Sustaining Your Reform: Five Lessons From Research

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Seasoned educators at all levels of the education system have seen reforms come and go. This may be due to shifts in the political tide, changes in school and district leadership, financial challenges, or increases in the popularity of competing school reform approaches.

After devoting time, energy and resources to planning, collaborating, training and implementing comprehensive school reform (CSR) programs, a key concern for schools and districts is how to sustain schoolwide reform efforts. So, if there is one question ever-present on the minds of teachers and administrators working to improve education for their students, it is: *How do we ensure that the programs we are implementing will last?*

In the late 1990s, having witnessed this challenge that reform posed for practitioner colleagues, researchers in the Center for Science Education (CSE) at Education Development Center, Inc., in Newton, MA, in collaboration with researchers from the Caltech Pre-College Science Initiative (CAPSI) in Pasadena, CA, set out to begin to answer this question. In this issue of *Benchmarks*, Dr. Jeanne Rose Century and Abigail Jurist Levy identified the common themes that arose from this research on sustaining reform.

About the Study

In 1998, CSE received funding from the National Science Foundation (NSF) for the *Researching the Sustainability of Reform* (RSR) project. This project focused on nine school districts geographically distributed across the country. Each school district had a hands-on elementary science education program that had been in place anywhere from 10 to 30 years. The programs differed in many ways, including their origins, implementation strategies, and sources of funding. However, these districts were notable because they had successfully initiated and implemented innovative pedagogical practices, instead of intentionally removing them or allowing them to fade away due to neglect. We set out to understand why and have summarized some of our findings in this article.

When we began this research, we did not expect to generate a single "formula" or create a model that would guarantee a program's sustainability. Although we looked for common themes across sites that might reveal such a model, we found that the wide variations in contexts and conditions proved that no single model could predict sustainability. We did, however, identify themes that were consistent across our sites, and we have drawn lessons from the characteristics, approaches, and outcomes that were common among them. Given that they were drawn from widely varied contexts, practitioners can apply these lessons to a wide range of reforms at all levels of the educational system.

In this article, we include both the broad findings—the meaning of sustainability and the contexts and conditions that affect it—and the more specific factors that play a direct role in the sustainability of a particular reform. These factors are complex and most often interact with each other, working together to influence sustainability. For that reason, we describe them independently, and also provide some brief examples of how they have interacted in the districts*

* District names are pseudonyms

we studied to contribute to or inhibit the sustainability of their science programs. For more information about the methodology of the study and for more detailed accounts of the findings, please visit the CSE website at www.edc.org/CSE and/or contact Dr. Jeanne Rose Century at jcentury@edc.org.

Lesson One: Sustainability Isn't Just Maintenance of a Program

Educators often think of sustainability as program maintenance—embedding a program, as designed, into an existing school system and making it stick. As we became familiar with the programs in our study, however, we found that this way of defining sustainability was, in a way, a contradiction in terms. Yes, program leaders wanted to maintain the innovations they put in place, but we also found that programs had changed. Over the years, there were occasions when leaders *had* to adapt their programs to respond to district changes, and they were consistently trying to improve them. We came to understand that a "maintained" program had well-established core elements (e.g., instructional materials, professional development program, leadership plan) that were commonly accepted as standard practice. Programs that had become "sustainable," however, had moved beyond maintenance and had developed the ability to evolve.

The need for adaptability is critical because, as all practitioners know, changes occur regularly within school systems and exert pressures on educational programs. Whether there is a change in district, school, or program leadership; a shift in community political agendas; a budget crisis; or a large turnover of teaching staff, leaders of reform programs must find ways to adapt their programs to new conditions. Without adaptation, a program may be perceived as too expensive, too politically charged, or too burdensome to continue.

We recognized, however, that the programs in our study had adapted in varying degrees; some looked very similar to their original design while others had changed dramatically. We had to ask ourselves: How much can a program adapt before it is no longer the same program? Our answer lay in the extent to which the program still reflected the core intent and philosophy of the original reform. In other words, the program still had to demonstrate the reform's original "core beliefs and values." Therefore, our definition of sustainability is

The ability of a program to maintain its core beliefs and values and use them to guide program adaptations to changes and pressures over time.

Lesson Two: Programs Go Through Stages as They Move Toward Sustainability

Each sustained program in our study moved through three stages of development that we named *establishment*, *maturation,* and *evolution*.

1) The *establishment* phase focused on introducing the program and then ensuring that its core elements (e.g., curriculum, leadership structures, professional development) are well established and working efficiently and predictably.
2) The *maturation* phase focused on ensuring that the program is widely accepted and that implementation is habitual, even in the absence of the limelight that accompanies a "new" initiative.
3) The *evolution* phase focused on growth and improvement. Leaders concentrate on understanding the current status of the program and address the recurring challenges of resources, materials, and professional development. At the same time, they work on

helping teachers develop a deeper understanding of the philosophy of the program and how it plays out in the classroom.

