM). With this in mind, one school/district member prompted others to think about the use and effectiveness of such a support system:

> I think many times the development of a new teacher who has not been prepared adequately hinges on mentors and support provided in the school. [But] Some new teachers get great mentors while others are left to struggle and many times become burnt out. (TJM, SDM)

One school/district member, hearing a request from a teacher, shared: "When Mrs. A. was asked what assistance she would like to receive to help her become a better reading teacher, she replied more opportunities to visit other teachers and watch them implement new strategies inside their own classrooms." (TJM, SDM). In a separate, but related post, one department education member highlighted the positive power of this type of collaborative time, noting a clear and contrasting example to other members' posts:

> Ms. P mentioned several things that were very positive and important. Her team of colleagues and their support of one another sounded as if it was a major factor in her happiness teaching. That this group of teachers feel safe enough with each other to express concerns or seek help from each other is encouraging. I do not think such safety is present in all schools. (TJM, DOEM).

Finally, one department of education member's post surfaced a key question for others to consider: "As leaders in schools, districts, and support organizations, I wonder what better structures we can put in place to limit this sink or swim effect [for new and/or struggling teachers]." (TJM, DOEM).

Finding #2: Instructional design and processes, along with teacher practice, are often misaligned to state instructional guidance and seem particularly harmful to struggling readers.

All student journey maps and a majority of teacher journey maps pinpointed instruction as a possible problem area to address for future networked improvement work. Across these sensemaking experiences, and by NIC inquiry design in line with the first 3 principles of improvement, members highlighted (1) specific areas of concerns and early ideas about possible connections across problem areas, (2) specific examples of variation in both processes and outcomes, and (3) elements of instructional systems that often contributes to poor student outcomes. Members surfaced concerns about instructional design and educator capacity, intervention instruction and student support practices, and unacceptable student outcomes. Network partner members, purposefully positioned by network leadership to offer insights about the emerging problem of practice, shared many concerns regarding instructional design and teacher instruction:

> There is one part of Mrs. H's story that troubles me, and you [SDM] picked up on it in your reflections. Toward the end of her story she says that she "wants to move more of her 3 – 5 grade students into comprehension next year" and that she plans to "incorporate comprehension activities in addition to phonics for 3 – 5". One of the things that I think teachers will learn from the state's new comprehensive literacy approach is that we need to help children get meaning from text right from the start—when they're first learning how letters and sounds correspond and on from there. I think a lot of teachers are like Mrs. H. and think that first we focus on phonics and then teach comprehension, when, in fact, we need to learn to build up the two together. (TJM, NPM)

> I wonder if much of the instruction and intervention that Joshua has received has attempted to teach him skills and standards in isolation rather than helping him learn how to use a range of skills and strategies flexibly and toward the purpose of deriving meaning from text. (SJM, NPM)
>
> And like your colleague SDM, you suggest that the consistent focus on word by word reading and pronouncing each word correctly has interfered with Ethan's ability to get meaning from text and develop comprehension strategies that will serve him for the long haul. That is a critical insight about Ethan and about the system of support that may be in place at your school. (SJM; NPM)

School/district members also surfaced questions about the pressures of state accountability testing may impact instructional decisions and teacher practice. One school/district member, including a personal reflection as well, shared this concern:

> I worry, too, that we extinguish some of the love of reading (and writing) and the natural curiosity and interest in learning that children have in our current high stakes testing environment (especially with our very young children). I have seen reading become a chore to my own personal children and watched a boy who loved to write and would write "chapter books" on my computer in 1st and 2nd grade grow to hate writing. This concerns me greatly. I know, personally, I loved to read and devoured book after book until college and then I HAD to do so much academic reading that for a long time (years) I just couldn't seem to get back to reading for enjoyment. Likewise with writing, I loved to write and wrote stories, poetry, etc and had dreams of someday being a novelist... until college... and I feel like all the "researchy" academic writing I did zapped my creativity.

> It hurts me to think that this may be happening even to elementary aged children. I don't think it has to be that way, but many teachers feel so pressured about the "test" that instruction ends up being test drill. (TJM, SDM)

More broadly speaking, another district member highlighted how teacher capacity impacts instructional design and the opportunities students are afforded in the classroom:

> One issue I saw was the lack of knowledge about teaching reading. She seemed to equate good instruction with her children completing lots of worksheets. She discussed successes with reading instruction that didn't have anything to do with reading. There was no discussion about reading aloud to children or having them explore books independently. There was a lot of discussion about selection of appropriate worksheets for her class. This saddens and concerns me. (TJM, SDM)

Finally, department of education members saw similar areas of concern, surfacing a lack of attention to writing and varying degrees of student expectations:

> I think it is noteworthy that Mrs. Betty has a lack of time for writing in Tier I which makes it seem that she does not see writing as an essential component in Tier I. (TJM, DOEM)

> I agree [SDM] with your concern about the low expectations, and I think this is a pervasive issue in education. Too often our educators decide what "parameters" a student can achieve based on demographic information or a label [ie: economically disadvantaged, student with a disability], without giving them the opportunity to master the standards. I have found that there is substantial variability between teachers, schools, districts, etc. regarding expectations for students. For example, what one school expects

of its students might be considered by teachers at a neighboring school to be unrealistic. (TJM, DOEM)

Questionable instructional decisions regarding intervention placement, instruction, progress monitoring, and decision-making for student transitions in and out of varying tiers of support also emerged. One network member reflection, prompted by network leadership to help members question systems in place that do not best support struggling readers' needs, posted this synthesis:

> I have to say I am a little perplexed by [this student's] journey and some of the decisions that were made on his behalf. This is a child who seems to benefit greatly from intensive intervention, and yet the pattern seems to be to decrease the help he's getting at various points, at which times his progress stalls and his behavior and motivation declines as well. For example, he didn't do well in first grade but was exited from Tier 3 to Tier 2. Why not keep him in Tier 3 if he was benefitting so much? In second grade he seems to have made progress in Tier 2 and with after school support, but again, why wasn't he a candidate for Tier 3 so that he could have consolidated his skills and not always been on the brink of a downturn? In 2nd grade he "soars through intervention" and so is removed from Tier 2, and yet his teachers talk to his mother about getting more support for him and perhaps changing his meds. Why would the school leave it to his mom to find and provide the support and not continue to support him as forcefully as possible? And why, when Joshua appears to avoid certain reading activities, the burden is on him and his mom to "fix" his behavior through motivation and adjustment to his meds, rather than trying to identify and ameliorate the reading difficulties that may be causing or exacerbating his behavior problems? It seems like Joshua is promoted each year with the

> "hope" that he'll be successful, but no confidence is expressed by his teachers that he really will be, nor is there a clear strategy for monitoring his progress and making sure he gets the level of service he needs and isn't allowed to regress. (SJM, NPM)

In a similar reflection about local RTI practices, one school/district member noted frustration in not seeing student progress and possible elements of the system that potentially influenced troubling student outcomes:

> A few things I noticed in looking at this child's journey regarding our school /district was that changing assessment programs frequently made it difficult to accurately track the student's progress from year-to-year. The school/district went through a few years (during this student's journey) when things were very inconsistent from year-to-year. We also were implementing RTI squared during this student's journey (beginning with his first year in first grade) and that has been a growing process with changes/improvements being made each year. I see a few holes in the process that may have impacted this student, however, I feel this year has been our most successful implementation so far and the results were about the same as previous years. (SJM, SDM)

One department of education member, also curious about RTI instructional decisions and practices, had this emotional response:

> John sounds like a wonderful boy who needs support. It sounds as if, in spite of intensive intervention in specific skills, he continues to lose ground. This makes me very sad! As I read this story, it motivates me even more to work together to find solutions that will help children like John. I have many questions still — were teachers able to isolate specific deficits and focus on those? Were interventions too narrow in focus? I agree with others

in that we are obviously working very hard at supporting our students, yet many are not progressing or progress for brief periods and then regress. (SJM, DOEM)

Lastly, members repeatedly voiced concern and frustration with evidence that the instruction provided in their schools and districts was ultimately failing students:

> Ashley's story breaks my heart. She's sweet, she's willing and she's depending on adults to help her yet we can't. (SJM, SDM)

> It is also troubling to me that I see the pattern (as with many of our students) of a student who we work with year after year, only to have him exiting [intervention services] on about the same level (about a year behind). (SJM, SDM)

> … I too wonder how it is possible that so many of these students continue to struggle with phonics and fluency despite receiving 45-60 minutes of intensive daily intervention for years. What are we doing wrong?? (SJM, SDM)

Although the following example offers a reflection about advanced students, member sentiment and desire for different outcomes is the same:

> We spend much time working on helping students who struggle with literacy, as we should, but many times we do not push the advance students. I have seen areas in our district data where we have not made the growth with our advance students. We should also place a high level of importance on challenging those students with their literacy skills. (TJM, SDM)

Lastly, network partner member comments surfaced similar reflections on the network's student journey map experiences:

> Sam is a child who has received consistent, intensive interventions, and yet he continues to "hover" at a consistent and unacceptable level. (SJM, NPM)

> I think you summed up his journey when you wrote that he started behind in K, and then, regardless of the interventions, has never caught up. (SJM, NPM)

Finding #3: Educators lack self and system awareness to guide best practice.

In line with the networked improvement community's organizational focus on better understanding what was influencing stagnant reading scores, evidence emerged that members were exploring a lack of educator and system-wide awareness as a possible contributing factor. Sixty percent of both student and teacher journey maps surfaced these concerns, and most often member reflections centered on educators' inability to name the strategies they used with struggling readers, how and why they chose to use certain practices, and what types of practices lead to struggling student success. Highlighting early trends within teacher journey maps, one network partner member pointed out:

> Last, it's curious to me that Amelia is still "unsure about which [teaching] strategies work, and why and/or how to differentiate. . ." This reminds me of Lindsey's "mystery" about her successes. I hope our work can clear up some of these mysteries so that teachers know better what to do and why, and they can also anticipate and test their actions to see if, in fact, they "work"! Thanks for posting. (TJM, NPM)

Similarly, this department of education member shared this reflection: "While she did relate some success stories, I found it interesting that she often could not pin point why what she was

doing worked." (TJM, DOEM). One school/district member, sharing a comparable concern, noted:

> I also was concerned that she [teacher from teacher journey map] could not really tell me specifically what she had tried with her struggling student other than trying to find reading materials that interested him and could not pinpoint what had helped her successful student other than their relationship. (TJM, SDM)

One network member noticed this same phenomenon in reflecting on another member's post:

> I'm curious that she [teacher from teacher journey map] was able to articulate how her experiences as both a k and a 5th grade teacher helped her work with struggling second graders as a whole, and yet she wasn't able to discuss the strategies that she used with the two children that you discussed specifically. (TJM, NPM)

Likewise, one school/district member shared this reflection on a discussion with a teacher: "Mrs. Stewart, like many other teachers we know, believes she taught her students to be "good solid readers" but doesn't have the data to validate it." (TJM, SDM). And finally, one department of education member shared this assessment from the teacher journey map experience: "I would estimate her [teacher] to be the "unconsciously competent" teacher – the one [who] is doing well, getting good results, but can't really analyze what really makes the changes in her students." (TJM, DOEM)

While many member reflections and discussions regarding self and system awareness highlighted member concerns, there were also some noted examples of educators exhibiting levels of awareness about self or system practices. One school/district member noticed a level of teacher awareness about student needs that ran contrary some previous teacher interactions:

> Upon reflection of this [teacher] interview, the success and challenges during her first year spark an unusual note. Her success student is the autistic Hispanic student with a full time assistant that learned some words by the end of the year and the challenge student was reading beyond grade level. I feel that most teachers would have reversed the wording and had the challenge being the below level reader and the success being the advanced reader. This teacher realized that the advanced reader was on that level not because of her instruction, but she had to provide instruction that would push the student toward success at a different level than the rest of the class challenging her to dig deeply. Her success was teaching an ELL, non reader student with a disability to read some, which would still be a below level reader. (TJM, SDM)

Likewise, this department of education member, reflecting on a teacher interview, appreciated a teacher's new level of awareness that was evident around data and differentiation:

> I love that she sees great benefit in having assessments that help her understand what each child needs. I also enjoyed hearing her reflection that she "she tended to teach and reteach the same content to all of her struggling readers" and now realizes that this strategy was not working. (TJM, DOEM)

Lastly, one school district member called attention to a heightened awareness about frequent changes in local system practices and how these elements of the system possibly affect students:

> It is also troubling to me that I see the pattern (as with many of our students) of a student who we work with year after year, only to have him exiting on about the same level (about a year behind). A few things I noticed in looking at this child's journey regarding our school /district was that changing assessment programs frequently made it difficult to accurately track the student's progress from year-to-year. The school/district went

> through a few years (during [the time noted in] this student's journey) when things were very inconsistent from year-to-year. We also were implementing RTI squared during this student's journey (beginning with his first year in first grade) and that has been a growing process with changes/improvements being made each year. I see a few holes in the process that may have impacted this student, however, I feel this year has been our most successful implementation so far and the results were about the same as previous years. (SJM, SDM)

Finding #4: Struggling students share similar early educational experiences.

Common descriptions of struggling students' early educational experiences, and member beliefs and perceptions of the impact of those experiences, emerged in NIC member reflections and discussions. Many of the struggling readers that members spoke of as a part of the network inquiry experience came from disadvantaged home environments and struggled with attendance, attention, and motivation. Members also questioned the quality of instructional opportunities in the classroom, particularly noting a disconnect between student interests in non-fiction text and teacher perception of and use of these materials. One school/district member, sharing thinking about why one student might have been struggling, shared this reflection:

> Another thing that plays into all this [student struggling with reading] was her home life. She has a very supportive mom, but she has lived through divorce, a dad deciding not to have anything to do with his children, having to live with grandparents (and mom), mom getting remarried, and finally being adopted by a "new" dad that loves her and takes care of her. I feel like her struggles with reading/school came with her family struggles. (SJM, SDM)

In a similar reflection, this school/district member offered this perception of how home environments affect school success:

> … it begins with a home environment that has not supported the child in early literacy by reading to them and working with them before they begin school. Then I see broken homes where the student has many adult issues introduced in their lives at a young age. Many of these outside circumstances affect the student's motivation in the school environment. They create the negative attitude and behavior. (SJM, SDM)

Another school/district member shared this comparable reflection:

> It seems that [the student] has overcome many obstacles throughout his educational career thus far (living arrangement, hyperactivity, sickness, and recently the loss of a grandfather)... Based on the information I have obtained, it appears that his foundational skills were hindered due to his lack of ability to focus. His sickness and excessive absenteeism also caused him to fall behind and perform below expectation. (SJM, SDM)

Similarly, one school/district member, offering this noticing about a struggling student home life, also acknowledge not knowing how to best support this student's needs:

> His mother is currently incarcerated so he seems to have other things that fill his mind. It is sad what children have to endure at young ages. He is very pleasant to talk with but I am not sure we have narrowed down what we can do to change his course. Dakota has no one at home to encourage him to read. (SJM, SDM)

Academic support prior to kindergarten also surfaced as a possible element impacting student success. One school/district member shared this wondering:

> I have to wonder where Daisy [student from student journey map] would be academically and socially if she had attended PreK or Head Start. It sounds like she had no exposure to

> other children for early social skills and the lack of someone reading to her was huge. (SJM, SDM)

Likewise, academic support outside of school was also discussed. Multiple school/district members examined this facet of the problem this way:

> Reading does not seem to be a priority at home either; however, he [the student from the student journey map] wants to please at school. (SJM, SDM)

> Could she [the student from the student journey map] benefit from being part of a program such as "Big Brother Big Sister" to have a consistent mentor? I don't hear her getting academic support from anyone when she leaves school. (SJM, SDM)

> According to what John told me there has not been a rich literacy environment at home. He did not attend PreK. He could not remember his parents reading to him much at home or providing many different books. It was sad for me to see the lack of support John had during the early years of life in preparing him to be successful in literacy. It also made me think about how can we do a better job of reaching kids that do not have support at home in the early years of their life. (SJM, SDM)

Lastly, one department of education member, summing up a variety of concerns addressed in conjunction with another member's student journey mapping reflection, identified the impact of absenteeism and focus, the effect a sense of belonging with friends has on school success, and the power of engaging instructional resources:

> Reading Ethan's story has made me consider various environmental factors related to school success. Both you and NPM noted absenteeism and his inability to focus, but I

> also noted the change in his demeanor and motivation with a close friend moved away, and his excitement over a book series he shared that he loved. Capitalizing on a love for this series (whether reading independently or with someone) could serve as a catalyst for continued growth. Also, I wonder how long it took Ethan to find a new close friend who – in whatever way it may have helped – motivated him in school? Thank you for sharing Ethan's journey… (SJM, DOEM)

Finding #5: Educators exhibit a lack of trust and/or understanding of how to use instructional data.

