

## Can principled adaptations to school context increase the likelihood of scale-up?

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**ABSTRACT**

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**Introduction**

Chronically under-performing schools with high concentrations of low-income and minority students are faced with the perpetual problem of meeting expansive organizational needs with insufficient capacity to do so. The conventional approach is for schools and districts to identify an externally developed program that remedies these organizational shortcomings. Since the late 1980s, this solution has often been comprehensive school reform (CSR). These programs shift the focus of school reform from compensatory services for at-risk students to programs that re-design the organizational structures of schools (Cohen, Peurach, Glazer, Gates, & Goldin, 2013). These programs are premised on the idea that schools can only reduce demographic achievement gaps only when they are organized around coherent structures (Datnow & Park, 2009). Although initially promising, these externally developed programs are often criticized for undermining teacher and school autonomy, being implemented in ways that depart from the intent of the design, and leading to few benefits for students (Berends, Bodily, & Kirby, 2002; Datnow, Hubbard, & Mehan, 2002; Vernez, Karam, Mariano, & DeMartini, 2006). This paper focuses on this second issue, adaptation to local context.

That variable implementation is the norm in education runs counter to the dictum that programs implemented with fidelity yield better outcomes (Bauman, Stein, & Ireys, 1991; Blakely et al., 1987; Fixsen, Blase, Naoom, & Wallace, 2009). While fidelity may lead to better outcomes in more tightly controlled situations, we find the narrow emphasis on fidelity problematic for whole school reform. First, program theory rarely takes into account the organizational complexities that may foster or hinder changes within a school (Elmore, 1996). Second, when improvement involves the coordination of multiple structures and practices across multiple school stakeholders, the concept of fidelity may simply not generalize to ambitious whole school reform (O'Donnell, 2008). Third, although programs implemented with fidelity may yield more positive outcomes compared to those implemented with less fidelity, it is possible that programs that are successfully adapted to their local school context may actually enhance student outcomes. At present, it is unclear if there is an optimal level of adaptation that reformers could strive for to achieve such ends (Weiss, Bloom, & Brock 2014).

Seeking to understand how educators adopt (or reject) new programs, recent research on educational implementation has greatly enhanced the understanding of the ways in which local context influence program implementation. Cognitive and socio-cultural theories, often under the guise of sense-making, have moved beyond behavioral explanations of implementation to describing the ways in which local stakeholders construct meaning around new policies, both individually and collectively (Benn, 2004; Carraway 2012; Cho & Wayman 2014; Coburn, 2001; Coburn, 2004; Coldren, 2006; Hora, 2008; Marz & Kelchtermans, 2013; Schmidt & Datnow, 2005; Slegers, Wassink, van Veen, & Imants, 2009; Spillane, 2000; Spillane, Reiser, & Reimer, 2002). With a richer understanding of the ways in which local context shapes how teachers interpret and manifest foreign practices, researchers and policymakers have begun to adopt new

approaches to implementation. The continuous improvement approach, adopted from management and health sciences, integrates local stakeholders' expertise into the design and development of reform initiatives. These school improvement efforts take advantage of local knowledge and the guidance of researchers and program developers to design new solutions to perpetual problems of practice. Examples of this work include Carnegie Foundation's "Networked Improvement Communities" (Dolle, Gomez, Russell, & Bryk, 2013), the Strategic Education Research Partnership (SERP) (Donovan, Snow, Daro, 2013; Penuel, Fishman, Cheng, & Sabelli, 2011) and the National Center on Scaling Up Effective Schools (NCSU), the project on which this paper is based. NCSU is collaborative partnership between school and district personnel, program developers, and researchers to support three urban high schools in two respective districts to develop innovative solutions to research-based problems of practice.

This paper describes a process that involved in taking a locally designed reform and developing it to their local context. NCSU designed a process that allows for, and even encourages, stakeholders to make adaptations to the design that align with their school context. To prevent adaptations that depart from the initial design, school stakeholders are involved prior to implementation, during the design and development of the innovation. The knowledge of the design allows stakeholders to make *principled adaptations*, a detailed specification of the set of practices that will be used to enact the design principles and goals of the innovation. These adaptations are principled in so far as school stakeholders specify how the changes align with the design. This process occurs within a continuous improvement framework, where teachers and other school staff implement discrete practices, collect and examine data, and hone in on the high leverage practices most likely to improve student outcomes.

