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# Core Implementation Components

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The failure of better science to readily produce better services has led to increasing interest in the science and practice of implementation. The results of recent reviews of implementation literature and best practices are summarized in this article. Two frameworks related to implementation stages and core implementation components are described and presented as critical links in the science to service chain. It is posited that careful attention to these frameworks can more rapidly advance research and practice in this complex and fascinating area.

**Keywords:** *implementation; stages; core components; dissemination; diffusion; organization change; science to service gap*

For some time now, an international experiment (the “evidence-based movement”) has been underway to make better use of research-based prevention and treatment interventions in typical human service settings such as child welfare, employment, health, juvenile justice, mental health, and substance abuse. For decades, research has been done to develop more effective human services and in the past two decades there has been a more conscious attempt to identify and use “evidence-based programs.” So far, the results of this international experiment are not encouraging. The Institute of Medicine (2001) recently surveyed the field and found that human services typically are inconsistent, often ineffective, and sometimes harmful to consumers. These conclusions have been echoed in reviews by the Surgeon General (U.S. Department of Health and Human Services, 1999) and the New Freedom Commission on Mental Health (2003). The tentative conclusion from these efforts over the past two decades is that research results are not being used with sufficient quantity and quality to impact human services and, therefore, have not provided the intended benefits to consumers and communities. The failure of science to readily transfer to service settings has led to greater interest in the processes needed to move science to service successfully (e.g., Grol, 2000; Oxman, Thomson, & Davis, 1995).

## The “Science” in Science to Service

In the past two decades, researchers and policy makers have focused considerable attention on how to define

an evidence-based program. A common definition now requires two or more randomized group designs, preferably done by two or more groups of investigators that examine the outcomes of a program (e.g., Lonigan, Elbert, & Johnson, 1998; Sackett, Rosenberg, Gray, Haynes, & Richardson, 1996). Thus, “evidence-based programs” currently are defined by the research methodology used to evaluate them, and multiple experiments employing randomized group designs are viewed as the “gold standard” for defining “evidence” (e.g., <http://www.campbellcollaboration.org>).

## The “Service” in Science to Service

The services that potentially could benefit from science include all human services (e.g., prevention, promotion, and intervention services in child welfare, education, health, mental health, substance abuse). Research-based improvements in human services lag far behind other industries (e.g., advanced manufacturing technology, Kasul & Motwani, 1997). We think the reason is that human services are far more complex than any other industry. With computers, automobiles, pharmaceuticals, and other manufactured products, the latest science and the quality can be built into the product

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itself. The *product is the intervention* and its performance depends very little on the user of the product. Hundreds of thousands of pills that incorporate the latest breakthroughs in science can be manufactured in a few locations under the supervision of highly trained specialists working under carefully designed conditions to produce safe and reliable products. A license may be required to use the product, but if it is used as intended the product itself performs the same no matter who dispenses it or uses it. In human services, the *practitioner is the intervention*. The science and quality have to be built into hundreds of thousands of practitioners situated in a variety of provider organizations that function within uniquely configured state and federal service systems. This is a very difficult task when fully exposed to the vagaries of life. Thus, in human services, our challenge in making use of science is how to build the science and quality into the daily performances of millions of practitioners across the nation. In child welfare in the United States, this includes more than 500,000 social workers, over 400,000 foster parents and group care workers, and tens of thousands of associated psychologists, psychiatrists, and medical professionals. In education in the United States, there are more than 6 million teachers and staff employed to educate over 53 million children in 100,000 schools. The problem of making use of the products of science to benefit children, families, and adults in a variety of human service settings is no small matter.

### The “to” in Science to Service

We are coming to realize that the “to” in science to service represents a whole new set of activities called “implementation.” Given the disappointing results of the evidence-based movement, there has been renewed interest in the science and practice of implementation. In the past, evaluations that found little (or varied) impact of social programs on people or communities (e.g., Cronbach et al., 1980) led to questions about how those programs were being used, giving birth to the field of implementation (Hough, 1975; Pressman & Wildavsky, 1973). Similar questions are being asked today with respect to the limited impact of evidence-based programs (Elliott & Mihalic, 2004).

For many years, science to service has been seen as a *passive process* that involves diffusion and dissemination of information that somehow makes its way into the hands of enlightened champions, leaders, and practitioners who then put the innovations into practice (Rogers, 1995; Simpson, 2002). In this approach, researchers do their part by publishing their findings;

then it is up to managers and practitioners to do their part by reading the literature and making use of the innovations in their work with consumers. This passive process is well accepted and serves as the foundation for most U.S. federal and state policies related to making use of evidenced-based programs and other human service innovations.