When reflecting on how best to support struggling students, the level of trust educators have in data and how they use it, surfaced as a problem to further explore. In fact, sixty percent of student journey maps alone called attention to this component of instructional practice. Evidence showed that members saw or reflected on systemic problems in identifying reliable data sources and utilizing data in strategic ways that support struggling students. One school/district member, reflecting on personal experiences, related the issue this way:

> Your [fellow SDM] student journey map data reminds me of what I have witnessed with students: fluctuating data from various sources. I feel that sometimes we can be "data rich" but more confused than ever about which data accurately reflects the learning status of the student. A "bouncing ball" student is often the hardest to decide if the interventions are working or not working. In my work with intervention students, I had a fear of pulling a student out of intervention too soon even if the data tell us the child scores about the 25%, especially with such fluctuations of scores from test to test. The perfect example is from this child's second grade year of scoring 40% and being dismissed from

> intervention services even though the i-Ready did not indicate he was on track to meet his goal. Does scoring well on one test indicate readiness to leave intervention services knowing the other data available on this student indicates a need for continued services? (SJM, SDM)

One network partner member, calling attention to members examining user perspective in how it must feel to be a struggling student impacted by data-driven decisions, explained ineffective data use as resulting in situations similar to this one:

> I notice in Joshua's story [student from student journey map], like a couple of the others, that one of Joshua's teacher's was concerned about his reading growth, but the RTI assessment indicated good progress. Whenever we see this dissonance we need to stop and ask what's going on! I noticed too that Joshua's journey at times resembles a bouncing ball as he goes back and forth between Tier 2 and 3. That too is a problematic pattern that calls into question how decisions are made to move children back and forth. It seems like cut points on the assessments are being used, but no one is holding themselves accountable to look at Joshua's journey overall (as you just did) to understand "the core of Joshua's reading difficulties" and how to resolve them. (SJM, NPM)

Surfacing a success and a concerns, one department of education member highlighted that while some educators might be successfully using data for student placement, they may not be using varying data sources in pursuit of improving instructional practice to best meet student needs or improve their practice, sharing, "I find it interesting that though she [teacher in teacher journey map] discusses data as a way to place students, it doesn't seem that data is used to support instructional decisions." (TJM, DOEM). Another school/district member, also reflecting on a

teacher journey map interview, shared a similar concern. Wanting to see more teachers use data to improve their instructional practice, this member said:

> This [teacher] interview also highlighted for me again the concept of a "battle" between the data and the teacher perception that we see in our school. One thing that concerns me is that I feel there is still some suspicion or a lack of trust that prevents teachers from being completely honest with where they might need support or help. This seems to be a difficult "wall" to break down and prevents some teachers in our building from being completely honest and reflective about their practice. (TJM, SDM)

One school/district member, reflecting on the teacher interview experience, was "puzzled by the lack of data in our discussion" and how emotions might be the primary source of decision-making:

> When talking about the two students, she [teacher from the teacher journey map]never brought up data as a measurement. In saying she was glad SAT 10 was going away, students going to school longer with less breaks, and students not being "developmentally ready", I wondered if many decisions were being largely based on emotions rather than actual data gotten by students' academic achievement. (TJM, SDM)

Lastly, multiple members of the network surfaced the misalignment of intervention data, teacher observations, and report card scores as an issue to further address. In a student journey map reflection, one school/district member shared: "Report cards from teachers showed he was mastering grade level standards, but other tests did not substantiate this." (SJM, SDM). Likewise, this network partner surfaced a disconnect only between intervention data and teacher observation but also concern about how the educators working with the student are determining the student's reading abilities:

> You mention that he's having trouble with sight words and phonics, he needs to point when he reads, he's been in Tier 3 all year, you're worried that he has memory problems, and he's reading at a level L when the target is O (3 levels below standard and 2 levels below where he was in grades 1 and 2). And yet his teacher says he has "great comprehension"! How can that be? And how does it relate to your reflection that "[the student] can summarize information that he's learned from a reading experience (when he's read to)." Does this mean that when [the student]'s teacher and/or the interventionist are working on comprehension with him that they are doing the reading and he's not reading on his own? (SJM, NPM)

In a similar reflection about data not aligning, a department of education member commented:

> I also immediately noted the discrepancy between what [the student's] classroom report cards were saying and what other assessments were noting about Joe's level of mastery and progress. It has made me wonder about classroom-level alignment of assessments to the expectations of these additional measurements...? Could these classroom-level assessments give a teacher a false sense about Joe's level of achievement and mastery of skills? Was each teacher surprised at these findings and did they wonder these same things? (SJM, DOEM)

And in another follow up post this school/district member expressed a final summarizing question about the reliability of this type of data: "First of all, I ask the same question as DOEM: are classroom assessments giving teachers and parents a false level of mastery?" (SJM, SDM).

Finding #6: School and school district policy and/or practice impacts early literacy experiences.

Half of journey map experiences called specific attention to school and school district policy and/or practice impacting early literacy experiences. One particular topic that generated ongoing discussion among members was retention, or not allowing a struggling student to advance to the next grade level due to certain factors, and the impact of this policy. One school/district member posed this question concerning retention and requested further network discussion:

> I wonder, do you think retaining him would have had a positive effect on his reading ability? Even though research says that it's not effective, schools still practice retention — a lot. Our school does too. I'd like to see some more discussion on this as a practice in our schools. (SJM; SDM)

Similarly, one school/district member, summing up a description of one struggling students' journey that included the decision to retain the child, said in this way: "I am also questioning the idea of retention, when and if it should be considered - what benefits we might see, what harm we might see as a result of that decision." (SJM, SDM). Examining rationale and potential harm was the focus of two network partner posts. Both, sharing a concern that schools would hold back students in "hopes" that they would catch up, call out the need for more explicit and strategic plans of support for struggling students:

> It also looks like two of his teachers recommended him to be retained, but his mom refused. This raised questions among your colleagues about when and whether it's good to retain children—which is something we can definitely find out about. I wonder though about the 1st grade teacher, the only veteran in the line-up, who thought retention would give Tony "more time to absorb the material". Does Toby need more time to do the same

> stuff or does he need different strategies to make progress in reading? (Does he need to work harder, longer or smarter?) Perhaps Toby's parents who refused to have him retained were worried that just more time would not do him much good? (SJM, NPM)

Likewise:

> Similarly I'd question the decision to retain John [student from student journey map] because "otherwise he will start out school behind", and the hope that being held back for a year –with no other new or more strategic intervention– will enable him to catch up to his classmates. It sounds like John is already way behind, and neither she [the teacher], nor anyone else, has figured out how to work with a child "who knows his ABCs, but not what to do with them". (TJM, NPM)

Questionable instructional decisions regarding intervention placement, instruction, progress monitoring, and decision-making for student transitions in and out of varying tiers of support also emerged. One network member post, poised by network leadership to question systems in place that do not best support struggling readers' needs, posted this synthesis:

> I have to say I am a little perplexed by [this student's] journey and some of the decisions that were made on his behalf. This is a child who seems to benefit greatly from intensive intervention, and yet the pattern seems to be to decrease the help he's getting at various points, at which times his progress stalls and his behavior and motivation declines as well. For example, he didn't do well in first grade but was exited from Tier 3 to Tier 2. Why not keep him in Tier 3 if he was benefitting so much? In second grade he seems to have made progress in Tier 2 and with after school support, but again, why wasn't he a candidate for Tier 3 so that he could have consolidated his skills and not always been on the brink of a downturn? In 2nd grade he "soars through intervention" and so is removed

> from Tier 2, and yet his teachers talk to his mother about getting more support for him and perhaps changing his meds. Why would the school leave it to his mom to find and provide the support and not continue to support him as forcefully as possible? And why, when Joshua appears to avoid certain reading activities, the burden is on him and his mom to "fix" his behavior through motivation and adjustment to his meds, rather than trying to identify and ameliorate the reading difficulties that may be causing or exacerbating his behavior problems? It seems like Joshua is promoted each year with the "hope" that he'll be successful, but no confidence is expressed by his teachers that he really will be, nor is there a clear strategy for monitoring his progress and making sure he gets the level of service he needs and isn't allowed to regress. (SJM, NPM)

In a similar reflection, one school/district member noted frustration in not seeing student progress and factors of the system in place that potentially influenced these outcomes:

> A few things I noticed in looking at this child's journey regarding our school /district was that changing assessment programs frequently made it difficult to accurately track the student's progress from year-to-year. The school/district went through a few years (during this student's journey) when things were very inconsistent from year-to-year. We also were implementing RTI squared during this student's journey (beginning with his first year in first grade) and that has been a growing process with changes/improvements being made each year. I see a few holes in the process that may have impacted this student, however, I feel this year has been our most successful implementation so far and the results were about the same as previous years. (SJM, SDM)

Likewise, one school/district member highlighted a need for stronger system practices to support struggling readers exiting from additional support in Tier 2 and 3 to no additional support outside Tier 1:

> I too wondered if his "ups and downs" resulted from the "in and out" of intervention. I think that is something we need to look at. Also I think that if we do move a child out of intervention, we need a system that carries over to the classroom. A smoother transition should ensure success. (SJM, SDM)

Finally, policies and practices related to teacher placement and ongoing support also emerged. In this exchange among four network members (two SDMs, a DOEM, and a NPM), teacher placement and resulting student outcomes surfaced as problem areas to further explore:

Primary Post/Reflection from SDM:

> Her [teacher from the teacher journey map] first teaching job was as a kindergarten to 1st grade transition teacher [transition class for K students exiting K but identified as not ready for 1st grade]. She was trying to help those struggling students be ready for 1st grade. This was her first clue about college not preparing her.... She leaned towards veteran teachers as her mentors because she said they had already survived the trenches. (TJM, SDM)

SDM response:

> I was also curious of the fact that our county had a K-1 transition teacher. My first year of teaching at the middle school we had a 6th grade transition teacher. This proved to be nothing but a bust for our school and our students so it only lasted the one year. I'm really curious to know if the same results were received for the K-1 transition or if there

is another reason why that class only lasted a short time. I would love to know if other counties have these transition classes and the success behind them. (TJM, SDM]

DOEM reflection:

In a conversation with a district leadership team earlier today, we talked about the perception of teaching struggling students as being the place where teachers were put to "pay their dues". It appears this is the same perception that Mrs. M has. And yet, data tells us that when struggling students are put with highly effective teachers for two years, they reach levels of annual and catch up growth that wouldn't be possible without that effective teacher. This perception of having to "learn in the trenches" is common, but I am concerned that this is part of a larger issue. (TJM, DOEM)

NPM addition:

The issue that you raise about teacher assignment came up in the post-it activity at [one of our network meetings] – specifically that the most effective teachers aren't always assigned to primary grades [because] these grades aren't tested. Suggesting that its also a boot camp for them [teachers] to 'pay their dues' puts a further problematic spin on it. The primary grades are so important to children's lifetime success. Let's figure out how to assign and support our teachers to enable all children to have a strong start! (TJM, NPM)

In addition to exploring *what* initial understanding emerged for the network about their problem of practice, the researcher sought to examine *how* network members began to make sense of the problem they were identifying. The following section outlines findings and evidence for answering this question.

Research Question 2: The Process of Sensemaking

Sensemaking has been a central topic in the study of organizational life and especially in educational improvement (Coulter, 2016; Ganon-Shilon & Schechter, 2017; Hayes, 2016; McCauley-Smith et al., 2015; Rigby, 2015; Shaked & Schechter, 2018), government (Klein et al., 2010). Organizations that find a way to leverage this process to their advantage tend to have more successful outcomes than those that remain stagnant in their organizational learning (Klein et al., 2010). Understanding how organizations "learn to make sense and make sense to learn" (Colville et al., 2016) was a key focus of this study.

The following definition of sensemaking guided the research investigation: sensemaking is an ongoing and social process through which people work to understand novel, ambiguous, or confusing issues by attending to cues and enacting a more ordered environment from which further cues can be drawn (Maitlis & Christian, 2014; Weick, 1995). In exploring how the process sensemaking occurs given the details of this case, the researcher sought to answer the following research question and two sub-questions:

How did members of a newly-formed networked improvement community begin to make sense of their organizational problem of practice through inquiry?

a) *What cues triggered member sensemaking?*
b) *What actions propelled member sensemaking forward?*

Four key themes emerged from an exploration of sensemaking theory in the organizational context: sensemaking is (1) social in nature, (2) triggered by cues, (3) driven by action, and (4) ongoing (Maitlis & Christianson, 2014). This process includes interrelated steps of (1) creating an initial sense of understanding from a variety of environmental cues, (2) interpreting those early understandings in an effort to make new understandings more plausible

with previous understandings, and (3) enacting a new reality where by the process most often starts again (Weick, 1995; Sandberg & Tsoukas, 2015). These elements, while distinguishable from one another, are also inevitably intertwined (Maitlis & Christian, 2014; Weick, 1995). In considering how to examine these key elements for this case, the researcher examined the social and ongoing nature of the sensemaking experience within her exploration of how member sensemaking was triggered by cues and propelled forward by action (Brown et al., 2015, Maitlis & Christian, 2014; Maitlis & Sonenshein, 2010; Sandberg & Tsoukas, 2015; Stigliani & Ravasi, 2012; Weick, 1995). Therefore, and as outlined in the *Limitation and Delimitations* of the study, the social and ongoing nature of the sensemaking process will be shared in conjunction with the following two theoretical themes aligning with research question two sub-questions:

1. Theoretical Theme 1: Sensemaking is triggered by cues
2. Theoretical Theme 2: Sensemaking is driven by action

Research Findings

Theoretical Theme 1: Sensemaking is Triggered by Cues

Individuals both consciously and unconsciously notice and bracket cues from the environment as the sensemaking process unfolds. These cues are simple, familiar structures that individuals become attune to as they seek plausible understandings of both their environments and their social and ongoing interactions with others (Holt & Cornelissen, 2014; Maitlis & Christianson, 2014; Weick, 1995). Member reflections and comments served as windows into the types of cues that triggered the network's emerging sense of their problem of practice. Attention to this key sensemaking theme revealed three key findings:

1. Member sensemaking was triggered by expertise and/or perceived knowledge.

2. Member sensemaking was triggered by seeking to resolve confusing, ambiguous, and/or novel information.
3. Member sensemaking was triggered by noticing common issues/trends.

Data were analyzed, and findings were developed, based on code application presence and code co-occurrence analysis (Bloomberg & Volpe, 2012). Table 7 shows the application of codes for sensemaking as *Triggered by Cues*, highlighting what number and corresponding percent of both student and teacher journey maps (SJMs and TJMs) had each code applied at least once. Given that network members were using both student and teacher journey mapping experiences equally to make sense of their problem of practice, the researcher examined those codes applied across the greatest number of given journey maps in an effort to explore the kinds of cues that most triggered sensemaking for these members.

Table 7

Code Application Numbers and Percentages for Sensemaking as Triggered by Cues

Triggered by Cues	SJMs	TJMs
SM_TbC_Common issue/trend	10/15 @ 67%	19/23 @ 83%
SM_TbC_Confusing, ambiguous, novel information	12/15 @ 80%	15/23 @ 65%
SM_TbC_Contrasting Example	4/15 @ 27%	2/23 @ 9%
SM_TbC_Data/reality mismatch	6/15 @ 40%	2/23 @ 9%
SM_TbC_Expertise	13/15 @ 87%	21/23 @ 91%
SM_TbC_Frustration	6/15 @ 40%	7/23 @ 30%
SM_TbC_Outlier	0/15 @ 0%	5/23 @ 22%
SM_TbC_Personal Connection	1/15 @ 7%	13/23 @ 57%
SM_TbC_Positive element	9/15 @ 60%	13/23 @ 57%
SM_TbC_School-level failures	6/15 @ 40%	2/23 @ 9%
SM_TbC_Similar example	10/15 @ 67%	11/23 @ 48%
SM_TbC_Similar thinking	10/15 @ 67%	10/23 @ 43%
SM_TbC_System-level factor	2/15 @ 13%	22/23 @ 96%

Likewise, the researcher also examined the data for code co-occurrence *within each of the three identified code applications* for specific elements of the network's problem of practice that most corresponded with the types of cues that most often triggered member sensemaking. Meaning, what specific topics - about and within the network's larger problem of practice of literacy - served as cues for initial and ongoing member sensemaking. Table 8 outlines the aforementioned code co-occurrence, and to what degree, for each key finding. A researcher-generated code co-occurrence scale was created for each sensemaking theoretical theme and included a calculation of (1) total code applications within the given code divided by three and (2) scaled equally to high (H), medium (M), and low (L) occurrence respectively for each third. Code co-occurrence data showed areas of the problem of practice that most often propelled member sensemaking forward were instruction, teacher preparation and ongoing support, self/system awareness, and home and community. Finally, as *system-level factors* triggered member sensemaking in 96% of teacher journey maps (but not in conjunction with a high percentage in student journey maps), the researcher embedded an analysis of this trigger within the high to medium code co-occurrence topics of *Instruction* and *Teacher Preparation/Ongoing Support*.

Table 8

Code Co-Occurrence for Sensemaking as Triggered by Cues

Finding	Code Co-Occurrence by Problem Code (from RQ1)
Expertise	(H) Instruction (M) Teacher Preparation/Ongoing Support
Confusing, Ambiguous, and/or Novel Events	(M) Instruction (M - 1pt.) Self/System Awareness
Common Issues/Trends	(M) Instruction; Teacher Preparation/Ongoing Support (L) Home/Community

Finding #1: Member sensemaking was triggered by expertise and/or perceived knowledge.