Involving local stakeholders in the development of a school-based intervention raises questions regarding the nature of what is actually developed and implemented. While it is generally accepted that a program will change during implementation (Berman & McLaughlin, 1976; Datnow, Hubbard, & Mehan, 2002; Fullan, 2000; Supovitz & Weinbaum, 2008), programs change during their design and development as well. This phenomenon has been documented with the New American Schools (NAS), a forerunner in whole school reform and sponsor of nearly a dozen CSR models (Berends, Bodily, & Kirby, 2002). During the lengthy development process, design teams worked with partner schools to translate general program theories into substantive materials for implementation. Some reform organizations altered fundamental elements of their program design in the face of the organizational demands of early partner schools. Other designs were modified based on the practices that were attached to the design in early stages of implementation, sometimes changing the intent of the designs (Bodily, 2001).

In this paper, we document how stakeholders across three high schools in one large, urban school district adapted an innovation design to align with their school context. Our goal is to describe how school stakeholders viewed the role of adaptation and understand the ways in which the structure of the adaptation process enhanced alignment to local context. We ask the following research questions:

- (1) How do school stakeholders understand adaptation as a tool for aligning the innovation design to their school context?
- (2) What structural supports managed the adaptation process across three urban high schools?

We begin with a discussion of the fidelity and adaptation. We then develop a theoretical framework for examining adaptation and discuss how principled adaptations help guide this process. Next, we describe our research methods and discuss the district context, including an overview of the innovation designed to increase student ownership and responsibility. We then

apply our theoretical framework to the adaptation process at the three partner high schools. We conclude with a discussion of the implications for scale-up that are raised by this focus on local context.

## **Literature Review**

### *Adaptation as a Problem*

In the literature, adaptation—changes to a program that emerge as a result of pressures from local stakeholder needs, knowledge, or other organizational pressures—is often contrasted to fidelity (Durlak and Dupre, 2008). The framework for fidelity emerged from the psychological, biomedical, and program evaluation fields and has been carefully delineated (Blakely et al., 1987; Dane & Schneider, 1998; Dusenbury, Brannigan, Falco, & Hansen, 2003; Horner, Rew, & Torres, 2006; O’Donnell, 2008; Sechrest, West, Phillips, Redner, & Yeaton, 1979). Fidelity is achieved when implemented practices correspond with the program theory (Mowbray, Holter, & Teague, 2003; O’Donnell, 2008; Sechrest et al., 1979). The program theory forms the basis for quantifying how a program was actually implemented, with measures for adherence, duration, quality of delivery, participant responsiveness, and program differentiation (Cordray & Pion, 2006; Dane & Schneider, 1998; Dusenbury et al., 2003). High levels of fidelity are used to strengthen causal claims of the extent to which the intervention can be linked to changes in outcomes specified in the program theory and increase statistical power (Dumas, Lynch, Laughlin, Smith, & Prinz, 2001). Adaptation is a concern in this framework as any changes to the core components of the intervention undermine the researcher’s ability to link the intervention with intended outcomes.

In contrast to the sizable work on fidelity, adaptation remains a less-developed concept. Prior research on educational implementation has documented the ways in which adaptation

occurs during implementation (Berman & McLaughlin, 1976; Datnow, Hubbard, & Mehan, 2002; Fullan, 2000; Supovitz & Weinbaum, 2008). In this literature, there is a tension between the ways in which adaptation can be productive and enhance a programs' outcomes or detrimental to achieving these goals. The starting point for the pro-adaptation approach is Berman and McLaughlin's (1975; 1976) account of mutual adaptation, the process by which the practitioner and program both change as a result of implementation. For implementation to be successful, adaptation must occur. This adaptation gives local stakeholders an opportunity to personalize a program to meet their unique needs (McLaughlin, 1976). Some contend that mutual adaptation builds a sense of ownership that helped the sustainability of programs (Eveland, Rogers, & Klepper, 1977; Rogers, 1978). No matter how desirable such mutual adaptations may be, Reiser and colleagues (2000) argue, "mutual adaptation tends to be the exception rather than the norm in educational reform, especially reforms that seek substantial transformations of extant practice" (p. 342). They go on to describe how most adaptations are made to conform to current practice in ways that depart from the original program design. Recent evidence of comprehensive school reform confirms that externally developed programs are implemented with great variation (Berends et al., 2002; Datnow et al., 2002; Supovitz & Weinbaum, 2008; Vernez et al., 2006), with local adaptation yielding an "incoherent mix of standards, assessments, curriculum, instruction, and professional development" (Berends et al., 2002, p. xxx).

