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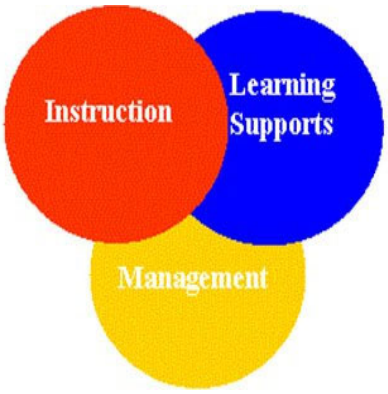

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*Initially, the Center was named the *Center for Mental Health in Schools*; in 2017, to more fully underscore the breadth of the work, the Center name was expanded.

The real difficulty in changing the course of any enterprise lies not in developing new ideas but in escaping old ones.

John Maynard Keynes

Howard S. Adelman, Ph.D. is professor of psychology and co-director of the national Center for MH in Schools & Student/Learning Supports at UCLA. He began his professional career as a remedial classroom teacher in 1960. From 1973-1986, he directed the Fernald School and Laboratory at UCLA. Since 1986, he, Linda Taylor, and the Center staff have continued to pursue ways to transform how schools address barriers to learning and teaching.

Linda Taylor, Ph.D. is co-director of the national Center for MH in Schools & Student/Learning Supports at UCLA. In her early career, Linda was involved in community agency work. From 1973 to 1986, she co-directed the Fernald Laboratory School and Clinic at UCLA. In addition to her co-director position at UCLA, she worked from 1986-2000 as a clinical psychologist in the Los Angeles Unified School District where she directed several large-scale projects.

Adelman and Taylor have worked together for over 40 years with a constant focus on improving how schools and communities address barriers to learning and teaching, reengage disconnected students and families, and promote healthy development. Over the years, they have led major projects focused on dropout prevention, enhancing the mental health facets of school-based health centers, and developing comprehensive, school-based approaches for students with learning, behavior, and emotional problems. Their work has involved them in schools and communities across the country. Their current focus is on policies, practices, and large-scale systemic transformation. This work includes facilitating the National Initiative for Transforming Student and Learning Supports.

IMPLEMENTATION SCIENCE AND SCHOOL IMPROVEMENT

EXHIBITS

PREFACE

Everyday there are calls for improving schooling. Such calls coincide with efforts to translate research into practice and policy. Most of the advocacy involves implementing major interventions, and some advocates stress the need for fundamental systemic changes.

In this context, decades ago the wise and eminent Seymour Sarason cautioned:

> *Good ideas and missionary zeal are sometimes enough to change the thinking of individuals; they are rarely, if ever, effective in changing complicated organizations (like the school) with traditions, dynamics, and goals of their own.**

Over the years, we have found, rather painfully, how true his words are.

In the 1980s and 1990s, we made our first efforts to capture facets of work designed to improve interventions in psychology and education. In the years following, our R&D efforts have focused on specific aspects of school improvement and implementation, and we have come to appreciate just how intertwined interventions for improvement and implementation efforts are.

In this brief, we discuss embedding and framing the evolving literatures related to improvement and implementation sciences into a general intervention perspective. From that perspective, we sketch out some basic considerations related to improvement and implementation research, practice, and policy.

Our approach involves analyses and commentary; we offer conceptualizations, examples, and opinions. Because we're still trying to understand so much, we undoubtedly have gone astray at various points. We look forward to the feedback this work engenders as part of the process of moving forward.

Improving schools is an unending task. This brief is meant for those who already are intrigued by the problems involved in transforming schools and those we hope will become intrigued. Implicit throughout is an agenda for theory building and research and development.

It will be obvious that our work owes much to many. We are especially grateful to those in the field who generously have offered insights and wisdom. And, of course, we are indebted to multitudes of scholars whose research and writing is a shared treasure, the host of graduate and undergraduate students at UCLA who contribute so much to our work each day, and the many young people and their families who continue to teach us all.

As always, what we share reflects work in progress; we look forward to learning from your feedback. Send your input to us - adelman@psych.ucla.edu Ltaylor@ucla.edu

Respectfully submitted for your reflection,
Howard Adelman & Linda Taylor

*Sarason, S.B. (1996). *Revisiting "The culture of school and the problem of change"* New York: Teachers College Press.

INTRODUCTION

Anyone involved directly in improving and implementing changes at schools is an intervener. Interventions to improve schools range from minor changes to fundamental transformations. The nature and scope of the intended improvements are determinants of the nature and scope of the interventions needed for effective implementation.

The complexities of making school improvements and implementing systemic changes are well documented. Schools are institutions; schools have a culture. Implications of these realities for change have been widely discussed.

Currently, the rapidly growing fields of improvement and implementation sciences are providing a wealth of literature that has relevance for school improvement. For the most part, while they are generating separate literatures, but their intertwined relationship is receiving increased attention. Now it is time to recognize the roots they share in intervention theory and research.

In 1994, we published a monograph, sketching out what we were coming to understand about the nature of intervention.[1] We approached the topic from the perspective of psychology and education, but also with a view to analyzing generic concerns. We identified and described essential pieces of intentional intervention and explored how they relate to each other.

In the years since, our work with schools has involved efforts to develop and implement new intervention approaches. We applied what we had learned about intervention and moved on to learn from the growing body of literature related to improvement and implementation science. And we regularly experienced the positive and troublesome impact of school improvement and implementation efforts -- our own and others. We have regularly shared what we have been learning through resources we directly send out and post on our Center website (https://smhp.psych.ucla.edu). Most recently that took the form of a monograph highlighting our work related to (1) transforming student/learning supports (with mental health concerns fully embedded) and (2) putting implementation and improvement sciences into the context of intervention science, with special attention to replication, scale up, and sustainability of complex systemic school changes.

Feedback on the monograph suggested we should provide the material on implementation and improvement sciences as a separate document. So we have prepared this brief.

> Part I stresses that system improvement and implementation is all about intervention. We define intervention and highlight that improvement and implementation sciences are intertwined intervention concerns for R&D. And we underscore the critical role of evaluation and accountability.
>
> Part II begins with discussion of four interrelated sets of problems involved in making major system changes in districts and their schools. From this perspective, we share how we have wrestled with (a) reworking operational infrastructures for initial and ongoing implementation, and (b) working toward large-scale replication and sustainability. And we underscore how essential policy support is related to making substantive and sustainable institutional improvements.

Throughout we provide links to additional works on the matters discussed.

[1] Adelman, H.S., & Taylor, L. (1994). *On understanding intervention in psychology and education*. Westport CT: Praeger. **https://smhp.psych.ucla.edu/pdfdocs/contedu/understandingintervention.pdf**

[2] Adelman, H.S., & Taylor, L. (2024). *Transforming Student/Learning Supports & Enhancing Equity of Opportunity: A Journey of Lessons Learned.* Center for MH & Student/Learning Support, UCLA. **https://smhp.psych.ucla.edu/pdfdocs/24mono.pdf**

PART I

ABOUT INTERVENTION

What we are learning has made it clear that we needed to update our basic conceptualization of intervention and embed an intertwined perspective of improvement and implementation science. That is the primary intent in Part I. Relatedly, we want to share some implications for research, practice, and policy about intervention evaluation, and accountability.

Chapter 1 revisits definitions of intervention and stresses that the better the concept is understood, the more likely system improvements will be appropriately planned, implemented, and sustained. Among the matters discussed are the role played by an underlying intervention rationale and how that rationale determines who and/or what will be identified and become the primary focus for intervention.

Chapter 2 reviews definitions of and approaches to improvement and implementation science and discusses broadening the focus of each and their integration. Implementation and improvement activities are conceived as domains of the study of intervention and as inevitably intertwined. Research related to both sciences is seen as contributing to fundamental knowledge regarding intervention as a pervasive phenomenon in society.

CHAPTER 1

System Improvement is All About Intervention

By the mid-twentieth century, school improvement was immersed in system thinking.[1] Historically, substantive and substantial efforts to improve systems such as schools have involved implementation of complex interventions. These interventions and the efforts to implement them are intriguing, omnipresent, and often troublesome phenomena that warrant more study.

We initiate this chapter with the premise that the better the concept of intervention is understood, the more likely system improvement will be appropriately planned, implemented, and sustained.

Intervention Defined

The term intervention derives from the Latin *intervenire,* which means "to come between, interrupt." As applied in psychology, education, medicine, social welfare, public health, and other arenas, the term raises major issues about intent, target, application, context, and outcomes. These are particularly hot issues when the emphasis is on improving practices and implementing improvements on a large-scale. Currently, for example, the emphasis in applied psychology and education is on improvements that are science based and that can be implemented with fidelity, replicated widely, and sustained with continuous improvement.

Because *intervention* is defined in various ways, significant differences play out in what is and isn't being discussed. Exhibit 1-1 provides a sample of dictionary definitions.

And here is an example of what is found in the literature discussing the concept:

> An intervention is an intended, planned, and targeted operation in a system or process which aims at removing or preventing an undesirable phenomenon. In the context of health promotion and prevention, an intervention is a planned and systematically implemented activity taking place in current social structures, which aims at changing knowledge, attitude or behavior of a person, an organization, or a population. For this goal, an intervention can also target determinants of health behavior , e.g., the physical environment and political context. ... An intervention concept is a scheme for the different elements and activities that are required to achieve the intended outcome of a program. A concept is usually developed in the beginning of a health promotion and prevention activity, and it maps out detailed steps that have to be taken to design, implement and evaluate a prevention program. A concept usually encompasses the whole program cycle: analysis, strategy, implementation, evaluation, and sustainability. From J. Loss , ***Intervention Concepts in Prevention***

Among professionals in the last century, a trend in discussing intervention was mainly to stress benefits. For example, in 1979 Suran and Rizzo indicated that intervention "is a general term that refers to the application of professional skills to maintain or improve a child's potential for ongoing healthy development."[2] Kanfer and Goldstein (1991) stated that methods used to intervene are "designed to help people change for the better."[3]

In the same time period, however, some cautioned that interventions may not be helpful and can have negative outcomes (e.g., Illich, 1976).[4] These concerns are reflected in the definition cautioning that intervention is *an interference into the affairs of another*.

More neutrally, Rhodes and Tracy described interventions for children's problems, as "any directed action upon the deviance predicament between child and community."[5] Even more neutral was Schorr's definition of intervention as "any systematic attempt to alter the course of development from either its established or predicted path."[6]

Exhibit 1-1

A Sample of Dictionary Definitions of Intervention

>From: **Merriam-Webster Dictionary**

Intervention -- the act of interfering with the outcome or course especially of a condition or process (as to prevent harm or improve functioning)

>From: **Dictionary.com**

interposition or interference of one state in the affairs of another (noun)

>From: **Cambridge Dictionary**

1. the action of becoming intentionally involved in a difficult situation, in order to improve it or prevent it from getting worse
2. a meeting at which someone with a drug or alcohol problem is asked by family members, friends, or health workers to accept the fact that they have a problem and is encouraged to get treatment
3. an occasion when someone's friends or family speak to them about a problem or situation because the person's behavior is unreasonable or harmful

>From: **APA Dictionary of Psychology**

1. generally, any action intended to interfere with and stop or modify a process, as in treatment undertaken to halt, manage, or alter the course of the pathological process of a disease or disorder.
2. action on the part of a psychotherapist to deal with the issues and problems of a client. The selection of the intervention is guided by the nature of the problem, the orientation of the therapist, the setting, and the willingness and ability of the client to proceed with the treatment. Also called psychological intervention.
3. a technique in addictions counseling in which significant individuals in a client's life meet with him or her, in the presence of a trained counselor, to express their observations and feelings about the client's addiction and related problems. The session, typically a surprise to the client, may last several hours, after which the client has a choice of seeking a recommended treatment immediately (e.g., as an inpatient) or ignoring the intervention. If the client chooses not to seek treatment, participants state the interpersonal consequences; for example, a spouse may be request that the client move out, or the client's employment may be terminated.
4. a similar confrontation between an individual and family and friends but outside of the formal structure of counseling or therapy, usually over similar issues and with the goal of urging the confronted individual to seek help with an attitudinal or behavioral problem. Also called family intervention.
5. in research design, an experimental manipulation.

>From: **National Cancer Institute**

In medicine, a treatment, procedure, or other action taken to prevent or treat disease, or improve health in other ways.

The **Vocabulary.com Dictionary** lists 44 types of intervention.

Recently, in addressing intervention from a public health perspective, Cambon, Terral, and Alla suggest defining an "interventional system ... as a set of interrelated human and non-human contextual agents within spatial and temporal boundaries generating mechanistic configurations – mechanisms – which are prerequisites for change in health."[7]

Skivington and colleagues define "complex interventions in terms of such properties as the number of components involved; the range of behaviours targeted; expertise and skills required by those delivering and receiving the intervention; the number of groups, settings, or levels targeted; or the permitted level of flexibility of the intervention or its components."[8] Complexity also is viewed as arising through interactions between the intervention and any feature of the contextual circumstances "in which an intervention is conceived, developed, implemented and evaluated." Defined in this way, complex interventions can be seen as events occurring in systems.[9]

With respect to interventions conducted for research purposes, the **Belmont Report** states that participants are treated in an ethical manner by respecting their decisions and protecting them from harm and by making efforts to secure their well-being.

Some Considerations in Defining Intervention

Any intervention is potentially life-shaping. The term's definition plays a key role in improvement, planning, implementation, and evaluation, and how interventions are studied and understood.

Extracting from various definitions, we view intentional intervention as encompassing planned actions designed to produce intended outcomes related to existing (often problematic) conditions. To leave it at that, however, ignores several basic matters and risks misinterpretations.

We propose that a definition of intervention should be broad enough to account for the full nature and scope of intervention means and ends. Minimally, it should account for

- *all processes and transactions – including the fact that unplanned processes and transactions occur*
- *all outcomes – including those that are not beneficial*

(Interventions maintain, accommodate, develop, improve, or transform. Besides positive outcomes, every intervention has costs and the potential to produce negative side effects.)

- *conditions that are problematic and those that are nonproblematic*

(Intervention may focus on unhealthy/negative functioning or healthy/ positive functioning.)

- *a variety of systems* – persons, environments, or both*

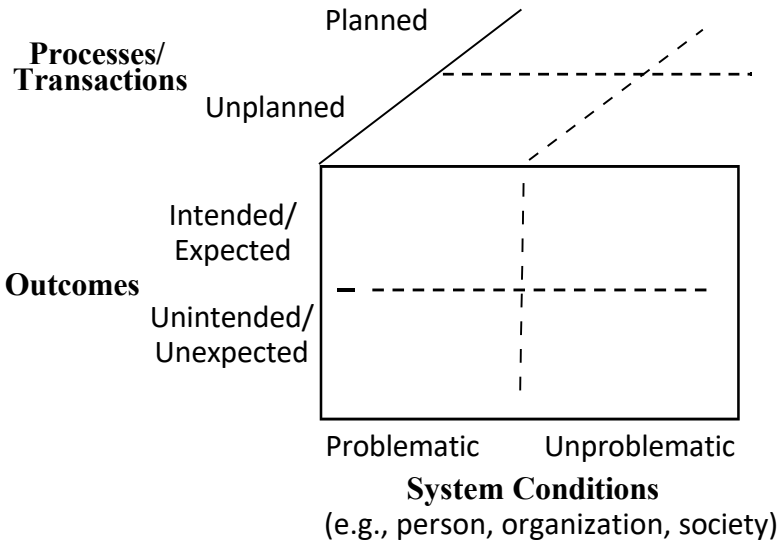
*The term *system* is used frequently in what follows. In systems theory, a person, group, organization, and society are all conceived as systems. In addition, we use the terms *client, consumer*, or *participant* to denote any system that is the object of an intentional intervention; the term *intervener* is used for anyone who intervenes, such as a professional, parent, or friend.

As a broad working definition, we propose the following:

> Intentional intervention aims at producing intended outcomes through planned processes. The intended outcomes encompass maintenance, change (development, improvement), or transformation with respect to problematic or nonproblematic conditions of systems (person, environment, or both). Besides planned processes, unplanned transactions occur. The combined processes may or may not produce intended outcomes, and may produce unintended outcomes; also some outcomes may be negative (see Exhibit 1-2).

Exhibit 1-2

Essential Facets of a Definition of Intentional Intervention



By stating that unplanned processes occur, the definition draws attention to this potentially potent source of variations in intervention outcomes. In stressing that unintended outcomes occur, the definition helps counter tendencies to ignore negative outcomes and positive side effects. Inclusion of the phrase "nonproblematic conditions" helps counter the presumption that the intervention is aimed at a pathological condition. And emphasizing the concern is with system conditions highlights the possible breadth of intervention focus. (With respect to processes, we should also note that activities such as assessment, diagnosis, and referral often are contrasted to "intervention." This distinction inappropriately limits use of the term and is unnecessary since these activities fit most definitions of intervention.)

The discussion that follows approaches each topic from the perspective of the broad working definition outlined above.

To take care of them can and should be read with two meanings: to give children help and to exclude them from the community.
Nicholas Hobbs[10]

What is Intervention Theory?

Interventions often are based on explicit theoretical models or hypotheses linking cause, intervention processes, and outcomes. And given that bringing about changes is the aim of so many interventions, considerable process attention has focused on theories of change.[11]

For a given intervention to be theory-driven, however, isn't the same as having a theory of intervention that articulates the rationale for proceeding (e.g., the philosophical, theoretical, empirical, legal, ethical, pragmatic bases for intervention). The rationale provides the bases for articulating such matters as:

(a) *purpose and intended outcomes,*
(b) *who and what will be targeted* as the *direct* object(s) of intervention (e.g., individuals, environments, both),
(c) the *actions/methods/mechanisms* determined to be the best way to *implement and sustain* essential elements (e.g., what the strategic and action plans should stress).

If *replication and scale-up* also are intended, a specific indication is needed about what are seen as the best ways to facilitate accomplishing those interventions.

Discussing policy for change, Weiss indicates:

- "Any policy proposal to initiate change in the status quo has to be grounded in three interrelated theories: a theory of the problem, a theory of desired outcomes, and a theory of intervention."
- "The plan for exercising influence is the theory of intervention. The elements that must be specified in a theory of intervention are the agent (who should intervene), the target (whose actions are to be changed in some way), the mechanism (how to intervene), and the time and place (when and where a concrete social intervention takes place)."
- "Three basic mechanisms or instruments that are powerful over very broad ranges of social behavior and social circumstances [are]: incentives, authority, and ideas. These instruments are powerful over individuals, institutions, and larger social and economic units. These are three nearly ubiquitous currents of social and political life."[12]

A Few Other Basics about Understanding Intended Interventions

Practitioners, researchers, families, friends, supervisors, organizations, governments, and many more entities intervene regularly. Intended interventions commonly are thought of as doing something that will have an effect on one or many individuals. A general view is that the intent is to be helpful – to make changes that will improve a state of affairs.

Interveners differ not only in their roles and functions but also in how systematically they approach their work. Some are extremely reflective and wonderfully articulate about what they do and why they do it. Others not so much. Differences are seen in views about the reasons for intervening, who or what should be the focus of intervention, ways to proceed, and more.

An in-depth analysis of any intended intervention involves exploration of the

(1) vision and underlying rationale,
(2) primary focus for intervention and how it is influenced by current approaches to classifying problems,
(3) planned *actions/methods/mechanisms* for implementation, replication, scale-up, and sustainability,

In earlier writings, we explored these matters as they relate to improving intervention and advancing intervention science. In this chapter, we provide a few updated excerpts discussing each. Then, in Chapter 6 we discuss evaluation and accountability and how the framework for accountability must be expanded in efforts to improve student/learning supports.

About the Underlying Rationale for an Intervention

Perhaps the weakest facet of the literature on intervention is the dearth of specific discussion dealing with underlying rationales. While rationales guide intervener thoughts and actions, there is little evidence that they are systematically formulated and explicitly stated by most professionals.

Rationales underlying intervention have major ramifications for outcomes because they guide and limit what is planned, implemented, and evaluated. Thus, they are a critical concern for those studying interventions (e.g., What is the content? How coherent, sophisticated, and consistent is the rationale? How do intervener rationales differ?)

In our work, we think about an underlying intervention rationale as a set of ideas and ideals that shape intervention aims, processes, and outcomes. It can consist of views derived from philosophical (including ethical), theoretical, empirical, and legal sources and pragmatic considerations. It can encompass a representation (e.g., a model) of the object of intervention and theories of effective and ethical ways to intervene. If the intervention is focused on addressing problems, rationales can include models of cause and correction.

Rationales influence how intended purposes (e.g., desired outcomes) are conceived. Purposes, of course, may be assigned or adopted.

Intervention rationales are not all equal. Some reflect a higher level of scholarly sophistication; some cover a broader range of relevant considerations; some have greater philosophical, theoretical, and empirical consistency. And these are not the only important considerations. Systematic biases that arise from dominating models also are of concern. For instance, prevailing views of intervention for emotional, behavioral, and learning problems tend to (1) attribute cause to factors within the individual, and (2) focus intervention on changing the individual. This shapes classification activity and plays down focusing on the causal role of environmental factors, such as social policies and negative conditions in community, home, work, and school settings.

More generally, dominant models for intervention reflect society's tendencies to stress system maintenance and the socialization of groups and individuals as intervention goals.[13] This can be counterproductive to progress, and their pursuit significantly limits the quality of life for many in the society. An understanding of this is essential not only for deciding what to do but also what not to do (e.g., what interventions not to pursue, to minimize, to discontinue).

Both the rationale and purposes are foundational referents for planning how to get from here to there. They play a key role in determining what is assessed and classified, what the stakeholders' roles will be in decision making, the activities and techniques used, formative and summative evaluations, the degree of attention paid to negative consequences, etc.

Sophistication, coherence, breadth, consistency, bias – all must be considered and can be judged appropriately only if an intervention's underlying rationale, purposes, and plans are explicitly stated and analyzed. Generally speaking, all efforts to understand, improve, and diffuse successful intervention activity are hampered by the absence of detailed statements of these matters. Rossi, Freeman, and Wright had it right when they noted:

> "If the parties involved in program development and implementation fail (or refuse) to apply themselves to unraveling and specifying the assumptions and principles underlying the program, there is no basis for understanding what they are doing, why they are doing it, or for judging whether or not they are doing what they intend to do."[14]

We do not mean to suggest that every intervener should, could, or needs to write out a complete statement of their rationale and intervention plan. Obviously, good work can be done and is done in the absence of such details and, indeed, without total realization on the part of interveners as to why they function as they do. We do, however, believe that the avenue to wide-scale improvements in intervention science must be paved with greater articulation and analyses of rationales and plans.

About the Primary Focus for Intervention and How It's Affected by Current Approaches to Classifying Problems

One of the first decisions an intervener must make involves answering the question, *Who or what should be the focus for intervention?* Of course, answering this question is enmeshed with the questions: *What are we trying to accomplish?* and *What is the best way to proceed?*

Debates about these matters are endless. In education, for example, considerable debate centers around what should be taught and how to teach. With respect to learning, behavior, and emotional problems, arguments arise about when interventions should be limited to correcting specific observable problem behaviors and when interveners should delve into underlying causes. Similarly, decisions about the appropriate focus for organizational interventions range from specific functions, such as improving coordination and communication to pursuing comprehensive restructuring or transformation of the system. Answers about the object of focus, of course, also involve debates about specific strategies and levels of focus.

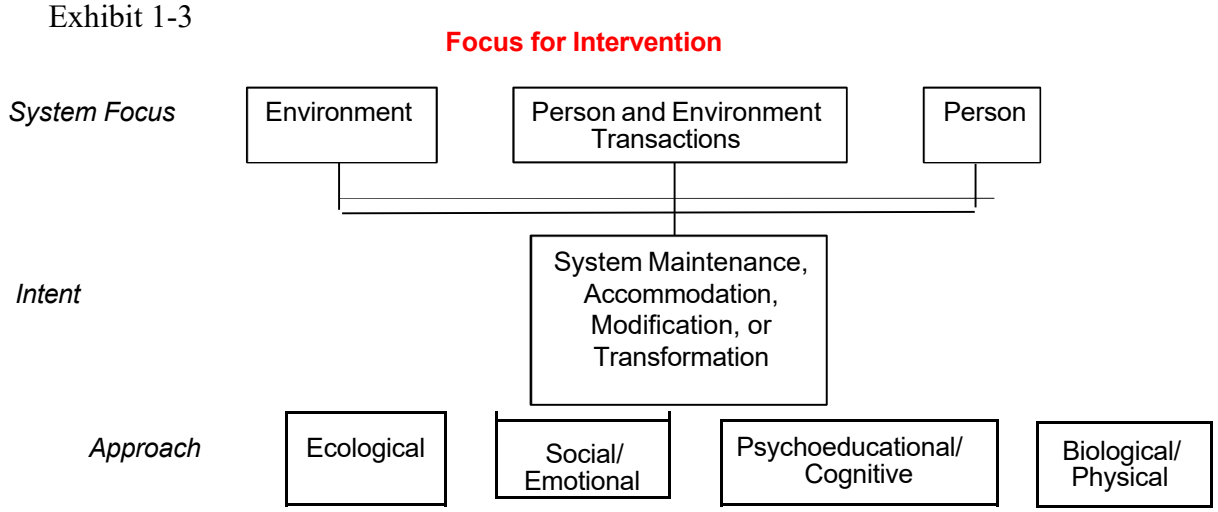
As represented in Figure 1-3, the primary focus of intervention may be on the person, the environment, or both. In each case, the focus may be direct or indirect and aimed at maintaining, accommodating, changing, or transforming one or more system facets. Approaches may be addressed separately or in combination. Environment-focused interventions, for example, may be designed to accommodate an individual or group or change one or more systems and subsystems. When the focus is on both the person and the environment, a combination of strategies may be involved.

Furthermore, in addressing any system, the intervention approach may aim at a macro (observable behavior) or micro (underlying structures and functions) level. For example, with respect to the environment's transacting layers, the focus may be on first level systems such

as home, worksite, and classroom, second level systems such as neighborhood, work organization, and school, or third level systems such as city, state, society, and culture.[15] At each level, subsystems of interest include mechanisms for governance, planning, and administration and implementation.

From a holistic perspective, of course, the focus is on the totality. A system is a whole entity composed of dynamic, interrelated and interacting parts. Study of the parts helps with understanding system complexities and fosters appreciation of relationships among system parts and with other systems. System theorists view understanding of these complexities and relationships as central to designing interventions.