There was some natural expectation that member expertise and/or perceived knowledge related to literacy and instructional support systems would serve as triggers for NIC member sensemaking, as the NIC's problem of practice was focused on literacy and members' leadership roles were key aspects taken into account during the formation and ongoing function of the NIC. One factor greatly affecting cue perception and use throughout the sensemaking process is personal identity, influenced by personal belief systems, relationships and power dynamics, and past experiences (Maitlis & Christianson, 2014; Weick, 1995). Members, regardless of role, entered into this sensemaking processes with varied experiences in both early literacy education, support for teachers, and their own teacher preparation and teaching experiences, and these frames of reference served as triggers for member sensemaking.

While network partner members, in particular, were purposefully positioned to provide expertise in literacy and systems analysis throughout member reflections and discussions, all levels of NIC membership showed evidence that the cue of expertise, or at least some knowledge of the topic, triggered their sensemaking in the areas of instruction and teacher preparation and ongoing support. As Farnsworth, Kleanthous, & Wenger-Trayner (2016) share, there is an inherent "claim to competence" within organizations seeking to make sense of an event or issue (p. 16), and member perception of their own expertise or knowledge of a topic emerged as they socially exchanged early and or tentative understandings and tried to agree and/or negotiate shared meaning and future courses of action throughout the ongoing sensemaking process (Klein et al., 2010; Maitlis & Christianson, 2014; Stigliani & Ravasi, 2012; Thomas et al., 2011; Weick et al., 2005).

Expertise and/or perceived knowledge of high-quality literacy instruction and teacher practice triggered NIC member sensemaking and led members to share their thinking on fundamental elements of reading instruction. Two network partner members, triggered by hearing of a lack of quality instructional elements in early literacy instruction, expressed their thinking in the following ways:

> … remarks like these make me wonder if there is sufficient expertise about teaching reading in each of your buildings to help teachers and interventionists 1) accurately "diagnose" a child's problems when the child first comes in, 2) recommend an appropriate treatment plan, 3) measure results to see if the child improves in a timely way as predicted, and 4) have some knowledge about what to try next if the first treatment failed. (SJM, NPM)

> There is one aspect of [this teacher's] story that especially worries me. She talked with you a lot about phonics—as if it were all that there is to teaching and learning reading! While teachers do not to understand why children need to learn phonics and then have strategies to teach them, they also need to help children develop their oral and reading vocabularies, writing skills, text reading and comprehension skills. I hope we can help Lindsey, and teachers like her, develop a more comprehensive understanding and approach! (TJM, NPM)

Recognizing similar disconnects between what high-quality reading instruction should look like and what they were hearing about in their student and teacher journey maps, both school/district members and department of education members explored instructional quality and corresponding educator decision-making. One school district member, triggered by one student's struggles with

reading comprehension and the impact teaching practices were having on his progress, said "Word recognition isn't automatic for Joshua, his reading isn't fluent, and comprehension is suffering. Based on my interview with Joshua, vocabulary is probably being taught in isolation, which is also interfering with comprehension." (SJM, SDM). Similarly, another school district member shared an emotional reflection as she questioned instructional fidelity to both a high-quality program she knew well and Tier I instruction:

> Ashley's story breaks my heart. She's sweet, she's willing and she's depending on adults to help her yet we can't. I know the interventions well in which Ashley has been assigned. In my opinion, they are strong programs... I am curious about the fidelity of the programs. Who is doing walkthroughs to make sure Tier instruction is being executed with fidelity? (SJM, SDM)

Lastly, a department of education member, triggered by experiences in how to make strong instructional decisions based on student data, expressed what she noticed as inconsistencies in one teacher's practice: "I find it interesting that though she discusses data as a way to place students, it doesn't seem that data is used to support instructional decisions." (TJM, DOEM).

Members also noticed and bracketed cues related to the function of educational systems that were (1) designed to prepare teachers to teach reading and (2) provide ongoing support for their professional learning and development. Cues triggered ongoing reflection and discussion around educator learning and professional development, staff placement, ways educators seek to fill gaps in their capacity. After reading about one teacher interview where the teacher shared that she did not feel prepared to teach reading, one network partner member noted:

> I'm not surprised that [this teacher from the teacher journey map] felt unprepared, early on, to teach reading, or that she followed the basal closely or learned from her colleagues.

> I suspect we will hear about those survival strategies over and over, as well as the question about why pre-service programs can't better prepare new teachers. (TJM, NPM)

Similarly, one school/district member, reflecting on local experience with a specific reading program, necessary teacher training, and teacher misconceptions that surfaced as a result of transitioning to a new reading program, acknowledged the following concern about teacher capacity:

> I think many of our teachers would agree that the [reading] program and the training received in conjunction with it helped to "fill in" the gaps in their knowledge of teaching phonics, however, the program produced a lot of students who could "call words" but struggled mightily with comprehension as it taught the phonics skills in almost complete isolation and there was not a lot of integration between that program and any literature experiences the students were exposed to. As a result, we moved away from that program, but it left some of our teachers confused as they thought the goal was to move away from phonics. Some of our teachers see the two as the same thing- Wilson IS phonics and phonics IS Wilson. I think this highlights the misconceptions and lack of preparation/knowledge that many had regarding teaching reading when entering the profession. (TJM, SDM)

The role of teacher placement, and how in this case it impacted the degree to which this teacher was successful with her students, was also a trigger for member sensemaking. One school/district member shared:

> I felt like she [teacher from teacher journey map] definitely didn't feel comfortable with teaching fundamentals in reading with the younger students. She seems to be much more comfortable with teaching reading to the older students. It is sad that due to budget, class

> size, etc. that she will probably be moved again this year. I feel like her approach of just teaching them to enjoy reading doesn't work in 1st and 2nd grade; meaning there has to be more taught. The attitude and modeling is important, but [this approach is] not the "meat" of reading instruction. (TJM, SDM)

Lastly, one department of education member, also recognizing that there was little to no support for the teacher she interviewed for the journey mapping experience, expressed:

> … it was disheartening (although not surprising) that much of what she has learned was self-taught. Janet is a go-getter who will do the work to research and try out different things until she finds one that works. It was clear in our discussion that she did not have outside support. She didn't get what she needed in her undergraduate program, but she also wasn't provided with tools once she started teaching. (TJM, DOEM).

Finding #2: Member sensemaking was triggered by seeking to resolve confusing, ambiguous, and/or novel information.

As sensemaking experiences, in general, are triggered by uncertain, ambiguous, or novel events, these types of cues served as a springboard in the meaning-making process (Maitlis & Christianson, 2014; Weick, 1995). Members of the networked improvement community routinely acknowledged times when they were uncertain, confused, and/or curious about what fellow members were sharing, especially around instruction and teacher preparation (See Table 8). A network partner member, noticing confusing data about student progress and educator decision-making, relayed this follow up:

> I've got to say, given the data that you shared, it's hard to make sense of his [student from student journey map] progress, or the decisions that were made about his supports.

> Overall it sounds like he was in and out of intervention year to year and sometimes within a year, because his scores jumped around. (Am I right that in k [kindergarten] he qualified for intervention and finished the year above targets, which sounds like a success story, but he started first grade below, and then in first grade he was up in the winter and down again in the spring? Then in second grade he starts and stays well below target, but in third grade he initially doesn't qualify for interventions and then later in the year he does?) Does anyone know what accounts for any of his ups and downs? And did anyone ever stop to ask if moving him in and out of intervention was helping him progress as a reader? (SJM, NPM)

Likewise, confusion about terminology-use was a cue for one network partner member: "A few questions and things I noticed: I'm curious that one teacher describes [the student from the student journey map] as "average but struggling academically" and another as "average" but with family concerns. I'm not sure what average means when used in these ways." (SJM, NPM). In another instance of sensemaking, one school/district member was surprised, confused, and ultimately concerned by a lack of knowledge around a student's home environment uncovered in one student journey map, noting:

> There was an immediate concern when I spoke to Joe's classroom teacher and she did not know his parents only spoke spanish and did not allow english in the home. Is there something during instruction that would have changed with this knowledge? (SJM, SDM)

Another school/district member, triggered by a lack of data use, sought to resolve confusion about how and with what data the teacher from her journey mapping experience makes instruction decisions:

> I was puzzled by the lack of data in our discussion [teacher journey map interview]. When talking about the two students, she [the teacher] never brought up data as a measurement. In saying she was glad SAT 10 was going away, students going to school longer with less breaks, and students not being "developmentally ready", I wondered if many decisions were being largely based on emotions rather than actual data gotten by students' academic achievement. (TJM, SDM)

And lastly, questions about teacher training around data use served as a cue for sensemaking for one department of education member:

> Ms. Kaci [teacher from teacher journey map] could speak to the data points collected for students receiving intervention; however, I would be curious to know more about her training in RTI and use of data to make instructional decisions. Also, how do tier supports connect to better support the student in tier 1? (TJM, DOEM)

Finding #3: Member sensemaking was triggered by noticing common issues/trends.

Individuals' explicit or implicit use of experiences, and the connections made between and across multiple experiences, served as cues for the meaning-making process. NIC member sensemaking was triggered by a growing awareness of common issues and trends and included both personal and organizational noticings, especially in the areas of instruction, teacher preparation, and home and community. One school/district member, triggered by awareness of a pattern regarding instructional outcomes for struggling students in the local district, began to make sense of this pattern in this way:

> It is also troubling to me that I see the pattern (as with many of our students) of a student who we work with year after year, only to have him exiting on about the same level

> (about a year behind). A few things I noticed in looking at this child's journey regarding our school /district was that changing assessment programs frequently made it difficult to accurately track the student's progress from year-to-year. The school/district went through a few years (during this student's journey) when things were very inconsistent from year-to-year. We also were implementing RTI squared during this student's journey (beginning with his first year in first grade) and that has been a growing process with changes/improvements being made each year. I see a few holes in the process that may have impacted this student, however, I feel this year has been our most successful implementation so far and the results were about the same as previous years. (SJM, SDM)

Triggered by a trend that was first noticed in student journey mapping experiences, regarding student preference for engaging science and social studies text, one network partner member called out a recurring issue to further explore regarding instructional practice in the reading classroom. A related positive outlier served as a cue triggering this sensemaking response:

> It was also interesting that Mrs. K's children enjoy learning science and social studies and especially when she teaches in ways that combine visual, auditory and kinesthetic learning. Remember all the student maps that described children who loved to read history and science? (TJM, NPM)

In the area of teacher preparation and support, one network partner member noticed this early trend: "Even though it's only the second teacher map I've read, I can already see some patterns starting to emerge; ie Amelia [teacher from teacher journey map] didn't feel prepared to teach phonics, she followed the teacher's edition, and got support from her colleagues." (TJM, NPM).

In a similar reflection, this network partner was also prompted to sensemaking by a comparable finding:

> I wasn't surprised that in Anna's pre-service program [teacher from teacher journey map] she learned all about organizing instruction around a Valentine's book—everything that is except how to actually teach kids to read the text. Unfortunately, not teaching pre-service teachers how to actually teach reading is already showing up as a prevalent pattern. (TJM, NPM)

Patterns seen with regard to home and community support also triggered sensemaking for network members. These included both ongoing local trends as well as those that were emerging in the network's social context. One school/district member noted seeing "familiar circumstances":

> I see many familiar circumstances with Dakota and students in our district that struggle. First, it begins with a home environment that has not supported the child in early literacy by reading to them and working with them before they begin school. Then I see broken homes where the student has many adult issues introduced in their lives at a young age. Many of these outside circumstances affect the student's motivation in the school environment. They create the negative attitude and behavior. In turn then the teacher gets frustrated. This brings up the question, "how do we provide support in a way to fill in the gaps a negative home environment has created?". In our district we are seeing more of these types of situations. In order to help a child become successful in literacy this is an area we are going to have to work on. (SJM, SDM)

Similarly, another school/district member called out a troubling "correlation", which triggered this sensemaking experience:

> Many times I have also seen the correlation between student absenteeism and struggling with literacy. The concerning part about these situations is the student is the one who usually is punished. They miss out on foundations of literacy, they are disciplined for not finishing their work, and they often struggle throughout the school career. The sad part about the situation is this is actually an adult issue because it is the adult's responsibility to get up the student to school each day on time. Yet to often they are not held responsible for this duty. (SJM, SDM)

One department of education member's reflection on a teacher journey map experience triggered a fellow department of education member's noticing of a common issue concerning how communities see the purpose of kindergarten:

> DOEM 1 Reflection: When asked about addition information to share, she said that parents are not in agreement with the academic demands being placed on their children. With the expectation of all kindergarten students reading by Christmas, it sometimes felt like too much too soon for all of them. In her opinion, students are missing out on some social skill development in favor of the academic work. In her 2nd grade classroom, students that can "support and find text based evidence" often lack in social skills that they should have learned and mastered in kindergarten. On a positive note, some students are definitely ready and capable of the work. (TJM, DOEM)

> DOEM 2 Response: I find it interesting and typical to hear about the concern their community is having regarding "choosing" academic growth over social growth. Somehow, we seem unable to deliver the message that both can happen together. (TJM, DOEM)

Lastly, one school/district member, struck by hearing something again, reflected in her sensemaking about school and home partnerships:

> Finally, as Mrs. K talked about her students, it struck me again how very much parents are partners in their children's learning, and how children are shortchanged when parents don't put the same value on their children's education that teachers do. It's up to us to continually find new and creative ways to encourage and maintain that partnership with our students' parents. (TJM, SDM)

Theoretical Theme 2: Sensemaking is Driven by Action

The ongoing process of sensemaking, driven by individuals and groups of individuals enacting their environment, resulting in new meaning-making, and thus culminating in the need for more action, is essential to how individuals and organizations make sense of their experiences (Maitlis & Christianson, 2014; Weick, 1995). As a result of various cue perceptions, member reflections and comments served as windows into the kinds of actions members took in developing an emerging sense of their problem of practice. Attention to this key sensemaking theme revealed three additional key findings for research question two:

4. Member sensemaking was driven by making declarations.
5. Member sensemaking was driven by making connections.
6. Member sensemaking was driven by challenging "the system" and each other.

Data were analyzed, and findings were developed, based on content analysis, code application, and code co-occurrence analysis (Bloomberg & Volpe, 2012). Table 9 shows the application of codes for sensemaking as *Driven by Action*, outlining what number and corresponding percent of both student and teacher journey maps (SJMs and TJMs) had each code applied at least once.

Given that network members were using both student and teacher journey mapping experiences equally to make sense of their problem of practice, the researcher examined those codes applied across the greatest number of given journey maps in an effort to explore the kinds of actions members most often took as they socially "negotiated, contested, and mutually co-constructed" an initial understanding during these inquiry experiences (Maitlis & Christianson, 2014, p.66).

Table 9

Code Application Numbers and Percentages for Sensemaking as Driven by Action

Driven by Action	SJM	TJM
SMA: Acknowledging not sure what to do	5/15 @ 33%	1/23 @ 4%
SMA: Agreeing with another	9/15 @ 60%	11/23 @ 48%
SMA: Asking a "real" question	12/15 @ 80%	13/23 @ 57%
SMA: Challenging	13/15 @ 87%	17/23 @ 74%
SMA: Making a connection	13/15 @ 87%	22/23 @ 96%
SMA: Making a declaration	15/15 @ 100%	21/23 @ 91%
SMA: Putting forth a proposal/idea	6/15 @ 40%	20/23 @ 87%
SMA: Restating/Repeating Thought	1/15 @ 7%	8/23 @ 33%
SMA: Stating Appreciation	8/15 @ 53%	9/23 @ 39%

As completed with theoretical theme one, the researcher also examined the data for code co-occurrence *within each of the three identified code applications* for specific elements of the network problem of practice member action corresponded. Meaning, about what specific topics - within the network's larger problem of practice of literacy - were members taking action as they sought to gain an initial understanding of the literacy problem. Table 10 outlines the code co-occurrence, and to what degree, for each key finding. A researcher-generated code co-occurrence scale was created for each sensemaking theoretical theme and included a calculation of (1) total

code applications within the given code divided by three and (2) scaled equally to high (H), medium (M), and low (L) occurrence respectively for each third. Code co-occurrence data showed areas of the problem of practice that most often propelled member sensemaking forward were instruction, teacher preparation and ongoing support, self/system awareness, and home and community.

Table 10

Code Co-Occurrence for Sensemaking as Driven by Action

Finding	Code Co-Occurrence by Problem Code (from RQ1)
Making Declarations	(H) Instruction (M) Teacher Preparation/Ongoing Support; Home & Community; Self/System Awareness
Making Connections	(M) Instruction; Teacher Preparation/Ongoing Support
Challenging "the system" and each other	(M) Instruction

Finding #4: Member sensemaking was driven by making declarations

Karl Weick stated that making declarations is a key action sensemakers engage in as they act their way in to a deeper understanding of something (2008, p, 1404). Making declarations emerged as the number one action members of the NIC took across both student and teacher journey maps, and comprised of members declaring emotional feelings, knowledge and opinions, recommendations, hopes and wishes, and intents for action. These declarations represent "a result of sensemaking" and showcase the social and ongoing nature of the sensemaking process for these members (Cornelissen et al., 2014; Ganon-Shilon & Schechter, 2017; Maitlis & Christian, 2014; Sandberg & Tsoukas, 2015; Weick, 2008; Weick, 1995).