Over the past few decades, others have employed a more *active process* for moving science to service (e.g., Blase, Fixsen, & Phillips, 1984; Chamberlain, 2003; Fairweather, Sanders, & Tornatzky, 1974; Grimshaw & Eccles, 2004; Havelock & Havelock, 1973; Horner, Sugai, & Horner, 2000; Schoenwald, Brown, & Henggeler, 2000; Slavin & Madden, 1999). These authors and others describe an implementation process where outside experts (called *purveyors* in this paper) work with organizations, systems, and practitioners to achieve high fidelity use of the products of science and to assure benefits to consumers. As Greenhalgh, Robert, MacFarlane, Bate, & Kyriakidou (2004) stated in their review of the diffusion literature, the field is moving from “let it happen” and “help it happen” to “make it happen” methods of implementation (p. 593), that is, from passive to more active forms of implementation.

### Implementation Science and Practice

In 2003, we began a search for implementation evaluation literature in any field including agriculture, business, child welfare, engineering, health, juvenile justice, management, manufacturing, medicine, mental health, nursing, social services, and substance abuse, among others (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005). To be included in the review, the literature needed to be published in English from 1970 through 2004 and include some empirical evidence related to one or more implementation factors. Analyses and synthesis of the results of the review revealed some very interesting findings and some frameworks that shed light on “what works” with respect to implementation. In 2003, we also began a series of meetings with research groups that were successfully implementing their programs on a national scale, leaders of provider agencies successfully implementing evidence-based programs, investigators who were conducting research on implementation variables, leaders of national organizations representing racial and ethnic groups, and policy makers from federal organizations with responsibility for encouraging the use of evidence-based programs. The frameworks that emerged from the review of the literature were confirmed and further illustrated in these meetings with participants in successful implementation

practices (Blase & Fixsen, 2003; Blase, Fixsen, Naoom, & Wallace, 2005, see also <http://nirn.fpg.unc.edu>).

In this article, we will review two major theoretical frameworks for moving science to service more effectively and efficiently. The first framework, the stages of implementation, is not the focus of this article and will be outlined briefly to set the context for the second framework. The second framework, the core components of implementation, will be described more fully. The final section will explore briefly the implications of these frameworks for improving the quality of human services in the next decade. The goal is to further the science and practice of implementation to help the reader use the products of science more immediately and effectively to benefit children, families, adults, and communities.

## Stages of Implementation

Implementation does not happen all at once and may take 2 to 4 years to complete in many provider organizations (e.g., Bierman et al., 2002; Fixsen, Blase, Timbers, & Wolf, 2001; Panzano & Roth, 2006; Prochaska & DiClemente, 1982; Solberg, Hroschikoski, Sperl-Hillen, O'Connor, & Crabtree, 2004). There is substantial agreement that implementation is a recursive process with steps that are focused on achieving benefits for children, families, provider organizations, human service systems, and communities. It appears there are six functional stages of implementation: exploration, installation, initial implementation, full implementation, innovation, and sustainability. The stages are not linear as each appears to impact the others in complex ways. For example, sustainability factors are very much a part of exploration and exploration directly impacts installation and initial implementation. Or, an organization may move from full implementation to initial implementation in the midst of unusually high levels of staff turnover. The stages of implementation can be thought of as components of a tight circle with two-headed arrows from each to every other component. Additional information on the stages of implementation can be accessed at [http://nirn.fmhi.usf.edu/implementation/06/06\\_stagesimple.cfm](http://nirn.fmhi.usf.edu/implementation/06/06_stagesimple.cfm).

## Core Implementation Components

Based on the commonalities among successful implementation programs, core implementation components have been identified (Fixsen et al., 2005). The goal of implementation is to have practitioners (e.g., care

managers, foster parents, nurses, teachers, therapists, physicians) use innovations effectively. To accomplish this, high-fidelity practitioner behavior is created and supported by *core implementation components* (also called "implementation drivers"). As shown in Figure 1, these components are staff selection, preservice and in-service training, ongoing coaching and consultation, staff evaluation, decision support data systems, facilitative administrative support, and systems interventions. These interactive processes are *integrated* to maximize their influence on staff behavior and the organizational culture. The interactive core implementation components also *compensate* for one another in that a weakness in one component can be overcome by strengths in other components.

In this conception, the core *implementation* components and their outcomes exist quite independently of the quality of the program or practice being implemented. Ineffective programs can be implemented well (e.g., the Drug Abuse Resistance Education program, Elliott, 1997; Ennett, Tobler, Ringwalt, & Flewelling, 1994), and effective programs can be implemented poorly (e.g., Fixsen & Blase, 1993; Fixsen et al., 2001). Neither option is desirable. Desirable outcomes are achieved only when effective programs are implemented well (e.g., Fixsen et al., 2001; Leschied & Cunningham, 2002; Washington State Institute for Public Policy, 2002).