Exhibit 1-3



The following brief discussion is intended to highlight factors affecting decisions about the focus for intervention.

Individuals, environments, or both? Distinguishing among phenomena is a practical and scientific necessity and an ethical imperative. Conceptual and methodological schemes for differentiating people, places, problems, programs, actions, outcomes, and so forth are key to efforts to improve interventions. In psychology and education, considerable attention is paid to classification of individuals with problems (e.g., diagnostic classification). Elaborate diagnostic schemes are widely used, and criticism and revision of prevailing schemes are ongoing.[17]

One long-standing concern is that the extensive concentration on developing diagnostic schemes for labeling individuals has not been matched with efforts to develop schemes for classifying factors in the environment causing individual's problems. This is seen as bolstering the presumptive tendency to focus corrective interventions on strategies to increase individual coping and adaptation and to minimize attending to environmental factors that initially cause and maintain problems.

Of course, when individuals manifest problems, interventions designed with person outcomes as the primary focus may be the most appropriate choice. However, there clearly are times when a primary focus on changing the environment is more appropriate. A

common example is when the environment is changed to accommodate individuals or groups.

We are not suggesting there is a lack of awareness about problems that arise because of external conditions (neighborhood, home, school, society). We are saying that, despite this awareness, many factors prevail that engender tendencies to focus interventions on individuals and away from external causes. Increased attention to classifying environmental phenomena represents a step toward enhancing valid identification of the determinants of problems.

Many interventions that address the environment mainly stress manipulating reinforcers to control and reshape the behavior of specific individuals. This approach should not be confused with altering the environment because it is the most appropriate intervention.

Because the distinction is so important, it is worth underscoring the difference between manipulating the environment to change persons and changing the environment per se. For example, it is well documented that there are many instances where environments (home, school, workplace, society) apply inappropriate standards and limit choices in ways that cause individuals to behave deviantly and deviously. Teaching behavior control strategies is not the same thing as helping teachers see the value of and ways to offer students more options and a greater role in decision making related to classroom learning and performance. This includes extending the range of choice in what students are allowed to do and how they are allowed to do it. Use of reinforcement contingencies contrasts markedly with making changes in socializing practices that are counterproductive to ameliorating learning, behavior, and emotional problems.

The point is: When the cause of a problem is in the environment, the most appropriate intervention involves changing the environment. This includes altering situations hostile to individual well-being so that they accommodate either a specific individual or a wider range of individual differences. Such changes can be preventive in the full sense of the term. And, they also are in harmony with the principle of using the least intervention needed.

Maintenance, Accommodation, Modification, or Transformation? The primary aim of an intervention may be to maintain, accommodate, develop, improve, or transform a system. For instance, many school and other organizational programs involve situations where the purpose of an intervention is to maintain homeostasis (e.g., preventing problems from becoming worse, institutionalizing the status quo).

Examples of interventions that focus on individuals include instruction and training, counseling, prescribed exercises, diet, nutritional supplements, medication. Examples of interventions that focus on the environment include policies and practices related to a particular setting, organization, and institution.

In education, the emphasis is on continuous improvement, with many changes focusing on system restructuring. Reformers ask questions such as “What is wrong with the system and how can we make it more effective and efficient?” “Are we appropriately preparing for the future?” and “What are the implications for changing policy and school practices?”

How are Decisions made about a Specific Approach? Control of decision making generally is maintained by those with the greatest authority in a situation. Questions about this arise

when those in authority have no legitimate basis for assuming power or have interests that conflict with those of other involved parties.

To guide decision making, policy makers increasingly are calling for use of scientifically based approaches. When it comes to transforming schools, however, as anyone working with schools knows, school improvement decisions are shaped less by science than by economics and politics, and the politics reflects a range of philosophical and legal issues.[18]
‘

Interventions are fraught with power conflicts and imbalances that often result in circumstances detrimental to the interests of one or more participants. Examples appear whenever the vested interests of those with authority are enacted into decisions about systemic changes that are disliked by those without authority.

Conflicts of interest encompass instances where there are clashes of values or financial involvements. These often arise when society intervenes in pursuit of its rights and responsibilities at the expense of the rights and liberties of individuals.

One reason conflicting interests raise concern is because of society's ability to exercise control over citizens. At one extreme, it is argued, there are times when society must mandate interventions to serve the greater good. At the other extreme, it is argued that interventions that jeopardize individual rights are never justified. For many concerned citizens, however, neither extreme is acceptable.

The reality is that

- no society is devoid of some degree of coercion in dealing with its members (e.g., no right or liberty is absolute)
- coercion is seen as especially justified with minors and those with problems that affect their competency for self-determination
- conditions often enable vested interests to be served at the expense of others.

Such realities underscore why decisions about the focus for intervention raise concerns and why civil rights, informed consent, and due process of law are necessary, if not sufficient, protections.

Concerns especially arise with respect to the decision-making role of minors and those presumed less than competent when they are the focus for intervention. Society has broad authority to make a wide range of life-shaping decisions "in the best interests of children." Minors under certain statutory age limits are not entitled to many options available to adults; for example, they can't hold certain jobs, obtain a license to drive a car, or receive confidential health services. Moreover, the society and their parents have legal power to make minors do things they may not wish to do, such as stay in school until a given age or participate in unwanted treatment regimens. Some child advocates argue that minors should have broader legal rights in making a greater range of decisions independent of their parents' desires. Some also want government programs improved to better serve and protect minors.

Overt political facets of intervention are seen in mandated activities of governments, schools, industries, and other organizations; a widespread example is the gathering and use of assessment data for planning, evaluating, and policy making purposes. Covert political facets are potentially present in all other intervention activity.

Because overt and covert power imbalances appear inevitable, stringent protection of the rights of those who are the focus of intervention is essential. Therefore, ethical and legal analyses of rights emerge as fundamental concerns in analyzing underlying rationales.[19]

About Planning for Implementation, Replication, Scale-Up, and Sustainability

Intervention rationales are abstract and usually in a state of continuous evolution. Thus, it is inevitable that difficulty and controversy surround efforts to translate a rationale into a specific plan of action and implement it.

To underscore the connection between an underlying rationale and planning, Banathy emphasizes that intervention, or from his perspective *system design*, is guided by the designers' vision and images, including an underlying philosophy and core values and ideas. For example, he distinguishes between a design based on a rationale that intends to maintain or improve the status quo, and one based on a vision of transforming "what is" into "what should be." In this regard, he recognizes that goals and strategies are easy to state. However, he stresses that it is the design of a system that shapes and guides strategies and goals. In his words, the design or model of a system

> "endows people in the system with a common purpose, assists them in understanding their specific contributions in the attainment of the purpose, and guides them in operating their system as a collective venture. Furthermore, the design or model of the system, once made public, informs the environment that embeds the system, and other systems in the environment, about what the system does, how it works, and how it is related to the environment and other systems."[20]

In clarifying the nature and value of planning, advocates also acknowledge problems related to excessive planning. For example, Hartley states:

> "To some persons, planning conjures up the image of a totalitarian society embracing centrally planned economic objectives and activities. In this case, self-expression and human freedom may approach a kind of universal triviality. The requisite assumption . . . is that some planning is desirable; exactly how much is less clear. [Planning] is a way of attempting to somewhat control the future instead of merely reacting to it and being controlled by it."[21]

From rationale to planning and implementation. Decisions about what phenomena will be the focus of intervention and how such phenomena are labeled guide the translation process from rationale to planning and implementation. As translations are made, concerns arise about such matters as the appropriate relationship of means to ends, the desirability of specific ends, the processes by which ends and means are decided upon, and the degree to which planning should be participatory. For example, as immediate objectives and means to accomplish them are specified, agreements among intervener with respect to the abstract rationale often turn into disagreements. There are problems of translating long-range, abstract aims into immediate objectives and of accounting for unintended outcomes. Furthermore, because few interventions are devoid of iatrogenic effects (i.e., negative consequences), planning and implementation also encompass concerns about unintended and undesired outcomes.

In addition to controversial theoretical and philosophical concerns, planning and implementation also enmesh interveners in major methodological and practical problems. Methodologically, difficulties arise from the limited validity of many interventions (including assessment) approaches. Practically, difficulties are imposed by forces that resist change and by competing priorities and a host of pragmatic factors.

Implementation requires understanding what is intended and what isn't and how to accomplish the former and avoid the latter. Such understanding is built on an appreciation of the role of assessment and specific concepts and concerns related to facilitating implementation. In turn, that understanding is translated into strategic and action plans.

As discussed in Part II, strategic and action plans delineate steps first for introducing the design into regular operation on a modest scale and then for replication and sustainable scale-up. Strategic plans spell out how a design will be taken to scale and sustained. Action plans usually start with how an intervention will be communicated (disseminated in ways that will be understood by a critical mass of stakeholders) and implemented on a modest scale (first adopters). Of course, not all that is planned is carried out; not everything done is planned.

> Dissemination refers to the intentional process to spread information and interventions to a target audience, while implementation is the process of integrating a specific intervention into practice within an organization or system.

Analyses of processes, mechanisms, and products related to translating an underlying rationale into action are essential to appreciating the factors that shape everyday practices. In making such analyses, we find it useful to think in terms of *phases* of intervention planning and implementation. Intentional intervention is viewed as having a normative planning phase, a phase for planning specific practices, an administrative planning phase, and an evaluation planning phase. During these planning phases, each abstract intervention *aim* is translated into sets of somewhat less abstract *goals*, and then each goal is translated into specific (and sometimes concrete) *objectives*. Similarly, abstract processes are turned into specific procedures and activities.

About the role of policy for intervention. Policy sets forth principles and actions intended to guide people and organizations. Interventions that do not have policy support are difficult to introduce and implement to scale.

Policies for school system improvement usually are made by those in a position, formally or informally, to provide support and have some degree of control over decision making and actions. Formal policy is a written statement of intent and usually includes guidelines and procedures and sometimes protocols. Government legislated policy (law), for example, is translated into regulations, some of which are rules and some of which may be voluntary. Sufficient resources may or may not be allocated to underwrite a policy. When any resources are allocated, some form of accountability is required.

Increasingly, formal policy attention is focused on requiring science-based practices, facilitating implementation, ensuring adaptations maintain essential elements of intended system improvements, replicating innovations to scale, supporting sustainability, and expanding accountability indicators and standards.

Chapter 2 offers additional discussion of planning and implementation concepts and related concerns.

Given the prevalence and impact of everyone's encounters with so many interventions, we suggest that this facet of daily living warrants greater scientific attention. It is time to make intervention science a high policy priority. Such direct study is essential to advancing conceptual understanding and improving practices. And as we will discuss in the next chapter, improvement and intervention sciences can benefit significantly from the ensuing research.

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[1] For brief history of systems thinking and how it moved into the education sector, see B.F., & H. Kim (2022). *Systems Thinking to Transform Schools: Identifying Levers That Lift Educational Quality*. Washington, D.C.:Brookings

[2] B.G. Suran & J.V. Rizzo (1979). *Special children: An integrative approach*. Glenview, IL: Scott, Foresman.

[3] F.H. Kanfer & A.P. Goldstein (1991). *Helping people change: A textbook of methods* (4th ed.). New York: Pergamon Press.

[4] I. Illich (1976). *Medical nemesis*. New York: Pantheon Books. Ivan Illich argues that the iatrogenic effects of institutionalized intervention are so profound that they reshape cultural thought in ways that interfere with the capacity of large segments of society to cope with problems and aid each other.

[5] W.C. Rhodes & M.C. Tracy (1972). *A study of child variance: Intervention.* (Vol. 2). Ann Arbor: University of Michigan Press.

[6] L. B. Schorr with D. Schorr (1988). *Within our reach: Breaking the cycle of disadvantage*. New York: Doubleday.

[7] L. Cambon, P. Terral, & F. Alla (2019). From intervention to interventional system: Towards greater theorization in population health intervention research. *BMC Public Health*, *19*, 339. doi: 10.1186/s12889-019-6663-y. PMID: 30909891; PMCID: PMC6434858.

[8] K. Skivington, et al., (2021). A new framework for developing and evaluating complex interventions: Update of Medical Research Council guidance. BMJ, 374:n2061 http://dx.doi.org/10.1136/bmj.n2061

[9] In a 2009 paper, Hawe and colleagues stated that intervention may be defined as "a series of inter-related events occurring within a system where the change in outcome (attenuated or amplified) is not proportional to change in input. Interventions are thus considered as ongoing social processes rather than fixed and bounded entities" and as "a critical event in the history of a system, leading to the evolution of new structures of interaction and new shared meanings." Theorising interventions as events in a system. *American Journal of Community Psychology, 43,* 267-276. https://onlinelibrary.wiley.com/doi/full/10.1007/s10464-009-9229-9

[10] N. Hobbs (1975). *The future of children: Categories, labels, and their consequences*. San Francisco: Jossey-Bass.

[11] L. Peters, G. Kok, G. Ten Dam, G. Buijs, & T. Paulussen, (2009). Effective elements of school health promotion across behavioral domains: A systematic review of reviews. *BMC Public Health, 9*, 182.
L. T. Webb, J. Joseph, L. Yardley, & S. Michie, (2010). Using the internet to promote health behavior change: A systematic review and meta-analysis of the impact of theoretical basis, use of behavior change techniques, and mode of delivery on efficacy. *Journal of Medical Internet Research, 12*, e4

[12] J. Weiss (1999). Theoretical foundations of policy Intervention. In F. G. Frederickson & J. Johnston (Eds.), *Public management innovation and reform* (pp. 37-69). Birmingham: University of Alabama Press.
J. Weiss (2000). From Research to Social Improvement: Understanding Theories of Intervention. *Nonprofit and Voluntary Sector Quarterly, 29*, 81-110. https://journals.sagepub.com/doi/pdf/10.1177/0899764000291006

[13] In previous works, we contrasted socialization and helping interventions in terms of (1) whose best interests are served, (2) how consent is determined, and (3) how ongoing general decisions about goals and processes are made. (e.g., see **https://smhp.psych.ucla.edu/pdfdocs/classroomredes.pdf)**

[14] P. Rossi, H. Freeman, & S. Wright (1979). *Evaluation: A Systematic Approach*. Beverly Hills, CA: Sage Publications.

[15] Bronfenbrenner envisions the environment surrounding and affecting individual functioning as an arrangement of encircling and widening contexts. Our use of the terms first, second, and third level systems is roughly equivalent to what he calls the microsystem, the exosystem, and the macrosystem. He describes the microsystem as the immediate physical surroundings, the exosystem as the broader formal and informal social structures (including neighborhood, local agencies of government, communication and transportation facilities), and the macrosystem as encompassing such abstract concepts as overarching cultural and subcultural patterns of which the lower level systems are concrete manifestations. Holahan has further subdivided these systems to form additional encircling contexts. See U. Bronfenbrenner (1976). The experimental ecology of education. *Educational Researcher, 5,* 5–15; U. Bronfenbrenner (1977). Toward an experimental ecology of human development. *American Psychologist, 32*, 513–531; C.J. Holahan (1982). *Environmental psychology*. Random House.

[16] In any intervention, the emphasis may be on accounting for and addressing participant's developed capacities (i.e., knowledge and skills) and/or motivation (e.g., attitudes and interests). In Chapter 3, we discussed these matters related to instructional processes and outcomes; here we want to emphasize motivational concerns as fundamental to all intervention. For example, attitudes and interests certainly are a primary consideration in systematically addressing intervention readiness and maintaining involvement. Toward understanding motivation with respect to such intervention process concerns, the cognitive- affective literature on motivation has much to say about the role of expectations and values (see https://selfdeterminationtheory.org/theory/).

[17] While continuous efforts are made to improve these systems, research sponsored by the National Institute of Mental Health is pursuing a different approach to this classification need. See the *Research Domain Criteria (RDoC) initiative*. https://www.nimh.nih.gov/research/research-funded-by-nimh/rdoc

[18] Carl Rogers discussed this matter in the 1970's: "Politics in ... psychological and social usage has to do with power and control: with the extent to which persons desire, attempt to obtain, possess, share, or surrender power and control others and/or themselves. It has to do with the maneuvers, the strategies and tactics, witting and unwitting, by which such power and control over one's life and others' lives is sought and gained—or shared or relinquished. It has to do with the locus of decision-making power: who makes the decisions which, consciously or unconsciously, regulate or control the thoughts, feelings, or behavior of others or oneself." C. Rogers (1977). *On personal power: Inner strength and its revolutionary impact*. New York: Delacorte Press, p. 4.

[19] Coercive interventions provide some of the most dramatic examples of the politics of decision making. Over the years, the problem of coercive treatment of minors has been the focus of a series of court cases. See Consent, M. Annitto (2011). Coercion, and Compassion: Emerging Legal Responses to the Commercial Sexual Exploitation of Minors, *Yale Law & Policy Review, 30*, 1-70.
Not only do the court cases illustrate coercive and repressive intervention, the rulings provide some guidelines as to the limitations on interveners. At the same time, judicial cases raise concerns about the dangers involved in determining public policy and professional practice through litigation. In his 1985 book, Mnookin discusses such dangers and goes on to caution that policymaking "requires difficult predictions and troubling value choices.
Whether policy is made in the legislature or in the courtroom, [many individuals] can neither define nor defend their own best interests. Nor can they control their own advocates." R.H. Mnookin (1985). *In the interest of children: Advocacy, law reform and public policy*. New York: W.H. Freeman.
Indications of the impact of advocacy for client rights in general and minors' rights in particular are seen in legislative guidelines related to intervening with individuals with disabilities and the various documents that have appeared over the years with titles such as "Clients' Bill of Rights" and "Rights of Minors."

[20] B.H. Banathy (1991). *Systems design of education: A journey to create the future*. Englewood Cliffs, NJ: Educational Technology Publications, p. 60.

[21] H.J. Hartley (1968). *Educational planning-programming-budgeting*. Englewood Cliffs, NJ: Prentice-Hall.

CHAPTER 2

Improvement and Implementation Sciences: Intertwined Interventions

We know that some implementation researchers differentiate intervention from implementation research. They do so by narrowly framing intervention research as focused on *intervention effectiveness* and implementation research as focused on the *strategies used to implement evidence based practices.* As discussed in Chapter 1, intervention warrants a broader definition. This chapter explores implementation and improvement activity as interventions and emphasizes that their research, practice and policy concerns blend together and could be subsumed as a part of an intervention science movement.

Some Background

From early times, efforts to improve and implement intended interventions have raised issues and problems. The 20th century saw the emergence of a robust literature, and over the last few decades, movements for quality improvement (QI), dissemination and implementation (DI) research, and knowledge utilization (e.g., knowledge translation, mobilization) have become high priorities.[1] All have produced literature of importance for efforts to transform schools.

QI involves systematic and continuous actions (e.g., assessment, planning, process mapping, capacity building, evaluation) to guide intervention improvements. The QI movement has a long history and has provided a foundation for the development of the field of improvement science.[2]

Implementation science has its roots in the work on improving organizations. In 1909, **Frederick Winslow Taylor's** seminal writings introduced the term "scientific management" By the 1950s, this arena of work evolved into "Organizational Development" (OD) with an emphasis on action research. OD stressed a focus on the total system and using "clear steps and phases ..., and an underlying set of humanistic values to guide the entire process."[3] Along the way, OD produced a intensive body of work on organizational change drawing heavily on applied behavioral science and social psychology. Considerable attention has been given to the role of change agents (e.g., coaches, consultants) in facilitating modifications in organization design, structure, and strategies.

QI and OD provided a strong foundation upon which improvement and implementation sciences are building. Also informing both sciences is several decades of literature on adopting new innovations (which, in turn, draws on work related to communications, economics, technology, political science, public health, education, and history). Work on innovation gained impetus in the late 1990s as concerns heightened over moving empirically supported innovations from highly controlled conditions to the real world. Everett Rogers' *Diffusion of Innovations* (1995) was especially influential.[4] He stressed that the adoption of new practices required more than empirical support. He not only described ways that innovations diffuse but also highlighted dissemination's role in increasing the speed of transferring innovation from research to practice.[5]

The above is just a sample of the broad base of work that has enabled the rapid growth of the relatively new fields of implementation and improvement sciences. Both fields also have benefitted from the widespread societal demands for better interventions to improve public health (physical and mental) and education and the related calls for knowledge translation,

development of empirically supported practices, and strategies for effective implementation of improvements and their replication on a large scale and in sustainable ways.[6]

What is Improvement Science?

As presented in a burgeoning literature, the increased concern for continuous improvement and innovation has been coalesced into a multidisciplinary, applied body of work and dubbed *Improvement Science*.[7] Improvement science has been defined as a problem-solving approach centered on continuous inquiry and learning. The process is described as one of testing change ideas in rapid cycles to obtain efficient and useful feedback that informs system improvements. The emphasis is on rapid-cycle testing and then sharing what is learned for continuous development of ways to make effective improvements. A common focus is on using discrete, measurable interventions designed to meet specified needs and identify the causes of problems and countering them. Movements stressing pursuit of empirically supported (i.e., evidence- and science-based) practices fit nicely into improvement science).

In her **2020 primer** on improvement science Brandi Hinnant-Crawford states:

Improvement science is a systematic approach to continuous improvement in complex organizations, guided by three foundational questions:

1. What is the exact problem I am trying to solve? What am I trying to accomplish?
2. What change might I introduce to solve it (and why)?
3. How will I know that change is an improvement?

Improvement science is a methodological framework that is undergirded by foundational principles that guide scholar-practitioners to define problems, understand how the system produces the problems, identify changes to rectify the problems, test the efficacy of those changes, and spread the changes (if the change is indeed an improvement).

As presented by the **Regional Educational Lab West:**

> A core principle of improvement science is that a system's performance is a result of its design and operation, not simply a result of individuals' efforts within the system. Building from this foundation, improvement science helps organizations build a shared understanding about how their systems work, where breakdowns occur, and what actions can be taken to improve overall performance.[8]

The Carnegie Foundation for the Advancement of Teaching has championed improvement science "to help educators and systems get better at getting better, and to enable all students to thrive." Their website states:

> Improvement science is explicitly designed to accelerate learning-by-doing. It's a more user-centered and problem-centered approached to improving teaching and learning. As the improvement process advances, previously invisible problems often emerge and improvement activities may need to tack in new directions. The objective here is quite different from the traditional pilot program that seeks to offer a proof of concept. Improvement research, in contrast, is a focused learning journey. The overall goal is to develop the necessary know-how for a reform idea ultimately to spread faster and more effectively. Since improvement research is an iterative process often extending over considerable periods of time, it is also referred to as continuous improvement.
>
> https://www.carnegiefoundation.org/our-work/networked-improvement/

The foundation enumerates the following as **core principles** of improvement:

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?" It enlivens a co-development orientation: engage key participants early and often.
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. Aim to advance efficacy reliably at scale.
3. See the system that produces the current outcomes. It is hard to improve what you do not fully understand. Go and see how local conditions shape work processes. Make your hypotheses for change public and clear.
4. We cannot improve at scale what we cannot measure. Embed measures of key outcomes and processes to track if change is an improvement. We intervene in complex organizations. Anticipate unintended consequences and measure these too.
5. Anchor practice improvement in disciplined inquiry. Engage rapid cycles of Plan, Do, Study, Act (PDSA) to learn fast, fail fast, and improve quickly. That failures may occur is not the problem; that we fail to learn from them is.
6. Accelerate improvements through networked communities. Embrace the wisdom of crowds. We can accomplish more together than even the best of us can accomplish alone.

https://www.carnegiefoundation.org/our-ideas/six-core-principles-improvement/

With respect to the last core principle, networked improvement communities (NICs) are seen as "critical to leveraging the power and potential of improvement science to solve educational problems," institutionalize processes of continuous and collaborative learning, and apply improvement science consistently and continuously.

Drawing on the work of **Walter Shewhart** and later **W. Edwards Deming**, a widely used tool for problem-solving for system improvements is a step by step inquiry cycle used to pursue small-scale testing of changes. Over time the repeated cycles (along with other research) enables an organization to identify ways to improve and achieve desired results reliably and to do so at scale. One version used in industrial organizations is called the Plan-Do-Check-Act (PDCA), the other version, used in fields such as health and education, is designated Plan-Do-Study-Act (PDSA) and emphasizes analytical "study".[9]

About the focus of school improvement. As a Carnegie Task Force on Education stressed:

School systems are not responsible for meeting every need of their students.
But when the need directly affects learning, the school must meet the challenge.

Given the persistence of opportunity and achievement gaps, it seems reasonable to suggest that solving educational problems involves much more than improving the instructional component. The same degree of priority is needed for improving how schools can play a major role in addressing barriers to learning and teaching. A particular concern is addressing the needs of an increasing number of students manifesting behavior, learning, and emotional problems. Research indicates that appropriate and effective handling of these students will require a major transformation in how student and learning supports are provided. And attaining more than cosmetic changes will require understanding how large-scale systemic changes are accomplished and how to deal with the inevitable challenges that arise.

What is Implementation Science?

Initially, implementation science focused mainly on how to make an empirically supported intervention happen in the real world. As Eccles and Mitman defined it in 2006, it was "the scientific study of methods to promote the systematic uptake of research findings and other evidence based practices into routine practice, and hence, to improve the quality and effectiveness of health services and care."[10]

Other Definitions

Here are examples of a range of definitions:

Implementation science is

>applied research that aims to develop the critical evidence base that informs the effective, sustained and embedded adoption of interventions by health systems and communities (Allottey & colleagues, 2008)[11]

>the process of putting an intervention (action/project/policy) – either evidence based or theory based – into use in a specific setting (Damschroder & colleagues, 2009)[12]

>the application and integration of research evidence into practice and policy (Glasgow & colleagues. 2013)[13]

>the scientific inquiry into questions concerning implementation – the act of carrying an intention into effect, which in health research can be policies, programmes, or individual practices (collectively called interventions) (Peters & colleagues, 2013)[14]

Also applied to healthcare, the National Cancer Institute offers a definition with a broader focus: "Implementation Science (IS) aims to accelerate the adoption and integration of evidence-based practices, interventions, and policies into routine healthcare and public health practice to improve the impact on population health".[15]

Given its roots, it is not surprising that so much of the discussion in the implementation literature focuses on bringing a specific health-related prototype developed and researched in a rarified setting into the "real world." Much of the work has involved implementing relatively micro-level changes (e.g., a specific empirically-supported practice). Comparatively little early attention was given to efforts to implement the type of broad-based, multifaceted system changes seen as essential in improving institutions such as schools. Such improvements require sustainable implementation of complex, often transformative, changes at a school and district-wide.