All levels of NIC membership declared various forms of emotional reaction as they reflected and discussed their journey mapping experiences and the network's emerging problem of practice. Feelings of sadness emerged as the number one shared emotion, and members expressed their sadness around a variety of problem-focused topics. One school/district member compared her own parenting practices with her children to the experiences of the child she interviewed for the student journey map, sharing:

> Thinking about my own children it made me very sad that Daisy [student from the student journey map] couldn't remember her mother ever reading a story to her. It made me wonder what happens when she goes home and how much attention she is getting. (SJM, SDM)

Another school/district member declared feelings of sadness regarding a lack of literacy experiences at home for the child she interviewed as a part of this process:

> It was very interesting talking with John [student from the student journey map] about his perspective on reading. I sensed immediately because of his struggles it was something he avoided. According to what John told me there has not been a rich literacy environment at home. He did not attend PreK. He could not remember his parents reading to him much at home or providing many different books. It was sad for me to see the lack of support John had during the early years of life in preparing him to be successful in literacy. (SJM, SDM)

NIC members also expressed sadness when reflecting on teacher preparation and ongoing support, one noting here a disconnect between what she knows about best practice in the literacy classroom and what she heard from the teacher she interviewed:

> One issue I saw was the lack of knowledge about teaching reading. She [teacher from teacher journey map] seemed to equate good instruction with her children completing lots of worksheets. She discussed successes with reading instruction that didn't have anything to do with reading. There was no discussion about reading aloud to children or having them explore books independently. There was a lot of discussion about selection of appropriate worksheets for her class. This saddens and concerns me. (TJM, SDM)

Similarly, this network partner expressed:

> It's sad that she had to learn on her own about rhyming words and songs as a way to help young children with phonics, since this strategy has been well documented and supported in a lot of literacy programs for a long time. It's inefficient when we make teachers reinvent wheels!

One department of education member, also reflecting on systems of support for teachers - especially those new to the profession - shared similar expressions of sadness in this way:

> It makes me sad that so many new teachers feel that it is a "sink or swim" experience. This "first year of teaching" is such a critical time in a teacher's career, and when I think about the number of students who are affected by this individual (and an effect that can be very long standing), I shudder to think of the number of students who in turn have sink or swim years... (TJM, DOEM).

NIC members also expressed feelings of "not being surprised" about what they were hearing from the journey mapping experience, especially on the topics of student outcomes, teacher support, and home and community partnerships. One network partner member, reflecting one student's consistent struggles with reading from kindergarten through third grade noted, "It doesn't surprise me that Joshua would rather play sports, watch movies, or have his sister read to

him if, after three years of struggle and hard work, decoding and word recognition are still beyond his reach." (SJM, NPM).

Regarding teacher preparation and ongoing support, one school/district member shared her experiences this way:

> As I listened to Lindsay's teacher journey, I was not surprised by this [feeling unprepared to teach reading]. … I hear this repeated over and over... teachers feel that their personal understanding on how to teach phonics is lacking – which leads to a conversation about pre-service training. I am wondering if teachers across the state would all note that their pre-service experiences did not include enough instruction on how to teach phonics. (TJM, SDM)

One network partner noted not being too surprised by how guarded a teacher appeared during a teacher interview for one member's teacher journey map, joining an ongoing discussion among members about the power of collaboration and culture in teacher support:

> I'm also not too surprised that it was difficult to get her to open up and that she was guarded in her answers. I am assuming that you have not worked with her too much as yet in your new position? And it also sounds like she's not worked with a coach before; in fact, as SDM noted in her comment, she never mentions working with other teachers in any way. (TJM, NPM)

Some member emotion was also positive, expressing excitement and enthusiasm for what they were seeing and hearing in their local schools, districts, and regions, and considering the future work of the NIC. One department of education member, reflecting on the need for more informational text in the early literacy classroom, as well as the need for strong parent partnerships with parents exclaimed, "I cannot wait to work together to find solutions that are

tangible for us to use to support these precious children!" (SJM, DOEM). Another department of education member expressed surprise, and happiness, at one teacher's reflection that she prefers research-based professional development over "make-and-take" sessions: "I also am surprised, and happy, to hear that this teacher [from the teacher journey map] prefers professional learning that is NOT make-and-take. She also sees the benefits of ongoing professional learning throughout the year instead of the traditional beginning of year or ending of year format [one-size fits all professional development]. Similarly, this school/district member shared excitement and admiration in reflecting on one teacher's early perceptions of working with a literacy coach in the coming school year:

> It's awesome Mrs. Stewart is looking forward to having a literacy coach in her school next year, recognizing the need for more support in early foundations of reading. I'm curious if the two teachers she still goes to for support are effective teachers. Teaching students to learn to read and write isn't easy. I admire her willingness to grow professionally and seek support. (TJM, SDM)

Another type of declaration was that of sharing knowledge and/or opinions, and the topic was most often best practices in the literacy classroom. One school/district member, reflecting on one student's journey map, shared her knowledge of the English letter/sound correspondence and the differences between English and Spanish orthography:

> Joe is strong in phonemic awareness, as indicated on i-Ready scores, but is struggling perhaps with more difficult patterns as he attempts to read more complex text. English sound-symbol correspondences are not always predictable. I'm thinking of a clip from "I Love Lucy", as I reflect on Joe's journey, regarding the pronunciation of "ough" in words. As word parts become more complex as Joe gets older, his learning difficulties

> could possibly increase. Because of such inconsistencies in the English language, could kids like Joe need strong support at school learning to decode text fluently? Since his first language is Spanish, he was exposed to very predictable orthography. Once he learned the basic sound-symbol correspondences, Joe probably could easily decode most Spanish words. English is a different story! (SJM, SDM)

This school/district member, sharing her opinion about local use of data and a possible impact on identifying and addressing student needs, explained:

> This [teacher journey map] interview also highlighted for me again the concept of a "battle" between the data and the teacher perception that we see in our school. One thing that concerns me is that I feel there is still some suspicion or a lack of trust that prevents teachers from being completely honest with where they might need support or help. This seems to be a difficult "wall" to break down and prevents some teachers in our building from being completely honest and reflective about their practice.

Members also made declarations of "I wish…" and/or "I hope…" as well as recommendation for future NIC work. Reflecting on one struggling student's progress and what schools/districts can do to best support, one school/district member expressed:

> I really enjoyed reading about Joshua's story. I am so happy for him (and his teachers) that he is making some progress. I see a lot of students like him though. I wish I knew what the "x" was. It makes me excited to get started in this work as the network and find a solution. (SJM, SDM)

Similarly, one department of education, in ongoing discussion with fellow NIC members on one student's journey map, added this hope for the network:

> I agree with others in that we are obviously working very hard at supporting our students, yet many are not progressing or progress for brief periods and then regress. I hope for John's sake, and others like him, that we can find some answers!

In a comparable reflection, one school/district member declared a belief about necessary future action with regard to supporting students with less-than-supportive home environments, "In our district we are seeing more of these types of situations. In order to help a child become successful in literacy, this is an area we are going to have to work on." (SJM, SDM). In this case, one school/district member, in ongoing discussion with fellow NIC members on how moving students in and out of interventions may be adversely affecting student outcomes, added this type of recommendation:

> I too wondered if his "ups and downs" resulted from the "in and out" of intervention. I think that is something we need to look at. Also I think that if we do move a child out of intervention, we need a system that carries over to the classroom. A smoother transition should ensure success. (SJM, SDM)

Likewise, this network partner encouraged the network to examine a seemingly unproductive dynamic between one student and teachers who support him:

> On the latter point, I'd say that I've never met a child who doesn't want to learn to read. Rather, by third grade some kids pretend to be uninterested to hide what they perceive to be their failure. Nevertheless, the dynamic that you see between this child and his teachers is an unfortunate stalemate that needs to be addressed by helping the teacher help Dakota. (SJM, NPM)

Finally, this department of education member, connecting to previous discussion with fellow members about teacher support, acknowledged some recent positive results in connecting educators with one another, but suggests there is more to be done:

> As mentioned earlier, it was also apparent that teachers do not always have an adequate support network. Janet's journey appears to have been largely one that she has traveled on her own through independent research. It does seem like we have done a better job of connecting teachers in recent years, but we still have work to do so that they feel supported.

One interesting finding included three members' explicit declarations of intent, all of which were school/district level members. More intentional than "I wish…" or "I hope…" declarations, these stood out as reflections from members that prompted a direct intention to do something in different way as a result of the sensemaking experience in which they were engaged. One school/district member, motivated by feeling a child was punished for what amounted to school-level failure, shared this intent for action:

> He [student from student journey map] told me his playtime was short the day I interviewed him because he did not get the worksheets read they were doing in class. This troubled me to think we are punishing this child for something we have not helped him master how to do. Talking with John motivates me more to insure that we give students all the help and resources they need to become successful at literacy. (SJM, SDM)

Another school district member, reflecting on teacher concerns shared during a teacher journey map experience, expressed a desire for stronger grade-level collaboration but also district-to-district partnerships:

> Mrs. A.'s concerns about our district involved lack of enough grade level collaboration in the primary grades. Although it has vastly improved, more of this type of professional development is needed. Encouraging collaboration across the grade level is essential in maintaining growth among educators and students alike. As we move forward as a district, I would like to see not only grade level collaboration but partnerships with other districts to showcase exemplary strategies. The puzzle lies in the scheduling and implementation. (TJM, SDM)

Finally, this school/district member, responding to a fellow member's post and concerning teacher preparation and support, declared intent to use the process of journey mapping again to gain additional insight into levels of teacher preparedness at the local level:

> Mrs. Sparks [teacher from teacher journey map] is very much like the teacher that I interviewed, Mrs. M, they both seem to think that they were ready to teach reading at the beginning but soon realized that their college didn't equip them with strategies that they may have needed to help those struggling students. Mrs. Sparks and Mrs. M are both veteran teachers but I imagine if we were to do this again with teachers who have taught 5 years or less that we would see the same trend of struggling to teach reading and those foundational skills. I would like to recreate this interview with a newer teacher and see if the answers would change. (TJM, SDM)

Finding #5: Member sensemaking was driven by making connections

Sensemaking is described as both a pervasive yet subtle activity. Taking place at the individual and organizational levels (Asik-Dizdar & Esen, 2016; Gawlik, 2015), collective sense is socially constructed in an ongoing, iterative manner, as organizational members shape and

refine each other's understandings while engaging in various kinds of action to illuminate or restore sense in a given experience (Brown et al., 2015; Maitlis & Christianson, 2014, Weick, 1995). Weick and colleagues (2005) outlined a process of "progressive approximations", or "redrafting of an emerging story so that it becomes more comprehensive, incorporates more of the observed data, and is more resilient in the face of criticism" (p. 415). One way members accomplished this was through making connections to: (1) personal experiences, (2) knowledge (or current understanding) of quality instruction and systems of teacher preparation and ongoing support, and (3) local and broader organizational improvement contexts.

Members routinely called out connections they were making as part of the network's inquiry process. One school/district member, making a direct connection to personal experience in her local setting on instructional outcome for students, added on to another member's post saying:

> Your student journey map data reminds me of what I have witnessed with students: fluctuating data from various sources. I feel that sometimes we can be "data rich" but more confused than ever about which data accurately reflects the learning status of the student. A "bouncing ball" student is often the hardest to decide if the interventions are working or not working. In my work with intervention students, I had a fear of pulling a student out of intervention too soon even if the data tell us the child scores about the 25%, especially with such fluctuations of scores from test to test. The perfect example is from this child's second grade year of scoring 40% and being dismissed from intervention services even though the i-Ready did not indicate he was on track to meet his goal. Does scoring well on one test indicate readiness to leave intervention services knowing the other data available on this student indicates a need for continued services?

In a similar reflection, this school/district member made connections to not only instructional outcomes in her local context but also some possible systems-level factors that were possibly impacting a student's success:

> It is also troubling to me that I see the pattern (as with many of our students) of a student who we work with year after year [in intervention], only to have him exiting [intervention] on about the same level (about a year behind). A few things I noticed in looking at this child's journey regarding our school /district was that changing assessment programs frequently made it difficult to accurately track the student's progress from year-to-year. The school/district went through a few years (during this student's journey) when things were very inconsistent from year-to-year. We also were implementing RTI squared during this student's journey (beginning with his first year in first grade) and that has been a growing process with changes/improvements being made each year. I see a few holes in the process that may have impacted this student, however, I feel this year has been our most successful implementation so far and the results were about the same as previous years.

Speaking about a connection made concerning quality instruction, this school/district member added, "Just like the student I interviewed, Toby doesn't speak of any experiences with literature. He talks about skills. That saddens me. I want children to be able [to] spit out lots of books they love." (SJM, SDM). Here the member not only made connections across her own and another member's student interviews but also to a recognized trend concerning what types of text experiences students should be receiving in high-quality reading lessons.

Driven by a connection to personal experience, in this case around teacher preparation, one school/district member shared:

> I find it strange how no one seems like they were trained or prepared to teach reading. That is such a major skill that teachers of the elementary school age need. How do we change this? I feel like a can relate to Ms. North's experience in the first years. I don't think any of us are prepared [to teach when we first get started].

Likewise, one exchange between a department of education member and a school/district member showcased the social and ongoing nature of how members connected with each other, made connections across the inquiry experiences in which they were involved, and connected to personal experiences. Here both members are responding to a teacher journey map reflection highlighting a lack of teacher preparedness to teach reading to young students:

> DOEM: "I am definitely seeing a theme [across the journey maps] of [teachers] feeling underprepared to teach reading!" (TJM)

> SDM: "Yes! And I have never really thought of that [as being a problem], even though I wasn't prepared [to teach reading] either." (TJM)

One set of connections, offered by this network partner member, sought to draw out network member reflection on a variety of key aspects: (1) similarities and differences in student outcomes from across sub-groups of students, (2) school/system policies and practices that may facilitate or hinder student success, (3) user-centered needs (in this case, a student), and (4) decisions about teacher practice as conducive to supporting struggling readers.

> While Javiar is the first child from a bilingual background that we've met, he reminds me of several other children in other ways. For example, he was retained in grade as one other child (so far) was, and there seems to be some implicit questioning of that policy; he's able to verbalize his strengths and weaknesses as a reader; reading aloud "makes him

> nervous"; and he "loathes" pseudo words. I wonder if pseudo words are being used for instruction, rather than just assessment, and I wonder why a teacher would persist with them if she knows that the child "loathes" them? I'd also question asking struggling readers to read aloud in class when it clearly makes them "nervous" or embarrassed—as we saw in a previous case. (SJM, NPM)

Lastly, a network partner member, in position to facilitate member connections to key systems-level thinking that NIC leaders were purposefully driving to make, made and shared this connection to improvement work that has taken place in the healthcare setting:

> Your reflections also mirror SDM's. She remarked that she's struggling with "how to help students like Sam", and you share that you're "not sure we have narrowed down what we can do to change his course". To use a healthcare metaphor, remarks like these make me wonder if there is sufficient expertise about teaching reading in each of your buildings to help teachers and interventionists 1) accurately "diagnose" a child's problems when the child first comes in, 2) recommend an appropriate treatment plan, 3) measure results to see if the child improves in a timely way as predicted, and 4) have some knowledge about what to try next if the first treatment failed. (SJM, NPM)

Finding #6: Member sensemaking was driven by challenging "the system" and each other

Weick (2017) summed up the process of sensemaking in this way: "Enactment [or action] is about two questions: What's the story? Now what?". To that point, members of the NIC further developed their initial understanding of the literacy problem by challenging their own thinking, fellow members' thinking and reflections, and the organizational systems connected to

their problem of practice. NIC members used the action of *challenging* as a mechanism by which they could collectively better understand the literacy system they sought to improve.