### *Adaptation as a Solution*

With varying opinions of the role of adaptation, there is no unifying framework in the literature to describe adaptation. We develop a theoretical framework to describe how adaptation occurs in schools and how these adaptations could be guided. Our framework distills five

principles of adaptation from our reading of the implementation and continuous improvement literature. These principles include: (1) adaptation is inevitable; (2) adaptations must be monitored; (3) adaptation may be improve outcomes if managed properly; (4) practitioners require a deep understanding of (a) the underlying design philosophy or (b) curricular or program components to manage adaptation; (5) productive adaptations depend on practitioner capacity to translate a design into actionable practices. These principles are not consistently considered across descriptions of adaptation. The emphasis, purpose, and management of adaptation differ across researchers and practitioners engaging school improvement. For example, Principles 1 and 2 seem to be generally recognized in the implementation literature. The remaining three principles emerge from a continuous improvement model and remain more contested. These principles allude to the possibility for productive adaptations when stakeholders have an understanding of the design and the capacity and structural supports to transfer their knowledge into these productive adaptations.

NCSU has adopted a continuous improvement model to guide the adaptation process. Managing adaptations allows school stakeholders to make principled adaptations, specified practices that enact the design principles and goals of the innovation. Siskin (2012) extends the concept of adaptation by delineating the type of adaptations that may occur at the school level. Siskin (2012) elaborates on the concept of mutual adaptation to describe the adaptations *in situ* and *in action*. Situational adaptation is the "custom tailoring to improve the fit" (p. 4). This form of adaptation resembles how adaptation is traditionally considered in the broader implementation literature where adaptations occur as the result of a complex interplay between the program components and stakeholder needs, local knowledge, and other organizational pressures. Yet, this complex negotiation between aspects of a program and local context assumes both an

organizational and intellectual capacity among implementers (Siskin, 2012). In high schools where the organizational structure is complex, this translation of knowledge is rarely straightforward.

In addition to changes to the design based on school context, Siskin discusses changes in action. Siskin describes this process as, "reformers monitoring not just to guard against lethal mutations but to learn from implementation efforts and take local adaptations to scale as they incorporate them into the design itself" (p. 4). Similarly, NCSU works with school members to develop their capacity to successfully interpret, pilot, and monitor a design, as the design prototype is developed and then implemented in their school.

Welcoming changes to an emerging design concept presents potential hazards. Changes can be made that are not aligned with the initial design. Changes may be un-scalable. Changes that one teacher or school makes may be irreconcilable with changes made by another. We contend that these problems may be addressed, in part, by developing knowledge of the innovation design among school and district staff and involving them in its development at the school level. In this model, school and district staff review and conduct research to understand how to address a particular district need. This knowledge provides members with the rationale for—and engenders commitment to—create innovative solutions to an issue in their district's schools. Because they understand the design having participated in its development, the school-based reformers are capable of testing and refining portions of the design that may achieve a clearly defined outcome.

To prevent lethal mutations from occurring, principled adaptation is supported through monitoring. Through the monitoring by individual teachers and school staff as well as from the broader implementation team, reformers are able to document changes to the intervention's



design as well as benefits that the practices have on defined student outcomes. Feedback is given to the larger district design team, which considers the isolated effects that various parts of the innovation have on students to identify the most effective practices that can be refined into a more cohesive and scalable innovation. By developing educators knowledge and capacity, we argue that adaptations that may otherwise be dismissed as inevitable may be managed in a way that enhances alignment with school context.

## **Methods**

### *Sample Selection*

This paper is based on data from the second and third phase of the work of the National Center on Scaling Up Effective Schools. These two phases of the project focused on the design and development of an innovation. NCSU has adopted a continuous improvement approach to implementation to design and develop an innovation within each partner district that aligns to local context. Teachers and other school stakeholders were involved in a district design and development process, which gradually involved a larger group of teachers and school staff to guide the process of developing the innovation design as they aligned it to these school's organizational conditions. We focus on the how these stakeholders used adaptation to school context as a tool to develop the reform in a way that aligned to each of the schools' contexts.