Broadening the Focus

As implementation science matures, it seems logical to view its complexities more broadly as focusing on introducing and replicating any intervention into common practice.[16] A broader view of implementation science is seen in the statement by the University of Washington's Implementation Science Program. They state: " the fundamental question of implementation science as: How do we get 'what works' to the people who need it, with greater speed, fidelity, efficiency, quality, and relevant coverage? This inclusive stance values the systematic application of research methods from a range of diverse disciplines that are seen as critical for understanding the process, context, and outcomes of implementation, with an end goal of enabling scale-up and population-level benefits." To these ends, they stress ten main research methods for implementation science.[17]

As an orientation for new researchers to key domains, processes, and resources in implementation science, **Koh, Lee, Brotzman, and Shelton** recently highlighted five domains crossing dissemination and implementation research and practice: (1) context assessment and intervention selection, (2) dissemination, (3) adaptation, (4) implementation, and (5) sustainability. Across the five domains, they stress evaluation and communication as critical processes in driving ongoing learning and improvement.

From our perspective about bringing any intervention into common practice, implementation science can be defined as the study of methods, techniques, any strategies for putting a practice/program/initiative into use, with an emphasis on factors and conditions that facilitate and hinder efforts to adopt and sustain. The term "use" includes replication on a large scale and application and adaptation in diverse settings. Bringing a practice into use also may involve de-implementing others. Special attention is given to implementation concerns such as knowledge translation, dissemination, diffusion, and institutional transformation.

Conceptualizing Approaches

Implementation research and practice is concerned with interventions carried out under real world conditions. The rationale underlying a good deal of current effort to advance implementation science is based on a theory, model, or framework.

Khalil references theories available for implementation as having been grouped into five major frameworks in terms of their ultimate aims.

Each of these frameworks has different characteristics and outcomes. These five main frameworks are: process frameworks such as the knowledge to action cycle; the determinants frameworks which specify the barriers and facilitators that influence the outcomes of the intervention such as the Promoting Action on Research Implementation in Health Services (PARIHS) framework; the classic theories that are based on Rogers, theory of diffusion which originate from other disciplines such as psychology and sociology; implementation theories such as organizational readiness theories by Weiner et al. and evaluation frameworks that aim to specify aspects of the implementation to be evaluated such as the 'precede proceed' model by Green and Kreuter."[18]

In a 2017, Birken and colleagues reported finding from a survey of 223 implementation scientists from 12 countries that indicated use of more than 100 different theories spanning several disciplines.[19]

Earlier, from the perspective of dissemination and implementation (DI) research and practice, Tabak and colleagues (2012) organized and synthesized theories and frameworks (referred to as models) that helped spread evidence-based interventions. They identify 61 models with application to community- or organizational-level efforts and categorize them with respect to (1) focus on dissemination and/or implementation activities and (2) socio-ecological framework level.[20]

Nilsen (2015) offers a taxonomy of theories, models and frameworks in implementation science. He proposes that theoretical approaches in implementation science have "three overarching aims: describing and/or guiding the process of translating research into practice (process models); understanding and/or explaining what influences implementation outcomes (determinant frameworks, classic theories, implementation theories); and evaluating implementation (evaluation frameworks)." He then proposes that the theoretical approaches to achieve these three overarching aims be grouped into five categories.

>Process models >Determinant frameworks >Classic theories
>Implementation theories >Evaluation frameworks

He concludes:

> These categories are not always recognized as separate types of approaches in the literature. While there is overlap between some of the theories, models and frameworks, awareness of the differences is important to facilitate the selection of relevant approaches. Most determinant frameworks provide limited "how-to" support for carrying out implementation endeavours since the determinants usually are too generic to provide sufficient detail for guiding an implementation process. And while the relevance of addressing barriers and enablers to translating research into practice is mentioned in many process models, these models do not identify or systematically structure specific determinants associated with implementation success. Furthermore, process models recognize a temporal sequence of implementation endeavours, whereas determinant frameworks do not explicitly take a process perspective of implementation. propose a taxonomy that distinguishes between different categories of theories, models and frameworks in implementation science, to facilitate appropriate selection and application of relevant approaches in implementation research and practice and to foster cross-disciplinary dialogue among implementation researchers.[21]

Using Nilsen's five categories, the University of Washington's Implementation Science Research Hub offers an overview of a sample of implementation science theories, models, and frameworks – see https://impsciuw.org/implementation-science/research/frameworks/

Two Examples of Widely Cited Frameworks

>*Exploration, Preparation, Implementation, Sustainment Framework (EPIS)*. This framework highlights "key phases that guide and describe the implementation process and enumerates common and unique factors within and across levels of outer context (system) and inner (organizational) context across phases, factors that bridge outer and inner context, and the nature of the innovation or practice being implemented and the role of innovation/practice developers." https://episframework.com/

>*The Consolidated Framework for Implementation Research (CFIR)*. This framework provides a menu of constructs arranged across 5 domains associated with effective implementation. It is described as "a practical theory-based guide for systematically assessing potential barriers and facilitators to guide tailoring of implementation strategies and adaptations for the innovation being implemented and/or explain outcomes. The Updated CFIR builds on the 2009 version that included constructs from a range of 19 frameworks or related theories including Everett Rogers' Diffusion of Innovations Theory and Greenhalgh and colleagues' compilation based on their review of 500 published sources across 13 scientific disciplines. The CFIR considered the spectrum of construct terminology and definitions and compiled them into one organizing framework." https://cfirguide.org/

Based on their efforts to construct the Quality Implementation Framework (QIF), Meyers and colleagues hypothesized implementation as involving four phases:

- Initial Considerations Regarding the Host Setting,
- Creating a Structure for Implementation,
- Ongoing Structure Once Implementation Begins, and
- Improving Future Applications.

Within the four phases, 14 critical steps were outlined. They used this set of items to analyze 25 implementation frameworks and found many commonalities.[22]

Phase One: Initial considerations regarding the host setting

Assessment strategies

1. Conducting a needs and resources assessment
2. Conducting a fit assessment
3. Conducting a capacity/readiness assessment

Decisions about adaptation

4. Possibility for adaptation capacity-building strategies
5. Obtaining explicit buy-in from critical stakeholders and fostering a supportive community/organizational climate
6. Building general/organizational capacity
7. Staff recruitment/maintenance
8. Effective pre-innovation staff training

Phase Two: Creating a structure for implementation

Structural features for implementation

9. Creating implementation teams
10. Developing an implementation plan

Phase Three: Ongoing structure once implementation begins

Ongoing implementation support strategies

11. Technical assistance/coaching/supervision
12. Process evaluation
13. Supportive feedback mechanism

Phase Four: Improving future applications

14. Learning from experience

Improvement and Implementation Science as Intervention Concepts

In many ways, the above examples indicate that improvement and implementation science are being approached as interventions. Another example comes from the early discussions of implementation science by Fixen and colleagues about what is now referred to as the Active Implementation Formula (AIF). They stated:

What is known about implementation science can be summarized in a formula for success that accounts for multiple levels of influence over time:

Effective Innovations x Effective Implementation x Enabling Contexts = Socially Significant Outcomes[23]

This formula subsequently has been developed into "five overarching frameworks" referred to as Active Implementation Frameworks. namely (1) Usable Innovations, (2) Implementation Stages, (3) Implementation Drivers. (4) Implementation Teams, and (5) Improvement Cycles. The five frameworks are detailed by the National Implementation Research Network.[24]

Based on their review of the implementation evaluation literature, Fixsen and colleagues identified implementation drivers. Implementation drivers are seen as creating the conditions and infrastructure needed to support adopted innovative practices with fidelity. The drivers and components they reported were highlighted as *competency drivers* (i.e., selection, training, coaching) and *organization drivers* (i.e., systems intervention, facilitative administration, decision support data system). The impact of these drivers is dependent on their being integrated and used in ways that any weaknesses in a component are compensated by strengths of another. And leadership is seen as foundational not only as an effective driver, but for all facets of implementation.

The above examples show that improvement and implementation are overlapping concerns. And, as stated at the outset of this chapter, our view is that improvement and implementation fit conceptually into basic intervention thinking.

To underscore the point, we reiterate our definition of intervention from Chapter 1. It stresses accounting for

- *all processes and transactions – including the fact that unplanned processes and transactions occur*
- *all outcomes – including those that are not beneficial*
  (Interventions maintain, accommodate, develop, improve, or transform. Besides positive outcomes, every intervention has costs and the potential to produce negative side effects.)
- *conditions that are problematic and those that are nonproblematic*
  (Intervention may focus on unhealthy/negative functioning or healthy/ positive functioning.)
- *a variety of systems—persons, environments, or both*

From that perspective, improvement and implementation are interventions. As such, their plans should ensure that there is a clear articulation of

(a) *the rationale* for proceeding (e.g., the philosophical, theoretical, empirical, legal, ethical, pragmatic bases for intervening),
(b) *purpose and intended outcomes,*
(c) *who and what will be targeted* as the *direct* object(s) of intervention (e.g., individuals, environments, both),
(d) the *actions/methods/mechanisms* determined to be the best way to *implement and sustain* essential elements (e.g., what the strategic and action plans should stress).

If *replication and scale-up* also are intended, there should be a specific indication about what this will entail.

About Improvement and Implementation Research

The literature on improvement and implementation science provides ample discussion of the strengths and weaknesses of related research to date.[25] Here we just highlight a few points from the perspective of viewing these fields as domains of intervention study.

It is clear that improvement and implementation researchers are concerned not just with outcomes, but with methods, techniques, and strategies for putting a practice or program into use (e.g., what's involved in establishing empirically supported practices in real world settings). In doing so, they emphasize measuring variables such as acceptability, adoption, appropriateness, feasibility, fidelity, implementation cost, coverage, and sustainability.[26]

As Lewis (2015) notes in contrasting experimental science with improvement science:

> Requiring faithful implementation of a program assumes that the needed knowledge is "in" the intervention and ignores the role of the system of profound knowledge in producing success or failure. Improvement science, in contrast, treats variation in implementation and setting as important sources of information and provides tools to grasp and learn from variation (in both positive and negative directions) in order to redesign both the intervention and the system. As Bryk et al. (2010) note, "rather than thinking about a tool, routine or some other instructional resource as having proven effectiveness, improvement research directs efforts toward understanding how such artifacts can be adaptively integrated with efficacy into varied contexts" (p. 25).[27]

Viewing implementation activity through the lens of intervention as discussed in Chapter 1, emphasizes a broad agenda for research. It includes a focus on rationale and aims, antecedent conditions, processes and transactions, multifaceted contexts, intended and unintended system outcomes, and more. Such a broad focus, of course, raises many methodological challenges (e.g., measuring transactions among stakeholders and the embedded contexts in which an intervention is applied).[28]

Broadly pursued, improvement and implementation research underscore the role the sciences play in ensuring that intervention practices meet society's needs and expectations. The work also has significant potential for enhancing basic knowledge about intervention in general.

Improvement and Implementation: Intertwined Intervention Concerns

Calls for integration of improvement and implementation sciences are increasing. This is reflected in various discussions that compare similarities and differences and suggestions for blending and "bridging the silos."[29] For example, McColskey-Leary and colleagues (referencing Proctor, et al.) see improvement science primarily as "problem-specific and user-focused, while implementation science is context and practice concentrated." They emphasize, however, that both "focus on enhancing the use (adoption, implementation, and sustainment) of effective practices or programs to improve outcomes for students."[30] They offer the plan-do-study-act [PDSA] cycles as a process for integrating the two sciences and point to the Michigan Integrated Continuous Improvement Process (MICIP) as a current example of capitalizing on the synergy.[31]

An example of improvement and implementation blending together is seen when reimplementation occurs. As Moyal-Smith and colleagues point out, first attempts to implement may not be successful and that reimplementation "offers another chance at implementation with the opportunity to address failures, modify, and ultimately achieve the desired outcomes."[32]

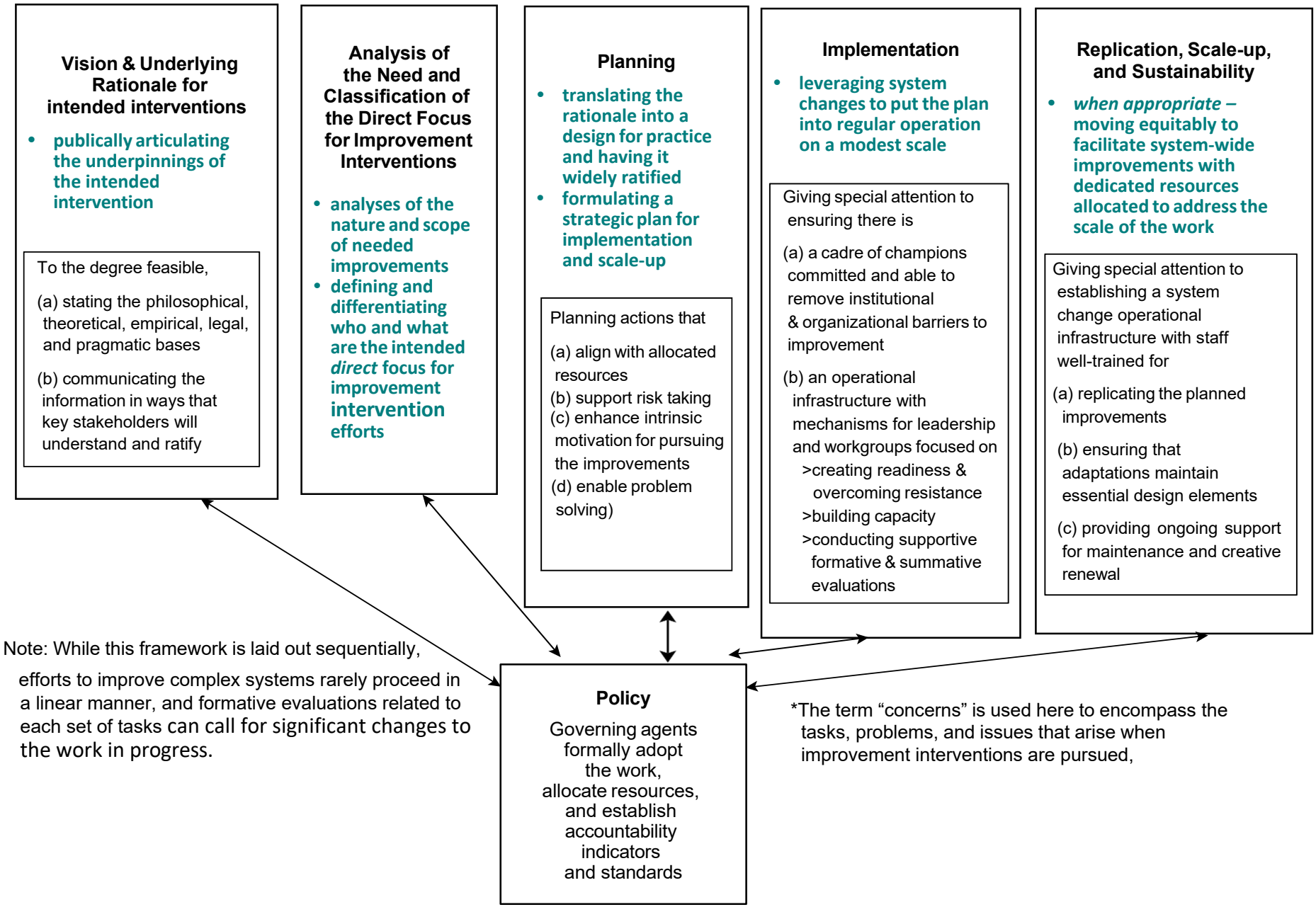
In pursuing major changes in schools, we have come to appreciate just how intertwined improvement and implementation are, especially with respect to replication, scale-up, and sustainability of complex systemic changes. Exhibit 2-1 illustrates our current thinking about how the two blend together as an intervention for introducing new practices into organizations such as schools.

The exhibit incorporates and adds to the logic framework presented in Chapter 3. Again, we stress that accomplishing substantive and sustainable transformation requires planning both direct implementation and facilitation of systemic changes. Thus, strategic and action plans need to attend to both sets of intervention to ensure

- appropriate underwriting and establishment of an effective systemic change operational infrastructure,
- overcoming stakeholder negative reactions to proposed changes,
- creating readiness and commitment (enhancing motivation and capability) among a critical mass of key stakeholders in a setting where changes are to be introduced,
- developing a clear design document to communicate and guide the work,
- developing a multi-year strategic plan,
- ensuring policy for making necessary changes is instituted as a high priority,
- reworking an organization's daily operational infrastructure to support development and sustainability of the changes.

As calls for integration of improvement and implementation sciences increase, hopefully the fields also will be understood as domains of the study of intervention. In that way, the research not only can enhance the two domains, the findings can contribute to fundamental knowledge regarding intervention as a pervasive phenomenon in society.

Exhibit 2-1 ***Intervention*** **– Improvement and Implementation: Intertwined Concerns for Research, Practice, and Policy***



Note: While this framework is laid out sequentially, efforts to improve complex systems rarely proceed in a linear manner, and formative evaluations related to each set of tasks can call for significant changes to the work in progress.

*The term "concerns" is used here to encompass the tasks, problems, and issues that arise when improvement interventions are pursued,

A Recent Report on School Improvement and Replication to Scale

A 2024 report from McKinsey & Company states:[33]

> Most school systems struggle to turn improvements into action at scale. Our research demonstrates that to make changes stick, it is not enough for leaders to know "what" interventions to use. It also requires understanding "how" to implement them well at scale. In many systems, well-intentioned changes fizzle out.[33]

The report further stresses that school systems that don't improve "tend to get stuck in a few 'failure modes'." These are seen as resulting from:

> "*Conflicting directions.* Education is not seen as a priority, resulting in an inability to raise the donor or domestic funds needed to deliver. Goals are too numerous, too far out in the future, and hard to measure, and there is a lack of coherence across the individual elements of reform.
>
> *Leadership discontinuity.* Educational change requires more time than politics often allows. Rapid electoral cycles and short tenures for ministers of education can lead to a whipsaw of priorities, which can in turn confuse and disillusion educators and families. This is exacerbated when reform efforts are tied to political structures, rather than more deeply embedded within institutions.
>
> *Organ rejection of reform.* Improvements may falter in the face of pushback from communities and educators who feel they were not consulted. Top-down policies may not actually work once they reach the classroom.
>
> Insufficient coordination and pace of change. Too much time is spent on developing strategy and not enough on creating an implementation road map with aligned budgets, timelines, and accountability.
>
> *Limited implementation capacity*. A lack of program management and analytical capacity within government undermines reform efforts—great educators do not always make great managers. Donor technical assistance ends up overly dependent on international consultants, who leave, rather than local players.
>
> *Flying blind*. Leaders at all levels operate without sufficient data, missing key opportunities to create transparency and to intervene.
>
> *Standing still.* Systems try to solve today's problems with yesterday's solutions. Leaders may pilot new ideas but without a plan for how to measure impact and take them to scale."

With respect to their research and analyses of school systems, the McKinsey report suggests that "successful systems, at every level of spending and national development, use reinforcing strategies to create a virtuous cycle, enabling significant, long-term gains in student learning" They

> *"Anchor in the evidence*. Based on clear research into what improves outcomes, successful school systems ground changes in the classroom, focusing first and foremost on teachers and the content they deliver. They choose evidence-backed strategies relevant to their starting place and prioritize foundational learning, particularly in systems with limited resources. They use technology as a tool to enhance learning, not as an end in itself.
>
> *Build a durable coalition for change*. Successful school systems focus on a few coherent priorities, rallying stakeholders around them to ensure that everyone—from system leadership to principals to teachers—is on board. They invest in authentic, two-way communication with families, educators, and communities to design better policies and build deeper buy-in.
>
> *Create delivery capacity to scale.* Successful systems move quickly from strategy to implementation, pacing reforms to show early traction while building stamina for the long road to impact. They build dedicated delivery teams with the organizational structures and individual skills to execute on plans over time.
>
> *Drive and adapt with data.* Successful systems rigorously measure what matters—student learning outcomes—and use transparent data to improve their interventions. As they roll out tried-and-true methods, they also create space for innovation and measure what they innovate, which feeds back into the evidence base of what works."

As the McKinsey report illustrates, research related to school improvement and implementation offers useful insights. However, care must be taken about how findings are interpreted. Among the concerns that arise related to studying intervention improvement and implementation are the reality that what is studied is limited to current decisions about improving schools and how to implement the improvement. Therefore, research reports can produce misleading conclusions.

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[1] Estabrooks and colleagues note: "DI research emerged — by name — over the past 25 years, but its roots can be traced to a much earlier time. A review of current DI research areas likely would not have seemed out of place in the 1930s through the 1960s. Some examples include the need for clinically relevant and community-relevant research, engaging systems and communities as partners in the co-creation of evidence, and examining the characteristics of interventions to determine which are more likely to be taken to scale and sustained. These topics can be traced back to the origins of action research in the 1940s, the push and pull between pure and applied research in the 1960s, and the diffusion of innovations that spanned both those periods. Indeed, the works of Kurt Lewin, Archie Cochrane, and Everett Rogers provide a strong foundation for DI science." P.A. Estabrooks, R.C. Brownson, & N.P. Pronk (2018). Dissemination and Implementation Science for Public Health Professionals: An Overview and Call to Action. *Preventing Chronic Disease*;*15*,180525. https://www.cdc.gov/pcd/issues/2018/18_0525.htm

[2] Nilsen and colleagues provide some background on improvement and implementation sciences and an analysis of their similarities and differences. P. Nilsen, J. Thor, M. Bender, J. Leeman, B. Andersson-Gäre. & N. Sevdalis (2022). Bridging the Silos: A Comparative Analysis of Implementation Science and Improvement Science. *Frontiers in Health Services, 1*, 817750. doi: 10.3389/frhs.2021.817750

[3] W. Burke (2013), *Organization Change: Theory and Practice*. (3rd edition). SAGE Publications.

[4] E.M. Rogers (2003), *Diffusion of Innovations*. (5th edition). New York: Free Press.
Also see J.W. Dearing, & J.G. Cox (2018) Diffusion of Innovations Theory, Principles, And Practice. *Health Affairs, 37*, 183-190. https://www.healthaffairs.org/doi/10.1377/hlthaff.2017.1104

[5] With respect to improvement and implementation, diffusion is defined simply as widely spreading an intervention practice/program/initiative. With respect to transforming schools, we think of diffusion as interventions intended to replicate system changes on a large scale.
A formal definition states that "Dissemination is the targeted distribution of information and intervention materials to a specific public health or clinical practice audience. The intent is to spread knowledge and the associated evidence-based interventions. Dissemination occurs through a variety of channels, social contexts, and settings." *Communication and Dissemination Strategies to Facilitate the Use of Health-Related Evidence*.
https://effectivehealthcare.ahrq.gov/sites/default/files/pdf/medical-evidence-communicati on_research-protocol.pdf
In practice, the term dissemination encompasses the many challenges involved in dispersal of information, ideas, and recommendations to individuals, groups, and organizations. The process often is described as that of distribution or circulation. Questions arise about how best to do this (e.g., brochures, fact sheets, frequently asked questions, presentations, courses, workshops, manuals, articles, books). When it comes to wide-spread distribution (i.e.,diffusion) questions arise about how best to use the variety of available delivery systems (e.g., email, webinars, websites, social media, mailers and public relations ads, networks of professionals, news outlets, clearinghouses) to create awareness, interest, and acceptance. Distribution alone, however, does not guarantee communication and understanding. That is, while distribution is a necessary precursor, it is insufficient with respect to assuring understanding, never mind mobilizing acceptance and action. So, a fundamental challenge is how to pursue dissemination efforts in ways that can increase the likelihood that proposed changes will be accepted and acted upon. In this context, social marketing plays a significant role – see https://smhp.psych.ucla.edu/pdfdocs/socmark.pdf

[6] Discussing the difference between knowledge translation and implementation science. Khalil notes: "Many terms have emerged describing knowledge translation, utilization, exchange, dissemination implementation science, and utilization. These terms are being used interchangeably in the literature. In the United Kingdom and Europe, the terms implementation science and research utilization are being used. In the United States, the terms dissemination, diffusion, knowledge, distribution transfer, and uptake are being used. In Canada, knowledge translation and exchanges are more commonly

used." H. Khalil (2016). Knowledge translation and implementation science – what is the difference? *International Journal of Evidence-Based Healthcare, 14,* 39-40. https://journals.lww.com/ijebh/fulltext/2016/06000/knowledge_translation_and_implementation_science_.1.aspx

[7] For more perspective on Improvement Science, see
>A.S. Bryk, (2020). *Improvement in action: Advancing quality in America's schools.* Harvard Education Press. https://hep.gse.harvard.edu/9781682534991/improvement-in-action/
>B.N. Hinnant-Crawford (2020). *Improvement science in education: A primer*. Myers EducPress. https://myersedpress.presswarehouse.com/browse/book/9781975503550/Improvement-Science-in-Education
>A. Cribb (2018). Improvement Science Meets Improvement Scholarship: Reframing Research for Better Healthcare. *Health Care Analysis, 26,* 109–123. https://doi.org/10.1007/s10728-017-0354-6
>FrameWorks Institute (2017). Framing Strategies to Build Understanding of Improvement Science. https://www.frameworksinstitute.org/wp-content/uploads/2020/03/inbrief-framing-improvement-science-final.pdf
>P.G. LeMahieu, A. Grunow, L. Baker, L.E. Nordstrum, & L.M. Gomez (2017). Networked improvement communities: The discipline of improvement science meets the power of networks. *Quality Assurance in Education, 25*, 5-25. https://doi.org/10.1108/QAE-12-2016-0084
>K. Rohanna (2017). Breaking the "adopt, attack, abandon" cycle: A case for improvement science in K-12 education. *New Directions for Evaluation, 153*, 65-77. https://doi.org/10.1002/ev.20233
>C. Lewis (2015). What Is Improvement Science? Do We Need It in Education? *Education Researcher, 44,* 54-61. https://journals.sagepub.com/doi/epub/10.3102/0013189X15570388
For a perspective on how state education agencies are incorporating improvement science, Cunningham and colleagues found that, while the term "continuous improvement" appeared in all 52 state plans, the majority (35) did not mention improvement science. See K.M.W. Cunningham, & D. Osworth (2023). A proposed typology of improvement science in state ESSA plans. *Education Policy Analysis Archives, 31.* https://doi.org/10.14507/epaa.31.7262

[8] The Regional Educational Lab (REL) West states: "One of the primary tools of improvement science is the Plan-Do-Study-Act (PDSA) inquiry cycle. This cycle serves as a basic learning tool through which practitioners test changes, document the results, and revise their theories about how to achieve their aim. A critical aspect of the PDSA approach is small-scale testing, which enables quick learning and nimble adjustments with minimal cost. Over time and with repeated cycles of small-scale testing along with other forms of research, an organization can identify ways to achieve positive results reliably and at scale." https://ies.ed.gov/ncee/edlabs/regions/west/Blogs/Details/2#improvement_science

[9] For more about Improvement Cycles, see *The Improvement Guide: A Practical Approach to Enhancing Organizational Performance*. It provides a PDSA planning form for intended changes and objectives (learn, test, implement) and a checklist for each phase's activities. https://nirn.fpg.unc.edu/practicing-implementation/pdsa-cycles-improvement-and-implementation
Note that, prior to testing, it is essential to have used various tools (e.g., interviews, mapping) to arrive at an understanding of the situation in which improvements are to be made.