As noted previously, network partner members were purposefully positioned to *provide expertise* in literacy and systems analysis throughout member reflections and discussions, but they were also expected to *challenge* member thinking and provide alternate viewpoints to those emerging as part of this process. In the following example, the network partner, questioning local decision-making about how best to meet one struggling student's academic needs in various levels of intervention (T2 and T3), offered this challenge:

> I have to say I am a little perplexed by Joshua's journey and some of the decisions that were made on his behalf [based on reading this student journey map]. This is a child who seems to benefit greatly from intensive intervention, and yet the pattern seems to be to decrease the help he's getting at various points, at which times his progress stalls and his behavior and motivation declines as well. For example, he didn't do well in first grade but was exited from Tier 3 to Tier 2. Why not keep him in Tier 3 if he was benefitting so much? In second grade he seems to have made progress in Tier 2 and with after school support, but again, why wasn't he a candidate for Tier 3 so that he could have consolidated his skills and not always been on the brink of a downturn? In 2nd grade he "soars through intervention" and so is removed from Tier 2, and yet his teachers talk to his mother about getting more support for him and perhaps changing his meds. Why would the school leave it to his mom to find and provide the support and not continue to support him as forcefully as possible? And why, when Joshua appears to avoid certain reading activities, the burden is on him and his mom to "fix" his behavior through motivation and adjustment to his meds, rather than trying to identify and ameliorate the

> reading difficulties that may be causing or exacerbating his behavior problems? It seems like Joshua is promoted each year with the "hope" that he'll be successful, but no confidence is expressed by his teachers that he really will be, nor is there a clear strategy for monitoring his progress and making sure he gets the level of service he needs and isn't allowed to regress. (SJM, NPM)

In a similar manner, this network partner member not only challenges a school/system practice of retaining students who are not making progress but also teacher belief systems about the practice as a whole:

> It also looks like two of his [student from student journey map] teachers recommended him to be retained, but his mom refused. This raised questions among your colleagues about when and whether it's good to retain children—which is something we can definitely find out about. I wonder though about the 1st grade teacher, the only veteran in the line-up, who thought retention would give Tony "more time to absorb the material". Does Toby need more time to do the same stuff or does he need different strategies to make progress in reading? (Does he need to work harder, longer or smarter?) Perhaps Toby's parents who refused to have him retained were worried that just more time would not do him much good? (SJM, NPM)

In questioning missing components of strong instructional practice, one department of education member offered this challenge: "I think it is noteworthy that Mrs. Betty has a lack of time for writing in Tier I which makes it seem that she does not see writing as an essential component in Tier I." (TJM, DOEM). Similarly, this department of education member had questions about a local system's instructional design and corresponding schedule for supporting struggling

students. Here, this member challenged the district to consider if the structure of their small group reading time might be hindering teacher practice:

> I was puzzled that she [teacher from teacher journey map] couldn't tell me specific strategies she had tried with her struggling readers since she didn't teach them in the small group [intervention] settings… It left me wondering if small group was part of the system that might need to be tweaked so she could put all of the pieces together for her students. (TJM, DOEM)

School/district members also challenged each other's thinking and elements of the educational system. One school/district member challenged a fellow school/district's choice of providing a student math intervention over reading intervention given tight time constraints:

> Thanks for sharing SDM. I found that this student map was interesting. I feel for those kids that are struggling, but there is not enough time in the day to do interventions in both reading and math. I am interested why math trumped reading? We use the motto that we got from the state in that reading always trumps math. We do more of reading interventions instead of math interventions. I still feel for those kids though. (SJM, SDM)

In addition to challenging local choices concerning instructional systems, members also reflected on and challenged their own personal thinking, local systems of teacher support, and the impact teacher support has on student outcomes. One school/district member shared:

> The conversation [teacher journey map interview] was very interesting in where we begin as teachers and the road we follow. It made me reflect on the new teachers entering our district today. Have they been adequately prepared to enter the classroom? Do we provided them with a mentoring system that gives them support to be successful? I have talked with other teachers who have expressed the same sentiments of not feeling

> prepared after graduation to teach early literacy. I know some were fortunate to find a great mentor while others did not have the support of a colleague. Mrs. H [teacher from teacher journey map] expressed at one point while still teaching middle school she considered returning to the department store where she previously worked. Many times when analyzing student data I focus in on what is preventing this child from being proficient in literacy. This interview helps me to think about the question have we provided our faculties with the skills and strategies they need to help our students be successful. (TJM, SDM)

Summary

This chapter presented the findings from one networked improvement community's sensemaking experience, specifically exploring the following research questions: (1) *What initial understandings emerged about the networked improvement community's chosen problem of practice? (2) How did members of a newly-formed networked improvement community begin to make sense of their organizational problem of practice through inquiry?*. The chapter included the analysis of primary documentary data from the networked improvement community, consisting of network archived artifacts, member reflections on two inquiry experience in which they engaged, and corresponding member discussions via the network's discussion forum. Rich, think descriptions of the specific case and key findings were presented. Findings for research question one outlined the network's initial understanding of their problem of practice concerning stagnant literacy proficiency for Tennessee's students, and findings for research question two provided insight into how the members of this networked improvement community began to make sense of such a complex problem of practice. Data were analyzed, and findings developed,

based on content analysis, code application presence, and code co-occurrence analysis (Bloomberg & Volpe, 2012).

CHAPTER 5

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

This chapter includes discussion, conclusions, and recommendations for practice and future research. Chapter 1 provided an introduction to a new model of educational practice that could not only support school, district, and state-level improvement efforts but also ultimately improve outcomes for all students. Chapter 2 included a review of literature regarding improvement reform via networked improvement communities and sensemaking theory in the organizational context. Chapter 3 provided an outline of the research methodology used to guide the study. Chapter 4 presented twelve findings in conjunction with the two research questions and sub-questions.

The purpose of this qualitative case study was to explore the sensemaking experience of a newly-formed networked improvement community as the members engaged in inquiry around a chosen problem of practice. As networked improvement communities are designed to collaboratively identify and collectively articulate their central problem of practice, intentional inquiry processes are a critical step for a newly-formed network (LeMahieu et al., 2017b). The researcher used a qualitative case study methodology to explore how the sensemaking process unfolds for members of one NIC engaged in two network inquiry experiences, and the study was designed to answer the following questions about this research case:

1. What initial understandings emerged about the networked improvement community's chosen problem of practice?
2. How did members of a newly-formed networked improvement community begin to make sense of their organizational problem of practice through inquiry?

a. What cues triggered member sensemaking?

b. What actions propelled member sensemaking forward?

Data collected included the selection of naturally occurring network inquiry documents comprising of student and teacher journey maps and corresponding member reflections and discussions via a network blog (or discussion forum). Data analysis led to key findings (see Table 11) about what initial understandings emerged for network members about their chosen problem of practice, as well as how member sensemaking developed and continued throughout the inquiry experience.

Table 11

Summary of Findings

Research Question 1	Research Question 2
1. Teachers feel unprepared to teach reading and local support for them varies. 2. Instructional design and processes, along with teacher practice, are often misaligned to state instructional guidance and seem particularly harmful to struggling readers. 3. Educators lack self and system awareness to guide best practice. 4. Struggling students share similar early educational experiences. 5. Educators exhibit a lack of trust and/or understanding of how to use instructional data. 6. School and school district policy and/or practice impacts early literacy experiences.	1. Member sensemaking was triggered by expertise and/or perceived knowledge. 2. Member sensemaking was triggered by seeking to resolve confusing, ambiguous, and/or novel information. 3. Member sensemaking was triggered by noticing common issues/trends. 4. Member sensemaking was driven by making declarations. 5. Member sensemaking was driven by making connections. 6. Member sensemaking was driven by challenging "the system" and each other.

There has been a growing interest in how networks can provide a new and more successful organizational learning structure in education (Cannata et al., 2017; Hannan et al., 2015; Kolleck, 2014; Redding et al., 2018; Russell et al., 2015b; Tichnor-Wagner et al., 2017). Collaborative, continuous improvement models remain uncommon in the United States (Redding et al., 2018), and there has been a call for additional research to better understand how sensemaking occurs in groups and communities within novel situations (Brown et al., 2015; Ganon-Shilon & Schechter, 2017). To that end, sensemaking researchers are increasingly interested in exploring how the sensemaking process enables other important organizational processes and outcomes (Maitlis & Christian, 2014). This study was significant because it not only explored a new and promising methodology for school improvement (networked improvement communities) but also sought to understand critical aspects of how network members begin to make sense of an educational problem of practice through one of the model's central activities of network inquiry. The specific case selected was a unique and research-worthy context not yet explored in other studies (Cannata et al., 2017; LeMahieu et al., 2017a). While the findings chapter disaggregated the data into excerpts meant to highlight various member perspectives and sensemaking experiences, this chapter provides a holistic understanding of the research findings and their implications for practice and future research. Conclusions and recommendations are presented in line with each research questions/sub-questions.

Research Question 1

Discussion and Conclusions for Research Question 1

The Tennessee Department of Education's focus on increasing reading achievement for Tennessee students included various approaches for generating a better understanding of why reading proficiency was largely stagnant, and both state and local educational leaders sought to identify key leverage points from which future improvement work could be directed (Tennessee Department of Education, 2016). In addition to recent state reading reports such as *Setting the Foundation: A Report on Elementary Grades Reading in Tennessee* (Tennessee Department of Education, 2016) and *Teaching Literacy In Tennessee: Practical Guidance for Developing Proficient Readers, Writers, and Thinkers* (Tennessee Department of Education, 2017), the findings from this study both corroborate state report findings and also provide a deeper understanding of the state of literacy instruction and coordinating support structures from the perspective of those involved in the networked improvement community.

Many early elementary teachers, upon graduating from college, seem initially unprepared to teach reading, and the local support offered to them varies in scope and structure. Network members shared a multitude of user-centered examples from their teacher journey map experiences that spoke this trend, and the research finding matched that of recent research as well (Eller & Poe, 2016). Teachers are unsure how to effectively combine skills- and knowledge-based competencies into a coordinated set of lesson components, support students in acquiring skills such letter recognition, sound blending, and high-frequency word recognition within the processes of writing and making meaning from rich, complex texts, and target both students' academic and non-academic needs as soon as evidence shows there may be a problem. Support for teachers of all experience-levels varies greatly across districts and schools, ranging from little

or non-existent to multi-faceted and effectively supportive. A vast majority of teachers long for instructional support that will help them teach reading effectively and support success (Eller & Poe, 2016), and as one network member shared, reflecting on a discussion with a teacher during the journey map interview, "Amelia [teacher] has a strong belief that her actions as a teacher matter, but is often unsure about which strategies work and why and/or how to best differentiate in the classroom to meet all of her students' needs." (TJM, DOEM). A conclusion that can be drawn from this finding is that school and district leaders should not expect for teacher preparation programs to fully prepare educators to teach reading. Likewise, schools and districts should anticipate some teachers needing structured and ongoing support to teach reading.

Instructional design and processes, along with teacher practice, are often misaligned to state instructional guidance and seem particularly harmful to struggling readers (Tennessee Department of Education, 2016; Tennessee Department of Education, 2018). For educators to see improvements in student outcomes, focus on instruction must include the level of the content, teacher knowledge and skills related to providing high-quality instruction of that content, and student engagement in appropriately rigorous learning opportunities (City, Elmore, Fiarman, & Teitel, 2009). Members of the NIC noticed that classroom instructional quality varied greatly and appeared to be centrally organized around skills-based reading competencies in isolation (or phonics instruction), not providing students with enough opportunities to apply newly acquired reading skills in writing or making meaning from rich, appropriately complex texts and their vocabulary, ideas, and content knowledge (findings also referenced in Tennessee Department of Education, 2018). These concerns were discussed in member sensemaking from both student and teacher journey maps, calling out such noticings as skills "being taught in isolation" (SJM, SDM) and teachers saying "non-fiction text is boring" (SJM, DOEM), and there is a "lack of time for

writing in Tier I" (TJM, DOEM). One conclusion drawn from this finding is that school and district leaders should not assume instructional practice aligns to research-based, recommended pedagogy. Similarly, unmerited variation in core instructional elements, such as content, teacher capacity, and student engagement is resulting in varied, and often undesirable, student outcomes (Bryk et al., 2015; City et al., 2009; LeMahieu et al., 2017b; Lewis, 2015).

Educators also appear to lack self and system awareness to guide best practice. Member reflections surfaced an inability for some educators to name strategies they use with struggling readers, how and why they choose to use certain practices, and what results they anticipate seeing based those instructional choices. Understanding *what works, for whom, and under what set of conditions* is a critical factor in recognizing what practices work best within given contexts (Bryk et al., 2015), and evidence from this study shows this may be a central issue impacting Tennessee's literacy system. Members expressed concern about both individual teacher awareness, such as "she [teacher] could not really tell me specifically what she had tried with her struggling student other than trying to find reading materials that interested him…" (TJM, SDM) and broader system-level awareness, such as the impact of school/district decision-making on educator ability to accurately gauge student mastery of skills and report that consistent ways. In reflecting on this latter point, one school/district member reflected after completing a student journey map, that the local school system was "changing assessment programs frequently [which] made it difficult to accurately track the student's progress from year-to-year…" and "I see a few holes in the process that may have impacted this student." (SJM, SDM). Developing a greater sense of self and system awareness, and utilizing that awareness in timely and productive ways, emerged as an area to explore for this network. One conclusion that can be drawn from this finding is that educators (of all levels and roles), when considering the needs of students and

especially those struggling to read, need more support in articulating what instructional practices are utilized and what benefits are expected.

The impact of early educational experiences as key to third-grade proficiency is not a new finding in education, and it has been widely known that such factors as school readiness; regular attendance at school; summer learning opportunities; healthy, unstressed families; and high-quality teaching influence early learning opportunities and connect to later educational outcomes (Casey Foundation, 2013). As members of this NIC engaged in sensemaking through student journey map reflections and discussion, these finding emerged in their context as well, with comments such as "I feel like her [student] struggles with reading/school came with her family struggles" (SJM, SDM) and "excessive absenteeism also caused him to fall behind and perform below expectation" (SJM, SDM), and "I have to wonder where Daisy [student from student journey map] would be academically and socially if she had attended PreK or Head Start. It sounds like she had no exposure to other children for early social skills and the lack of someone reading to her was huge." (SJM, SDM). Finding ways to provide Tennessee children and families with early academic support systems, as well as high quality early learning experiences prior to and during early elementary education is a critical step to providing a strong foundation for literacy success (Casey Foundation, 2013; Tennessee Department of Education, 2016). One conclusion, therefore, is that communities and schools need strategic ways to support young learners experiencing trending hardships in their local contexts.

Another element of the NIC's problem of practice that surfaced was that many educators exhibit a lack of trust and/or understanding of how to use instructional data. It is believed that teacher capacity to use data is most effectively developed in social structures, involves additional educators such as leaders and coaches, and is used as part of a cycle of learning and reflection

(versus mere accountability) (Datnow & Hubbard, 2016). A climate of trust is also critical to data use and, developing a culture of support conducive to such use, can be hindered by fear that data might be used against educators or their students (Datnow & Hubbard, 2016). Network members pointed to numerous examples of a lack of trust and/or understanding in data use for instructional purposes and questioned how this problem may be impacting student support. One member described it as a "battle" between the data and teacher perception (TJM, SDM), while another was "puzzled by the lack of data in our discussion" and how emotions might be the primary source of decision-making (TJM, SDM). The NIC's decision to focus efforts here was expected, as educator capacity to both understand and use - as well as trust - data serves as a critical component for network plans to improve both instructional supports for students as well as other elements within the NICs chosen problem of practice. Conclusions can be drawn, therefore, that a lack of trust and/or understanding in data use for instructional purposes may be impacting student success, and educators need more support in effectively using data. Likewise, trust and transparency in data use is impacted by not only how the data is used in general but also to what degree the organizational culture is conducive to these types of interactions. Structures and cultures for effective use of instructional data do not inherently exist in schools/districts.

Lastly, member reflections and discussion also surfaced clear examples of how school and school district policy and/or practice impacts early literacy experiences. Understanding the interdependence and complexity of how school district culture, systems and structures, resources, stakeholder relationships, and environment reinforce and impact one another in support of any improvement strategy, has been offered as a key strategy for successful school and district improvement efforts (Johnson, Marietta, Higgins, Mapp, & Grossman, 2014). Topics such as retention, teacher placement, and policy and practice associated with intervention emerged as

important for members of this NIC. As they sought to better understand why Tennessee's literacy system was getting the results it was getting (Paul Batalden as quoted by LeMahieu et al., 2017b, p. 14), members questioned the "benefits... and potential harm" certain policies and practices provided (SJM, SDM), the rationale behind student placement and transitions "in and out" of intervention tiers (SJM, SDM), and long-held beliefs that new teachers "pay their dues" or "learn in the trenches" and how that mindset has impacted teacher placement (TJM, DOEM). In conclusion, student outcomes, via the instruction and academic support systems in place in the school, are impacted in numerous ways by the multiple policies and practices in place designed to support them.

Recommendations for Practice for Research Question 1

The findings, discussion, and conclusions for research question one were intended to offer a deeper understanding of the reasons behind Tennessee's persistently poor third-sixth grade literacy outcomes as understood by the state's inaugural networked improvement community. The following three recommendations for practice are intended for state, district, and school leaders as they continue work to improve outcomes for Tennessee students. Others outside this context are encouraged to explore these recommendations in light of your own organizational problems of practice and with your own contexts in mind.

1. Core instructional elements, such as content, teacher capacity, and student engagement are key levers for instructional improvement. Teacher and leaders alike should be aware of the impact unmerited variation within these key areas has on student outcomes. State and local improvement efforts should not only include reference to instructional guidance on what best practice is and how it looks like in the classroom, but also support leaders in

understanding how narrowing focus to these key instructional elements is critical to seeing real success (City et al., 2009).