Fort Worth Independent School District (FWISD) has undertaken high school reform for the past decade. Reform strategies included the alignment of locally developed curriculum with academic standards and common assessments across schools. The district has implemented a variety of instructional supports for teachers, including an emphasis on frequent classroom observations by administrators and professional learning communities. At the time of the study, the district served approximately 20,000 high school students, the majority of whom were low-

income or from traditionally underserved racial or ethnic groups. Table 1 provides a demographic profile for the high schools in the district and the three partner schools. Exact values are not used for the partner schools to protect their confidentiality.

Table 1. Demographic Profile of Fort Worth Independent School District & Partner Schools

	FWISD high schools	Desert Grove High School	Forest Glen High School	Valley High School
Student enrollment	20,504	>1500	700-1200	>1500
Student race/ethnicity				
Percent Hispanic	59%	40-60%	>80%	>80%
Percent African American	25%	20-40%	<20%	<20%
Percent White	8%	20-40%	<20%	<20%
Percent economically disadvantaged	70%	40-60%	>80%	>80%
Percent LEP	6%	<5%	>5%	>5%
Teacher race/ethnicity				
Percent Hispanic	17%	<20%	20-40%	20-40%
Percent African American	29%	<20%	<20%	<20%
Yrs. teaching experience	10.9	10-12	10-12	8-10

Source. District administrative data, 2012-2013 school year.

The three partner schools were selected in collaboration with district personnel and school administrators. Schools were generally identified as moderately performing schools in the district. Each school has a history of school reform, whether school or district-led. While each school voluntarily participated in the study, variations in administrative leadership and school climate were connected to divergent levels of readiness for reform.

### *Data Collection*

To investigate design team members' understanding of this design and development process, the research team collected numerous forms of data. Research team members attended monthly meetings with the design team and program developers. These meetings were all recorded. Graduate research assistants also took field notes, with the goal of capturing what

occurred but also describing participants' attitudes towards this process. The purpose of these sessions shifted throughout the project. At the beginning, the design team learned about the research that informed the design, translated broad design principles into an increasingly coherent design, and engaged in capacity-building activities to support their leadership of development and implementation efforts in their schools. During the development phase, these sessions still involved training activities but also served as a collaborative workspace where teams could share their experiences with adapting the design to their school context. During this phase, additional school stakeholders joined this process and formed implementation teams at each of the three partner schools. To supplement these sustained observations, the research team also conducted in-depth, semi-structured interviews with participants. A subset of school implementation team members were interviewed. Participants on the design team were interviewed each summer. Appendix 1 contains detailed information about the more information about the frequency with which these data sources were collected. School-based field work was also conducted as part of the larger project, although this paper will not draw specifically on these data.

### *Data analysis*

Following the design and development phases of the project, a research team conducted an in-depth reconstruction of each respective phase. Audio data were not transcribed due to the length and relative complexity of each session recording, which were captured from multiple angles to accurately record the multiple, often dispersed groups of participants. Instead, graduate students listened to each recording in its entirety, and utilized reflection forms to partially transcribe and synthesize data according to an analytic framework meant to understand stakeholders' understanding of the design, development, and initial implementation process.

These reflection forms, along with field notes, interview transcripts, and documentary artifacts, were coded according in a framework consisting of several *a priori* codes, in addition to codes, which emerged inductively from the data. Inter-rater reliability among coders was established through an iterative process of simultaneously coding initial documents meeting to check for shared understanding, discussing questions, and identifying areas of misconception.

For this paper, we focus on codes related to participants' understanding of the design and the adaptation process. We reanalyzed data coded under participants' understanding of adaptation. We further delineated this broad code into five sub-codes that reflect the theoretical framework. These sub-codes include: (1) Adaptation is inevitable; (2) Adaptations must be monitored; (3) Adaptation may be improve outcomes if managed properly; (4) Practitioners require a deep understanding of the design; (5) Productive adaptations depend on practitioner capacity to translate a design into actionable practices. As the monitoring process was part of larger process of managing adaptations, we collapse these two sub-nodes in the presentation of the results.

## **Results**

### *Overview of the Innovation to Increase Student Ownership and Responsibility (SOAR)*

In the spring of 2013, a district design team was formed with the goal of converting broad design principles into an innovation that would be implemented in three district high schools before being scale up to new additional schools in the district. These design principles emerged from research conducted in two higher value-added and two lower value-added schools in the district. The research suggested that higher performing schools provided organizational supports for students to take greater ownership and responsibility (Cannata, Taylor-Haynes, Smith, 2013). The four design elements included: (1) Teachers and other school and district personnel have

high academic expectations for students; (2) Teachers and other school and district personnel use techniques to deeply engage students in academic work; (3) Teachers and other school and district personnel provide organizational supports to help students meet high expectations; and (4) School and district personnel adapt and align professional development plans to explicitly help students take ownership and responsibility for their learning.