[10] M.P. Eccles, & B.S. Mittman (2006), Welcome to implementation science. *Implementation Science, 1*, 1, 10. https://implementationscience.biomedcentral.com/articles/10.1186/1748-5908-1-1

[11] P. Allotey, D.D. Reidpath, H. Ghalib, F. Pagnoni, & W.C. Skelly (2008). Efficacious, effective, and embedded interventions: Implementation research in infectious disease control. *BMC Public Health, 8*, 343. doi: 10.1186/1471-2458-8-343. PMID: 18826655; PMCID: PMC2567977.

[12] L.J. Damschroder, D.C. Aron, R.E. Keith, S.R. Kirsh, J.A. Alexander, & J.C. Lowery (2009). Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. *Implementation Science, 7*, 50. https://implementationscience.biomedcentral.com/articles/10.1186/1748-5908-4-50

[13] R.E. Glasgow & D. Chambers (2012). Developing Robust, Sustainable, Implementation Systems Using Rigorous, Rapid and Relevant Science, Clinical and *Translational Science, 5*, 48-55. https://ascpt.onlinelibrary.wiley.com/doi/10.1111/j.1752-8062.2011.00383.x

[14] D.H. Peters, T. Adam, O. Alonge, I.A. Agyepong, & N. Tran (2013). Implementation research: What it is and how to do it. *BMJ, 347*, 1-7. https://www.bmj.com/content/bmj/347/bmj.f6753.full.pdf

[15] https://cancercontrol.cancer.gov/is

[16] Our intent here is not to review and compare the many frameworks and models that are in the literature. Our goal is to highlight and share another perspective. For general discussions about implementation science, see
>the University of Washington's Implementation Science Resource Hub https://impsciuw.org/

>the National Implementation Research Network http://implementation.fpg.unc.edu/resources/stages-implementation-analysis-where-ar e-we?o=sisep
>the Center for Implementation https://thecenterforimplementation.com/courses
>Society for Implementation Research Collaboration (SIRC) https://societyforimplementationresearchcollaboration.org/
>UC San Diego Dissemination and Implementation Science Center https://medschool.ucsd.edu/research/actri/centers/DIR/aboutus/Pages/default.aspx
>S. Farmer, C.S. Ward, & D. Cusumano, (2023). Implementation Science: Foundations and Applied Practice in Educational Settings. In L.M. Nellis, & P.A.Fenning (eds) *Systems Consultation and Change in Schools.* Springer, Cham. https://doi.org/10.1007
>for recent edited compendiums, see
>>Albers, B., Shlonsky, A., & Mildon, R. (Eds) (2020). *Implementation science 3.0.* NY: Springer.
>>Nilsen, P., & Berken, S. (Eds.) (2020). *Handbook on implementation science.* Elgar online https://www.elgaronline.com/view/edcoll/9781788975988/9781788975988.xml

[17] https://impsciuw.org/implementation-science/research/select-research-methods/

[18] H. Khalil (2016). Knowledge translation and implementation science – what is the difference? *International Journal of Evidence-Based Healthcare, 14,* 39-40. https://journals.lww.com/ijebh/fulltext/2016/06000/knowledge_translation_and_impleme ntation_science_.1.aspx

[19] S.A., Birken, B.J., Powell, C.M. Shea, et al. (2017). Criteria for selecting implementation science theories and frameworks: Results from an international survey. *Implementation Science, 12*, 124 https://link.springer.com/article/10.1186/s13012-017-0656-y#citeas

[20] R.G. Tabak, E.C. Khoong, D.A. Chambers, & R.C. Brownson (2012). Bridging research and practice: models for dissemination and implementation research. *American Journal of Preventive Medicine, 43*, 337-50. https://www.sciencedirect.com/science/article/pii/S0749379712003893?via%3Dihub

[21] P. Nilsen (2015). Making sense of implementation theories, models and frameworks. *Implementation Science. 10*, 53 https://doi.org/10.1186/s13012-015-0242-0

[22] D.C. Meyers, J.A. Durlak, & A. Wandersman (2012). The quality implementation framework: A synthesis of critical steps in the implementation process. *American Journal of Community Psychology, 50,* 62-480. https://onlinelibrary.wiley.com/doi/full/10.1007/s10464-012-9522-x

[23] See
>D.L. Fixsen, K.A. Blase, A. Metz, & M. Van Dyke (2015). Implementation science. In J. Wright (Ed.), *International Encyclopedia of the Social & Behavioral Sciences* (2nd ed). Elsevier. https://www.ojp.gov/sites/g/files/xyckuh241/files/media/document/encyclopediascience.pdf
>D.L. Fixsen, S.F, Naoom, K.A. Blase, R.M. Friedman, & F. Wallace, (2005). *Implementation research: A synthesis of the literature* (no. FMHI publication #231). University of South. Florida, Louis de la Parte Florida Mental Health Institute, National Implementation Research Network. https://nirn.fpg.unc.edu/sites/nirn.fpg.unc.edu/files/resources/NIRN-MonographFull-01-2005.pdf
>D.L. Fixsen, K.A. Blase, S.F. Naoom, & F.Wallace (2009). Core implementation components. *Research on Social Work Practice, 19*, 531–540. https://psycnet.apa.org/doi/10.1177/1049731509335549

[24] National Implementation Research Network https://implementation.fpg.unc.edu/wp-content/uploads/Active-Implementation-Overview.pdf

[25] For a more in depth perspective on *implementation research*, see
>D.L, Fixsen, S.F. Naoom, K.A. Blase, R.M. Friedman, & F. Wallace (2005). *Implementation Research: A Synthesis of the Literature*. Tampa, Fla.: University of South Florida, Louis de la Parte Florida Mental Health Institute, National Implementation Research Network. https://nirn.fpg.unc.edu/sites/nirn.fpg.unc.edu/files/resources/NIRN-MonographFull-01-2005.pdf
>Y. Wang, E.LY. Wong, P. Nilsen, et al. (2023). A scoping review of implementation science theories, models, and frameworks — an appraisal of purpose, characteristics, usability, applicability, and testability. *Implementation Sci 18,* 43 https://doi.org/10.1186/s13012-023-01296-x
> P. Nilsen, & S.A. Birken (Eds.). (2020). *Handbook on implementation science*. Edward Elgar. For a more in depth perspective on *improvement research*, see
>D.S Peterson, & S.P. Carlile (Eds.). (2021). *Improvement science: Promoting equity in schools*. Myers Education Press.
>J. Øvretveit (2010). Understanding the conditions for improvement: Research to discover which context influences affect improvement success. *BMJ Qual Saf , 20* (Suppl 1):i18ei23. doi:10.1136/bmjqs..045955

>S. Park, S. Hironaka, P. Carver, & L. Nordstrum (2013). *Continuous improvement in education*. Carnegie Foundation for the Advancement of Teaching. https://www.carnegiefoundation.org/wp-content/uploads/2014/09/carnegie-foundation_c ontinuous-improvement_2013.05.pdf

[26] See the National Implementation Research Network https://nirn.fpg.unc.edu/ and its State Implementation and Scaling-Up of Evidence-Based Practices (SISEP) Center. The Center supports education systems in creating implementation capacity for evidence-based practices benefitting students with disabilities.
https://nirn.fpg.unc.edu/projects/state-implementation-and-scaling-evidence-based-practices-s isep-center
Also see
>A. Wandersman, V.A. Chien, & J. Katz (2012). Toward an Evidence-Based System for Innovation Support for Implementing Innovations with Quality: Tools, Training, Technical Assistance, and Quality Assurance/Quality Improvement. *American Journal of Community Psychology, 50,* 460-461. DOI 10.1007/s10464-012-9509-7

[27] C. Lewis (2015). What Is Improvement Science? Do We Need It in Education? *Education Researcher, 44,* 54-61. https://journals.sagepub.com/doi/epub/10.3102/0013189X15570388
Cites A.S. Bryk. L.M. Gomez, & A. Grunow (2010). *Getting ideas into action: Building networked improvement communiites in education.* http://www.carnegiefoundation.org/spotlight/webinar-bryk-gomez-building-netowrked-i mporvement-communities-in-education

[28] Widely acknowledged are the potential impact of proximal and distal contexts (e.g., social and physical ecology, institutional culture, policies, economic factors). However, measuring the influence of such factors remains limited.

[29] Nilsen and colleagues provide some background on improvement and implementation sciences and an analysis of their similarities and differences. P. Nilsen, J. Thor, M. Bender, J. Leeman, B. Andersson-Gäre. & N. Sevdalis (2022). Bridging the Silos: A Comparative Analysis of Implementation Science and Improvement Science. *Frontiers of Health Services, 1*, 817750. doi: 10.3389/frhs.2021.817750

[30] See
> C. McColskey-Leary, & B. Garman-McClaine, (2021). *Integrating Improvement and Implementation Sciences to Enhance Educational Outcomes.* National implementation Research Network, University of North Carolina at Chapel Hill. https://files.eric.ed.gov/fulltext/ED616340.pdf
>E. Proctor, H. Silmere, R. Raghavan, P. Hovmand, G. Aarons, A. Bunger,... & M. Hensley (2011). Outcomes for implementation research: conceptual distinctions, measurement challenges, and research agenda. *Administration and Policy in Mental Health and Mental Health Services Research, 38,* 65-76. https://pubmed.ncbi.nlm.nih.gov/20957426/

[31] The Michigan Department of Education launched the Michigan Integrated Continuous Improvement Process (MICIP) in 2020 to support districts'continuous improvement efforts
https://www.michigan.gov/mde/Services/school-performance-supports/micip

[32] R. Moyal-Smith, J.C. Etheridge, A. Karlage, Y. Sonnay, C.T. Yuan, J.M. Havens, M.E. Brindle, & W. Berry (2023) Defining re-implementation. *Implementation Science Communications, 4*, 60. doi: 10.1186/s43058-023-00440-4. PMID: 37277862; PMCID: PMC10240764

[33] McKinsey Report (2024). *Spark & Sustain: How all of the world's school systems can improve learning at scale.*
https://www.mckinsey.com/industries/education/our-insights/spark-and-sustain-how-school-systems-can-improve-learning-at-scale

PART II

Implementing District-wide School Improvements

> Transformative research involves ideas, discoveries, or tools that radically change our understanding of an important existing scientific or engineering concept or educational practice
>
> National Science Foundation

There is widespread consensus that schools will undergo fundamental changes in the coming years. Given the federal commitment to science-based schooling, increasingly research and development efforts will generate more comprehensive prototypes for sustainable systemwide improvements.

In pursuing our school improvement agenda, we found our training and past experiences prepared us relatively well for challenges such as translating available research, operationalizing complex constructs, developing and disseminating prototypes, and implementing demonstrations and pilots. However, when we became enmeshed in the problems of institutional transformation and sustainability, we were caught off-guard. We needed to learn so much more. So we immersed ourselves in what the *Implementation and Improvement Sciences* literature had to say about bringing prototypes into the "real world." Not surprisingly, we found those resources helpful but insufficient. There is so much more for us all to learn and for professional preparation programs to address.

One major lesson we learned working at state, district, and local levels is that making multifaceted, complex, and sustainable improvements at a site and systemwide involves addressing four interrelated sets of intervention considerations.

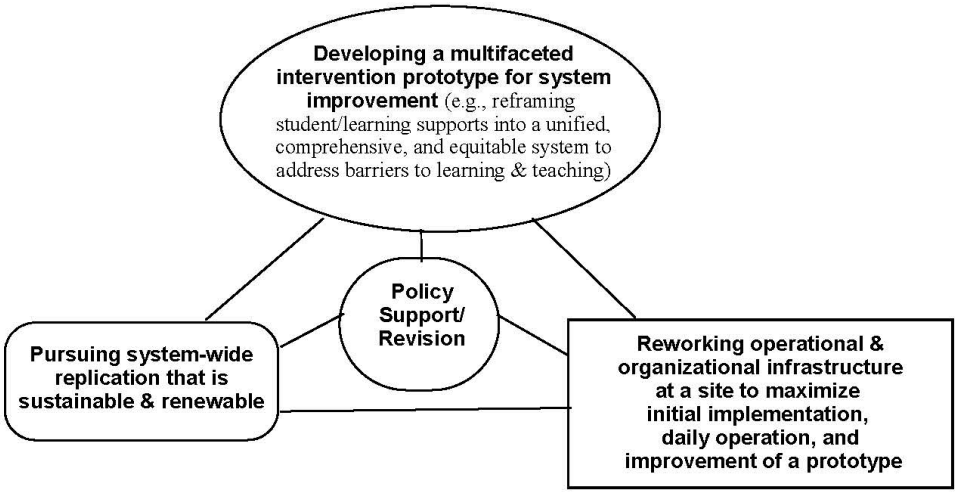
- Developing a multifaceted intervention prototype for system improvement
- Reworking operational and organizational infrastructure at a site to maximize initial implementation, daily operation, and improvement of a prototype
- Pursuing system-wide replication that is sustainable & renewable
- Policy support/revision.

Certainly, research and development (R&D) efforts can focus on any one of these four matters. However, because the four are interdependent, we find that progress is enhanced when they are pursued as a whole (see Exhibit IIA).

Our work began with building a prototype for the desired intervention. Implementation efforts started with dissemination and diffusion and providing adopters with guidance for organizing systemic change mechanisms. Effective initial implementation involved simultaneous attention to reworking the operational and organizational infrastructure for daily implementation. Replication to scale called for systemic change mechanisms empowered and resourced in ways that ensure essential capacity building for implementation and sustainability. Establishing efficacy and effectiveness was a constant concern. And we learned that policy support is essential throughout.

Exhibit IIA

Four fundamental and interrelated sets of R&D considerations in making multifaceted, complex, and sustainable systemic changes*



*People, of course, are a critical element in all facets of systemic change. Implementation practices must address the range of individual differences in stakeholders' motivation and capability.

Additionally, because of the overemphasis on using extrinsic reinforcers in all aspects of efforts to improve schools, we find it essential to re-introduce a focus on intrinsic motivation related to all four concerns.

Part II describes our efforts related to all four sets of intervention considerations as we have worked toward transforming how schools provide student/learning supports.

Chapter 3 introduces our approach to pursuing systemwide replication, sustainability, and renewal (e.g., establishing change agent mechanisms, framing the phases, steps, and tasks involved in "getting from here to there" in terms of system-wide replication and with appropriate recognition of the challenges). Michael Fullan has stressed that effective systemic change requires leadership that "motivates people to take on the complexities and anxieties of difficult change." We add that such leadership also must develop a refined understanding of how to facilitate and sustain difficult systemic change. Our work underscores that successful systemic transformation in established institutions requires organized and effective facilitation, especially when change is to take place at multiple sites and at several levels. We share lessons learned related to the need to (a) overcome stakeholder negative reactions, (b) enhance motivation for and commitment to proposed changes, and (c) build capacity for effective implementation. With respect to addressing negative reactions and enhancing motivation, we have observed an overemphasis on using extrinsic reinforcers in all aspects of efforts

to improve schools. We note again that research related to intrinsic motivation indicates how overeliance on extrinsics can be counterproductive.

Chapter 4 focuses on reworking the operational and organizational infrastructure at a site to support initial and ongoing daily implementation and improvement. Our work emphasizes that successful implementation and sustainability of complex, multifaceted interventions is dependent on the ways system leaders, leadership teams, and standing and ad hoc workgroups are organized to work together. In this chapter, we explore ways to rework operational infrastructures for initial and ongoing implementation.

Chapter 5 underscores the importance of school, home, and community collaboration. It stresses weaving school and community resources together to fill critical gaps in the system of student/learning supports. To these ends, the emphasis is on schools outreaching to a wide range of community resources and developing an operational infrastructure that supports effective collaboration.

Chapter 6 highlights (1) the concept of intervention evaluation and (2) the need to reframe school accountability evaluations. The chapter underscores the critical role evaluation plays in assessing intended intervention activity, in advancing basic knowledge about intervention, and as a basic tool for elevating priorities for addressing barriers to learning and teaching. It also emphasizes concerns about the limitations and misuses of evaluation data.

All of the above require policy support. And, in this connection, our analyses indicate the need for an expanded framework for school improvement policy.

CHAPTER 3

About Large-Scale Replication and Major Systemic Change

We were rather unprepared when we began pursuing implementation of the prototypes we had developed at multiple school sites and district-wide. The unfortunate reality was that our training had never prepared us for the complexities of facilitating major systemic changes in institutions and organizations. So we dived into the literatures on organization change, implementation science, and school improvement science. We garnered a great deal from what has been published, and we think our work over the years has something to add. We continue to wrestle with all this; what follows is a progress report and lessons learned from our efforts.

Conceptualizing the Work

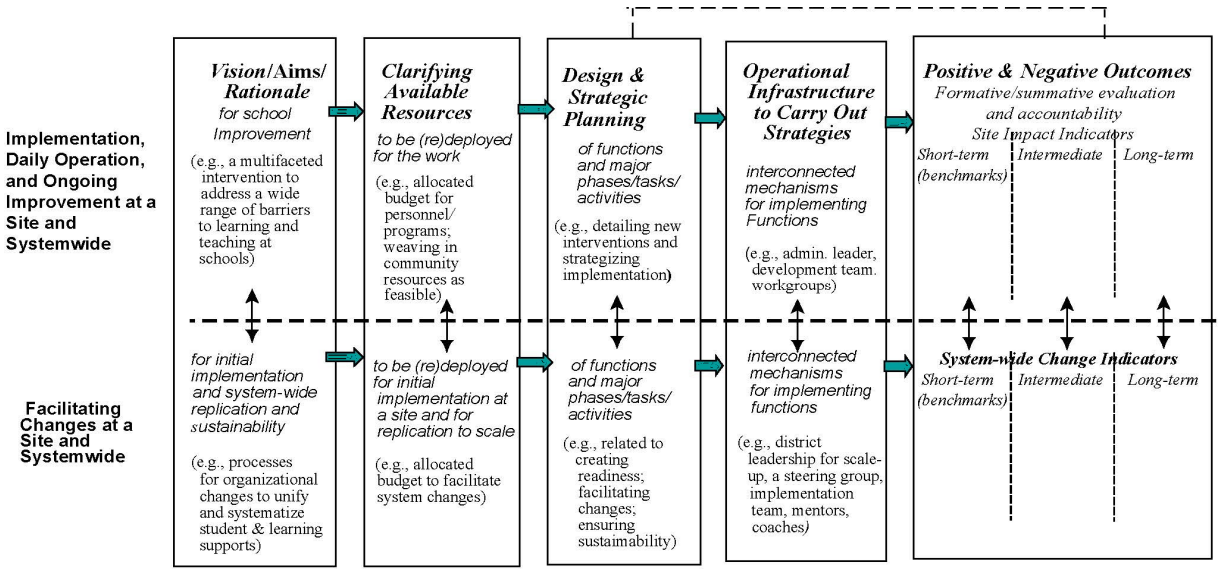
For us, system change begins with a vision and rationale and an implementation logic model.

Logic Model

As a planning guide, we use the logic model illustrated in Exhibit 3-1. It stresses the importance of attending to both (1) daily implementation and (2) facilitation of systemic changes.

Exhibit 3-1

Linking Logical Steps for Implementation at a Site and System-wide



Accomplishing substantive and sustainable transformation requires planning both direct implementation and facilitation of systemic changes. Too often, most attention is given to strategic and action plans for direct implementation, with the necessity of *facilitating systemic changes* given short shrift.

At the same time, we hasten to acknowledge that plans rarely play out in a linear manner and problems constantly arise.

In our analyses of implementation plans, we found few that anticipated common problems associated with making complex systemic changes. Of note, we identified failure to give sufficient strategic attention and time to the following matters:

- underwriting and establishing an effective systemic change operational infrastructure
- overcoming stakeholder negative reactions to proposed changes
- creating readiness and commitment (enhancing motivation and capability) among a critical mass of key stakeholders in a setting where changes are to be introduced
- developing a clear design document to communicate and guide the work
- developing a multi-year strategic plan
- ensuring policy for making necessary changes is instituted as a high priority
- reworking an organization's daily operational infrastructure to support development and sustainability of the changes

Phases of Major Systemic Changes

Adding to the logic model, a common conceptual starting point for systemic change efforts is to formulate implementation stages/phases. For example, Rogers delineated five diffusion steps/stages (i.e., knowledge, persuasion, decision, implementation, and confirmation).[1] Magnabosco formulated three phases in her research on implementation of evidence-based practices (i.e.,pre-implementation, initial implementation, and sustainability planning).[2] The State Implementation and Scaling-up of Evidence-based Practices Center outlines four stages, namely exploration, installation, initial implementation, full implementation, and stresses that sustainability is an active focus during every stage.[3] In the 2020 *Handbook on Implementation Science*, the emphasis also is on four stages: exploration, preparation, implementation and sustainment labeled the (EPIS) framework.[4]

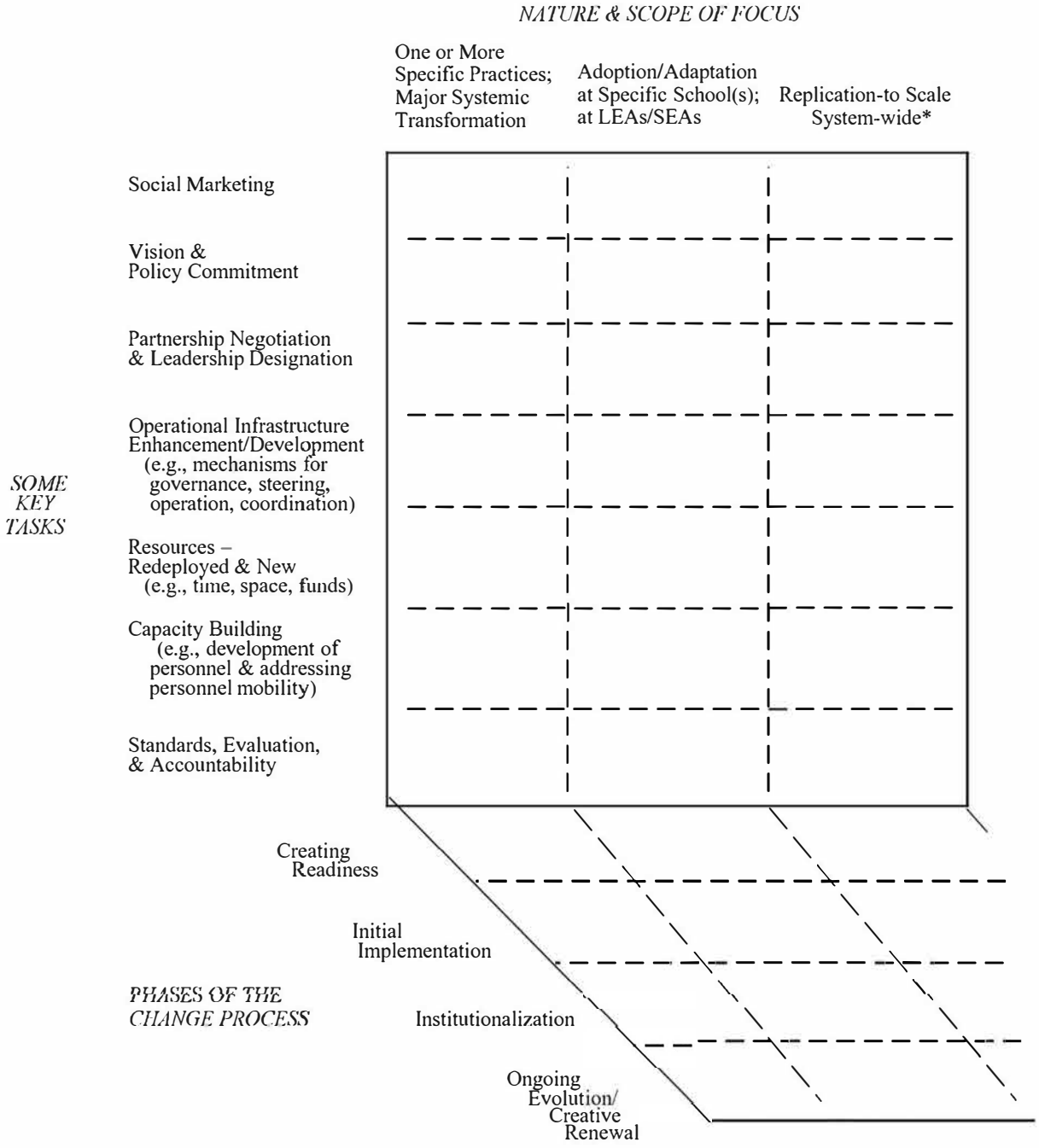
In our work, we formulate four overlapping phases of systemic change:

- *creating readiness*, *commitment, and engagement* – increasing a climate/culture for change through enhancing the motivation and capability of a critical mass of stakeholders and generating memoranda of agreements, policy decisions, a design document, and strategic and action plans
- *initial implementation* – introducing and phasing in changes using a well-designed facilitative operational infrastructure to provide guidance and support
- *institutionalization* – ensuring that policy guidelines and a daily operational infrastructure for maintaining and enhancing productive changes are fully integrated into long-term strategic plans, guidance documents, and capacity building
- *ongoing renewal and evolution* – providing for continuous quality improvement and ongoing support in ways that enable stakeholders to become a community of learners who creatively pursue renewal

Each phase encompasses a range of implementation tasks (see Exhibit 3-2). Of course, adaptations are made to account for differences in the nature and scope of the work at hand.