2. Educator support for effective data use should include more than capacity building around a specific data program or technical language about how to read data. Capacity building should explicitly expand teachers' repertoire of instructional strategies designed to address student needs that emerge from the data. Likewise, support should focus on building educator skills at instructional differentiation across various contexts. Data-driven conversations should be a natural part of organizational life, including transparency about how data is used and in what ways adult practices are intentionally chosen to support student growth (Datnow & Hubbard, 2016).
3. It is hard for educators to improve outcomes in a system they do not fully understand. State and local education leaders should utilize multiple methods to see the system from the user's perspective, better understand the specific problems they are seeking to solve, and articulate how the different parts of a given system work in concert (or not) to support student outcomes. Improvement efforts should be driven by a focus on those closest to the problem and include an examination of processes and unintended consequences of the complex systems inherent in daily instructional practice and educational support structures (Bryk et al., 2015).

Recommendations for Future Research for Research Question 1

Additional qualitative and quantitative research studies should be conducted to better understand the variety of influencing factors of affecting Tennessee's 3rd - 6th grade literacy scores. The following recommendations are offered:

1. Based on the limitations of the current study and to correct for researcher bias, additional exploration into the NIC's problem of practice should be conducted with members from the second cohort of the NIC to assess the extent to which the same or similar/dissimilar finding might emerge.
2. A comparison study should be conducted looking at *bright spots* across the state with schools/districts who have positive outcomes in third-sixth grade literacy rates. Specifically, what educator beliefs and practices, as well as system structures, are similar or different to those emerging in this study and the state's previous reading reports.
3. Additional qualitative investigations should be utilized to explore how other networked improvement communities leverage the Carnegie Foundation's *6 Core Principles of Improvement* in making their work problem-specific and user-centered, identifying the variation that currently exists in the system, and supporting the network in seeing the system that produces the current outcomes.

Research Question 2

Sub-Question 1

Discussion and Conclusions for Research Question 2, Sub-Question 1

Members of the network both noticed and bracketed cues as the sensemaking process unfolded. Cues were simple and familiar structures that members became attune to as they sought plausible understandings of both their own environments and the collective understanding they were developing in their social and ongoing interactions with each other (Holt & Cornelissen, 2014; Maitlis & Christianson, 2014; Weick, 1995). While there were various types of cues that members noticed and bracketed, such as personal connections, similar or dissimilar

examples, and mismatches in data and observations, three forms emerged as the most frequent types of cues for these members: (1) expertise and/or perceived knowledge, (2) confusing, ambiguous, and/or novel information, and (3) common issues and trends.

The impact of cue perception, within this organization, created ongoing discussion where members offered multiple and plausible meanings for a variety of topics, all ultimately triggered by an organizational focus on seeking improvement to a recognized need (Maitlis & Christianson, 2014; Tennessee Department of Education, 2016). Because cues do not exist in isolation, they are greatly impacted by a host of factors (Colville et al., 2016; Maitlis & Christianson, 2014; McCauley-Smith et al., 2015; Sandberg & Tsoukas, 2015; Stigliani & Ravasi, 2012). As Holt and Cornelissen (2014) share about the sensemaking process, there is "tendency to view the world as our world" and for the members of this NIC, factors such as local context, personal experiences teaching reading or supporting others to do so, member roles in their schools or districts, and previous state and local work on improving reading instruction, all impacted the way members perceived and used cues in the sensemaking process.

Multiple conclusions can be drawn from these findings. First, personal identity and past experience trigger not only individual sensemaking around aspects of the network's problem of practice but also the socially constructed and, sometimes contested, understanding of the problem of practice as a whole (Colville et al., 2016; Helms Mills et al., 2010; Holt & Cornelissen, 2014; Maitlis & Christianson, 2014; Weick, 1995). Secondly, expertise and perceived knowledge may trigger members to explicitly or implicitly accept or discount varying levels of member and/or organizational knowledge and abilities, especially those in line with or disconnected from personal beliefs (Colville et al., 2016; Farnsworth et al., 2016). Third, members may knowingly or unknowingly coordinate or push back against the types of cues

others, especially leaders, use to support more-directed organizational sensemaking efforts, such as planned change (Brown et al., 2015; Cornelissen, 2012; Dawson & Sykes, 2018; Gawlik, 2015; Long, 2016; Maitlis & Christianson, 2014; Popp et al., 2014; Sandberg & Tsoukas, 2015). Lastly, given member frames of reference are predominantly habitual, latent, and invisible, and usually only surface when there is breakdown in understanding (or sensemaking), members need support in explicitly exploring the common trends and dissimilar findings that emerge in network sensemaking, as members themselves may have trouble articulating why they believe or see an issue the way they do (Holt & Cornelissen, 2014; Maitlis & Christianson, 2014; Weick, 1995).

Sub-Question 2

Discussion and Conclusions for Research Question 2, Sub-Question 2

Sensemaking is a recursive process, one whereby cues trigger action and then action creates more cues - all used to make additional sense of the experience at the given time. Likewise, this ongoing process allows individuals to test out their early sensemaking about the situation they to seek to understand (Colville et al., 2016; Maitlis & Christianson, 2014; McCauley-Smith et al., 2015). While members took various types of actions to propel sensemaking forward, such as agreeing with one another, asking questions, and putting forth proposals or ideas, the three most frequent types of actions for these members included: (1) making declarations, (2) making connections, and (3) challenging "the system" and each other.

The function of enacting the environment differentiates sensemaking from the concept of perception, and to that point, network member actions were a literal driving force behind their meaning making versus a mere reflection of meaning already present within the network (Maitlis & Christianson, 2014; Sandberg & Tsoukas, 2015). Likewise, member actions also redefined their ongoing, social environment, causing it to constantly evolve as the very actions members

took to make sense of their experience also changed that environment over time (Helms Mills et al., 2010; Maitlis & Christianson, 2014; Weick, 2017). For example, there were multiple conversations (ie: regarding lack of teacher preparation) spanning across several journey map posts, each member's action (sharing emotion, making connections, challenging a colleague) co-constructing a new environment from which other members continued to develop their thinking. Similarly, as member after member, for example, shared emotional reactions to their journey mapping experiences, a collective sense of sadness or excitement around particular actions began to emerge. Concerning network culture, continued member postings that thoughtfully and appropriately challenged self, colleagues, and system thinking also continually reshaped the environment from which the members were taking action. In summary, every member action either facilitated greater understanding or hindered it (Weick, 2009).

Multiple conclusions can be drawn from these findings. Examining the types of actions members take, and what additional sense about the problem of practice emerged as a result of those actions (largely directed here by network partner members), served as a vehicle for summarizing and synthesizing collective network understanding. Secondly, concerning collective sensemaking and ultimately collective action, NICs are impacted by their ability to facilitate a process whereby members can not only coordinate their thinking but also identify a common path forward (Duffy, 2016; Klein et al., 2010). And finally, as individuals and organizations inevitably seek justification for their actions based on personal or organizational identity (Weick, 2012), NICs need support in examining their actions from an independent lens and in acknowledging where personal or organizational bias may interfere with future action and, therefore, future sensemaking.

Recommendations for Practice for Research Question 2

The findings, discussion, and conclusions for research question two offer a deeper understanding of how members of one networked improvement community engaged in sensemaking around their problem of practice, specifically what cues triggered the sensemaking experience and what member actions propelled the process forward. The following recommendations for practice are intended for networked improvement community leaders supporting member sensemaking through inquiry practices:

1. Network leaders should use member declarations of emotion to drive network member commitment and learning, collectively uniting people toward a common aim. Likewise, they should appropriately leverage member emotions to augment sensemaking experiences, investigating which cues stir up what types of emotions, and engaging members in action-oriented thinking about their use. In addition, NIC leaders should explore how participating organizational leader declarations of emotion impact the actions of non-leader members, how these specifics findings could be used for network success, and in what ways these cues and actions might hinder other members' sensemaking (Holt & Cornelissen, 2014; Klein et al., 2010; Maitlis & Christianson, 2014).
2. NIC leaders should consider how sensemaking cues and resulting actions (along with the ongoing and social aspects of the process), contribute to intended progress for the network towards its aim. Support members in identifying *a suitable frame*, or *end point*, that members could relate to or understand as the intended outcome of a given sensemaking experience (such as journey mapping) (Klein et al., 2010) and understand that members across the network may not all arrive at the same understanding, but some

initial understanding of an issue or problem is enough for some form of purposeful action (Taylor & Van Every, 2000). NIC leaders should keep in mind that for the network members to take action toward initial or additional sensemaking, and therefore co-construct a deeper understanding of their problem of practice, their knowledge must (1) be contextualized to represent the unique, albeit diverse, accounts of all its members and (2) communicated back to the network in some form that is useful for further action (Hardy, Lawrence, & Grant, 2005; Taylor & Van Every 2000).

3. Leaders of networked improvement communities should provide space for members of the NIC to explore connections that have emerged related to their personal experiences, knowledge (or current understanding) of various topics, and similar and/or dissimilar contexts. Consider supporting member connection-making through the use of member-generated resources and artifacts, examining how these resources and artifacts influence cue perception, and serve as a common ground and support for member sensemaking experiences (Jørgensen e al., 2012; Maitlis & Christianson, 2014; Stigliani & Ravasi, 2012; Sandberg & Tsoukas, 2015; Weick, 2015). Support a systems-view approach, scaffolding member thinking about how their own experiences are only one piece of the puzzle, and examine how the connections they are making to their own and others' experiences help create a richer understanding of each other, the problem they are working to solve, and the systems and structures in which they are all involved (LeMahieu et al., 2017b).

Recommendations for Future Research for Research Question 2

Additional qualitative and quantitative research studies should be conducted to better understand the sensemaking experience of networked improvement community members. The following recommendations are offered:

1. Based on the methodological limitations of this study, specifically pertaining to the use of historical documentary data, a longitudinal study should be undertaken. There is more to learn about how initial network understanding of a problem of practice develops over time. Future research could also include researcher and participant interactions, such as focus groups and individual interviews during various phases of NIC sensemaking. An analysis of data could also be compared to ascertain how NIC member sensemaking evolves once the NIC engages in testing change ideas designed to improve the problem of practice.
2. Similar studies of networked improvement communities should explore how power and politics within this type of social entity affect the ongoing process of member sensemaking. Additionally, given that power dynamics are almost an inevitable aspect of organizational structure, what role does distributed sensemaking across various member roles as well as corresponding distributed actions play in how network members collectively construct new meaning from various cues and related actions when different members of the network have different role perspectives.

Final Summary

This qualitative research study was intended to bring additional depth to research on networked improvement communities as a promising, collaborative approach to educational

improvement as well as how the sensemaking process unfolds in this specific context. This study utilized both a review of literature as well as real-time, member-generated data collection methods to best explore the research topic. The data collected from a newly-formed networked improvement community in the process of sensemaking around their chosen problem of practice provides an exploratory case study of how the sensemaking process unfolds in this unique context. The data revealed not only a rich understanding of the network's problem of practice but also a window into what types of cues trigger member sensemaking in this social structure and what actions propel member sensemaking forward in this ongoing process.

REFERENCES

Allard-Poesi, F. (2005). The paradox of sensemaking in organizational analysis. *Organization*, 12(2), 169-196.

Anfara, V., Brown, K., & Mangione, T. (2002). Qualitative Analysis on Stage: Making the Research Process More Public. *Educational Researcher: A Publication of the American Educational Research Association., 31*(7), 28-38.

Asik-Dizdar, O., & Esen, A. (2016). Sensemaking at work- meaningful work experience for individuals and organizations. *International Journal of Organizational Analysis, 24*(1), 2-17.

Baker, W. E., & Faulkner, R. R. (2017). *Interorganizational networks.* The Blackwell companion to organizations, 520-540.

Balogun, J., Jacobs, C., Jarzabkowski, P., Mantere, S., & Vaara, E. (2014). Placing strategy discourse in context: Sociomateriality, sensemaking, and power. *Journal of Management Studies., 51*(2), 175.

Berwick, D. (2008). The Science of Improvement. *JAMA, 299*(10), 1182-1184.

Bloomberg, L. D., & Volpe, M. (2012). *Completing your qualitative dissertation: A road map from beginning to end.* Sage Publications.

Bold, C. (2011). Using narrative in research. Sage Publications. [Google Books version] Retrieved from https://books.google.com/books?id=unBEAgAAQBAJ&lpg=PR1&ots=JvnPXewmZw&dq=Bold%2C%20C.%20(2011).%20Using%20narrative%20in%20research.%20Sage.&lr&pg=PR1#v=onepage&q=Bold,%20C.%20(2011).%20Using%20narrative%20in%20research.%20Sage.&f=false.

Bridwell-Mitchell, E., & Cooc, N. (2016). The Ties That Bind. *Educational Researcher: A*

Publication of the American Educational Research Association., 45(1), 7-17.

Brown, A. D., Colville, I., & Pye, A. (2015). Making sense of sensemaking in organization studies. *Organization Studies, 36*(2), 265-277.

Brown, B. D., Horn, R. S., & King, G. (2018). The Effective Implementation of Professional Learning Communities. *The Alabama Journal of Educational Leadership, 53*.

Bryk, A. S. (2015). 2014 AERA distinguished lecture: Accelerating how we learn to improve. *Educational Researcher, 44*(9), 467-477.

Bryk, A. S. (2017, March 27). *Redressing Inequities: An Aspiration in Search of a Method.* Speech presented at Fourth Annual Carnegie Foundation Summit on Improvement in Education in California (CA), San Francisco. Retrieved June 23, 2018 from https://www.carnegiefoundation.org/resources/publications/.

Bryk, A. S. (2018, April 3). *Advancing quality in continuous improvement*. Speech presented at the Carnegie Foundation Summit on Improvement in Education, San Francisco, CA. Retrieved September 24, 2018 from https://www.carnegiefoundation.org/resources/publications/.

Bryk A. S., Gomez L. M., Grunow A. (2010). *Getting Ideas Into Action: Building Networked Improvement Communities in Education*, Carnegie Foundation for the Advancement of Teaching, Stanford, CA. Retrieved February 24, 2018 from https://www.carnegiefoundation.org/wp-content/uploads/2014/09/bryk-gomez_building-nics-education.pdf

Bryk, A. S., Gomez, L. M., Grunow, A., & LeMahieu, P. G. (2015). *Learning to improve: How America's schools can get better at getting better.* Harvard Education Press.

Cannata, M., Cohen-Vogel, L., & Sorum, M. (2017). Partnering for improvement: Improvement

communities and their role in scale up. *Peabody Journal of Education, 92*(5), 569-588.

Cannata, M., Redding, C., Brown, S., Joshi, E., & Rutledge, S., Joshi, E. (2017). *How Ideas Spread: Establishing a Networked Improvement Community.* Presentation at the Carnegie Foundation Summit on Improvement in Education in San Francisco, CA, March 27-29, 2017 and the annual meeting of the American Educational Research Association in San Antonio, TX, April 27-May 1, 2017. Retrieved August 25, 2018 from https://cdn.vanderbilt.edu/vu-my/wp-content/uploads/sites/2353/2017/02/14141424/how-ideas-spread-113017.pdf.

Cannata, M., & Rutledge, S. (2017). Introduction to New Frontiers in Scaling Up Research. *Peabody Journal of Education, 92*(5), 559-568.

Charmaz, K. (2008). Constructionism and the grounded theory method. In J. A. Holstein & J. F. Gubrium (Eds.), *Handbook of constructionist research*, (pp. 397-412). New York: The Guilford Press. Retrieved February 24, 2018 from https://pdfs.semanticscholar.org/075d/10cfe75a98d616d78af4bb6e4f603985f340.pdf.

Children's Defense Fund (2017). *The State of America's children: 2017*. Washington, DC: Author. Retrieved October 26, 2018 from https://www.childrensdefense.org/reports/2017/the-state-of-americas-children-2017-report/.

City, E. A., Elmore, R. F., Fiarman, S. E., & Teitel, L. (2009). *Instructional rounds in education.* Cambridge, MA: Harvard Education Press. Retrieved from https://www.amazon.com/Instructional-Rounds-Education-Approach-Improving/dp/1934742163.

Coffey, A. (2014). Analysing documents. The SAGE handbook of qualitative data analysis, 367-380. [Google Books version]. Retrieved from https://books.google.com/books?id=

R-6GAwAAQBAJ&lpg=PA367&ots=L55fW1p3Pc&dq=Coffey%2C%20A.%20(2014).%20Analysing%20documents.%20The%20SAGE%20handbook%20of%20qualitative20data%20analysis%2C%20367-380.&lr&pg=PA367#v=onepage&q=Coffey,%20A.%20(2014).%20Analysing%20documents.%20The%20SAGE%20handbook%20of%20qualitative%20data%20analysis,%20367-380.&f=false.

Cohen-Vogel, L., Cannata, M., Rutledge, S. A., & Socol, A. R. (2016). A Model of Continuous Improvement in High Schools: A Process for Research, Innovation Design, Implementation, and Scale. *Teachers College Record, 118*(13), n13.

Cohen-Vogel, L., Tichnor-Wagner, A., Allen, D., Harrison, C., Kainz, K., Socol, A. R., & Wang, Q. (2015). Implementing educational innovations at scale: Transforming researchers into continuous improvement scientists. *Educational Policy, 29*(1), 257-277.

Colville, I., Pye, A., & Brown, A. D. (2016). Sensemaking processes and Weickarious learning. *Management Learning, 47*(1), 3-13.

Consortium for Policy Research in Education. (1989). *Policy brief: State education reform in the 1980s.* Author. Available from http://www.cpre.org.

