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*School improvement reforms are adjusted repeatedly as they're introduced into — and work their way through — school environments.*

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## Planning Ahead: Make Program Implementation More Predictable

Everyone wants to know “what works” to help schools improve student achievement. And there are some programs that research tells us “work” in schools. But, when these programs are scaled up and used by large numbers of schools in settings all over the country, the effects are often inconsistent and even disappointing (Elmore 1996). Why is this so often the case? The fact is that in between the program design and the desired student outcomes is the uncertain process of implementation. Too often, program implementation has been treated as an inscrutable period during which forces too numerous to name or analyze cause programs to mutate in unpredictable ways. It's common to hear that a program isn't being implemented with “fidelity.” Program designers, program implementers, and program evaluators often seem surprised about this lack of fidelity even though, over 30 years ago, we learned that complex programs go through a process of “mutual adaptation” in which both developers and implementers make adjustments to work more effectively (Berman and McLaughlin 1978).

Decades of research show that even the most clearly defined programs are unlikely to be implemented in ways that are in perfect consonance with their creators' vision. In fact, one of the most consistent findings from education research is variability in program implementation. Studies of various programs ranging from teacher professional development (Hill 2001; Spillane and Zeuli 1999) to comprehensive school reform (Berends, Bodilly, and Kirby 2002; Rowan, Camburn, and Barnes 2004; Supovitz and Taylor 2005) to

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specific instructional approaches (Penuel and Means 2004) find that improvement programs are often used inconsistently or in ways their designers had not expected.

And, although we don't want to argue that fidelity of implementation is the only thing to worry about in improving educational outcomes, some research suggests that fidelity of implementation is directly related to producing predicted results (Bodilly 1998). As a result, program designers usually see the variability in implementation as a problem to overcome. Programs that are used in ways that aren't consistent with the designers' vision are frequently seen as failures.

To help both program designers and school-level implementers avoid the sense of failure, can we predict what parts of a program will “stick” and what will be changed? Or can we identify the points at which adaptation is likely to take place? A three-year study by the Consortium for Policy Research in Education (CPRE) at the University of Pennsylvania examined these questions. Such information may help create programs that meet their overall goals, even if they don't look exactly the same in every school and classroom.

The CPRE study was a longitudinal mixed-method examination of the implementation of five school-improvement programs in 15 high schools. Like many of our predecessors, we found substantial variation in how these programs were implemented (Supovitz and Weinbaum 2008). We theorized that implementation is a process of iterative refraction (Supovitz 2008a). Iterative refraction means reforms are adjusted repeatedly as they're introduced into — and work their way through — school environments. Refraction captures the idea that external reforms are likely to change repeatedly as they filter through multiple layers of the education system, including the district, school, department, team, and classroom. The process is iterative because each level makes decisions about different components of a reform over time.

The theory of iterative refraction suggests that implementation may not be as unpredictable as we've been led to believe. Although adjustments are likely to occur at multiple places and repeatedly over time, the implementation process has junctures that can be identified and defined in ways that may increase the predictability of how programs are likely to be used.

To achieve higher levels of fidelity, some program designers have sought to be as specific as possible about instructional approaches or organizational changes in schools. Although some have argued that greater specificity increases the likelihood of fidelity (Berends, Bodilly, and Kirby 2002; Desimone 2002), others have found that more clearly specified designs have greater potential to lead to conflict in the local setting and may end up with substantial modification (Datnow, Hubbard, and Mehan 2002; McLaughlin and Mitra 2002).

The CPRE research suggests that either finding may be true depending on the classroom, school, or district. However, the focus on increasing specification may distract from more important variables. In general, the implementation process has three key levels, three points at which the reform will likely be modified. And there are strategies to focus players at each level on the essential elements of a reform, while allowing for the fact that they will modify other aspects.

## Design and Designers

Evidence suggests that program designers must keep four elements in mind as they craft programs for school improvement. Decisions in any one of these four areas have implications for the degree of "refraction" that one might predict during implementation. Program designers need to attend carefully to:

1. What they choose to emphasize;
2. The level of complexity of the changes they're expecting;
3. How they engage teachers and administrators in the change process; and
4. The ongoing support provided for change (Shiffman et al. 2008).