Exhibit 3-2

Phases and Tasks Related to Direct Implementation and Facilitating Systemic Changes



Exhibits 3-1 and 3-2 highlight matters that shaped our efforts to implement improvements in how schools play a role in addressing learning, behavior, and emotional problems. We encountered each of these concerns at state, regional, district, and school site levels and learned about the difficulties in pursuing them. And, unfortunately, as noted, we frequently found our professional preparation lacking.[5] For example, we knew little about social marketing and capacity building for system change.

Among the many lessons learned were the ways in which transformation effectiveness requires redeploying and generating additional resources. We learned how necessary it is to have a major policy commitment and formal partnership agreements that are in keeping with the vision for desired changes. With respect to building capacity, we found that time for personnel development usually was too limited and few strategies were in place for addressing the reality that personnel leave and newcomers appear with regularity. We found processes for quality improvement (e.g., formative evaluation), impact evaluation, and accountability called for establishing standards and related indicators that are *directly* relevant to the intended systemic changes. And, we found that effective systemic change required a fuller set of *transitional* mechanisms than we initially thought.

Transitional Operational Infrastructure for Accomplishing Systemic Change

Effectively carrying out system change functions requires strong leadership and an appropriately designed set of operational infrastructure mechanisms. For transformative changes, the mechanisms require staff who fully understand the vision and are well prepared to facilitate relevant system modifications.

We started with a facilitator for system change and a leadership team.[6] Given our aim of transforming student/learning supports, our initial focus was on recruiting student support staff and training them to be change agents; we dubbed them Organization Facilitators. One of their first functions at a school and/or district level was to help form and train a leadership team as a key mechanism for developing and ensuring implementation of the transformed system. In our work with 24 schools in a district, we deployed a cadre of Organization Facilitators at a ratio of one for three schools.

Leadership teams at a school and at the district level are an essential operational infrastructure mechanism dedicated to facilitating, guiding, and supporting essential changes. They include an administrative leader for student/learning supports and relevant staff who learn to be catalysts and managers of change, are committed each day to ensuring effective systemic changes, and who have enough time and ability to attend to details. The intent is to do all this in ways that enhance empowerment, a sense of community, and general readiness and commitment to the new approach. After initial implementation, the team and workgroups take on functions essential to maintenance and renewal of system improvements.

Team members help develop linkages among resources, facilitate redesign of regular operational infrastructure mechanisms, and establish workgroups to carry out specific tasks as needed. They also are problem solvers – not only responding as problems arise but taking a proactive stance by designing strategies to counter anticipated barriers to change, such as negative reactions and dynamics, common factors interfering with working relationships, and system deficiencies. A basic concern is ensuring the essential elements of a new approach are implemented in ways true to the vision and compatible with the local culture.

Proposed operational infrastructure to facilitate systemic changes. Over time, we learned that for an Organization Facilitator and Leadership Team to succeed, additional transitional mechanisms were needed, such as a steering group, a planning and implementation team, and external and internal coaches. Based on the organization change literature and our experiences, we have proposed these mechanisms be conceived as an operational infrastructure for system changes (see Exhibit 3-3). This is a temporary infrastructure put in place until the transformation is successfully made.

Effectively establishing the proposed infrastructure requires ensuring enough resources are devoted to developing the mechanisms and building their capacity to carry out a multi-year strategic plan. Such mechanisms and their functions must be customized with respect to differences at state, regional, district, and school levels and differences within regions, districts, and schools. Such customization is done to ensure that capability for accomplishing major tasks is not undermined (e.g., special attention is given to ensuring these mechanisms are not created as an added and incidental assignment for staff).

Establishing the transitional infrastructure for systemic change can be an essential task for an Organization Facilitator and others coaching and guiding the work. The focus is on

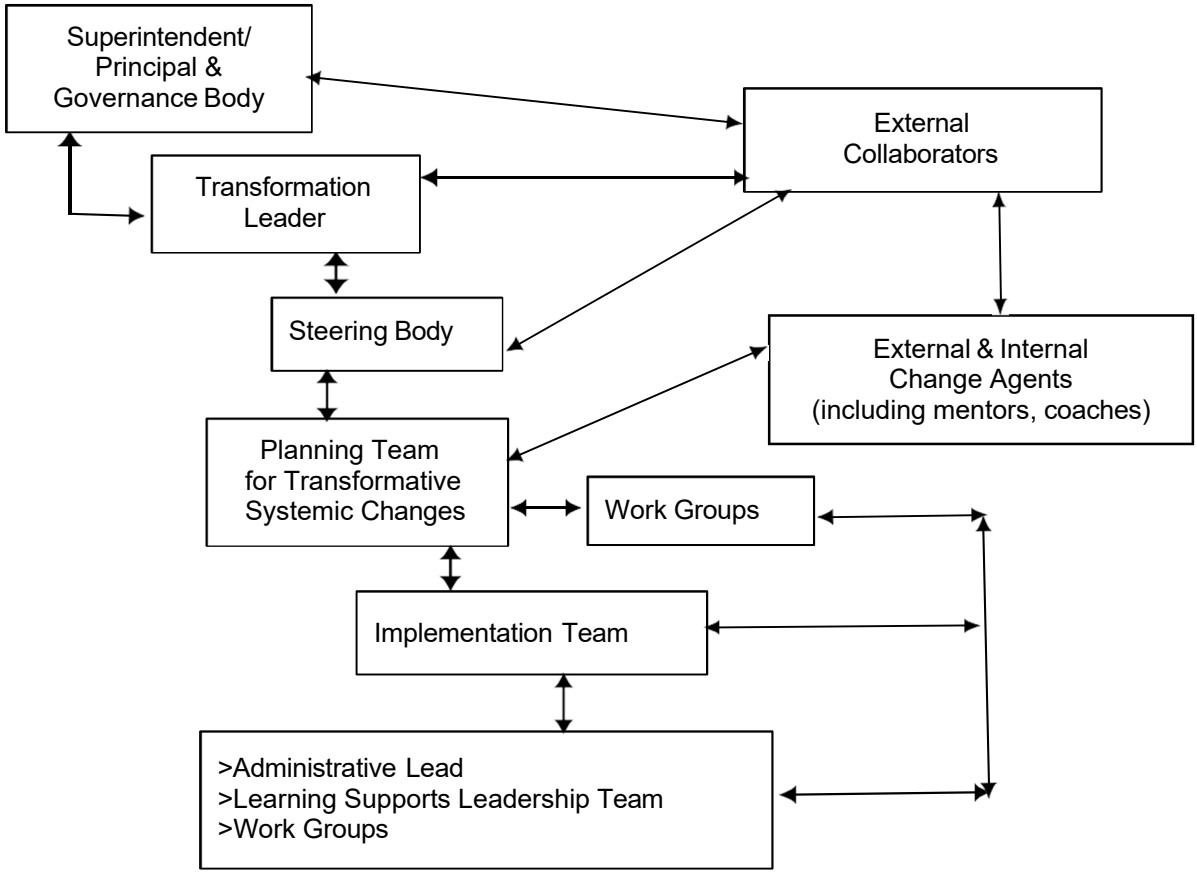
- enlisting a broad enough range of key leaders and staff (e.g., leaders from all facets working on school improvement; a staff member with data/evaluation expertise); some staff member may be part of several of the mechanisms
- ensuring that all involved understand each mechanism's functions and interrelationship
- providing the type of capacity building that ensures members are well-equipped to phase in, continue development, and sustain essential tasks
- assisting in development of clear action plans.

In observing efforts to transform schools, we rarely find an operational infrastructure for facilitating implementation in place. More characteristically, ad hoc mechanisms (e.g., a coach, an implementation team) have been set in motion with personnel who may not have sufficient training related to systemic change. It is common to find individuals and teams operating without clear understanding of functions and major tasks. Therefore, at the onset, it is essential to build the capacity of those staffing the infrastructure.

During initial implementation, we found that the need for mentors and coaches was acute. Inevitably new ideas, roles, and functions require a variety of stakeholder development activities. An Organization Facilitator is among the first providing mentorship. The Leadership Team also can identify mentors already at schools and others in the district who have relevant expertise. To expand the local pool, other stakeholders can usually be identified and recruited as volunteers to offer peer support. A regularly accessible cadre of mentors and coaches is an indispensable resource in responding to stakeholders' daily calls for help. (Ultimately, every stakeholder is a potential mentor or coach for somebody.) In most cases, the pool may need periodic augmentation with specially contracted coaches.

Exhibit 3-3

Proposed Transitional Infrastructure to Facilitate Transformation



Some Lessons Learned in the Field

For us, the system change process began with preparing and disseminating a document that detailed the intervention prototype as a basis for interchange with decision makers. Based on feedback, appropriate design modifications were made, and decisions to proceed were turned into an initial memorandum of understanding. Then, multi-year strategic and action plans were formulated and some resources allocated to facilitate implementation. As the work unfolded, here are a few of the critical lessons we learned and that continue to shaped our efforts related to large-scale replication and major systemic change.

About Building Relationships

At the outset, we often were told that system change is "all about relationships." Relationships certainly are important. But we soon learned that it is essential to distinguish the difference between just building a few good *personal* relationships as contrasted with developing an extensive network of productive *working* relationships.

Making fundamental and sustained system changes requires developing effective *working relationships* among a critical mass of stakeholders (many of whom won't be interested in a personal relationship with everyone with whom they work). Good working relationships emerge from the way those carrying out tasks learn to work together from the outset and how well the work is supported and guided. From the perspective of intrinsic motivation theory, their work together must be facilitated in ways that enhance feelings of competence, self- determination, and connectedness with and commitment to each other.

A Few Comments About What We Experienced

At every level, we found that developing effective working relationships among a critical mass of stakeholders required that coaches and mentors understand factors that build such relationships and factors that cause problems.

Re. staff who are resistant to change. Some view the work as a distraction from and/or a competition with their current job descriptions. To the degree feasible, we find it useful to make continuous efforts to reach out and include in work groups those who are resistant to the transformation and who are reluctant to give up protecting their turf.

Attention to Creating Readiness

We consistently encountered situations where implementation was pursued too quickly. This didn't allow enough time for capacity building and stakeholder preparation. In general, we have extracted the following points from the literature as most relevant to enhancing readiness for change:

- a high level of policy commitment that is translated into appropriate resources, including leadership, space, budget, and time;
- incentives for change, such as intrinsically valued outcomes, expectations for success, recognition, and rewards;
- procedural options from which those expected to implement change can select those they see as workable;
- a willingness to establish mechanisms and processes that facilitate change, such as a governance mechanism that adopts ways to empower stakeholders, enhance their sense of community, and improve organizational health;*
- use of change agents who are perceived as pragmatic – maintaining ideals while embracing practical solutions;
- accomplishing change in stages and with realistic timelines;
- providing progress feedback;
- institutionalizing mechanisms to maintain and evolve changes and to generate periodic renewal.

*As already noted, empowerment is a multi-faceted concept. Theoreticians distinguish "power over" from "power to" and "power from." *Power over* involves explicit or implicit dominance over others and events; *power to* is seen as increased opportunities to act; *power from* implies ability to resist the power of others.

A Few Comments About What We Experienced

Because of the complexity of dissemination, in almost every instance we found that initial introductory presentations were only partially understood, and this interfered with creating informed readiness. We now stress that planning for creating personnel readiness must account for a variety of strategies to deepen understanding and counter misinterpretations of intended changes. It is essential to do this early to minimize the problems that arise from uninformed "grape vine" gossip. Of particular importance is ensuring understanding and commitment to the essential elements that must be implemented and sustained if there is to be substantive rather than cosmetic change. Furthermore, given the inevitability of staff changes, it is essential to plan a process for bringing newcomers up to speed.

About A Design Document

We learned early that development of a design document is key to communicating and guiding the work at state and local levels. It should be noted that stakeholders played a major role in guiding design preparation and offering feedback to ensure essential facets of the prototype were not lost.

>See the state department examples developed in Alabama, Louisiana, and Iowa
http://smhp.psych.ucla.edu/summit2002/trailblazing.htm

>For an example of work at the district level, see Gainesville (GA) City School District's overview and the case study
http://smhp.psych.ucla.edu/pdfdocs/wheresithappening/gainesvillebroch.pdf
http://smhp.psych.ucla.edu/pdfdocs/casestudy.pdf

As can be seen in the design document examples, organizations adopt and also adapt prototypes to account for situational opportunities, strengths, and limitations.

Based on our experiences in pursuing transformative systemic changes for addressing barriers to learning and teaching, we suggest that a design document articulate

- *the imperative* for the proposed transformative changes
- *policy changes* that ensure the intended transformation is not marginalized (e.g., that policy explicitly supports, at a high priority level, the development and sustainability of the impending changes)
- a prototype *intervention framework* (e.g., that illustrates the nature and scope of a unified, comprehensive, and equitable system of student and learning supports
- a prototype of an *organizational and operational infrastructure* (e.g., that illustrates how existing mechanisms can be reworked to support and sustain the transformation)

A Few Comments About What We Experienced

Not surprisingly, as a prototype design is considered by adopters, modifications are proposed and disagreements arise. We learned that it was essential for us as the prototype developers to be at design adaptation decision making tables to help with adaptations and ensure that essential elements of the design were not eliminated or changed in ways that would interfere with effectiveness and sustainability.

About Incorporating the Work into Existing Multi-year Strategic Plans

Strategic and yearly action planning are key to effective implementation, sustainability, and replication to scale of any major transformation. In our work, strategic planning was the systematic process that translated desired improvements into (a) a broad set of goals or objectives and (b) a sequence of strategic activity to accomplish the major phases and tasks involved in achieving the transformation design. The planning spelled out an answer to: *How do we get from here to there?*

In general, such a plan

(1) provides an *overview* of how the intended transformation will be pursued,
(2) conveys a *detailed plan for initial direct implementation and its facilitation* (with an emphasis on strategies that anticipate sustainability, renewal, summative evaluation and accountability),
(3) delineates strategic approaches to each key facet of facilitating implementation, such as establishing a transitional operational change infrastructure, capacity building, and formative evaluation.

The multi-year plan stresses objectives, steps, and tasks to be accomplished during each phase of systemic change and the general strategies for accomplishing them. The plan must account for implementing the prototype in a given setting and facilitating prototype replication and scale-up. A multi-year plan is essential because implementing and scaling-up a school plan that includes developing a unified, comprehensive, and equitable system of learning supports requires strategically *phased-in* change over several years. The strategic plan is the basis for specific action planning.

As an example, we have developed a *General Guide for Strategic Planning Related to Developing a Unified and Comprehensive System of Learning Supports*
http://smhp.psych.ucla.edu/pdfdocs/genguide.pdf

A Few Comments About What We Experienced

When we arrived at a school and reviewed its strategic plan, we found most marginalized student/learning supports, and there were inequities in the way districts aided the existing efforts. If we weren't successful with elevating the work in improvement policy, there was little opportunity to have the design for system changes fully incorporated into plans.

With respect to proposed changes, we found that strategic and action plans often didn't account for situational opportunities, strengths, and limitations or address matters commonly raised by those who are reluctant or resistant to making changes. For example, we usually hear it argued that there is no money for the work we propose. Effective responses to such challenges are essential to ensuring that the work is not undermined. (For example, our response with respect to the financial argument is that, for many LEAs and schools, it appears that about 25% of the budget is being expended to address barriers to learning and teaching. Strategic planning focuses on redeploying such resources and using them in ways that benefit from economies of scale.)

As the work proceeds, continuous monitoring deepens understanding of what is needed for success, and inevitably we find it essential to revise initial agreements and procedures.

About Ensuring Policy that Facilitates Sustainable Transformation

Over and over, we have found that our efforts to transform schools not only required expanded school improvement policy, but policy that is translated into clear guidelines for effective development, scale-up, **and** sustainability. And sufficient resources must be allocated. Needed guidelines include delineating the nature and scope of systemic changes, essential mechanisms for getting from here to there and for sustainability, and accountability mandates.

With a view to enhancing equity of opportunity, guidelines also should emphasize a priority focus on strengthening interventions and fill critical gaps at the neediest schools. And as we have stressed, policy should specify weaving together school and community resources allocated for student and learning supports.

With respect to accountability (a fundamental driver of policy), our efforts to transform student/learning supports called for an expanded accountability framework and standards for a learning supports component (see Chapter 6).

A Few Comments About What We Experienced

Our work was undermined by frequent leadership changes (e.g., superintendents, principals, other key stakeholders). This underscores that the necessity for *policy* that ensures not only effective implementation, but also sustainability of improvements Sustainability requires institutionalizing procedures that survive personnel changes and effectively bring new arrivals up to speed.

We also found that policy that just established pilots/demonstrations tended not to delineate a commitment to replication and sustainability. This created a mind set among stakeholders that the work was a temporary project (e.g., "It will end in three years or when this superintendent/principal leaves."). The literature refers to this as "project mentality" (sometimes referred to as "projectitis").This mind set can lead to a general view that the work doesn't warrant serious engagement. The history of schools is strewn with valuable innovations that were not sustained.

The current trend in improving student/learning supports involves tinkering in ways that result in limited changes that don't make a dent in reducing the opportunity and achievement gaps. Schools need a unified, comprehensive, and equitable system of student/learning supports that embeds a focus on a full range of mental health, psychosocial, and educational concerns. To enable such a major system change, school improvement policy must expand from a two- to a three-component framework and ensure that all three are fully integrated and pursued as primary components at schools. Ultimately, accomplishing this will require a major reworking of the operational infrastructure at all levels.

While major systemic changes are difficult to accomplish, not meeting the challenge maintains an unsatisfactory status quo. For the title of the *Every Student Succeeds Act* (ESSA) to be more than aspirational, equity of opportunity for student and school success must be enhanced. From this perspective we stress that equity of opportunity is fundamental to enabling civil rights and that transforming student and learning supports is fundamental to promoting whole child development, advancing social justice, and enhancing learning and a positive school climate.

[1] E.M. Rogers, (2003). *The diffusion of innovations,* fifth edition. New York: The Free Press.

[2] J.L. Magnabosco (2006). Innovations in mental health services implementation: a report on state-level data from the U.S. Evidence-Based Practices Project. *Implementation Science, 1.* https://doi.org/10.1186/1748-5908-1-13

[3] State Implementation and Scaling-up of Evidence-based Practices Center. https://sisep.fpg.unc.edu/

[4] P. Nilsen & S.A. Birken (Authors, Editors) (2020). *Handbook on Implementation Science.* Edward Elgar Pub.

[5] H.S. Adelman, & L. Taylor (1997). Toward a scale-up model for replicating new approaches to schooling. *Journal of Educational and Psychological Consultation, 8,* 197-230. http://smhp.psych.ucla.edu/publications/06%20toward%20a%20scale%20up%20model%20for%20replicating%20new%20approaches.pdf

H.S. Adelman, & L. Taylor (2003). On sustainability of project innovations as systemic change. *Journal of Educational Psychological Consultation, 14*, 1-25. http://smhp.psych.ucla.edu/publications/45 on sustainability of project innovations as systemic change.pdf

H.S. Adelman, & L. Taylor, (2007). Systemic Change and School Improvement. *Journal of Educational and Psychological Consultation, 17*, 55-77. http://smhp.psych.ucla.edu/publications/systemic change for school improvement.pdf

H.S. Adelman & Taylor, L. (2008). School improvement: A systemic view of what's missing and what to do about it. In B. Despres (Ed.), *Systems thinkers in action: A field guide for effective change leadership in education.* Rowman & Littlefield Education. http://smhp.psych.ucla.edu/publications/school%20improvement%20a%20systemic%20view%20of%20whats%20missing.pdf

Center for Mental Health in Schools. (2008). *New initiatives: Considerations related to planning, implementing, sustaining, and going-to-scale*. http://smhp.psych.ucla.edu/pdfdocs/briefs/sustainbrief.pdf

Center for Mental Health in Schools. (2013). *Implementation science and innovative transformation of schools and communities.* http://smhp.psych.ucla.edu/pdfdocs/implement.pdf

Center for Mental Health in Schools. (2014) *Bringing New Prototypes into Practice: Dissemination, Implementation, and Facilitating Transformation* https://smhp.psych.ucla.edu/pdfdocs/implrep3.pdf

L. Taylor, P. Nelson,& H.S. Adelman (1999). Scaling-up reforms across a school district. *Reading and Writing Quarterly, 15,* 303-326. https://smhp.psych.ucla.edu/publications/21 scaling-up reforms across a school.pdf

[6] Center for Mental Health in Schools. (2011 rev). *Organization Facilitators: A Key Change Agent for Systemic School and Community Changes*. https://smhp.psych.ucla.edu/pdfdocs/report/orgfacrep.pdf

L. Rosenblum, M.B. DiCecco, L. Taylor, & H.S. Adelman (1995). Upgrading school support programs through collaboration: Resource Coordinating Teams. *Social Work in Education, 17,* 117-124. http://smhp.psych.ucla.edu/publications/upgrading school support programs through collaboration tesource coordinating teams.pdf

CODA

About Essential Elements

While reasonable adaptation of school improvements to fit localities is wise and inevitable, care must be taken not to eliminate elements that are essential to accomplishing desired improvements. An unfortunate tendency is for some places to adopt the terminology and not the substance of intended improvements.

To counter this problem in our work, we designate five essential elements that should be evident in any SEA, LEA, and school that indicates it is developing our approach to transforming student/learning supports. They are:

(1) Supportive policy –We stress that transforming student/learning supports requires elevating policy priority for the work so that the efforts are a primary and essential component of school improvement. (While we stress formally moving to a three component policy for school improvement, most schools can move forward once the district has approved desired changes.)

Note: We find that a *design document* and *strategic plan* provide guidance for ensuring policy is pursued with fidelity and must be fully integrated with strategic plans for improving instruction and management at schools. (Examples of policy statements, design documents, and strategic plans are provided in the Center's *System Change Toolkit*.)

(2) A framework that fully delineates the intervention changes – For example, we detail a unified, comprehensive, and equitable intervention framework that combines (a) a continuum of school and community interventions (that goes well beyond what is typically presented by a simple MTSS framework) and (b) an organized set of support domains. (see example at **https://smhp.psych.ucla.edu/pdfdocs/systemic/towardnextstep.pdf**

(3) An operational infrastructure that supports the improvements – See Chapter 4.

(4) Continuous capacity building (especially professional development) – Capacity building plans and their implementation must include a specific focus on the improvements. Professional development must provide on-the-job opportunities and special times focused specifically on enhancing the capability of those directly involved. Professional development of teachers, administrators, other staff and volunteers, and community stakeholders must also include an emphasis on learning about how best to promote and foster the improvements. (Examples of capacity building resources are provided in the ***Center's System Change Toolkit.***)

(5) **Monitoring for improvement and accountability –** Formative evaluation provides continuous monitoring all factors that facilitate and hinder progress, The data then guide actions that deal with interfering factors and enhance facilitation. As significant progress is made, monitoring expands to evaluate the impact on student outcomes with specific reference to direct indicators of the effectiveness of improvements (e.g., increased attendance, reduced misbehavior, improved learning). For example, Chapter 6 highlights the need for an expanded accountability framework that emphasizes direct indicators of a unified, comprehensive, and equitable system of learning supports.

CHAPTER 4

Reworking Operational Infrastructures for Initial and Ongoing Implementation

Significantly improving schools requires not only a vision for what that entails, but a way to get there from here. And no one who understands the complexity of school improvement expects to do it easily.

Michael Fullan stresses that effective systemic change requires leadership that "motivates people to take on the complexities and anxieties of difficult change." We would add that such leadership also must develop a refined understanding of how to *facilitate* and *sustain* difficult systemic change. Moreover, the context for such leadership is an operational infrastructure that is designed to develop, implement, and sustain desired changes effectively. It is the mechanisms that constitute operational infrastructures that are critical drivers for system change.

> We often find that efforts to discuss operational infrastructure are met with eyes that glaze-over. However, the reality is that current operational infrastructures at all levels of education require major reworking.

The examples presented in this chapter stem from lessons learned in our work across the country focused on an essential but much neglected facet of school improvement (i.e., how schools address barriers to learning and teaching). The prototypes offered represent what we view as necessary for ensuring effective and empowered leadership and staffing for carrying out specific tasks related to providing improved student/learning supports on a daily basis and sustaining the changes. We suggest that the prototypes can be adapted for a variety of transformative school improvements.

Since planned improvements mean little if they don't play out at the school level, this chapter begins with a focus at that level. Then, based on analyses of what is needed to facilitate and enhance school level efforts, mechanisms are conceived that enable groups or "families" of schools to work together to increase efficiency and effectiveness and garner economies of scale. From this perspective, district level mechanisms are reconceived with a view to supporting each school and family of schools as they change and develop.

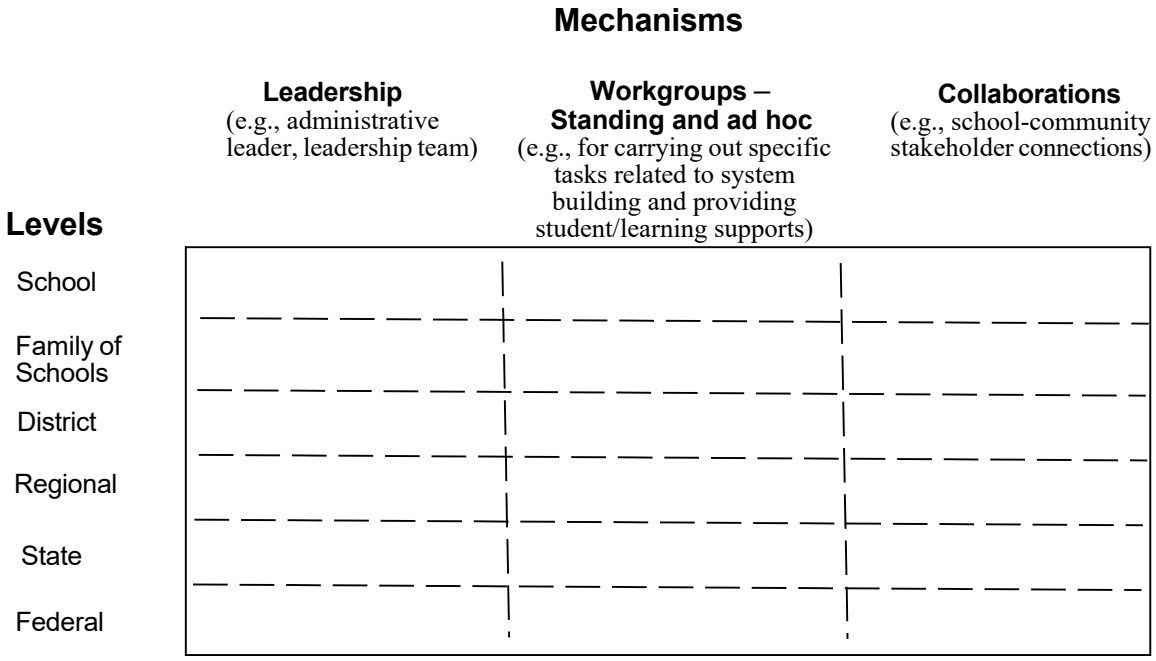
Appreciating Operational Mechanisms at All Levels

Exhibit 4-1 highlights the multiple levels involved in improving schools and key mechanisms that shape what happens. Rationally, operational infrastructures should be systemically connected at each level and among the various levels, especially when transformative changes are being implemented. And at all levels, productive school collaborations with surrounding community resources require a well-developed and institutionalized operational infrastructure.