Cornelissen, J. P. (2012). Sensemaking under pressure: The influence of professional roles and social accountability on the creation of sense. *Organization Science, 23*(1), 118-137.

Cornelissen, J. P., Mantere, S., & Vaara, E. (2014). The contraction of meaning- The combined effect of communication, emotions, and materiality on sensemaking in the Stockwell shooting. *Journal of Management Studies, 51*(5), 699-736.

Coulter, D. (2016). *Adjunct faculty sensemaking in the context of a student success initiative at a community college* (Order No. 10059895). Available from ProQuest Dissertations & Theses Global. (1777323665).

Creswell, J. W. (2002). *Educational research: Planning, conducting, and evaluating quantitative* (pp. 146-166). Upper Saddle River, NJ: Prentice Hall. Retrieved February 24, 2018 from http://basu.nahad.ir/uploads/creswell.pdf.

Creswell, J. W. (2015). 30 essential skills for the qualitative researcher. Sage Publications. [Kindle DX version]. Retrieved from Amazon.com.

Cross, R., & Sproull, L. (2004). More than an answer: Information relationships for actionable knowledge. *Organization Science, 15*(4), 446-462.

Datnow, A., & Hubbard, L. (2016). Teacher capacity for and beliefs about data-driven decision making: A literature review of international research. *Journal of Educational Change*., 17(1), 7-28.

Dawson, P., & Sykes, C. (2018). Concepts of time and temporality in the storytelling and sensemaking literatures: A review and critique. *International Journal of Management Reviews.*

Dedoose Version 7.0.23. (2016). Web application for managing, analyzing, and presenting qualitative and mixed method research data. Los Angeles, CA: SocioCultural Research Consultants, LLC. www.dedoose.com.

Deming, W. E. (1993). The new economics for industry, government, education. MIT Press.

Dooley, L., Kenny, B., & Cronin, M. (2016). Interorganizational innovation across geographic and cognitive boundaries- does firm size matter?. *R&D Management, 46*(S1), 227-243.

Duffy, T. J. (2016). *Collaborative sensemaking* (Order No. 10114440). Available from ProQuest Dissertations & Theses Global. (1792788722).

DuFour, R. (2004). To create a professional learning community, focus on learning rather than

teaching, work collaboratively, and hold yourself accountable for results. *Educational Leadership., 61*(8), 6.

Easterday, M. W., Gerber, E. M., & Rees Lewis, D. G. (2018). Social innovation networks- A new approach to social design education and impact. *Design Issues, 34*(2), 64-76.

Eller, A., & Poe, E. M. (2016). Teachers' perception of primary literacy preparation: Has it improved? *Delta Kappa Gamma Bulletin*, 82(3), 16-27.

Elmore, R. F. (2016). "Getting to scale ..." It seemed like a good idea at the time. *Journal of Educational Change*, *17*(4), 529–537.

Elsbach, K. D., Barr, P. S., & Hargadon, A. B. (2005). Identifying situated cognition in organizations. *Organization Science, 16*(4), 422–433.

Engelbart, D. C. (1992, August). Toward high-performance organizations: A strategic role for groupware. In Proceedings of the GroupWare (Vol. 92, pp. 3-5). Retrieved October 26, 2018 from http://www.dougengelbart.org/pubs/papers/scanned-original/1992-augment-132811-Toward-High-Performance-Organizations-a-Strategic-Role-for-Groupware.pdf.

Englebart, D. C. 2003. *Improving Our Ability to Improve: A Call for Investment in a New Future.* IBM Co-Evolution Symposium.

Equity and Excellence Commission. 2013. *For each and every child: A strategy for education equity and excellence.* Washington, DC: Author. Retrieved October 26, 2018 from http://www2.ed.gov/about/bdscomm/list/eec/equity-excellence-commission-report.pdf.

Farnsworth, V., Kleanthous, I., & Wenger-Trayner, E. (2016). Communities of practice as a social theory of learning: A conversation with Etienne Wenger. *British Journal of Educational Studies*, 1-22.

Fullan, M. (2012). *Change forces: Probing the depths of educational reform*. Routledge. Retrieved October 26, 2018 from https://files.eric.ed.gov/fulltext/ED373391.pdf.

Fullan, M. (2016). The elusive nature of whole system improvement in education. *Journal of Educational Change, 17*(4), 539-544.

Gall, M. D., Gall, J. P., & Borg, W. R. (2007). Collecting research data with questionnaires and interviews. *Educational research: An introduction*, 227-261.

Ganon-Shilon, S., & Schechter, C. (2017). Making sense of school leaders' sense-making. *Educational Management Administration & Leadership, 45*(4), 682-698.

Garfinkel, H. (1967). *Studies in ethnomethodology.* Englewood Cliffs, NJ: Prentice-Hall.

Gawlik, M. A. (2015). Shared sense-making: how charter school leaders ascribe meaning to accountability. *Journal of Educational Administration, 53*(3), 393-415.

Gephart, R. P., Topal, C., & Zhang, Z. (2010). Future-oriented sensemaking: Temporalities and institutional legitimation. In T. Hernes & S. Maitlis (Eds.), *Process, sensemaking, and organizing* (pp. 275–312). Oxford: Oxford University Press.

Glazer, J. L., & Peurach, D. J. (2013). School improvement networks as a strategy for large-scale education reform: The role of educational environments. *Educational Policy, 27*(4), 676-710.

Gioia, D. A., Corley, K. G., & Fabbri, T. (2002). Revising the past (while thinking in the future perfect tense). *Journal of Organizational Change Management, 15*(6), 622-634.

Gomez, L., Russell, J., Bryk, A., LeMahieu, P., & Mejia, E. (2016). The right network for the right problem. *The Phi Delta Kappan, 98*(3), 8-15.

Goretzki, L., & Messner, M. (2016). Coordination under uncertainty: A sensemaking perspective on cross-functional planning meetings. *Qualitative Research in Accounting &*

Management, 13(1), 92-126.

Hancock, D. R., & Algozzine, B. (2016). *Doing case study research: A practical guide for beginning researchers.* Teachers College Press. [Kindle DX version]. Retrieved from Amazon.com.

Hannan, M., Russell, J. L., Takahashi, S., & Park, S. (2015). Using improvement science to better support beginning teachers: The case of the building a teaching effectiveness network. *Journal of Teacher Education, 66*(5), 494-508.

Hardy, C., Lawrence, T. B., & Grant, D. (2005). Discourse and collaboration: The role of conversations and collective identity. *Academy of Management Review, 30*(1), 58-77.

Hargreaves, A., & Ainscow, M. (2015). The top and bottom of leadership and change. *The Phi Delta Kappan., 97*(3), 42-48.

Hayes, K. T. (2016). *Making sense: A case study of teacher sensemaking about Chicago public schools' instructional development systems* (Order No. 10141822). Available from ProQuest Dissertations & Theses Global. (1807413491).

Helms Mills, J., Thurlow, A., & Mills, A. J. (2010). Making sense of sensemaking: The critical sensemaking approach. *Qualitative Research in Organizations and Management: An International Journal, 5*(2), 182-195.

Hill, R. C., & Levenhagen, M. (1995). Metaphors and mental models: Sensemaking and sensegiving in innovative and entrepreneurial activities. *Journal of Management, 21*(6), 1057–1074.

Hoaglund, A., Birkenfeld, K., & Box, J. (2014). Professional learning communities: Creating a foundation for collaboration skills in pre-service teachers. *Education, 134*(4), 521-528.

Holstein, J. A., & Gubrium, J. F. (Eds.). (2013). *Handbook of constructionist research*. Guilford

Publications. [Google Books version]. Retrieved from https://books.google.com/books?id=RCMAQAAQBAJ&lpg=PP1&ots=2IwUbBIEmF&dq=Holstein%20%26%20Gubrium%2C%202013&lr&pg=PP1#v=onepage&q=Holstein%20&%20Gubrium,%202013&f=false.

Holt, R., & Cornelissen, J. (2014). Sensemaking revisited. *Management Learning, 45*(5), 525-539.

Huang, M. (2018). *2016-2017 impact report: Six years of results from the Carnegie Math Pathways.* San Francisco, CA: WestEd. Retrieved June 23, 2018 from https://www.carnegiefoundation.org/resources/publications/.

Im, E. O., & Chee, W. (2012). Practical guidelines for qualitative research using online forums. Computers, informatics, nursing: CIN, 30(11), 604. Retrieved July 28, 2001 from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3727223/pdf/nihms397154.pdf.

Introna, L. (2018). On the Making of Sense in Sensemaking: Decentred Sensemaking in the Meshwork of Life. *Organization Studies*, 017084061876557.

Johnson, S. M., Marietta, G., Higgins, M. C., Mapp, K. L., & Grossman, A. S. (2014). *Achieving coherence in district improvement: Managing the relationship between the central office and schools*. Harvard Education Press.

Jørgensen, L., Jordan, S., & Mitterhofer, H. (2012). Sensemaking and discourse analyses in inter-organizational research: A review and suggested advances. *Scandinavian Journal of Management., 28*(2), 107-120.

Karreman, D., & Alvesson, M. (2001). Making newsmakers: Conversational identity at work. *Organization Studies, 22*(1), 59-89.

Klein, G., Wiggins, S., & Dominguez, C. O. (2010). Team sensemaking. *Theoretical Issues in*

Ergonomics Science, 11(4), 304-320.

Kolleck, N. (2014). Innovations through networks- Understanding the role of social relations for educational innovations. *Zeitschrift für Erziehungswissenschaft, 17*(5), 47-64.

Konlechner, S., Latzke, M., Güttel, W., & Höfferer, E. (2018). Prospective sensemaking, frames and planned change interventions: A comparison of change trajectories in two hospital units. *Human Relations*., 001872671877315.

Kounios, J., & Beeman, M. (2014). The cognitive neuroscience of insight. *Annual review of psychology, 65*. Retrieved July 28, 2018 from https://pdfs.semanticscholar.org/aa54/541387b30980f27e85d2d68cb3fc10d3aa66.pdf.

Koro-Ljungberg, M., Yendol-Hoppey, D., Smith, J., & Hayes, S. (2009). (E)pistemological Awareness, Instantiation of Methods, and Uninformed Methodological Ambiguity in Qualitative Research Projects. *Educational Researcher: A Publication of the American Educational Research Association., 38*(9), 687-699.

Krotty, M. (1998). The Foundations of Social Research: Meaning and Perspective in the Research Process. Sage. [Google Books version]. Retrieved from https://books.google.com/books?id=Op_SDKrf1ZQC&lpg=PR6IA1&ots=RtGxSbs4D0&dq=Krotty%2C%20M.%20(1998).%20The%20foundations%20of%20social%20research%3A%20Meaning%20and%20perspective%20in%20the%20research%20process.%20Sage.&lr&pg=PR6-IA1#v=onepage&q=Krotty,%20M.%20(1998).%20The%20foundations%20of%20social%20research:%20Meaning%20and%20perspective%20in%20the%20research%20process.%20Sage.&f=false.

Langley, G.J., Moen, R.D., Nolan, K.M., Nolan, T.W., Norman, C.L. and Provost, L.P. (2009).

The Improvement Guide: A Practical Approach to Enhancing Organizational Performance, 2nd ed., Jossey-Bass Publishers, San Francisco, CA.

LeMahieu, P. G., Bryk, A. S., Grunow, A., & Gomez, L. M. (2017). Working to improve: Seven approaches to improvement science in education. *Quality Assurance in Education, 25*(1), 2-4.

LeMahieu, P. G., Grunow, A., Baker, L., Nordstrum, L. E., & Gomez, L. M. (2017). Networked improvement communities: The discipline of improvement science meets the power of networks. *Quality Assurance in Education, 25*(1), 5-25.

Lewis, C. (2015). What is improvement science? Do we need it in education?. *Educational Researcher, 44*(1), 54-61.

Liu, F., & Maitlis, S. (2014). Emotional dynamics and strategizing processes: A study of strategic conversations in top team meetings. *Journal of Management Studies, 51*(2), 202–234.

Lincoln, Y. S., & Guba, E. G. (2016). The Constructivist Credo: Yvonna S. Lincoln Egon G. Guba. In *The Constructivist Credo*. Routledge.

Loebbecke, C., van Fenema, P. C., & Powell, P. (2016). Managing inter-organizational knowledge sharing. *The Journal of Strategic Information Systems, 25*(1), 4-14.

Long, B. S. (2016). Collective bargaining as the negotiation of competing stories: Implications for leadership. *Journal of Strategic Contracting and Negotiation, 2*(1-2), 166-181.

Maitlis, S., & Christianson, M. (2014). Sensemaking in organizations: Taking stock and moving forward. *The Academy of Management Annals, 8*(1), 57-125.

Maitlis, S., & Hernes, T. (2010). *Process, Sensemaking, and Organizing.* Oxford: OUP Oxford. Retrieved from https://search-ebscohost-com.iris.etsu.edu:3443/login.aspx?direct=true

&AuthType=cookie,ip,url,uid,athens&db=nlebk&AN=663081&site=ehost-live.

Maitlis, S., & Sonenshein, S. (2010). Sensemaking in crisis and change: Inspiration and insights from Weick (1988). *Journal of management studies, 47*(3), 551-580.

Majchrzak, A., Jarvenpaa, S. L., & Bagherzadeh, M. (2015). A review of interorganizational collaboration dynamics. *Journal of Management, 41*(5), 1338-1360.

Manna, P. (2010). *Competitive grant making and edu- cation reform: Assessing Race to the Top's current impact and future prospects* (Education Stimulus Watch, Special Report 5). Washington, DC: American Enterprise Institute for Public Policy Research. Retrieved December 1, 2017 from https://eric.ed.gov/?id=ED516500.

Marshall, M., Pronovost, P., & Dixon-Woods, M. (n.d.). Promotion of improvement as a science. *The Lancet., 381*(9864), 419-421.

Marshall, C., & Rossman, G. B. (2014). *Designing qualitative research*. Sage Publications.

Maclean, M., Harvey, C., & Chia, R. (2012). Sensemaking, storytelling and the legitimization of elite business careers. *Human Relations, 65*(1), 17-40.

McCauley-Smith, C., Williams, S. J., Gillon, A. C., & Braganza, A. (2015). Making sense of leadership development: Developing a community of education leaders. *Studies in Higher Education, 40*(2), 311-328.

McDonnell, L. M., & Elmore, R. F. (1987). Getting the job done: Alternative policy instruments. *Educational Evaluation and Policy Analysis, 9*, 133–152.

McFarland, J., Hussar, B., de Brey, C., Snyder, T., Wang, X., Wilkinson-Flicker, S.,… and Hinz, S. (2017). *The Condition of Education 2017* (NCES 2017-144). U.S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved October 26, 2018 from https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2017144.

McGuinn, P. (2012). Stimulating reform race to the top, competitive grants and the Obama education agenda. *Educational Policy, 26,* 136–159.

Merkus, S., Willems, T., Schipper, D., van Marrewijk, A., Koppenjan, J., Veenswijk, M., & Bakker, H. (2017). A storm is coming? Collective sensemaking and ambiguity in an inter-organizational team managing railway system disruptions. *Journal of Change Management, 17*(3), 228-248.

Miles, M. B., Huberman, A. M., & Saldana, J. (2014). *Qualitative data analysis.* Sage Publications. [Kindle DX version]. Retrieved from Amazon.com.

Mills, A. J., & Mills, J. H. (2012). When plausibility fails. *Identity Politics at Work: Resisting Gender, Gendering Resistance*, 121.

Moonesinghe, S., & Peden, C. (2017). Theory and context: Putting the science into improvement. British Journal of Anaesthesia: *BJA., 118*(4), 482-484.

National Research Council (2003). *Protecting participants and facilitating social and behavioral sciences research.* Washington, DC: National Academy Press.

Nayfack, M., Park, V., Hough, H., & Willis, L. (2017). *Building Systems Knowledge for Continuous Improvement: Early lessons from the CORE districts.* Policy Analysis for California Education.

Nordstrum, L. E., LeMahieu, P. G., & Berrena, E. (2017). Implementation science. *Quality Assurance in Education, 25*(1), 58-73.

O'Day, J. A., & Smith, M. S. (2016). Quality and equality in American education: Systemic problems, systemic solutions. In *The dynamics of opportunity in America* (pp. 297-358). Springer, Cham.

Park, S., Hironaka, S., Carver, P., & Nordstrum, L. (2013). *Continuous improvement in*

education. Advancing teaching - Improving learning [White Paper]. Stanford, CA: Carnegie Foundation for the Advancement of Teaching. Retrieved June 23, 2018 from https://www.carnegiefoundation.org/resources/ publications/.

Patton, M.Q. (2015). *Qualitative research & evaluation methods* (4th edition). Thousand Oaks, CA: Sage Publications. [Kindle DX version]. Retrieved from Amazon.com.

Peng, H. (2018). Distributed imagining processes in organizational change sensemaking. *Journal of Organizational Change Management., 31*(7), 1368-1382.

Peurach, D. J. (2016). Innovating at the nexus of impact and improvement: Leading educational improvement networks. *Educational Researcher, 45*(7), 421-429.