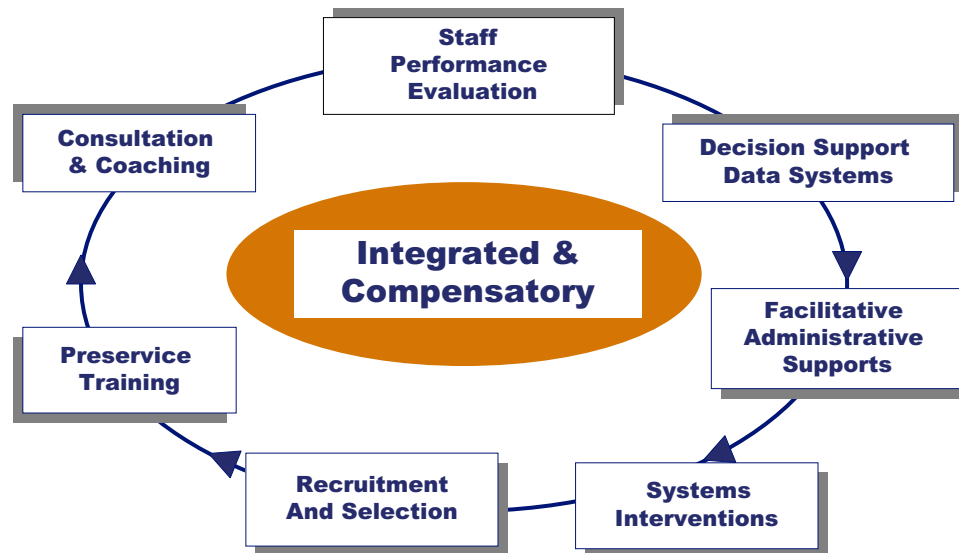
## Staff Selection

For ease of description, we will begin with *staff selection*. Who is qualified to carry out the evidence-based practice or program? What are the methods for recruiting and selecting practitioners with those characteristics? Beyond academic qualifications or experience factors, certain practitioner characteristics are difficult to teach in training sessions so must be part of the selection criteria (e.g., knowledge of the field, basic professional skills, common sense, sense of social justice, ethics, willingness to learn, willingness to intervene, good judgment, empathy). Some programs are purposefully designed to be very simple in order to minimize the need for careful selection (e.g., a reading tutoring program designed to be staffed by volunteers, Baker, Gersten, & Keating, 2000). Others have more specific and complex requirements for practitioner qualifications (e.g., Chamberlain, 2003; Phillips, Burns, & Edgar, 2001; Schoenwald et al., 2000) and methods for assessing competencies (e.g., Blase et al., 1984; Maloney, Phillips, Fixsen, & Wolf, 1975; Reiter-Lavery, 2004).

Staff selection also represents the intersection with a variety of larger system variables. General workforce

**Figure 1**  
**Core Components That Work Together to Implement and Sustain the Effective Use of Human Service Innovations Such as Evidence-Based Programs**

## Core Implementation Components



development issues, the overall economy, organizational financing, salaries and benefits, the demands of the innovation in terms of time and skill and so on, impact the availability of staff for human service programs. The move toward evidence-based practices and programs in human services has prompted concerns about advanced education, the availability of a suitable workforce, and sources of funding for highly skilled practitioners (O'Connell, Morris, & Hoge, 2004).

### Preservice and In-Service Training

Innovations such as evidence-based practices and programs represent new ways of providing treatment and support. To be effective, practitioners (and others) at an implementation site need to learn when, where, how, and with whom to use new approaches and new skills. Even though they are ineffective implementation strategies when used alone (e.g., Azocar, Cuffel, Goldman, & McCarter, 2003; Schectman, Schroth, Verme, & Voss, 2003; Stokes & Baer, 1977), preservice and in-service training are efficient ways to provide knowledge of background information, theory, philosophy, and values; introduce the components and rationales of key practices; and provide opportunities to practice new skills and receive feedback in a safe training environment.

### Ongoing Coaching and Consultation

Most skills needed by successful practitioners can be introduced in training but really are learned on the job with the help of a coach (de Vries & Manfred, 2005; Joyce & Showers, 2002; Schoenwald, Sheidow, & Letourneau, 2004; Sholomskas et al., 2005; Visscher, Wild, Smith, & Newton, 2003). A coach provides "craft" information along with advice, encouragement, and opportunities to practice and use skills specific to the innovation (e.g., engagement, treatment planning, clinical judgment). Implementation of human service innovations requires behavior change at the practitioner, supervisory, and administrative support levels. Training and coaching are the principal ways in which behavior change is brought about for carefully selected staff in the beginning stages of implementation and throughout the life of evidence-based practices and programs.