As indicated, our focus in this chapter is on school, family of schools, and district levels. Extrapolating implications for reworking infrastructures at regional, state, and federal levels can readily be made. Chapter 5 discusses mechanism for school-community collaboration that enhance student/learning supports.

Exhibit 4-1

Multiple Levels and Key Mechanisms Involved in School Improvement



The three operational infrastructure prototype designs shared in this chapter were developed in response to implementation realities – some anticipated, some lessons learned. We knew at the outset that implementing major system changes at a school required reworking a school's operational infrastructure. Therefore, the first prototype we developed was for the school level.

As we worked with trailblazing schools, we learned that further system improvements could be garnered by connecting groups or "families" of schools (e.g., a complex/feeder pattern). This required developing *formal* mechanisms to facilitate a collaborative network.

It is commonly understood that systemic changes are best accomplished and sustained when substantively supported at the district level. And from our perspective, this is best accomplished when the district's operational infrastructure parallels the changes made to improve student/learning supports at schools. Since this was not the case in the participating districts, we sketched out what that would like and include it here.

We define *operational infrastructure* as the ways system leaders, leadership teams, and standing and ad hoc workgroups are organized to work together.

Structure Follows Function

In developing operational infrastructure prototypes, we follow the basic organization principle that *structure follows function.* Examples of school improvement functions are offered in Exhibit 4-2. Reworking the operational infrastructure with such functions in mind requires revamping staff job descriptions and enhancing the involvement of parents, students, and other representatives from the community.

Exhibit 4-2

Examples of School Improvement Functions

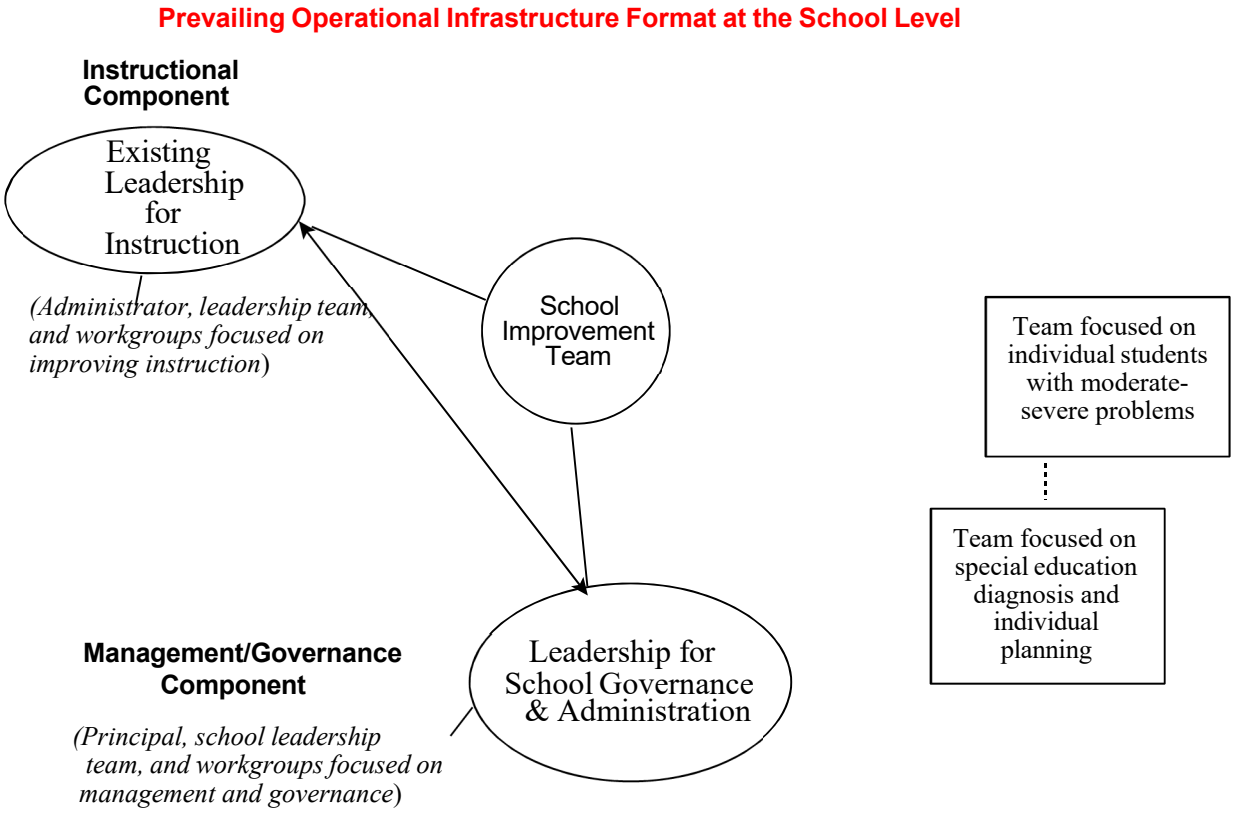
- Identifying what needs improvement based on analyses of student, staff, and other stakeholder data
- Mapping and analyzing school and community resources
- Decision making about priorities and cost-effective resource allocation and redeployment to strengthen promising approaches and developing new ones
- Creating formal working relationships with community resources to bring some to schools and establish special linkages with others
- Coordinating and integrating school resources and weaving in community resources
- Planning and facilitating ongoing capacity building to strengthen promising approaches and developing new ones
- Upgrading and modernizing all activities to reflect the best intervention thinking and use of technology
- Maximizing strategic planning, implementation, and oversight of changes
- Performing formative and summative evaluation of improvement efforts (e.g., capacity building, maintenance/sustainability of changes, and impact on students)
- Developing strategies for acquiring additional resources
- Planning and implementing social "marketing" related to improvements

Current School Infrastructure for Daily Operations and Ongoing Development – What's Missing?

In analyzing the infrastructure at most schools, we seldom find a designated administrator for improving student/learning supports. There are workgroups (e.g., teams) focused on crisis response, student reviews, and IEPs. Exhibit 4-3 illustrates what existing operational infrastructures tend to look like at the school level.

Because student and learning supports are so-marginalized, it is not surprising that the current operational infrastructure at schools reflects this state of affairs. As illustrated in the exhibit, we find that there is no leadership designated for all the student and learning supports interventions. Also note that the two work groups at schools that focus on students experiencing learning, behavior, and emotional problems mainly meet as teams to review and make decisions about providing special assistance and referrals and are only able to process a relatively few individuals. Ironically, the teams usually develop a perspective on the type of systemic improvements that could prevent problems and stem the tide of referrals. However, addressing these concerns is not one of their formal functions. And, in general, these work groups have little or no connection to discussions and decisions about school improvement needs.

Exhibit 4-3



Reworking Operational Infrastructure at the School Level

As we have suggested, ending the marginalization and fragmentation requires rethinking school improvement policy and practice as a three-component framework. Such a policy commitment calls for an operational infrastructure that effectively implements and continues to develop the Learning Supports Component each day and ensures that the component is fully integrated with the components for instruction and management/governance.

New Leadership Mechanisms. Improving how schools address barriers to learning and teaching and reengage disconnected students and families requires dedicated and empowered leadership mechanisms.[1] These mechanisms embody the vision for the work and are key to developing a unified, comprehensive, and equitable system of student/learning supports.

Examples of major leadership functions and tasks are:

- Aggregating data about all students to analyze school needs with respect to addressing barriers to learning and teaching and reengaging disconnected students
- Conceptualizing, developing, planning, and overseeing implementation, system improvement, sustainability, and renewal
- Mapping student and learning supports activity and resources (including personnel and budget) at the school and those working with the school from the community
- Analyzing resources and doing a gap and redundancy analysis using a comprehensive intervention framework that covers prevention and amelioration of problems
- Formulating priorities for system development (in keeping with the most pressing needs of the school)
- Recommending how resources should be deployed and redeployed to strengthen existing efforts, including filling gaps (e.g., clarifying which activities warrant continued support and suggesting better uses for nonproductive resources)
- Planning and facilitating systemic improvements
- Facilitating coordination and integration of school resources and connections with community resources and resolving turf and operational problems
- Establishing standing and ad hoc workgroups to carry out tasks involved in system development and providing student and family supports
- Performing formative and summative evaluation of system development, capacity building, maintenance, and outcomes (including expanding the school accountability framework to assess how well schools address barriers to learning and teaching and reengage disconnected students)
- "Social marketing" and developing strategies for enhancing resources

Note that the above activity expands the focus of student/learning supports from the current emphasis on a relatively few troubled and troubling individuals to a focus on the needs of all students. Also note that the work includes outreaching to the community to fill critical system gaps by weaving in human and financial resources from public and private sectors.

Key mechanisms for carrying out these functions are a designated administrative leader and a leadership team. Their responsibility and accountability is to (a) transform current marginalized and fragmented interventions into a unified, comprehensive, and equitable system of student and learning supports and (b) ensure the system is fully integrated as a primary and essential component of school improvement.

The administrative leader. Given that student/learning supports are coalesced into a primary and essential component at a school, it is imperative that the component has a designated administrative leader (e.g., an assistant principal, dean, or other leader who regularly sits at administrative and decision making tables). The job responsibilities and accountabilities encompass working with staff and community resources to develop, implement, maintain, and renew over time a full array of student/learning supports. Key functions include overseeing and guiding changes to facilitate system development in ways that not only coordinate and integrate, but move toward unifying all efforts to address barriers to learning and teaching and reengage disconnected individuals. Moreover, the work involves doing all this in ways that ensure full integration of the three components at the school.[2]

An early major task involves establishing a leadership team to develop and ensure capacity building for and sustainability of a unified, comprehensive, and equitable system of student and learning supports at the school. After establishing the team, the administrative lead is responsible for building team capability, facilitating meetings, overseeing progress, and maintaining its long-term functional integrity.

The leadership team. A first set of tasks for the component's leadership team involves pursuing the following functions:

- Mapping student and learning supports activity and resources (including personnel and budget) at the school and those working with the school from the community
- Analyzing resources and doing a gap and redundancy analysis using a comprehensive intervention framework that covers prevention and amelioration of problems
- Formulating priorities for system development (in keeping with the most pressing needs of the school)
- Recommending how resources should be deployed and redeployed to strengthen existing efforts, including filling gaps (e.g., clarifying which activities warrant continued support and suggesting better uses for nonproductive resources)[3]

The resource mapping and analyses provide a basis for reducing fragmentation, eliminating intervention redundancies, and increasing cost-efficacy.

Over time, the team's efforts focus on evolving the vision at the school for student and learning supports. The aims are not only to play a role in preventing and ameliorating learning, behavior, emotional, and health problems, but to contribute to classroom and schoolwide efforts to foster academic, social, emotional, and physical functioning and promote an increasingly positive school climate.

Where creation of "another team" is seen as a burden, existing teams, such as student or teacher assistance teams or a school crisis team, have demonstrated the ability to focus on system development by augmenting their membership and adding system concerns to the agenda. In small schools where there are so few staff that a large team is not feasible, the leadership team may consist of just a few persons.

The membership of the team depends on who is available (e.g., guidance counselor, school psychologist, nurse, social worker, attendance and dropout counselor, special education staff, after school program staff, bilingual and Title I program coordinator, health educator, representatives of any community agency that is significantly involved with the school). In addition to the administrative leader and student/learning support personnel, such a team is well-advised to add the energies and expertise of others (e.g., regular classroom teachers, a union representative, non-certificated staff, parents, older students). The larger the group, of course, the harder it is to find a meeting time and the longer each meeting tends to run. Nevertheless, we found that the value of broad stakeholder representation far outweighed these concerns.

For the team to function well, there must be a core of committed members who have or will acquire the ability to carry out identified functions and make the mechanism work. Because various activities at a school require the expertise of the same personnel, some individuals will necessarily have multiple commitments. The team must have a facilitator who is able to keep the members task-focused and productive. It also needs someone who records decisions and plans and, between meetings, reminds members of tasks they have agreed to do prior to the next meeting. Advanced technology (management systems, electronic bulletin boards and email, clearinghouses) can help facilitate communication, networking, planning, and so forth.

The team meets as needed. Frequency of meetings depends on ambition and time. Initially, this may mean once a week. Later, when meetings are scheduled for every 2-3 weeks, continuity and momentum are maintained through interim tasks performed by workgroups or individuals. Because some participants are at a school on a part-time basis, one of the problems that must be addressed is rescheduling personnel so that there is an overlapping time to meet. Of course, the reality is that not all team members will be able to attend every meeting, but a good approximation can be made, with steps taken to keep an absent member informed.[4]

Standing and ad hoc workgroups. Workgroups (often called committees and teams) are mechanisms for performing specific tasks. Standing workgroups can help develop and implement high priority schoolwide and classroom supports related to one or more domains of support. Student review and IEP teams are a continuing form of standing workgroups. Ad hoc workgroups are formed as needed to perform a designated short-term task, such as carrying out one of the leadership team's functions.

When we mention a Learning Supports Leadership Team, some school staff quickly respond: *We already have one!*

When we explore this with them, we usually find what they have is a *student case-oriented team* – that is, a team focused on individual students who are having problems. (Such a team may be called a student study team, student success team, student assistance team, teacher assistance team, and so forth.) A related team, of course, is the IEP team. The functions of student case-oiented teams include triage, referral, and care monitoring/ management, progress review and reassessment.

Clearly, an emphasis on specific students is warranted. However, as the primary focus associated with student and learning supports, this approach tends to sidetrack development and implementation of improvements at schools that can prevent many individual problems and help many more students.

So, we designate the *student case-oriented teams* as one type of standing work group and contrast them with standing and ad hoc workgroups that focus on the functions related to *system improvement*. This involves pursuing tasks related to developing and implementing schoolwide and classroom student/learning supports and ensuring they are implemented in a unified, comprehensive, and equitable manner.

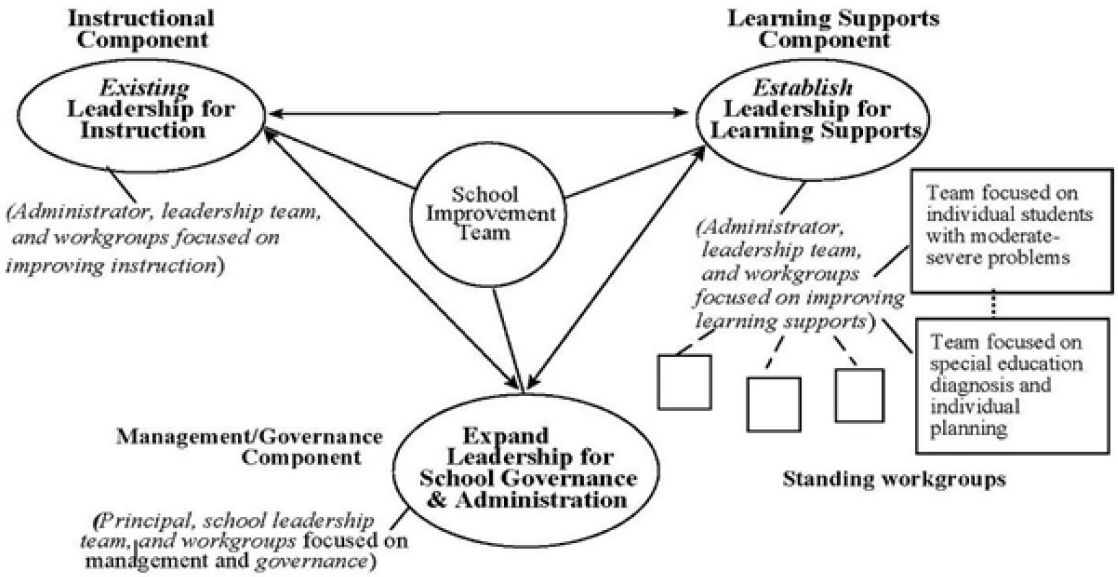
Prototype for an Integrated School Operational Infrastructure

A commitment to a three component school improvement policy calls for every school to rework its operational infrastructure. As illustrated in Exhibit 4-4, each of the three primary and essential components for school improvement requires (1) administrative leadership, (2) a leadership team to work with the leader on system development, and (3) standing and occasionally ad hoc workgroups to accomplish specific tasks.

To ensure the learning supports component is fully integrated with the other components, the leader for the instructional component and the newly established leader for the learning supports component also are members of the management/governance component. If a special team is assigned to work on school improvement, the leaders for all three components are on that team. The intent is for each component's administrative lead to be responsible and accountable not only for improving her/his component's performance but for fully weaving it together with the other two. To move school improvements forward, each component's resource mapping and analyses are shared and priorities, budget proposals, and strategic plans are developed.

Exhibit 4-4

Prototype for an Integrated Operational Infrastructure at the School Level*



Note: Each of the three primary and essential components for school improvement requires

- administrative leadership and other advocates/champions with responsibility and accountability for ensuring the vision for the component is not lost,
- a leadership team to work with the administrative lead on system development,
- standing workgroups with designated ongoing functions and occasional ad hoc workgroups to accomplish specific short-term tasks; the teams that currently focus on processing students referred for out-of-classroom assistance are identifed as two standing work groups.

*A parallel reworking should be done at the district level (see Exhibit 4-7).

Note that most schools already have an operational infrastructure that designates leadership and workgroups for improving instruction and management functions. This generally is not the case for a learning supports component. Without such mechanisms, we find that efforts to address barriers to learning and teaching and reengage disconnected individuals cannot operate as a primary and essential facet of school improvement.

Connecting a Complex or "Family" of Schools

Schools in the same geographic (catchment) area have shared concerns, and feeder schools often are interacting with students from the same family. All three components of school improvement can benefit when a "family" of schools works together.

For example, some programs and personnel are (or can be) shared by several neighboring schools, thus minimizing redundancy and reducing costs. This works for personnel development and enhancing other facets of each school's capacity. And

think about supporting transitions, responding to shared crises, and working with families who have youngsters attending more than one level of schooling in the same cluster. (When a family has several children in need of special attention, it is neither cost-effective nor sound practice for each school to work with the family separately.)

School leaders from a "family" of schools can establish a multi-site leadership council to help ensure cohesive and equitable deployment of resources and also can enhance the pooling of resources to reduce costs. Such a multi-site mechanism can enhance leadership, facilitate communication and connection, ensure quality improvement across sites, and facilitate ongoing development of the component for addressing barriers to learning and teaching. The mechanism can be particularly useful for integrating the efforts of high schools and their feeder middle and elementary schools (see Exhibit 4-5).

With respect to linking with community resources, a family of connected schools is especially attractive to community agencies who often don't have the time or personnel to link with individual schools.

Natural starting points for sharing include analyses of each school's needs assessment, resource mapping, and recommendations about priorities for system improvement. Specific attention is paid to how each school can work together on common concerns such as improving instruction, enhancing attendance, safe school plans, and reducing violent behavior.

As illustrated in Exhibit 4-5, the multi-site team or Leadership *Council* brings together representatives from each participating school's Leadership Teams to meet (e.g., once a month). The objectives are to

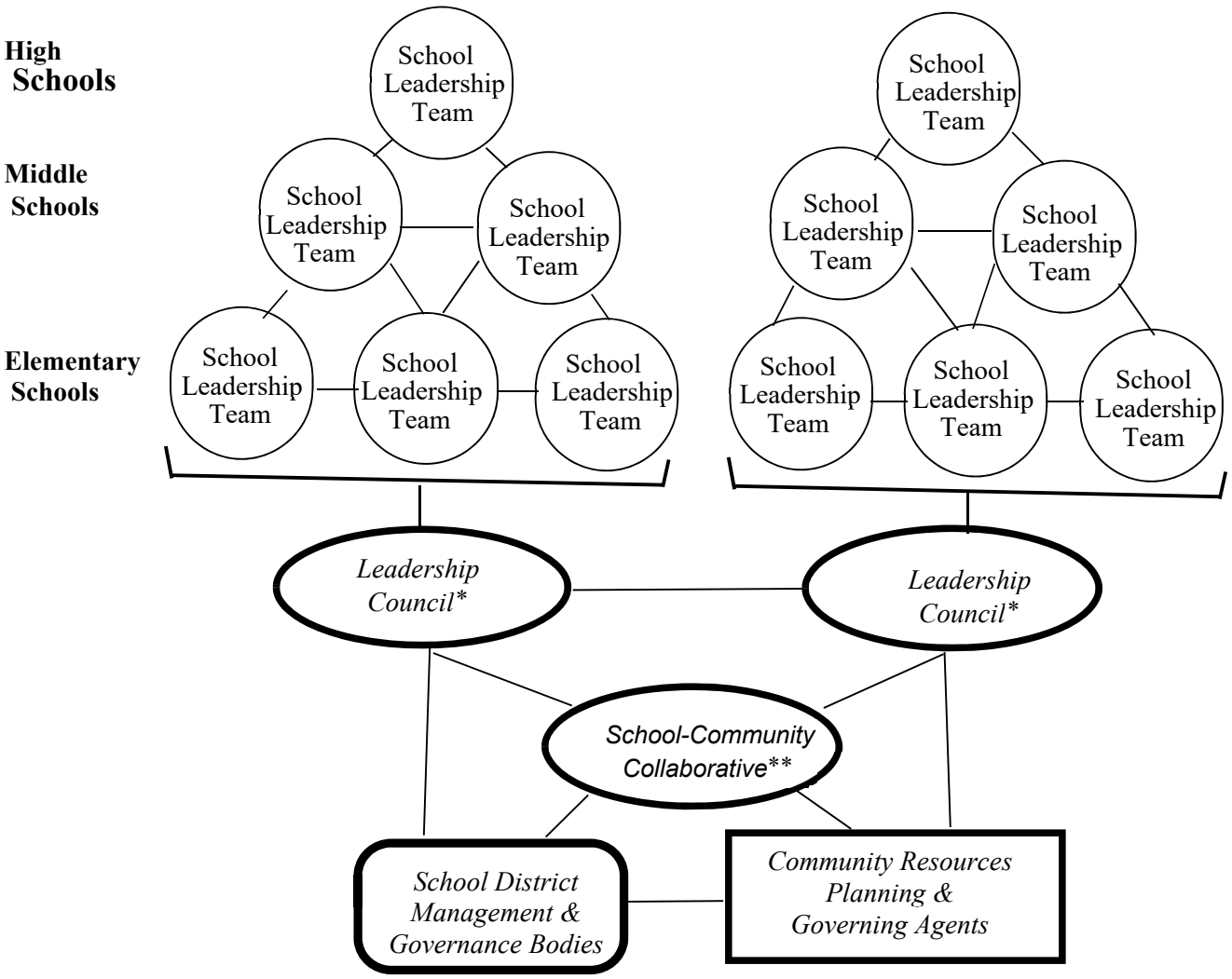
- identify and meet common needs with respect to mandates and other functions and personnel development
- create processes for communication, linkages, coordination, and collaboration among schools and with community resources (note: multi-school councils are especially attractive to community agencies lacking the time or personnel to link with each individual school)
- ensure cohesive and equitable deployment of resources
- weave together human and financial resources from public and private sectors and encourage the pooling of resources to minimize redundancy, reduce costs, and achieve economies of scale.

While all three components of school improvement can benefit from a multi-site council, if the schools are not ready to connect with a whole school focus, we recommend starting with the leadership for the learning supports component.

As we will discuss at the district level, partnering with community stakeholders to establish and institutionalize a school-community *collaborative* provides a mechanism for doing even more to ensure efficiency, effectiveness, and equity.

Exhibit 4-5

Connecting Resources Across Feeder Schools, a District, and Community-Wide



*A Leadership *Council* consists of representatives from each of the schools in a complex. It provides a mechanism for analyzing needs and resources at a family of schools and can enhance how resources are used and developed, achieve economies of scale, and improve outcomes. Councils also enable connections with and between district and community decision makers – again with an agenda of enhancing resources, garnering economies of scale, and whole school improvement.

**See Chapter 5.

A Prototype for Reworking District Operational Infrastructure

As with schools, most districts do not have a unified approach to student/learning supports and so a major step involves unifying such supports into a third primary and essential component. Exhibit 4-6 lays out a framework that parallels the revamped one at the school level to avoid a disconnect between the operational infrastructure at schools and at the district level.

The reworked mechanism means that the job description for the leaders of each component must be revised to reflect the new responsibilities and accountabilities. With respect to capacity building, special attention is paid to cross-component and cross-disciplinary training to broaden the perspective of personnel and enable them to work collaboratively on the improvement agenda for schools.

It is crucial that the leads for each component be established at a high enough level to ensure that each is always an active and influential participant at key planning and decision-making tables. Relatedly, all three components must be a regular part of the agenda at school board meetings.