Peurach, D. J., & Glazer, J. L. (2012). Reconsidering replication: New perspectives on large-scale school improvement. *Journal of Educational Change, 13*(2), 155-190.

Pitts, D. (2010). *A historical analysis of property reform act of 2006.* All Dissertations. Retrievd July 28, 2018 from https://tigerprints.clemson.edu/all_dissertations/540.

Popp, J., Milward, H. B., MacKean, G., Casebeer, A., & Lindstrom, R. (2014). *Inter-organizational networks: A review of the literature to inform practice.* IBM Center for the Business of Government. Washington, DC.

Proger, A. R., Bhatt, M. P., Cirks, V., & Gurke, D. (2017). Establishing and sustaining Networked improvement communities: Lessons from Michigan and Minnesota (REL 2017–264). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Midwest. Retrieved June 23, 2018 from http://ies.ed.gov/ncee/edlabs.

Redding, C., Cannata, M., & Miller, J. M. (2018). System learning in an urban school district: A

case study of intra-district learning. *Journal of Educational Change, 19*(1), 77-101.

Redding, C., Cannata, M., & Taylor Haynes, K. (2017). With scale in mind: A continuous improvement model for implementation. *Peabody Journal of Education, 92*(5), 589-608.

Rigby, J. G. (2015). Principals' sensemaking and enactment of teacher evaluation. *Journal of Educational Administration, 53*(3), 374-392.

Rogers, E. (1983). *Diffusion of innovations.* The Free Press. [Kindle DX version]. Retrieved from Amazon.com.

Rudestam, K. E., & Newton, R. R. (2015). *Surviving your dissertation: A comprehensive guide to content and process.* Sage Publications.

Russell, J. L., Bryk, A. S., Dolle, J., Gomez, L. M., LeMahieu, P., & Grunow, A. (2015). A framework for the initiation of networked improvement communities. *Teachers College Record, 119*(7).

Russell, J. L., Meredith, J., Childs, J., Stein, M. K., & Prine, D. W. (2015). Designing inter-organizational networks to implement education reform: An analysis of state Race to the Top applications. *Educational evaluation and policy analysis, 37*(1), 92-112.

Saldaña, J. (2013). *The coding manual for qualitative researchers*. Sage.

Sandberg, J., & Tsoukas, H. (2015). Making sense of the sensemaking perspective: Its constituents, limitations, and opportunities for further development. *Journal of Organizational Behavior, 36*(S1).

Seashore Louis, K., Thomas, E., Gordon, M., & Febey, K. (2008). State Leadership for School Improvement: An Analysis of Three States. *Educational Administration Quarterly., 44*(4), 562-592.

Shaked, H., & Schechter, C. (2018). School middle leaders' sense-making of a generally

outlined education reform. *Leadership and Policy in Schools*, 1-21. Retrieved July 28, 2018 from http://hemdat.ac.il/wp-content/uploads/2017/12/Meaningful-Learning-Reform-For-Second-Review-2.docx.pdf.

Silverman, D. (2015). *Interpreting qualitative data*. Sage Publications. [Kindle DX version]. Retrieved from Amazon.com.

Smith, P. (2016). Boundary emergence in inter-organizational innovation: The influence of strategizing, identification and sensemaking. *European Journal of Innovation Management, 19*(1), 47-71.

Smy, V., Cahillane, M., & MacLean, P. (2016). Sensemaking and metacognitive prompting in ill-structured problems. *The International Journal of Information and Learning Technology*, 33(3), 186-199.

Sowers, N., & Yamada, H. (2015). *Pathways impact report.* Palo Alto, CA. Retrieved June 23, 2018 from https://www.carnegiefoundation.org/resources/publications/.

Stigliani, I., & Ravasi, D. (2012). Organizing thoughts and connecting brains: Material practices and the transition from individual to group-level prospective sensemaking. *Academy of Management Journal, 55*(5), 1232-1259.

Taylor, J. R., & Van Every, E. J. (2000). *The Emergent Organization: Communication As Its Site and Surface.* Mahwah, N.J.: Routledge. Retrieved February 12, 2018 from https://web-a-ebscohost-com.iris.etsu.edu:3443/ehost/detail/detail?vid=0&sid=f295d0f2-cfb7-4396-859c-247078cd4d07%40sdc-v-sessmgr03&bdata=JkF1dGhUeXBlPWNvb2tpZSxpcCx1cmwsdWlkLGF0aGVucyZzaXRlPWVob3N0LWxpdmU%3d#AN=24284&db=nlebk.

Tennessee Department of Education. (2018). *First steps: A report on early grades reading in*

Tennessee. Nashville, TN: US. Government Printing Office. Retrieved February 24, 2018 https://www.tn.gov/readtoberready/just-for-educators/summer-learning-series.html.

Tennessee Department of Education. (2017). *Teaching Literacy in Tennessee: Practical Guidance for Developing Proficient Readers, Writers, and Thinkers.* Nashville, TN: US. Government Printing Office. Retrieved February 24, 2018 https://www.tn.gov/readtoberready/just-for-educators/summer-learning-series.html.

Tennessee Department of Education. (2016). *Setting the foundation: A report on elementary grades reading in Tennessee.* Nashville, TN: US. Government Printing Office. Retrieved February 24, 2018 https://www.tn.gov/readtoberready/just-for-educators/summer-learning-series.html.

Tennessee Department of Education. (2015). *Tennessee succeeds: Where are we going? How will we get there?* Nashville, TN: US. Government Printing Office. Retrieved February 24, 2018 https://www.tn.gov/readtoberready/just-for-educators/summer-learning-series.html.

The Annie E. Casey Foundation. (2013). *Early Warning Confirmed: A Research Update on Third-Grade Reading.* Baltimore, MD: Fiester, Leila. Retrieved October 26, from www.aecf.org.

Thomas, R., Sargent, L. D., & Hardy, C. (2011). Managing organizational change: Negotiating meaning and power-resistance relations. *Organization Science, 22*(1), 22-41.

Tichnor-Wagner, A., Wachen, J., Cannata, M., & Cohen-Vogel, L. (2017). Continuous improvement in the public school context: Understanding how educators respond to plan–do–study–act cycles. *Journal of Educational Change, 18*(4), 465-494.

Wiebe, E. (2010). Temporal sensemaking: Managers' use of time to frame organizational change. In T. Hernes & S. Maitlis (Eds.), *Process, sensemaking, and organizing* (pp. 275–312). Oxford: Oxford University Press.

Weick, K. E. (1969). *The social psychology of organizing.* Reading, MA: Addison-Wesley.

Weick, K. E. (1995). *Sensemaking in organizations* (Vol. 3). Sage Publications.

Weick K. E. (2008). Sensemaking. In: Clegg SR and Bailey JR (eds) *International Encyclopedia of Organization Studies*, vol. 4. (p. 1403–1406). Thousand Oaks, CA: Sage Publishing.

Weick, K. E. (2009). *Making Sense of the Organization. Volume 2. The Impermanent Organization.* Chichester: Wiley-Blackwell.

Weick, K. E. (2012). Organized sensemaking: A commentary on processes of interpretive work. *Human Relations, 65*(1), 141-153.

Weick, K. E. (2015). Ambiguity as grasp: The reworking of sense. *Journal of Contingencies and Crisis Management, 23*(2), 117-123.

Weick, K. E. (2017). Perspective construction in organizational behavior. *Annual Review of Organizational Psychology and Organizational Behavior, 4*, 1-17.

Weick, K. E., Sutcliffe, K. M., & Obstfeld, D. (2005). Organizing and the process of sensemaking. *Organization Science, 16*(4), 409-421.

Wolbers, J., & Boersma, K. (2013). The common operational picture as collective sensemaking. *Journal of Contingencies and Crisis Management, 21*(4), 186–199.

APPENDICES

APPENDIX A: CODE MAP FOR RESEARCH QUESTION 1

Research Question 1: What initial understandings emerged about the networked improvement community's chosen problem of practice?

Six Key Findings

1. Teachers feel unprepared to teach reading and local support for them varies.
2. Instructional design and processes, along with teacher practice, are often misaligned to state instructional guidance and seem particularly harmful to struggling readers.
3. Educators lack self and system awareness to guide best practice.
4. Struggling students share similar early educational experiences.
5. Educators exhibit a lack of trust and/or understanding of how to use instructional data.
6. School and school district policy and/or practice impacts early literacy experiences.

Themes

Instruction
Self/System Awareness
Teacher Preparedness
Early Literacy Experiences
Data Use
School/System Policy and Practice

Problem-Specific	**User-Centered**	**Variation**
		Process
Member opinion	Child Beliefs	**Outcome**
Attendance	Child Needs	
Child Compensates	Teacher Beliefs	**System**
Child Diagnosis	Teacher Needs	**System Elements**
Conflict in beliefs/approach		**Influencing Factors**
Declining Results		
Educational Purpose		
Home/Community		
Initial Skill Level		
Instruction		
Missed Opportunity		
School/System Policy and/or Practice		
Self/System Awareness		
Summer Slide/Transitions		
Teacher Prep/Ongoing Support		
Trust in/Use of Data		

Problem Specific and User Centered
Attend to Variation
See the System

Conceptual Framework on NIC Operation
3 (of 6) Core Principles of Improvement

DATA	**DATA**	**DATA**	**DATA**

Bold codes were deductively generated based on conceptual framework

APPENDIX A: CODE MAP FOR RESEARCH QUESTION 2

<table>
<tr><td colspan="4">Research Question 2: How did members of a newly-formed networked improvement community begin to make sense of their organizational problem of practice through inquiry?</td></tr>
<tr><td colspan="4">Six Key Findings
1. Member sensemaking was triggered by expertise and/or perceived knowledge.
2. Member sensemaking was triggered by seeking to resolve confusing, ambiguous, and/or novel information.
3. Member sensemaking was triggered by noticing common issues/trends.
4. Member sensemaking was driven by making declarations.
5. Member sensemaking was driven by making connections.
6. Member sensemaking was driven by challenging "the system" and each other.</td></tr>
<tr><td colspan="2">Sensemaking is Triggered by Cues</td><td colspan="2">Sensemaking is Driven by Action</td></tr>
<tr><td colspan="4">2 Theoretical Themes about the Process of Sensemaking</td></tr>
<tr><td></td><td>Common issue/trend
Confusing, ambiguous, novel information
Contrasting Example
Data/reality mismatch
Expertise
Frustration
Outlier
Personal Connection
Positive element
School-level failures
Similar example
Similar thinking
System-level factor</td><td>Acknowledging not sure what to do
Agreeing with another
Asking a "real" question
Challenging
Making a connection
Making a declaration
Putting forth a proposal/idea
Restating/Repeating Thought
Stating Appreciation</td><td></td></tr>
<tr><td>Social</td><td>Triggered by Cues</td><td>Driven by Action</td><td>Ongoing</td></tr>
<tr><td colspan="4">Conceptual Framework based on Sensemaking Research
Guiding Definition: Sensemaking is an ongoing and social process through which people work to understand novel, ambiguous, or confusing issues by attending to cues and enacting a more ordered environment from which further cues can be drawn (Maitlis & Christian, 2014; Weick, 1995)</td></tr>
<tr><td>DATA</td><td>DATA</td><td>DATA</td><td>DATA</td></tr>
</table>

Bold codes were deductively generated based on conceptual frameworks

APPENDIX B

Student Journey Maps

A feature of improvement work is its user- centered, empathetic design. In education this encourages us to take children's experiences as a starting point, and try to see and solve problems from their perspective.

Toward that end we'd like you to identify one third grade child in your district who has struggled to learn to read and develop a "journey map" for him/her. Our goal in asking you to do this is to develop a collective understanding of the many factors that may shape a student's experiences as a developing reader. Seeing the "journey" through the eyes of an individual child is also a good way to see the system that shapes their experience.

Struggling Third Graders

Identify a third grade child[1] in your district who is struggling to learn to read and who is outgoing and willing to have a brief, informal conversation with you. Create a simple pseudonym for the child to protect his/her anonymity (ie Becky M.). Both the first name and the initial should be a pseudonym known only to you.

Record Review

As background for your conversation plan to review the child's file:

1) Look in the child's records and find out what, if any, data exists relevant to literacy learning that was available at entry to k, and then at each grade and any checkpoints within grades along the way.
2) List any support services the child received (e.g. RTI), when he or she received them, and any data available from these experiences.
3) Find out if the child had any attendance, tardiness, or disciplinary issues and record these.
4) Record any family circumstances that you learn about that may have bearing on the child's literacy learning. This might include being in foster care or homeless, being raised by a guardian, having a disabled parent, etc.

Teacher Check-ins

Identify the child's classroom teachers and ask each to talk with you briefly about what they remember about that child as a developing reader. Ask if they remember any particular literacy struggles, and how they tried to help the child. (As prompts you might ask if the child received support services (see 2 above) and whether the services helped them? If not, why not? What might have been more helpful? Summarize each teacher's statements in a sentence or two.

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[1] For the journey map please pick a child from your general population and not one who has been referred for special education.

Student Conversation

Now, have a brief conversation with the child aimed at understanding, from his or her perspective, what it's been like and felt like to learn to read, and what s/he thinks the future holds. Jot down notes during your conversation to help you remember the child's comments. A few prompts to guide your conversation include:

1) Do you like to read? Can you tell me about the last thing you read that you really liked?

2) Do you ever think reading is hard? What makes reading hard sometimes? When it's hard do you give up or try to keep going? Who do you ask for help?

3) Can you remember learning to read when you were little—before you even started school? Can you tell me what you remember?

4) Can you remember learning more about reading when you were in kindergarten and first and second grade? Can you tell me what you remember?

5) Do you feel like you're going to be a good reader someday?

- If the child says yes, ask: What do you think you'll need to do to be a good reader?
- If the child says no, ask: 'Why not?' and try to draw him out on what will keep him from becoming a good reader.

6) Ask the child if there is anything more s/he'd like to share with you about reading and thank the child for talking with you.

Following the Conversation

Timeline. Immediately following your conversation with the child, draft a brief write-up as his/her journey. Use the sample that we developed as a guide. If the child's file doesn't have much information in it, don't worry. Just note what's missing, and summarize what you can. Similarly, if the child's previous teacher(s) have left your district, note that in your write-up and interview the teachers that you do have access to.

Personal reflections. Once you've developed your map for each child take a few moments to think about the experience and jot down your own reflections. A few questions to prompt your reflection might include:

1) How does learning about this child's journey make me feel?
2) What, if anything, was troubling about this child's journey?
3) What, if anything, did I learn (about the child? about our system? about ___?)
4) What questions, if any, did this activity raise for you? What are you puzzling or wondering about?

Teacher Journey Maps

As we noted when we set the stage for developing our student journey maps, improvement work focuses on the perspectives and needs of those whom we are committed to serve. This often means that in addition to learning about our students' experiences, feelings and needs, we need to learn more about our teachers as well. We need to find out how our teachers think children learn to read and what they believe they are supposed to do, and able to do, to teach them.

As a starting point for this work, we ask that you interview one classroom teacher in your district who teaches k, 1st, 2nd or 3rd grade. Be sure her assignment includes teaching reading to children who are struggling. Choose a willing teacher who has taught at least 8 years in your district. Choose a "typical" teacher for these grades, meaning that her outcome data is much like your other teachers, and her practice looks typical for your building as well. (Don't pick one of your rock stars!) Plan about 30 minutes for each conversation, and choose a quiet place where you won't get interrupted and the teacher will feel comfortable talking. As you talk, jot down the teacher's answers and try to capture poignant phrases. Include the following questions:

1) Think back to your pre-service training. Just before you started teaching, what was your working theory about how children learn to read? Did you feel prepared to teach them? If so, what were you planning to do? If not, what were you worried about?
2) Now tell me what you remember about your first years as a classroom teacher. What grade(s) did you teach? What were some of your successes as a reading teacher? What were some of your challenges and puzzles? How did you meet those challenges? Who did you go to for help?
3) You've now been teaching ___ years. Has your approach to teaching reading changed? If so, can you tell me why and how?
4) Think about this current school year. Tell me about a specific success you've had helping a child who was struggling as a reader. Can you also think of a specific child that you haven't been able to help as much as you would have liked? What was s/he struggling with? What did you try? With what result?
5) What would help you become a better reading teacher?
6) Is there anything more you'd like to share with me about your experiences teaching reading? Thanks for your time!

Following the Conversation

Immediately following the interview, fill in your notes to make them legible to yourself (!). Add anything you remember that you may not have written down. Be sure to record any statements that the teacher might have made that stand out to you that perhaps express her sadness or frustration, her desire to be able to do better, or her joy about what she's able to do.

Write a brief (1 – 2 page) summary of the interview, and your reflections about the conversation, organized as follows:

Summary

Teacher's emotions, feelings, and feelings of self-efficacy as a teacher of reading:

Teacher's initial theory about how to teach reading:

Teacher's theory now:

The help she wants:

Reflections

My conversation with this teacher made me feel:

This teacher identified problem(s) about how we teach reading in our district. They include:

I am wondering or puzzled about:

VITA

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Rennie Center for Education Research & Policy
Boston, Massachusetts
10/2018

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Catalyst Ed
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Tennessee Department of Education
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