A team was formed to convert these research findings into practices aimed at increasing student ownership over their own learning. The team consisted of seven members from the “innovation” schools, ten at-large district members, including central office staff and assistant principals, a district coordinator, two program developers, a district liaison, and three researchers. Following six months of design work, teams at the three innovation schools were tasked with taking the work of the district teams and adapting it to fit their individual school context. These teams were made almost entirely of teachers. Each team had approximately eight members, including those who had also been involved in the design work. The teams identified actual practices and programs needed to implement the ideas about how to grow student ownership and responsibility, focusing on growth mindsets, problem solving, and goal setting. This process was implemented using a continuous improvement model, where teams would implement a practice in small pockets in the school, collect data on the success of each implemented component and review this data to decide on how to improve the component. During meetings held approximately every six weeks, school teams would present their results from the continuous improvement process to learn how this development work occurred at each of the schools. Throughout this process, the developers developed materials for the schools, provided ongoing training, and monitored their progress in undertaking this continuous

improvement model. This process occurred during the 2013-2014 school year, with whole-school implementation beginning in the following school year.

### *Adaptation is Inevitable*

Throughout the design process, members on the district design team never questioned whether or not adaptation would occur. Viewing adaptation as inevitable, they instead wondered about the types of changes that could be made to the design at each of the schools. In particular, members discussed how similar the design would need to be across the innovation schools. The question about the desired level of consistency was often contrasted to the level of independence school teams would have to define their localized innovation design. With little clarity in the specific practices that made up the innovation design, program developers and the research team provided a general rationale for maintaining a coherent design but little guidance of how to do so. A shared design would allow school teams to learn from one another as they begun implementing specific practices in their schools. Further, a common design was also cited as allowing the design to be scaled up to new schools in the district.

Participants also sought parameters for the types of changes that could be made. For instance, with the district design team deciding that all schools would have a lesson dedicated to teaching students about growth mindsets—the notion that believing that your intelligence or other basic abilities can be developed through dedication and hard work (Dweck, 2006)—school teams wondered about the types of changes that were reasonable. Some members wondered whether or not they could substitute a different text than the one specified in the lesson, others questioned if they could customize the lesson to certain subject areas, and one school asked if they could segment the lesson into mini-lessons that could be taught during advisory periods rather than using an entire class period, as the lesson was initially designed. Alongside any

common element of the innovation design were a series of questions about the types of adaptations that were allowed. While these modifications were generally treated as changes to the design as a result of organizational demands, these adaptations all may change the nature of the design itself, both in productive or unproductive ways. For instance, a teacher in a weekly advisory class may be able to customize the growth mindsets lesson to the needs of her students as result of the relationships she has developed with students (as was the case in Forest Glen). This approach differs from teachers who are each assigned to teach a small portion of the lesson on the second day of school as a way to have growth mindsets inform the school culture for the year (as was the case at Desert Grove). While these adaptations were both principled, these different approaches to implementation may yield different student outcomes, based on the structures in place to support implementation of this piece of the innovation.

Concerns with these allowed adaptations were related to the broader issue of who had ownership over the adaptation process. A small minority of participants recognized the need for a shared design so teams could learn from one another and a common design could gradually be scaled up to new schools. Most other design team members did not want an innovation design that was “dictated” to them, as one of the teacher leader from Valley commented. They wanted control over the design that would be put in place at their school. By the time schools had begun to develop the innovation at each school, participants felt even stronger about the need to adapt the innovation to each school as a result of differences between the three schools. Kristine reflected during an interview:

Well, in Fort Worth we have 14 high schools, so depending on which part of town and which high school you're at, each campus has, you know, a lot of commonalities, but then everybody has different needs and different problems that we need to address, so what makes it nice is that this wasn't a, you know, one size fits all.... It's not geared toward the kind of students you have, so it was nice to come up with a design that we each had, you know, a central theme and a lot of components that were the same, but then to be able to

have the freedom to tweak it a little bit and gear it towards specific students and the needs of each campus made it very nice.

This emphasis on making changes to fit each schools' context even begun to infuse the language that teams used to communicate with their schools Matthew at Desert Grove said he presented the work not as a new program or even a change, but adaptations or refinements to what teachers in the building were already doing.