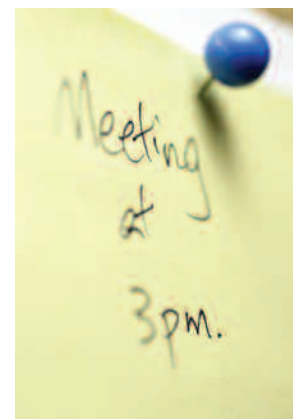
Researchers found that the elements of a reform emphasized by program designers *earliest* in the process are most likely to get the at-

tention of program implementers. Also, those elements that program designers repeatedly emphasize as central — the "nonnegotiables" — were more likely to be implemented, provided those nonnegotiables were evident at the outset.

Once designers are clear about the program elements they want to emphasize and the order in which they want to emphasize them, they must consider the level of complexity that the changes present to school staffs. More complex changes will demand a higher level of both engagement and support. Although achieving staff engagement, or what's commonly called "buy-in," is a frequent topic of discussion for program designers and program supporters, this project was able to identify three elements that seemed to predict the level of staff engagement. Implementers were more engaged when the designers were able to make a compelling case that the changes required by the program:

- Were central to the work of school staffs;
- Would address an issue that school staffs perceived as a problem, and
- Could provide early evidence of effectiveness.

However, buy-in or engagement alone doesn't increase the ability of school staffs to make complex change. The kind of learning that change entails requires ongoing support. Previous research about the support necessary for change has tended to underemphasize the relational aspects of this support. The CPRE research found that those schools, and even those individuals in schools, who had more direct contact with program design staff were more likely to implement with fidelity. Printed guides, videos, and other materials didn't substitute for personal connections. In part, this relationship was important for helping the school staff to know more about the program. But, just as important, this relationship helped program staff know more about the school sites. The increased knowledge about the sites allowed program providers to re-emphasize parts of the reform that needed greater emphasis and to provide additional supports where needed. And although the particular school need — logistical, instructional, or material — may have been unpredictable, all schools needed some supports. Where ongoing personal relationships existed between schools and program providers, those needs



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could be collaboratively identified and met, thus helping all parties toward their goals.

### **Schools and School Leaders**

In addition to the design of reform programs and the roles of program designers, several layers in schools can refract reform. School leadership and teachers are both important influences on the ways that reforms are understood and enacted. Formal school leaders in our study played an essential role in reform implementation (Riggan and Supovitz 2008). Regardless of their explicit centrality to reform efforts — and most reforms do identify a central role for formal leaders — their advoca-

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cacy played a huge role in setting the context and establishing the agenda for reform. Without the weight and legitimacy of their support, reforms often crumbled from lack of priority and inattention. Through their attention, formal leaders created pressure — through social expectations and incentives — for faculty to implement reforms.

Regardless of leadership position, other faculty members also carried tremendous influence in schools and used that influence to facilitate or impede reform (Supovitz 2008b). Communication networks in schools facilitated the flow of information. And those networks, both those that pre-dated the introduction of a reform program and those that developed following the introduction of the program, resulted in the organic identification of individuals in schools who served as key sources of support and information (Weinbaum et al. 2008). CPRE's research revealed that schools have many instructional leaders who don't hold formal leadership titles, yet are very influential among their peers (Riggan and Supovitz 2008). Informal leaders also provided a unique type of support to colleagues who were grappling with the fine-grained details of reform implementation. As fellow teachers, they shared the implementation experience and thus had increased credibility and the trust of their colleagues. Formal school leaders must recognize and capitalize

on the influence of informal school leadership and communication.

### **Districts and Central Office Support**

District central offices also play an essential role in determining the fate of reform programs. CPRE researchers found that districts in which conditions “matched” well with reform program expectations yielded more supportive working relationships for program implementers. The three essential conditions on which districts and programs had to “match” were the loosely or tightly coupled nature of the central office-high school relationship, the human and fiscal capacity of the central office, and the alignment that the central office was prepared or able to create between district operations and reform program priorities and practices (Weinbaum, Shiffman, and Goertz 2008). Without reconciling these expectations, districts are unable or unlikely to support external reforms. Such central office support is necessary for program implementation that preserves the essential elements of a reform effort.

### **Implications**

With more consistent attention to the potential “refraction” points described above, the mutual adaptation process might, in fact, be more predictable than previously thought. The process through which change or refraction happens is neither static nor a unidirectional flow. The issues raised by this research need attention at the design phase and as schools use the program. By understanding more about the critical junctures and important actors in the reform process, program designers and change agents across the system can consider how reforms are altered. Clarity about this process can enhance the likelihood that alterations won't weaken the core ideas that drive school improvement. **K**

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"Turns out failure is an option."

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