In each of these three stages, program leaders have different goals and use different strategies for reaching these goals. Moreover, these goals and strategies change, depending on whether they are interested in progress at the classroom, school, or the district level. When reflecting on the excerpts from our findings that follow, program leaders will need to consider their current phase of development and level of orientation. Some lessons will be more relevant than others, depending on leaders' particular contexts, circumstances, and priorities.

Lesson Three: Contextual Conditions Influence the Sustainability of Programs

All practitioners know that community and district characteristics weigh heavily on the ultimate success or failure of reforms. We identified three aspects of this context that were particularly noteworthy because of the role they played in supporting or inhibiting the sustainability of programs.

1) School (or District) Culture: Culture defines the norms for communication, collegiality, organizational hierarchy, and understandings of accepted practice. It sets a foundation for the ways and extent to which all other factors contribute to or inhibit the sustainability of a program. Even when there is the will and interest, efforts to bring that program to fruition must be compatible with the culture or they may likely fail, even if well-intentioned.

2) Decision-Making Structures: Decisions about reforms are made through formal and informal means. Understanding how to negotiate the decision-making structure, how and when to gain access to decision makers, and how to strategically build support for a

program through personal relationships are important skills for program leaders.

3) Equity Issues: The relationship between whether a program is provided to all students in all classrooms in all schools and whether a reform is ultimately sustained is often deeply rooted in the day-to-day work of a project in subtle, hidden, and unspoken ways. It is important to recognize that giving insufficient or inappropriate attention to equity issues can have a harmful effect on a program's sustainability.

Lesson Four: Factors Expected to Affect Sustainability Do So in Unexpected Ways

At the outset of our study, we identified a set of program elements that we thought would have an effect on sustainability, and our findings confirmed our expectations. These elements include accountability, instructional materials, leadership, money, partnerships, and professional development. And yet, even though the presence of these six factors was not surprising, some of the ways in which they had an effect on sustainability were. In many ways, our findings challenged common assumptions about what programs require for sustainability. Below are some excerpts from our findings:

1) Accountability: Accountability mechanisms to monitor student learning and/or program implementation can support sustainability by *either* their presence or absence, depending on curricular and political priorities at various times in the evolution of the sustained program.

2) Instructional Materials: The people that leaders involve in making decisions about materials selection, organization, and adaptation have just as much influence on sustainability as the outcomes of their decisions.

3) Leadership: Leaders who are successful are *responsive* to both varying program needs and shifting district conditions over time. Their strategies are successful in part because they echo the characteristics of the system's *culture.*

4) Money: Leaders can establish sustained programs with and without large influxes of

Instructional Materials and Accountability in Lakeville

Lakeville is a small urban district where almost three quarters of the students are eligible for free- or reduced-price lunches. A kit-based program was introduced in 1986 through a partnership between local scientists and the district. Rigorous attention to the program's curriculum, professional development, technical support, and National Science Foundation funding helped it grow, but as the state's development of curriculum standards accelerated and diverged from the curriculum of the Lakeville program, its vulnerability increased. Without empirical evidence of student achievement in elementary science, the program's hands-on curriculum was undermined when the school board voted to add science textbooks. Ultimately, however, the program prevailed when teachers, parents, and community members came to a school board meeting and spoke out in support of the philosophical approach and its benefits for the students. The program remains in place for now, but cannot rely on community support indefinitely. Program leaders must give careful, explicit attention to accountability for student learning.

external funds. ***Both situations*** have pros and cons, and neither is necessarily better than the other.

5) Partnerships: Partnerships with community institutions, while contributing to the sustainability of programs in many ways, can also carry a ***heavy cost*** or can even be a burden.

6) Professional Development: One of the most important ways professional development contributes to sustainability is by introducing, illustrating, indoctrinating, and disseminating the program's *core beliefs and values*.

Money and Culture in Sycamore

Sycamore is a working class community with 30 elementary schools. It is a very close knit, stable district where teachers with less than 10 years of experience are considered "newcomers." In 1988, the district established a kit-based science program supported solely with district funds. Over the years the program has become well-rooted due in large part to leaders' ability to mesh their styles and goals with the district's culture. While Sycamore leaders have not had the benefit of large amounts of funding that would support wide scale curriculum implementation with comprehensive professional development, they have enjoyed the freedom to make programmatic and implementation decisions independent of funders' guidelines. In this community where there is a "can-do" attitude, external funding is sometimes perceived as more of a nuisance than a welcome opportunity. Sycamore leaders make changes at their own pace, with their own style, and in their own time. And so far, the program has endured.