In summary, this issue of the inevitability of adaptation was uninteresting to the district and school design teams. Adaptation was a foregone conclusion. Instead, participants wanted to know how adaptations would occur and who would manage this process.

#### *Managing and Monitoring Adaptations*

At the beginning of the project, members of the design team rated their capacity to manage seven general capacities related to the design, development, and implementation process. Design team members gave themselves the lowest self-ratings on their ability to “guide adaptation and implementation of innovations to school contexts and revise as needs dictate” compared to any of the other categories. The design team was given little training on how to improve their ability to manage adaptation. The development process brought additional training on how school teams would be expected to manage adaptations at the school level. Adaptation would be managed through the Plan, Do, Study, Act (PDSA) process common in continuous improvement. This process involved implementing one component of the innovation, specifying easily measured proximal outcomes that were expected to change as a result, collecting data on the implementation of each component, and reviewing this data to decide on how to improve the component in future iterations. Even when the research team and program developers oversaw this process, school stakeholders were hesitant to partake.



For an initial PDSA cycle, school design team members were asked to all test the same lesson in order to evaluate how it worked across different school contexts and to help develop the school teams' capacity to deliver future PDSA cycles with greater independence. Many members on the school design teams were frustrated with the rigidity of this process. They agreed in principle with the idea of continuous improvement and reflection, but the PDSA process was onerous and bureaucratic. Leslie, the district liaison, indicated in an interview that: "it was presented a little, how do I put it, a little more impractical and very bookish when we first, you know, when it was first presented to them". Oscar at Desert Grove said:

I definitely feel like we incorporate the things that we learn into what we do next. I think we do a pretty good job of that, but it's a very organic and kind of agile process as opposed to one that keeps a good track of where we stand and what we've accomplished, and also like just writing down things that we know. So I do feel like to the teacher leadership team at [Desert Grove], that PDSA cycle itself, it felt bureaucratic, and it felt like paperwork when we finally had to do it.

In another example, Matthew, a leader of the Desert Grove team, added: "Because it's so prescriptive, when a group already does many of those things, following the prescription piece by piece can sometimes be slow — it can slow down the process — which I know sometimes can be a good thing, but sometimes doing something just to check the box is just to check the box..." Many district and school design team members had the feeling that PDSA was a more structured version of what they already did as educators. When teams engaged in PDSA, they were more likely to engage in the "Plan" and "Do" sections and study their outcomes more informally. This informal approach to PDSA continued in the sessions, where teams would share what they had done more than what they had learned.

A large part of school teams' role in managing adaptation included monitoring the changes that schools made to the innovation design. Teams were asked to document adaptations and refinements as a form of institutional knowledge that could be shared with other schools in

the district. For the other innovation schools, promising evidence of a particular practice may lead another innovation school to adopt that practice as part of their design. For new schools who may adopt the SOAR innovation, this documentation could be vital in explaining to new schools how the school and district teams arrived at the practices that make up the innovation. For instance, if a school tested a practice during a PDSA cycle, found no evidence of its effectiveness, and dropped the practice from the innovation design, this learning could inform how new schools in the district implement practices to increase student ownership and responsibility.

For school teams, this process was burdensome and did not enhance their ability to develop the innovation that would be implemented in their school. In particular, school teams struggled with data collection. Most school teams initially emphasized how it was sufficient to keep this institutional knowledge “in their minds” as they developed the innovation at their school. Oscar commented, “I think that we operate in many ways very conversationally around the idea of reflecting on what went well and what did not. We could definitely do a better job of trying to track that and have something that we could use as an ongoing history of how the work has changed and how maybe we've learned some lessons that we could pass on.” For the majority of the 2013-2014 school year, school teams did not make this sort of documentation, instead preferring informal means of reflecting on and adapting the design.

When school teams tried to collect data to inform productive adaptations that could be made to the innovation, they struggled with identifying outcome measures that would reflect the innovation and compile data. Sandra at Valley said, “I think the Study act is the weakest for teachers, because that requires time, and it’s hard to figure out questions to find out whether it really worked on no.” Other participants commented that the process just generated too much

paperwork that included the school design teams' effort in compiling and analyzing. Compiling posed a particular challenge, as Mark, a district central office staff member, described the process this way: "You know, it took time to either if it was through a survey or from whatever way they collect the data, they had to create something which they were uncomfortable with not really knowing how to do that and what it should look like, so that was a struggle. But then once those documents or something was created they – they – I could tell they felt a little more comfortable with it." In the cases when data from students and teachers was compiled, school teams felt comfortable drawing on this feedback to inform how the design may be modified as it was further developed for school-wide implementation.