Leadership teams for each component focus on system design and strategic planning for development and implementation across the district. For the learning supports component this involves the type of functions highlighted in Exhibit 4-2. To elaborate a bit:

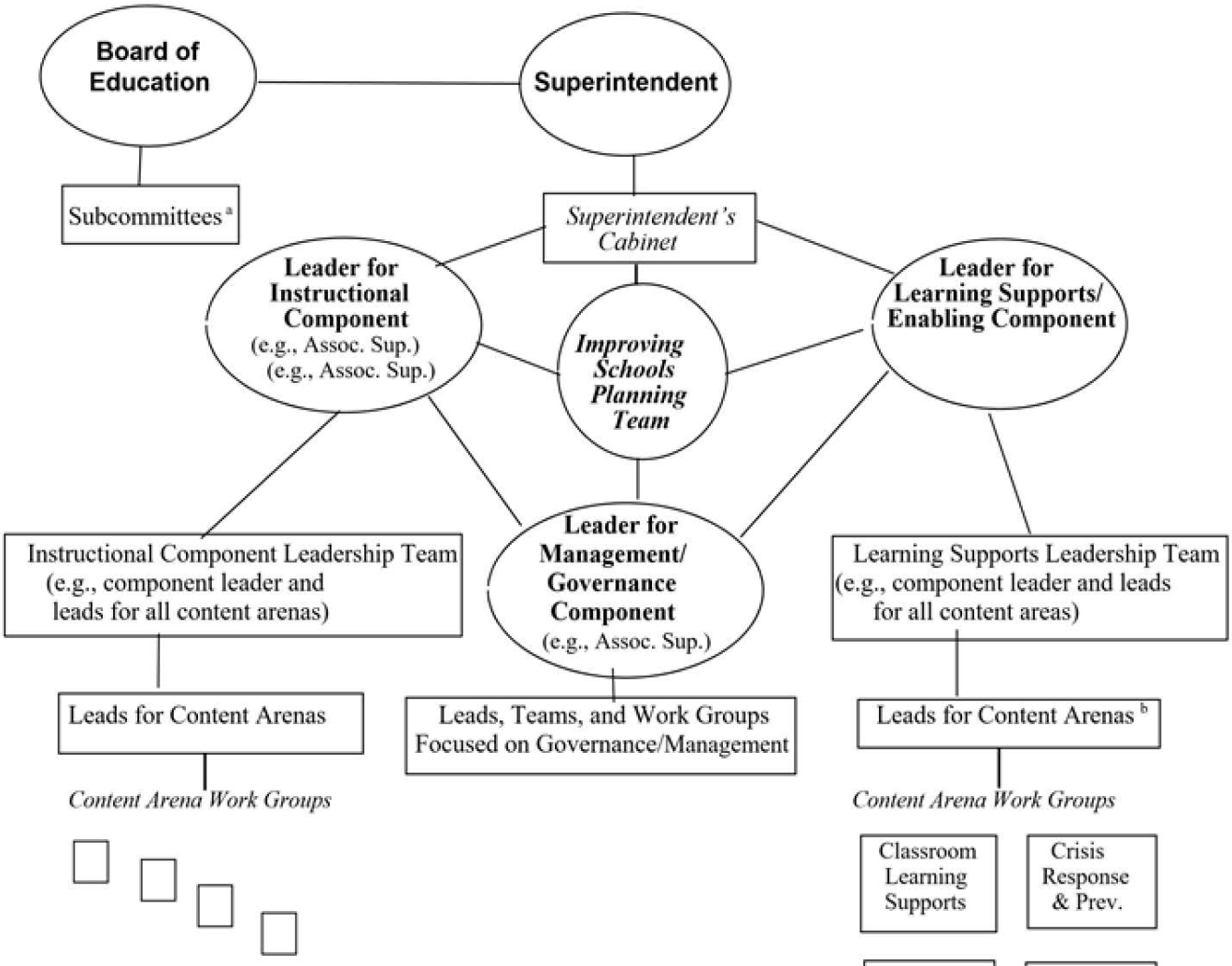
(1) The team's initial focus is on coalescing student and learning support resources at the district level. The resources of concern come from the general fund, compensatory education, special education, special projects, and community resource linkages to schools (e.g., student support personnel such as school psychologists, counselors, social workers, nurses; compensatory and special education staff; special initiatives, grants, and parent/family/ health centers; programs for afterschool, wellness, dropout prevention, attendance, drug abuse prevention, violence prevention, pregnancy prevention, volunteer assistance).

(2) On a daily basis, the team provides guidance, support, and capacity building to
- support the ongoing development of a unified, comprehensive, and equitable system of student and learning supports at schools
- connect families of schools
- facilitate connections between schools and community resources and stakeholders

The emphasis on transformational school improvement calls for capacity building attention that yields cross-component and cross-disciplinary understandings to broaden the perspective of personnel and enable them to work collaboratively on the improvement agenda for schools.

Exhibit 4-6

Prototype for Operational Infrastructure at the District Level



Notes:

[a] If there isn't one, a board subcommittee for learning supports should be created to ensure policy and supports for developing a comprehensive system of learning supports at every school(see Center documents **Restructuring Boards of *Education to Enhance Schools' Effectiveness in Addressing Barriers to Student Learning*** http://smhp.psych.ucla.edu/pdfdocs/boardrep.pdf and ***Example of a Formal Proposal for Moving in New Directions for Student Support*** http://smhp.psych.ucla.edu/pdfdocs/newdirections/exampleproposal.pdf

[b] All resources related to addressing barriers to learning and teaching (e.g., student support personnel, compensatory and special education staff and interventions, special initiatives, grants, and programs) are integrated into a refined set of major content arenas such as those indicated here. Leads are assigned for each arena and work groups are established.

As we noted at the outset of this chapter, discussions of operational infrastructure tend not to be greeted with excitement. However, successful implementation and sustainability of complex, multifaceted interventions at schools does seem to be dependent on the ways system leaders, leadership teams, and standing and ad hoc workgroups are organized to work together. Thus, much more attention is needed to reworking operational infrastructures for initial and ongoing implementation. As discussed in the next chapter, operational infrastructure concerns also arise related to improving school-community collaboration.

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[1] In discussing power, theoreticians distinguish "power over" from "power to" and "power from." Power over involves explicit or implicit dominance over others and events; power to is seen as increased opportunities to act; power from implies ability to resist the power of others. See S. Riger (1993). What's wrong with empowerment. *American Journal of Community Psychology, 21*, 278-292. https://link.springer.com/content/pdf/10.1007/BF00941504.pdf

[2] Examples of job descriptions are provided in the Center's *System Change Toolkit*, Section B 5 http://smhp.psych.ucla.edu/toolkitb4.htm

[3] See:

>Adelman, H.S., & Taylor, L. (2006). Mapping a school's resources to improve their use in preventing and ameliorating problems. In C. Franklin, M. B. Harris, & P. Allen-Mears (Eds.), *School social work and mental health workers training and resource manual.* New York: Oxford University Press. http://smhp.psych.ucla.edu/publications/53 mapping a schools resources to improve1.pdf

>Center for Mental Health in Schools (2006 rev). *Guide to resource mapping and management to address barriers to learning: An intervention for systemic change*. Los Angeles: UCLA. http://smhp.psych.ucla.edu/pdfdocs/resourcemapping/resourcemappingandmanagement.pdf

>An aid for *Mapping & Analyzing Learning Supports* http://smhp.psych.ucla.edu/summit2002/tool%20mapping%20current%20status.pdf

>An aid for listing *Current Resources Used at a School for Addressing Barriers Learning and Teaching* http://smhp.psych.ucla.edu/pdfdocs/listingresources.pdf

[4] See H.S.Adelman, & L.Taylor, (2014). Best practices in the Use of Learning Supports Leadership Teams to Enhance Learning Supports (pp. 181-196). In *Best Practices in School Psychology: System-Level Services,* published by the National Association of School Psychologists. http://smhp.psych.ucla.edu/pdfdocs/bestpract.pdf

CHAPTER 5

About School, Home, and Community Collaboration

An old joke defines collaboration as an unnatural act between nonconsenting adults. This has a ring of truth given what we have found at schools. Few stakeholders argue against the notion that schools, homes, and communities should work closely with each other to meet mutual goals. For the most part, however, such collaboration is quite limited.

While the reasons vary, it is common for most staff members at a school site to carry out their duties each day in relative isolation of other staff. And despite the frustrations they encounter in doing so, they see little benefit in collaborating with others. In fact, they often point to many committees and teams that drained their time and energy with little to show for the effort.

As to families, schools often are fenced off islands in their neighborhoods. Many families have little connection with their children's school or each other. And neighborhood resources such as agencies, youth groups, and businesses often have little formal connection with local schools or each other.

An early lesson we learned was that organizations such as schools cannot make fundamental improvements when a critical mass of stakeholders is not working together towards a shared vision. There are policies to advocate for, decisions to make, problems to solve, and interventions to plan, implement. and evaluate. An effective collaboration involves more than meeting and talking. The point is to work together in ways that produce the type of actions that result in effective outcomes.

This brief chapter highlights an expanded view of school, home, and community collaboration and the need for an operational infrastructure for collaborating in ways that enable effective pursuit of actions and outcomes.[1]

Why School-Community Collaboration?

Schools and the community in which they reside deal with multiple, interrelated concerns – poverty, child development, literacy, violence, safety, substance abuse, housing, employment. Research has shown that school and neighborhood improvements are mutually enhanced through effective school-home-community collaboration that connects a wide range of resources. Interest in connecting the resources is growing at an exponential rate.

The immediate goal is to maximize mutual benefits. In the long run, the aims are to strengthen students, schools, families, and neighborhoods (e.g., enhancing student achievement, socialization, and well-being, improving staff morale, using resources more effectively, promoting community development and a sense of community).

For school policy makers, connecting school-home-community is seen as an essential facet of promoting the well-being of children and youth and enhancing equity of opportunity for them to succeed at school and beyond. For community agencies, connection with schools is seen as providing better access to families and their children, promoting greater engagement, and enhancing opportunities for having an impact on hard-to-reach clients. Moreover, the hope is that collaboration will increase the pool of resources for ameliorating problems and addressing disparities in availability and access to interventions.

Enhancing Community Involvement and Collaborative Engagement for School Improvement

Currently, schools outreach to students' homes with the hope of involving parents in various ways. In addition, some schools recruit volunteers from the community and solicit other forms of resource contributions from a variety of community stakeholders. Some pursue ways to link community social services and physical and mental health services to schools and seek community providers for afterschool programs. And when there is a school-related ballot measure, there is school outreach for voter support.

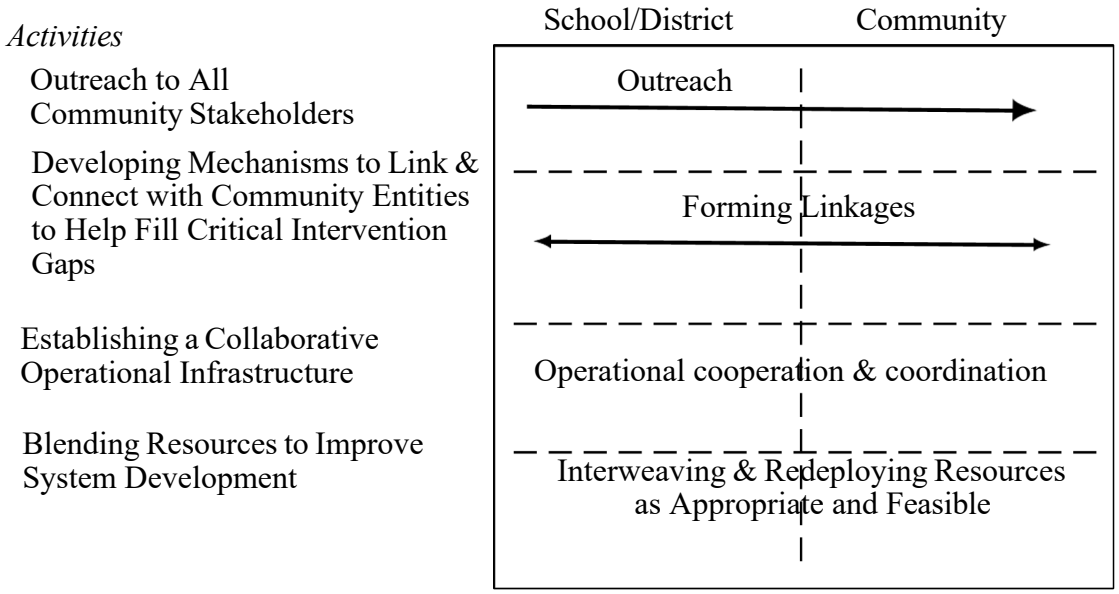
The downside of current outreach is that it generally reflects a narrow vision about school improvement, especially with respect to student/learning supports. There are a great many community resources that can significantly help improve schools and that will strengthen the community. By adopting an expanded vision, schools can increase school-community connections in ways that substantively weave together a wide range of resources.

Researchers have mapped community entities whose missions overlap that of the local schools.[2] These include county and municipal agencies, service clubs and philanthropic organizations, youth organizations, community-based organizations, faith institutions, legal assistance groups, businesses/corporations, artists and cultural institutions, ethnic associations, unions, media, family members, local residents, senior citizen groups, and more. Districts/schools need to consider outreach to the full range of resources, especially in neighborhoods where poverty reigns. Particular attention is needed to linking and connecting with community entities that can fill critical gaps in school offerings and supports.

Four types of activities can enhance school/district-community connections: (1) outreaching to a broad range of community entities, (2) developing immediate links and connections with community resources that can help fill critical intervention gaps at schools, (3) establishing an effective operational infrastructure for a school-community collaborative and (4) braiding and redeploying school and community resources where feasible to help with system development (see Exhibit 5-1).

Exhibit 5-1

Examples of School-Community Collaborative Activity



The four activities are seldom pursued together, especially when the focus is mainly on connecting with parents and a few community resources. Based on the available literature, below are examples of school improvement strategies related to pursuing the activities highlighted in Exhibit 5-1.

*Outreach to the Community:**

- a social marketing campaign to inform and invite participation with respect to
  >district and school planning to work with the community to improve schools
  >the variety of opportunities for involvement at schools
- interventions to increase home involvement and engagement (including re- engaging families who don't interact with the school on a regular basis)
- outreach to specific stakeholder groups to recruit for a steady increase in the number of volunteers available to the schools

*Outreach is to all available community resources and decision makers (e.g., those associated with public and private agencies, colleges and universities, artists and cultural institutions, businesses and professional organizations, and service, volunteer, faith-based organizations).

Developing Mechanisms to Link and Connect with Community Entities:

- using school improvement planning to include a focus on analyzing and filling critical gaps in school offerings and supports
- establishing and training a multi-school workgroup to focus on recruiting and equitably integrating individuals and agencies who have resources that can help fill critical gaps

Establishing a Formal Collaborative and Building an Operational Infrastructure:

- identifying community stakeholders who are interested in establishing a school-community collaborative
- formulating aims, short-term goals, and immediate objectives
- organizing participants into an effective operational infrastructure and establishing formal working agreements (e.g., MOUs) about roles and responsibilities
- forming and training workgroups to accomplish immediate objectives
- monitoring and facilitating progress

Blending Resources to Improve System Development:

- mapping school and community resources used to improve teaching and learning and address barriers to student success
- analyzing resource use to determine redundancies and inefficiencies
- identifying ways resources can be redeployed and interwoven to meet current priorities

It should be noted, because community resources in many neighborhoods are sparse, a school-by-school approach often leads to inequities (e.g., the first school to contact a given agency might tie up all the resources the agency can bring to schools). The school district's management/governance component needs to address this matter by working with schools to connect community resources equitably (not equally) across the district.

Toward Developing School-Community Collaboratives

Temporary school-community connections often are established in the wake of a crisis or to address a particular problem. It is relatively simple to make informal linkages. However, major long-term formal working relationships require a shared vision of how collaborating enables regular actions and mutual benefits over time.

Our vision for institutionalized school, community, and home collaboration is for the effort to play a major role in strengthening youngsters, families, schools, and neighborhoods. This encompasses a focus on safe schools and neighborhoods, positive development and learning, personal, family, and economic well-being, and more.

Effective pursuit of shared concerns requires establishing effective school-community *collaboratives* at school and district levels. With respect to enhancing student and learning supports, a school-community *collaborative* is a formal and institutionalized partnership that effectively weaves together and facilitates *equitable* allocation of school and community resources across all schools in a district. As a partnership, it is not run by the district. It is a collective body consisting of a broad range of empowered stakeholders (e.g., staff and community stakeholders and resources, families, students, representatives for the homeless). As such, it needs its own operational infrastructure.

See Exhibit 5-2 for a prototype of the type of mechanisms needed to provide oversight, leadership, capacity building, and ongoing support as a collaborative makes plans and implements strategic actions. Establishing such an infrastructure requires translating policy into authentic agreements about shared mission, vision, decision making, priorities, goals, roles, functions, resource allocation, redeployment, and enhancement, strategic implementation, evaluation, and accountability.

The family of schools' leadership councils envisioned in Exhibit 4-3 can be incorporated readily into a school-neighborhood collaborative. And the district's existing connections with community stakeholders and resources can be expanded and formalized as a district-wide school-community collaborative.

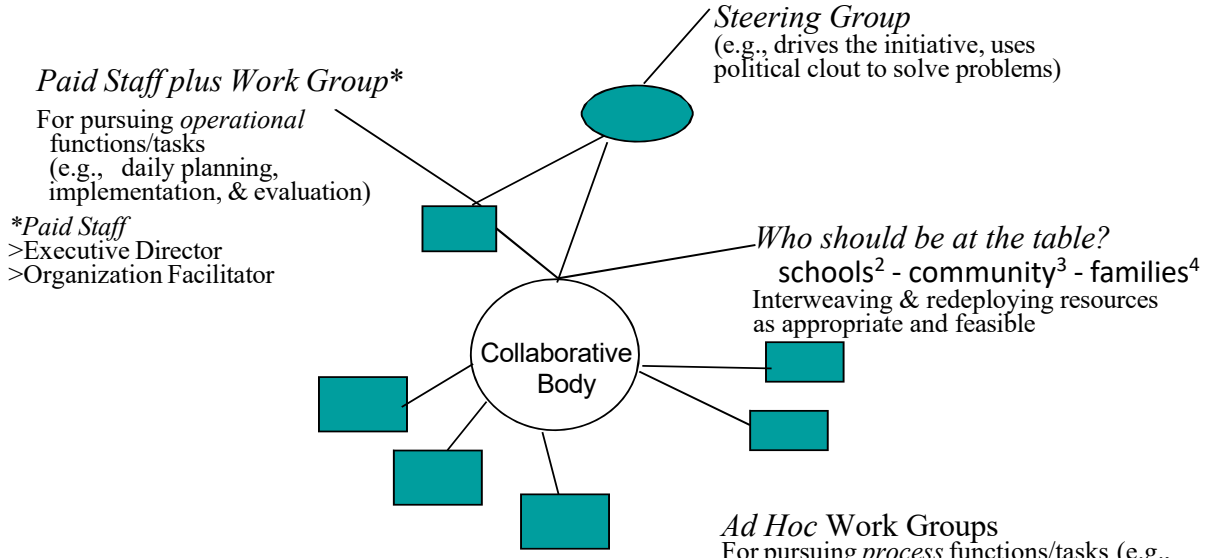
Steps in establishing a school-community collaborative include:

- identifying community stakeholders who are interested in establishing a school- community collaborative
- formulating aims, short-term goals, and immediate objectives
- organizing participants into an effective operational infrastructure and establishing formal working agreements (e.g., MOUs) about roles and responsibilities
- forming and training workgroups to accomplish immediate objectives
- mapping school and community resources used to improve teaching and learning and address barriers to student success
- analyzing resource use to determine redundancies and inefficiencies
- identifying ways resources can be redeployed and interwoven to meet current priorities
- monitoring and facilitating progress

The danger in creating new mechanisms is that they can become just another task, another meeting – busy work. Infrastructure must be designed in keeping with the major functions to be carried out, and all functions must be carried out in keeping with a vital vision. Leaders and all facilitators of change must be driven by and help advance the vision by instilling it in others and helping them hold on to it even when the initial excitement of "newness" wanes.

Exhibit 5-2

Prototype of a School-Community Collaborative Operational Infrastructure[1]



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[1] Connecting the resources of schools, families, and a wide range of community entities through a formal collaborative facilitates all facets of school improvement. Effectiveness, efficiencies, and economies of scale can be achieved by connecting a "family" (or complex) of schools (e.g., a high school and its feeder schools, schools in the same neighborhood). In a small community, the feeder pattern often is the school district.

[2] *Schools*. This encompasses all institutionalized entities that are responsible for formal education (e.g., pre-K, elementary, secondary, higher education). The aim is to draw on the resources of these institutions.

[3] *Community entities*. These encompass the many resources (public and private money, facilities, human and social capital) that can be brought to the table (e.g., health and social service agencies, businesses and unions, recreation, cultural, and youth development groups, libraries, juvenile justice and law enforcement, faith-based community institutions, service clubs, media). As the collaborative develops, additional steps must be taken to outreach to disenfranchised groups.

[4] *Families*. All families in the community should be represented, not just representatives of organized family advocacy groups. The aim is to mobilize all the human and social capital represented by family members and other home caretakers of the young. And those representing homeless families.

Efforts to enhance collaboration among programs, services, and initiatives at multiple levels, of course, involves horizontal and vertical operational restructuring within and between jurisdictions and public and private sectors.

A Note of Caution

With roots in the 1960's human service integration movement, the last few decades have seen many initiatives for connecting community services to schools to better meet the needs of children and their families. These have generated terms such as school-linked services, integrated services, one-stop shopping, wraparound services, seamless service delivery, coordinated school health, co-location of services, integrated student supports, full-service schools, community schools, systems of care, and more.

In general, the prevailing emphasis of much of the activity at schools is on connecting *community* services to schools (e.g., health and social services, after-school programs).However, given that such services are scarce, this usually means enhancing linkages and co-locating a few services to a couple of school campuses. This benefits the chosen schools but reduces resources available to other schools in the community, thereby increasing inequity.

Another problem is that linking with a few service agencies ignores the potential of broad- based school-community collaboration for enhancing equity of opportunity for young people and for strengthening families, schools, and neighborhoods.

While bringing agency supports to schools is a well-intentioned endeavor, the examples most frequently highlighted are built and are operating on an exceptional resource base. As a result, they can't be taken to scale. From the perspective of school improvement, scalability is an essential facet of increasing equity across school districts.

An additional problem related to thinking mainly about connecting with community agency services is that it encourages some policy makers to develop the false impression that community resources are ready and able to meet all the support needs of students and their families. This impression already has contributed to serious cuts related to student supports (e.g., districts laying off student support personnel) in the struggle to balance tight school budgets. Such cuts further reduce the pool of resources available for improving equity of opportunity.

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[1] For more in depth discussion of school-home-community collaboration, see the resources our Center has developed and listed in the Center Quick Find on the topic. Resources from other sources also are referenced. https://smhp.psych.ucla.edu/qf/p1201_01.htm

[2] J.P. Kretzmann & J.L. McKnight (1993). *Building Communities from the Inside Out: A Path Toward Finding and Mobilizing a Community's Assets*. ACTA Publications. https://www.pitzer.edu/cec/wp-content/uploads/sites/54/2014/09/Building_Communities_from_Insi de_Out.pdf

CHAPTER 6

About Intervention Evaluation and Accountability Related to School Improvement and Sustainable Implementation

Evaluation practiced at the highest level of the state-of-the-art is one means of speeding up the processes that contribute to human and social progress.
Rossi, Freeman, & Wright[1]

Improvement and intervention sciences use evaluation to improve practice and conduct research. Work to date has given considerable emphasis to measuring effectiveness and efficacy; some processes have been assessed (e.g., fidelity of implementation, in particular). Negative side effects have received less evaluative attention.

In general, evaluation plays a critical role not only in assessing intended intervention activity but in advancing basic knowledge about intervention. And evaluation is used as a basic tool in most accountability efforts.

In this chapter, with school improvements and sustainable implementations in mind, we briefly highlight (1) the concept of intervention evaluation and (2) the need to reframe school accountability to account directly for addressing barriers to learning and teaching.

The Essence of Intervention Evaluation

Evaluation involves determining the worth or value of something. However, as Scriven noted:

> "Evaluation is a process of determining certain evaluable properties of things, but there is more than one kind of such properties. Perhaps the most fundamental and important distinction among them is between merit or quality and worth or value."[2]
>
> Using the example of a high school French teacher, he points out that the teacher may be the best in a school, but if enrollment patterns shift away from French, that teacher's worth or value to the school diminishes. The teacher's merit (i.e., quality in terms of professional standards) has not declined, but his or her benefit (vis à vis meeting the school's needs) has.

Almost everyone evaluates interventions with which they come in contact. Whenever anyone decides that an intervention is or isn't a good one, an evaluation is made.[3]

Some evaluative judgments simply reflect an individual's or group's informal observations. Other judgments are based on careful data gathering and analyses and use of appropriate sets of standards.[4] Some evaluations only offer conclusions about the degree to which an intervention achieves intended outcomes. Other evaluations are concerned with analyzing factors that affect outcomes. And since what an intervention is intended to do stems from its rationale, analysis of underlying rationales is advocated.

Our focus here is on formal formative and summative evaluations of interventions. These can aid efforts to (1) *make decisions* about whether to undertake, continue, modify, or stop an intervention and (2) *advance knowledge* about interventions in ways that can increase understanding of and improve practices, training, and theory.

When the cook tastes the soup it is formative evaluation and when the guests taste the soup it is summative. Robert Stake

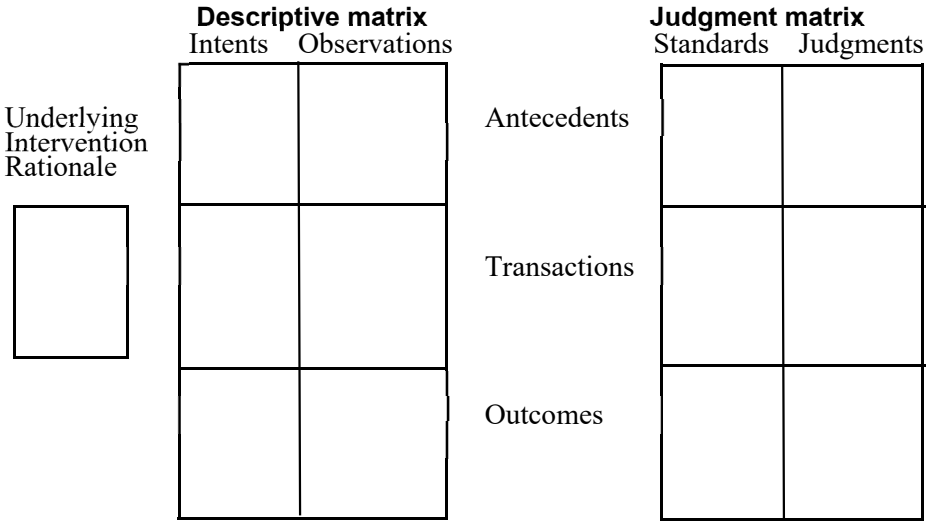
In our work, we define intervention evaluation as a systematic process designed to describe and judge an intervention's rationale, antecedents, transactions, and overall impact and value; the judgements are based on some form of standards and used for purposes of making decisions and advancing knowledge.[5]

An Evaluation Framework

Robert Stake's evaluation matrix reproduced in Exhibit 6.1 exemplifies a framework that outlines the general nature and scope of evaluation. As the framework suggests, evaluation accounts for an intervention's rationale. It encompasses the acts of *describing* and *judging* intended and observed antecedents, transactions, and outcomes, and uses standards for making judgments. Also of concern is information about costs and unintended procedures and outcomes (e.g., interfering factors, negative effects). To achieve all this, both immediate and long-term information on an intervention must be gathered.[6]

Exhibit 6.1

Robert Stakes' Evaluation Framework



Source: R. Stake (1967). The countenance of educational evaluation. *Teachers College Record, 68*, 523–40.