Lesson Five: Intangible and Sometimes Invisible Factors Affect Sustainability in Pivotal, Dramatic Ways

While some of the factors affecting sustainability were expected, we found that other factors that we did not anticipate had important and sometimes dramatic affects on sustainability. These factors were somewhat intangible or abstract, and we had not predicted their importance. We gave them the shorthand headings of critical mass, program history, implementation and adaptation, philosophy, perception, and quality. The findings related to these issues were difficult to grasp, but once clarified, it was clear that they had a profound affect on the sustainability of the programs in our study. Below are some excerpts from these findings:

1) Critical Mass: Critical mass is typically defined as the number of teachers needed to participate in a reform effort to ensure that it will become standard for the school or district. This definition responds to what we described earlier as program *maintenance*. Simply put, it questions: What is the *breadth* of the reform? If we keep our definition of *sustainability* in mind, we ask instead: How many teachers need to participate in a reform, and to what extent, so there is a *culture of program self-generation*? While breadth is important, sustainability also urges the achievement of a critical mass of program *depth*—the numbers of people *understanding and committing to* the program's core beliefs and values.

2) Program History: We identified two aspects of a program's history that influenced its sustainability: origins and longevity. We defined "origins" as the *circumstances* that were in place and the *events* that occurred from the initial idea for the reform to the beginning of the establishment phase. These include the qualities and background of the early leader(s), the

motivation for beginning the program, the extent of support from central office leadership, and finances. Together, they set a unique stage for the arrival of the reform and, ultimately, influenced its sustainability.

"Longevity" is merely the amount of time a program has been in place. We hypothesized that older programs were likely to be more stable than younger ones. We found, in fact, that while all programs are vulnerable, longevity can add to a program's stability. This stability might come from the assurance of general program acceptance, leaders' increased comfort levels, or widespread apparent success of the program. Under certain conditions, however, longevity can undermine a program because once it has been in place for an extended amount of time, it may be moved to the "back burner" of priorities where it can suffer from neglect.

3) Implementation and Adaptation: Strategies to implement programs were as varied as the districts we studied. Similarly, leaders made varied strategic decisions to adapt them over time. Some adaptations were proactive (e.g., applying for funds) while others were reactive (e.g., addressing the arrival of new state standards). The important finding then, is that the strategic decisions leaders make must be sensitive to the district's circumstances and culture if they are to contribute to the program's sustainability.

4) Perception: Perceptions—whether held by program leaders, program participants, or outsiders to the district—were significant supporters and inhibitors of the sustained programs. In some cases, the perceptions of the programs differed greatly from their apparent status. In the absence of reliable program data, perceptions can become a key driver of decision making for program adaptation and implementation.

5) Philosophy: "Philosophy," in this context, refers to beliefs about teaching and learning held by teachers and administrators. Sustained programs directly

Perception and Quality in Hudson

Hudson launched a hands-on elementary science program in the mid-1970s, making it one of the earliest pioneers in the field. The program's first leader was charismatic and its early days were marked by events and accomplishments that became local legends and established its national reputation. Such renown added to the security of the program over time and generated among administrators and others the perception that the elementary science program was beyond reproach. Upon closer inspection, however, the depth and breadth of the program did not match the expectations its reputation had raised. The combined weight of the district's history and reputation made addressing the program's weakness even more challenging.

and indirectly cultivated a widespread, shared philosophy which, in turn, played a part in the depth of a program's critical mass.

6) Quality: For the purposes of this study, we defined the "quality of a program" as the extent to which its instruction and curricula facilitated positive attitudes toward, and student learning of, the elements of the scientific process and the basic concepts of the earth, physical, and life sciences. While we did not conduct evaluations of the quality of the programs in the districts we studied, we did find that quality, as it relates to accountability, has an important role in sustainability. In the *absence* of accountability measures, the extent of student learning (and thus program quality) had no impact on the sustainability of a program, simply because that information was unavailable to the program leaders. On the other hand, when there were accountability measures in place, the program's quality was almost exclusively defined by evidence of student performance on those measures.

Thus, the alignment between the program and the district's accountability system became the primary indicator of program quality.

Summary

As the discussion and illustrations above suggest, the story of sustainability remains complex and varied. There are multiple forces at work, some in tandem and some in opposition, that contribute to or inhibit a program's sustainability. While it is not easy to predict how factors, contexts, and conditions will impact each other in the future, it is certain they will evolve and present leaders with new trials over time.

Sustainability raised unique challenges at the classroom, school, and district levels during each of the three phases of development we identified. Further, sustainability is not only a function of explicit program elements, such as professional development, funding, and instructional materials; it also depends on the interaction of less visible forces, such as perception, quality, history, and critical mass. Finally, all of these factors interact within a larger context that has its own power to add to or subtract from the sustainability of a program or reform effort.

Since the completion of this research, we have often been asked if we have found a formula or set of steps that can ensure a new program's sustainability. As much as we would like to satisfy those inquiries, we must always answer, "No." As this article illustrates, there are too many variables and changing conditions to support a single model. Instead, this research offers insight into the nature of the complexities of sustainability that practitioners face over time and across levels as they work to make their programs both strong and sustainable.