The way that school teams managed adaptation as they developed the innovation design created some consequences for the teams to be able to make principled decisions about what would be implemented at their school and how they would share their learning with the other innovation schools. Principled adaptations rely on linking the practices put in place at the school with the goals of the innovation. Across the three innovation schools, these linkages were never formalized. Instead, teams preferred informal reflection to actual documentation. Instead, school teams emphasized the importance of alignment to school context. School teams saw adaptations as a tool to increase alignment to current school practices and priorities.

The goal to create strong alignment of the innovation in their school created tension when the design teams were asked to share their learning across innovation schools. The insular focus of the development process made sharing learning across schools challenging as the designs had become more aligned with each schools' organizational culture. At district meetings, participants noted how they were given too little time to debrief what they learned. For example, a research team member described this as a "missed opportunity" because "we'd kind of get back into, well,

just kind of planning your next [PDSA cycle] with probably not a good or a deep enough discussion as a group.”

### *Knowledge of the Innovation Design*

Without strong evidence that school design teams documented their progress, knowledge of the innovation design is even more important. Knowledge provides a means for teachers on the design team to inform the practices in a way that does not merely replicate what practices are already at place at their schools. This process was designed to have leaders of the school design teams with significant knowledge of the design as they were involved in designing it in the first place. During the initial design process, members developed a broad understanding of student ownership and responsibility and the four design elements. Even with this knowledge, members struggled to link these design elements with practices as part of the emerging innovation. As a result, when it came to attaching specific practices to the innovation design, members were more likely to draw on practices already in place in their schools rather than practices that came from the research of schools within their district.

During this design phase, members’ knowledge extended beyond the content of the design to its characteristics. During sessions, members consistently asked about the desired level of specificity or prescriptiveness as well as the level of consistency across the innovation schools. They also wondered about the types of components that could be changed at the school level. One participant in particular, the co-leader of the design team at Desert Grove, described how on his campus what has been most helpful in developing teacher leadership has been having a shared language across the campus. He said at the last meeting of the year: “Experiences that cross classrooms are the things that I feel have created unity on our campus and I feel like they could easily create unity across the district. Shared experiences. Shared vocabulary.” Even when

adaptation was envisioned as occurring at the schools, it was initially viewed as an important element in enhancing their ability to design a district wide innovation.

The involvement of the school design teams brought new challenges as far as participants knowledge of the innovation design. Unlike the leaders of the school design teams that had been involved in learning about the research on student ownership and responsibility and learned about strategies to design an innovation, the training for new members was abbreviated. They still attended sessions but the emphasis at these sessions had shifted away from training activities or discussions about the innovation design to a much larger focus on the logistical challenges faced by the school teams. With reduced time in the sessions to learn about the practices of the innovation design, the leaders of the school design teams played a large role in communicating the research and the design elements to their respective school teams. Although the district design team members had struggled to transform some of the research-based practices into an innovation, their strong understanding of the design informed the practices they developed at the school level. Clear linkages existed for what was put in place at the schools and what the design team had developed.

What was lacking from their knowledge was a clear understanding of how the different elements of the design fit together into an overall design. At the end of the design process, the design team had committed to an innovation that had three central components: growth mindsets and problem solving. The broad theory of action was that teachers would hold students to high expectations, highlighting how effort is an essential part of learning. Yet, high expectations were insufficient in improving students' academic and behavioral outcomes unless accompanied by clear and relevant problem solving strategies that students could apply to academic and social problems. These two components of the design were viewed as working in tandem. While the

school teams may have included practices related to growth mindsets and problem solving, other practices were added to the design in ways that shifted this theory of action. At Valley, the practices were even developed without a coherent recognition of how these different practices may fit together at the school level.

### *Capacity to Guide Adaptation*

As has been alluded to in the previous sections, managing adaptation is not a straightforward undertaking. In the context of this continuous improvement process, members of the school design teams faced varying interests that sometimes competed with one another. Members of the design teams were also members of their broader school community and had to manage various organizational pressures from the administration, their peers, and the perceived needs of their students. They also brought an intimate knowledge of the culture of the school and feelings of what practices their colleagues would or would not buy into. There is the possibility that this local knowledge would overwhelm their role to imbed an innovation that helped improve student ownership and responsibility. Rather than new, innovative practices or structural changes to the school organization, school teams could merely adopt what was already being done at their schools, presenting it under the guise of this new program. Alternatively, the design team could use their position on an inter-district team to inject new practices into the school and focus their staff's energies around a coherent vision for the school.