Stake's framework has many implications for intervention planning and implementation. For instance, given that intended antecedents, means, and ends are meant to be rationally related, weaknesses in this relationship can be used to make a priori judgments about probable success an intervention. This is the type of predictive process the U.S. General Accounting Office calls **prospective evaluation** and uses to forecast the impact of a proposed program or policy change as an aid to legislators.

Stake's framework also generates a variety of important research questions. What follows highlights a few examples.

About the Underlying Rationale

The increasing emphasis on theory-based approaches in designing interventions has enhanced interest in including analyses of underlying intervention rationales. It is clear that underlying rationales shape interventions and not always in appropriate ways. Thus, evaluations must first address the question: ***Is what the intervention is trying to accomplish an appropriate fit (e.g., with a school's needs and mission)?***

Evaluative research of rationales also can add to general understanding of intervention. Examples of researchable questions that arise are: What are common biases found in intervention rationales? How do such biases affect intervention planning? Can inappropriate biases be minimized through preimplementation analyses of intervention rationales and plans? Are pragmatic factors seriously limiting the nature and scope of intervention?

A common example of rationale bias arises when the causes and correction of problems primarily are formulated in terms of person factors. Research has yet to determine how often external conditions are not considered and what the implications are?

After judging the appropriateness of what is needed, wanted, or expected, an intervention's intended breadth of focus usually guides efforts to evaluate effectiveness. However, not everything is measurable in a technically sophisticated way; some things can only be poorly measured or simply reviewed informally. The questions arises: How often is the rationale undercut by measurement limitations, and what are the implications? How often is the breadth of focus for intervention inappropriately narrowed to what researchers and policy makers can readily measure?[7]

In this context, we are reminded of Yankelovich's commentary on measurement:

> *The first step is to measure whatever can be easily measured. This is okay as far as it goes. The second step is to disregard that which can't be measured or give it an arbitrary quantitative value. This is artificial and misleading. The third step is to presume that what can't be measured easily isn't very important. This is blindness. The fourth step is to say what can't be measured really doesn't exist. This is suicide.*[8]

About Intervention Evaluation Planning

Planning systematic intervention evaluation requires decisions about (1) what will and will not be looked at (e.g., person or environment, long-range aims, potential negative outcomes, sustainability), (2) whose perspective (e.g., intervener, underwriter) will determine the focus, methods, and standards used in arriving at conclusions, and (3) the best way to proceed in gathering, analyzing, and interpreting information (e.g., specific measures, design). Effective monitoring of processes during initial implementation calls for specific plans for formative evaluation (e.g., to determine if intended intervention transactions occur, to detect unintended interfering factors). Particular attention must be given to (a) minimizing inappropriate bias, (b) addressing conflicts of interest, (c) ensuring that the evaluation doesn't inappropriately reshape a program's intended aims, and (d) countering negative effects that can arise from evaluation itself.

Awareness of tasks involved in planning an intervention evaluation provides another perspective on the process and matters for research (see Exhibit 6-2). Greater research attention to the quality of intervention evaluation planning can advance knowledge about intervention in general, as well as improvement and implementation sciences. Answers are needed to questions such as: How often is there logical consistency among intended antecedents, processes, and outcomes? Are analyses of costs and benefits part of the plan? Do plans involve determining the degree to which intended antecedents are congruent with planned processes, and if so, are they present before implementation is initiated?

Exhibit 6-2

Some Considerations in Planning an Intervention Evaluation

Our work identifies the following seven key planning tasks:

- *Clarifying the intended use of information.* Most important here is awareness of who wants the information and why they need it. Ultimately this translates into the question: What types of decisions are to be made? Also important is the matter of anticipating the use and political and motivational impact of evaluation processes and findings. This includes a significant appreciation of the often conflicting interests among the variety of interested parties (i.e., stakeholders).
- *Understanding the intervention's rationale.* In cases where evaluation includes judging the intervention rationale, pursuit of the above task (clarifying the intended use of evaluation information) will result in gathering information about the rationale. However, when the evaluation is designed with reference to a standardized set of objectives, clarification of the rationale becomes a separate task. In either case, an understanding of the intervention rationale can provide a separate basis for deciding about other intervention facets to evaluate.
- *Formulating evaluation questions.* Evaluative concerns are translated into a set of questions. For example: Were intended antecedent conditions present during the intervention? Which procedures were effective for which clients? Were there undesirable transactions? Were specific objectives achieved? Were long-range aims achieved? Did expected negative outcomes occur? Were there unexpected negative outcomes?
- *Specifying information to be gathered.* Relevant descriptive information that can answer each major question is specified. The more things one is interested in evaluating, the more one has to settle for samples of information. Some of the information likely will be of a quantitative nature; some may be qualitative.
- *Specifying procedures.* Decisions about information gathering are shaped first by what one wants to know and then are tempered by practical considerations. Problems related to gathering desired information become evident as one attempts to specify procedures. Limitations related to time, money, sample availability, valid measures, multivariate statistics, and personnel usually lead to major compromises in evaluation planning. For example, sometimes a good measuring instrument exists; sometimes only weak procedures are available; sometimes gathering desired information is not currently feasible. A special set of problems stems from the socio-political-economic concerns (e.g., threats to current status) and psychological reactance (e.g., fear-based resistance) that are common phenomena when evaluation is introduced.
- *Specifying a design.* An evaluation design is used so that information can be gathered and interpreted appropriately. When someone asks how good an intervention is, judgments are based on the available information and are relative to some standard of comparison. A sound design ensures that appropriate bits of information (e.g., data) are gathered, including information for use as standards for judgments. A sound evaluation design also includes provision for the gathering and use of information for revising interventions as the process proceeds.
- *Designating time and place for collecting information.* Further practical considerations arise when evaluations are scheduled. The design sets the general parameters; the particulars are determined by practical factors such as resource availability.

Improving Intervention Through Evaluative Research

Obviously, continuous efforts are required to upgrade the methodological and technological infrastructure for evaluation. But evaluation is not simply a technical process or just a matter of providing outcome data.

In recent years, considerable attention has focused on fidelity of implementation (i.e., whether intended processes actually occur); currently, more formative evaluation data is needed about whether potent unintended processes transpire and what they are. If unintended processes and negative effects arise, how are they addressed? When lab-developed interventions are implemented in everyday settings such as schools, research is needed to help clarify what are proper indicators of outcome efficacy and sustainability given the setting's mission.

Other matters of relevance to enhancing interventions include preimplementation evaluations for deciding whether to proceed. Questions such as: Does it matter if the underlying intervention rationale is coherent, logical, and well grounded theoretically and empirically? How much variation from intended antecedent conditions is acceptable in proceeding? Do the intended processes account for existing individual and subgroup differences, such as differences in the severity and pervasiveness of problems, differences in motivation for overcoming problems, and so forth?

On another level, improving intervention requires evaluative research that attends to concerns about what is and isn't evaluated. This includes clarifying the impact of such factors as limited knowledge, biases, vested interests and beliefs, and ethical issues. And as highlighted in the remainder of this chapter, much more research is needed on the use of summative evaluations for accountability purposes.

Clearly, evaluative research has an important role to play in efforts to improve and advance intervention knowledge (e.g., improvement, implementation, sustainability).

> Evaluative research can be part of an experimental approach to social reform "in which we try out new programs designed to cure specific social problems, in which we learn whether or not those programs are effective, and in which we retain, initiate, modify, or discard them on the basis of apparent effectiveness on the multiple imperfect criteria available."[9] Donald Campbell

Reframing Accountability for Whole Child Development and Addressing Barriers to Learning and Teaching

> School accountability is a policy tool with extraordinary power to reshape schools – for good and for bad. Systems are driven by accountability measures. This is particularly so when school improvement is underway.

All of the previous discussion about intervention evaluation has implications for interpreting and using findings for accountability purposes. Our specific focus here is on the need to reframe the nature and scope of school accountability as a step forward in improving student/learning supports and enhancing equity of opportunity.

Overemphasis on Measures of Academic Achievement

As everyone involved in school knows, the primary measures that has dominated school accountability are achievement tests. These tests drive school accountability, and what such tests measure has become the be-all and end-all of what is attended to by many

decision makers. This produces a growing disconnect between the direction in which many policy makers and school reformers are leading the public and the realities of what it takes to reduce the opportunity and achievement gaps.

The disconnect is especially evident in schools serving what have been referred to as "low wealth" families. Such families and those who work in schools serving them have a clear appreciation of many barriers to learning that must be addressed so students can benefit from the teacher's efforts to teach. Stakeholders have raised the concern that, in many schools, significant academic improvements are unlikely until comprehensive and multifaceted approaches to address these barriers are developed and pursued effectively.

ESSA Requires an Additional Indicator of School Quality or Student Success

The Every Student Succeeds Act (ESSA) requires not less than one indicator of school quality or student success that a) allows for meaningful differentiation in school performance, b) is valid, reliable, comparable and statewide with the same indicators used for each grade span, and may include student growth. ESSA does not prescribe specific indicators, the law does require that additional indicators meet technical standards and provide meaningful data for analyzing school differences.

The law gives examples – chronic absenteeism, discipline rates, student access to and completion of advanced coursework, measures of postsecondary readiness, student engagement, educator engagement, school climate and safety, and any other indicator that meets the criteria.

State plans indicate many choose to add chronic absenteeism and measures of college/career readiness; some choose school climate, on-track rate at the middle and/or high school levels, social emotional learning, and arts education.

The law also requires reporting of how all students and each group of students (such as students with disabilities) perform on indicators. For schools where subgroups of students are chronically struggling, for schools where less than two-thirds of students graduate, and for the bottom 5 percent of schools, the emphasis on school turnaround will remain intensive.

The increasing emphasis on countering chronic absenteeism is highlighting some of the barriers to learning and teaching. And schools that are adding attendance as an accountability indicator are taking a step in the right direction. At the same time, it is evident to anyone who looks that there is little other *direct* accountability for whether barriers are addressed.

The overemphasis on achievement measures reflects an implicit assumption that students are motivationally ready and able each day to benefit from the teacher's instruction. As discussed in Part I, the reality is that in too many schools the *majority* of youngsters do not fit this picture. Students confronted with a host of interfering factors usually are not in a position to benefit even from significant instructional improvements. The results are seen in the persistence of low test scores and the opportunity and achievement gaps.

Our Expanded Framework for School Accountability

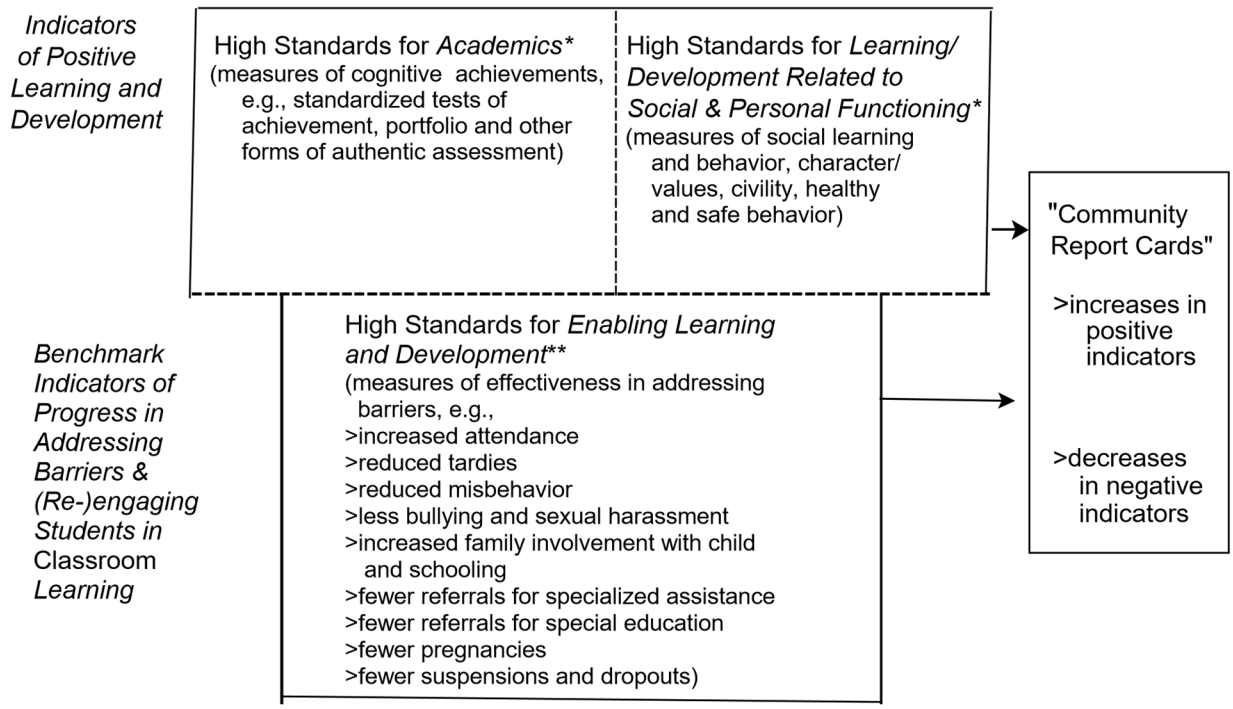
Logically, well designed, systematic school improvement efforts, including accountability indicators, should *directly* address interfering factors. However, current accountability pressures override the logic and marginalize almost every effort not seen as *direct* interventions for increasing achievement scores.

ESSA's emphasis on at least one additional "nonacademic" indicator will not counteract the long-standing marginalization. Indeed, the tokenism of the act underscores the need for an expanded framework for school accountability – a framework that includes not only measures of achievement but also data *directly* related to the type of component for addressing barriers to learning and teaching we bqve highlighted. Such data and related standards are essential for both formative and summative evaluation of efforts to transform student/learning supports.

Exhibit 6-3 highlights a prototype for an expanded school accountability framework. We view this as a move toward what has been called *intelligent accountability.* As illustrated, there is no intent to deflect from the laser-like focus on meeting high academic standards. Debate will continue about how best to measure academic outcomes, but clearly schools must demonstrate they effectively teach academics.

Exhibit 10-3

Expanding the Framework for School Accountability



*Results of interventions for directly facilitating development and learning.
**Results of interventions for addressing barriers to learning and development.

At the same time, policy must acknowledge that schools also are expected to pursue high standards in promoting positive social and personal functioning, including enhancing civility, teaching safe and healthy behavior, and some form of "character education." Every school we visit has specific goals related to this facet of student development and learning.

And there is a growing movement for mandating a focus on social emotional learning in schools. Yet, it is evident that there is no systematic evaluation or reporting of the work. As would be expected, then, schools direct few resources and too little attention to these unmeasured concerns. Yet, society wants schools to attend to these matters, and there is widespread acknowledgment that personal and social functioning are integrally tied to academic performance. From this perspective, it seems self-defeating not to hold all schools accountable for improving students' social and personal functioning.

For schools where a large proportion of students are not doing well, it is also self-defeating not to attend to benchmark indicators of progress in addressing barriers to learning. Schools cannot teach children who are not in class. Therefore, increasing attendance always is an expectation (and an important budget consideration). In addition to attendance, other basic indicators of school improvement and precursors of enhanced academic performance are reducing tardiness and problem behaviors, lessening suspension and dropout rates, and abating the large number of inappropriate referrals for special education. Given this, the progress of school staff related to such matters should be measured and treated as a significant aspect of school accountability.[10]

School outcomes, of course, are influenced by the well-being of the families and the neighborhoods in which they operate. Therefore, performance of any school should be judged within the context of the current status of indicators of community well-being, such as economic, social, and health measures. If those indicators are not improving or are declining, it is patently unfair to ignore these contextual conditions in judging school performance.

All this said, perhaps the biggest problem related to accountability efforts at schools is that they rarely are designed in ways that truly improve programs and advance knowledge.

Results! Why, man, I have gotten a lot of results.
I know several thousand things that won't work. – Thomas Edison

Concerns about How Evaluation Data are Used and a Few Related Comments

We live in an age when policy makers and practitioners value making data-driven decisions. Over and over, we hear the line: *In God we trust, from all others demand data!*

We certainly value good data. BUT ... *Can there be too much emphasis on data?* We see this as a critical issue for school improvement. Lately it seems folks are going so overboard that too much bad data and even false data are leading school improvement efforts astray.

Everyone agrees that practitioners should be accountable, but there are major disagreements about what that means. Obviously, schools must show that their work is effective. But effective in what way? To what degree? At what cost?

A particular concern is that the desire for information on achievement can redesign a school's underlying rationale in ways that inappropriately reduce its breadth of focus. Accountability pressures can cause a program to shift away from its long-range aims by overemphasizing immediately measurable objectives. This can result in more and more time devoted to preparing for meeting accountability indicators (i.e., "teaching to the test"). In turn this can result in many important facets of whole child education and efforts to address barriers

to learning and teaching being given short shrift mainly because they will not be directly evaluated.[11]

Concerns about this are not new. The problem is that the concerns are ignored as efforts are made to meet the overwhelming demands for accountability data.

In our work with schools, we identified a great deal of evaluative data gathering from and about students. When a problem is discussed, it seems like a first impulse is to do some form of a needs assessment. We have come to think of the problem as "assessment-itis" (e.g., the push for gathering more and more data in the erroneous belief that this is necessary for solving many of the problems encountered every day at schools).

Assessment-itis is especially at play in efforts to address the many students not benefitting from good instruction. Often, the need is not for more student testing and screening. Indeed, spending more on data gathering often uses up sparse resources that are needed for interventions to ameliorate the problems. An *overemphasis* on more testing and screening of students can be counterproductive to school improvement efforts that are essential to providing better student/learning supports.

Evaluation is a door to the future. However, intervention evaluation and related accountability activities are complex and raise a host of concerns.

In choosing what we look at, how we observe, what we perceive, and what we report, intervention evaluations are strongly influenced by society's values, policies, priorities, and rewards. These influences, of course, usually are mediated by the predilections of those who underwrite interventions and accountability and by personal and professional codes of ethics and values, favored models, and so forth. When one doesn't agree with an intervention's rationale, one will not likely approve of the intervention, even if evaluation findings indicate that it is effective.

Methodologically, intervention evaluation and accountability often are carried out with exceedingly limited tools. So technical limitations add significantly to the problem.

And almost everyone has experienced negative consequences from an evaluation. Those evaluated often are harmed, and consumers of evaluation reports frequently are misled. Evaluations create tensions and dilemmas and can be misused to create undesirable degrees of uniformity and conformity. Ultimately, we should be as concerned with the consequences of evaluation and accountability processes as we are with improving the technical capability related to the processes.[12]

Work on improving evaluation not only is essential to ensuring that intervention practices meet society's needs and expectations, it is fundamental to enhancing basic knowledge about intervention as a phenomenon. Increasingly, evaluative research is guided by and contributes to model building to investigate significant commonalities and differences among interventions. The work shows promise for stimulating research and theory designed to improve cross-intervention understanding of what works and what does not, and why.

[1] P.H. Rossi, H.E. Freeman, & S. Wright (1979). *Evaluation: A systematic approach* (3rd ed.). Beverly Hills, CA: Sage.

[2] M. Scriven (1993). *Hard-won lessons in program evaluation.* San Francisco: Jossey-Bass.

[3] While randomized controlled studies are the gold standard in experimental science, as Cambon and colleagues note: a major drawback is that such studies "are 'blind' to the contextual elements which do influence outcomes. Their theoretical efficacy may well be demonstrated, but their transferability is weak, which becomes an issue as intervention research is supposed to inform policy and practice." L. Cambon, P. Terral, & F. Alla (2019). From intervention to interventional system: Towards greater theorization in population health intervention research. *BMC Public Health*, *19*, 339. doi: 10.1186/s12889-019-6663-y. PMID: 30909891; PMCID: PMC6434858.

[4] Conclusions of good or bad clearly are value judgments. Shadish and colleagues note that "Early evaluators mostly ignored the role of values in evaluation – whether in terms of justice, equality, liberty, human rights, or anything else.....such evaluators believed their activities could and should be value-free. But it proved to be impossible in the political world of social programming to evaluate without values becoming salient. Social programs are themselves not value-free." W.R. Shadish, Jr., T.D. Cook, & L.C. Leviton (1991). *Foundations of program evaluation: Theories of practice*. Newbury Park, CA: Sage, pp. 46–47.

[5] Over the years, many definitions have been put forward and comparisons of evaluation models made. See, for example:

>D.L. Stufflebeam & W.J. Webster (1983). An analysis of alternative approaches to evaluation. In G.F. Madaus, M.S. Scriven, & D.L. Stufflebeam (Eds.), *Evaluation models*. Boston: Kluwer-Nijhoff;

>W.R. Shadish, Jr., T.D. Cook, & L.C. Leviton (1991). *Foundations of program evaluation: Theories of practice*. Newbury Park, CA: Sage.

>A.W. Frye & P.A. Hemmer (2012). Program evaluation models and related theories. *Medical Teacher, 34*, e288–e299. https://www.med.unc.edu/aoe/wp-content/uploads/sites/519/2017/11/program-evaluation-gui de.pdf

>D. Contandriopoulos & A. Brousselle (2012) Evaluation models and evaluation use. *Evaluation (Lond). 18,* 61-77. doi: 10.1177/1356389011430371.

>P.H. Rossi, M.W. Lipsey, & G.T. Henry (2019). *Evaluation: A systematic approach* (8th ed.). Sage.

>Pirmin Bundi & V. Pattyn (2022). Citizens and Evaluation: A Review of Evaluation Models. *American Journal of Evaluation*. Open access. https://journals.sagepub.com/doi/epub/10.1177/10982140211047219

For more discussions of these and related matters, see the several journals devoted to evaluation, and also the websites for the American Evaluation Association (https://www.eval.org/) and the Canadian Evaluation Association (https://evaluationcanada.ca/),

As discussions in such resources stress, early evaluation researchers were unprepared to deal with the complex social and political realities of a rapidly changing world. The socio-political-economic nature of intervention and evaluation and the demand for greater external validity has forced program evaluators to move beyond prevailing paradigms and methods.

[6] Among program evaluators, Robert Stake is an early, long-term, and influential contributor. See, for example, R.E. Stake (1976). *Evaluating educational programs: The need and the response.* Paris: Organization for Economic Cooperation and Development, https://archive.org/details/evaluatingeducat0000stak For a comprehensive overview of his ideas and contributions, see Shadish, Cook, & Leviton (1991) cited in note #4.

[7] The issues related to the impact of a narrow focus on evaluation also arise in the context of discussions about evaluating intervener competence. That is, narrowly focused competency evaluations may constrict rather than expand intervener growth with respect to the broad range of knowledge, skills, and attitudes needed to properly plan, implement, and evaluate interventions.

[8] Cited in A. Smith. *Supermoney*. New York: Random House, p. 286.

[9] D.J. Campbell (1969). Reforms as experiments. *American Psychologist, 24*, 409–29, p. 409. Besides being difficult to carry out, evaluations of large-scale social and educational programs are costly, and the history of efforts to evaluate such programs is characterized by weak and often poorly conceived methodology as well as findings that are subject to varying interpretations. At the same time, it is evident that such evaluations must be pursued, and we must learn to do them better. In this respect, each new national and state evaluation provides a unique opportunity to improve the process of evaluation.

[10] See *Standards for a Learning Supports Component*. This resource includes indicators for monitoring, evaluation, and accountability).
https://smhp.psych.ucla.edu/pdfdocs/commcore.pdf .

[11] See discussions of the politics of accountability, such as
>J. Ozga (2020). The politics of accountability. *Journal of Educational Change, 21,* 19–35.
https://link.springer.com/article/10.1007/s10833-019-09354-2#citeas
>Y. Yan (2019) Making accountability work in basic education: reforms, challenges and the role of the government. *Policy Design and Practice, 2,* 90-102.
https://www.tandfonline.com/doi/full/10.1080/25741292.2019.1580131
>B.D. Bantwini & P. Moorosi (2023). Caught between educational accountability reforms, compliancy and political interference: Perspectives of school principals in South Africa. *School Leadership & Management, 43*, 261-283.
https://www.tandfonline.com/doi/full/10.1080/13632434.2023.2186847

With increasing demands for accountability, schools quickly learn what is measured and what is not, and slowly but surely greater attention is given to teaching what will be measured (e.g., what is on the tests). Over time, what is measured becomes viewed as what is most important. Because only so much time is available to the teacher, other things not only are deemphasized, they also are dropped from the curriculum. If allowed to do so, accountability procedures have the power to reshape the entire curriculum. Moreover, many important facets of an intervention are not easily measured and thus may be given short shrift (e.g., attitudes, motivation, and creative functioning in the arts and sciences toward system improvement and problem solving).

[12] A much neglected area for research is the *psychology of evaluation*. From observation and personal experience, most of us know that anticipating and experiencing evaluation produces major reactive effects. Systematic studies are needed of the prospective, in-process, and antecedent psychological impact of evaluation on (1) systems that are evaluated, (2) evaluators, and (3) those who use evaluation findings.

If you don't care where you're going, it doesn't matter which way you go.
Anonymous

Or, in the words of Yogi Berra:

You have to be very careful when you don't know where you are going or you might never get there.

Concluding Comments

The frameworks in this document are meant to deepen appreciation for what is involved in planning and implementing sustainable transformative changes. Improvement and implementation sciences are in early stages of development. As this intervention work matures, schools will have better resources for pursuing improvements.

We recognize that the complexity of making fundamental systemic changes makes some stakeholders uncomfortable. The temptation is to simplify what takes place. However, we find that such simplification generally leads to dressing up old ideas in new language and losing the promise of substantive and sustainable change. And decisions to focus on "low hanging fruit" to harvest early "wins" often result only in turning “pilot” projects into demonstration sites and prematurely ending systemwide replication.

Given the current state of public education, many schools are under tremendous pressure to improve. This is especially the case for schools seen as having many students who are not doing well. The need at such schools is for transformative changes – *now!*.