Managing these competing institutional demands to guide adaptation requires significant capacity. More than anything else, members emphasized the need for thoughtful communication with administrators and teachers. Teacher-leaders viewed their role as connecting new practices with what was already being done at their school. As a result, they continually emphasized the importance of properly framing the innovation when presented to the staff. Matthew believed the

term “change” may be too drastic, suggesting terms such as a “adapt” or “refine” may be more helpful when building buy-in. Overall, school teams were hesitant to share their work with their school staff, feeling that an under-developed innovation prototype would be dismissed as half-baked and they would miss their opportunity to build buy-in.

In addition to communication, school design teams also received training at the sessions about how to conduct PDSA. As described above, the educators on the design team did not view the process as foreign, emphasizing the overlap with PDSA and what they do as educators. Kristine, an at-large district design team member, said, “I’m very familiar with a change model. Basically that’s what Plan, Do, Study, Act is, so whether it’s this design, whether it’s another design, you’re pretty much looking at data, identifying a problem, coming up with an action plan as to how to address the problem, implementing it, gathering more data, looking at your results, evaluating it and moving forward.” Yet, training often felt overly formal and school teams inconsistently used it as a formal tool.

Members were also training about how to gather, compile, and analyze data. During the district design phase, members gained initial exposure to strategies for data analysis. The data they analyzed included surveys results collected by the research team and participants themselves at the three innovation schools. A data-driven culture in the district seemed to create a general comfort in discussing general trends in these two data sources. They were also perceptive of limitations in the data. Questions were raised about the social desirability of certain questions, low response rates for surveys at one of the schools. These issues aside, initial preparation seemed to enhance teams ability to collect and use data once the development process began. With no additional training, school design team members seemed capable of

analyzing data when it was presented to them, but were hesitant to gather new sources of data during PDSA cycles as the process was described as overly burdensome.

How teams managed this process varied drastically across the three schools, likely as a result of pre-existing levels of capacity among members and the schools' receptiveness to teacher-led reform, among other factors. Desert Grove had a history of teacher leadership, with members of the design team previously developing and implementing a school-wide literacy initiative. Fred, one of the program developers, linked these varying levels of pre-existing capacity to their ability to complete the PDSA process. He summarized:

“I think it goes back to capacity. I feel like at [Desert Grove], they really did do a PDSA cycle, so I think there's been three in this past year. My understanding from [Valley] is they never really did a PDSA cycle. They did, maybe, key steps of the cycle. ...[Forest Glen] technically did the PDSA cycle, but I didn't think it was in the spirit of what PDSA was about. ...I think they did spend a lot of time on the planning and looking at the data, but...it wasn't an objective analysis of the data and I felt like what they did is they already had in mind what they wanted to do, and they were looking for data to support it.”

With evidence of the importance of capacity in managing adaptation, we also found the difficulty of developing new capacities among teacher-leaders.

## **Discussion/Conclusion**

- I. Discussion/Implications
  - a. Summarize findings
  - b. Situate with previous literature on adaptation
  - c. Relate back to Continuous Improvement
    - i. Teachers tend to work in environments with limited external observation and no real mechanism to gauge the efficacy of practices let alone share these practices with peers (Bryk & Gomez, 2010). This process provides one possible mechanism.
  - d. Discuss the consequences for scale-up with the focus on local context
    - i. McDonald, Klein, Riordan (2009): “Ignore fidelity and what will you take to scale? Ignore adaptation and your design will crack. This is more than a challenge. It is a dilemma. It can only be managed, never resolved” (p. 19).
    - ii. Requires lots of supports. May not be possible in some schools. , providing supports for this process is vital. At the same time, these approaches to implementation involve partnerships between researchers,



program developers, and local stakeholders, often at various levels in the system. Aimed at overcoming a well-documented tension in lower performing schools between a school's desire to develop a strong organizational culture and the reality that existing structures and resources may not be translated into greater organizational productivity (Peurach, 2011).

e. Conclusion

**Bibliography**

**Appendix 1. Data sources**