### Staff Performance Assessment

Staff evaluation is designed to assess the use and outcomes of the skills that are reflected in the selection criteria, taught in training, and reinforced and expanded in coaching processes (e.g., Bedlington, Braukmann, Kirigin Ramp, & Wolf, 1988; Dusenbury, Brannigan, Falco, & Hansen, 2003; Mowbray, Holter, Teague, & Bybee, 2003; Schoenwald et al., 2004; Woolf & Johnson,

2005). The first and most important use for staff evaluation information is to help the practitioner continue to improve his or her effectiveness with consumers. Assessments of practitioner performance and measures of fidelity also provide feedback useful to interviewers, trainers, coaches, managers, and purveyors regarding the progress of implementation efforts and the usefulness of selection, training, and coaching (Fixsen & Blase, 1993; Paine, Bellamy, & Wilcox, 1984). Although there is considerable discussion about the adapt-to-adopt advice from Rogers (1995), nearly all of the data indicate that high fidelity implementation of evidence-based programs produce better outcomes for consumers (e.g., Landenberger & Lipsey, 2005). Adaptation of core aspects of evidence-based programs does not appear to be a good idea if the benefits of those programs are to be preserved (Winter & Szulanski, 2001).

### **Decision Support Data Systems**

Other measures (e.g., quality improvement information, organizational fidelity measures, consumer outcomes) assess key aspects of the overall performance of the organization and provide data to support decision making to assure continuing implementation of the core intervention components over time (e.g., Horner et al., 2004; Huber et al., 2003; Khatri & Frieden, 2002). Frequent, user-friendly reports of process and outcome data provide guidance for decision making at the policy levels and practice levels of organizations and help keep whole organizations on the path toward continuous improvement (e.g., Hodges & Wotrung, 2004).

### **Facilitative Administration**

Facilitative administration provides leadership and makes use of a range of data inputs to inform decision making, support the overall processes, and keep staff organized and focused on the desired intervention outcomes. In facilitative administrative organizations, policies, procedures, structures, culture, and climate are given careful attention to assure alignment of these aspects of an organization with the needs of practitioners (e.g., Mintrop, Gamson, McLaughlin, Wong, & Oberman, 2001; Rodgers, Hunter, & Rogers, 1993; Sheldon et al., 2004). Practitioners' interactions with consumers are the keys to any successful intervention. It is up to administrators and others to make sure the practitioners have the skills and supports they need to perform at a high level of effectiveness with every consumer.

### **Systems Intervention**

Finally, systems interventions are strategies to work with external systems to ensure the availability of the

financial, organizational, and human resources required to support the work of the practitioners (e.g., Bernfeld, 2001; Klingner, Ahwee, Pilonieta, & Menendez, 2003). Again, alignment of these external systems to specifically support the work of practitioners is an important aspect of systems intervention (see Mihalic & Irwin, 2003, for examples of the interaction of administrative and external system variables with successful implementation and benefits to consumers).

### **Implementation Core Components: Integrated and Compensatory**

The importance of integrated core implementation components was illustrated by a meta-analysis of research on training and coaching carried out by Joyce and Showers (2002). They summarized several years of systematic research on training teachers in the public schools. They found that training that consisted of theory and discussion coupled with demonstration, practice, and feedback resulted in only 5% of the teachers using the new skills in the classroom. These findings are similar to those of Rogers, Wellins, & Conner (2002), who reviewed the business literature and estimated that about 10% of what is taught in training is actually transferred to the job. In the Joyce and Showers analysis, when on-the-job coaching was added to training, large gains were seen in knowledge and teachers' ability to demonstrate the skills and, most importantly, about 95% of the teachers used the new skills in the classroom with students. Joyce and Showers (2002) also note that training and coaching only can be done with the full support and participation of school administrators (facilitative administration) and works best with teachers who are willing and able to be fully involved (selection factors).

The integrated and compensatory nature of the core implementation components represents a challenge for implementation and sustainability. Organizations are dynamic, so there is an ebb and flow to the relative contribution of each component to the overall outcomes (Huber et al., 2003; Kelly et al., 2000). The feedback loops are critical to keeping the evidence-based program "on track" in the midst of a sea of change. If the feedback loops (staff performance evaluations and decision support data systems) indicate needed changes, then the integrated system needs to be adjusted to improve effectiveness or efficiency (see Bernfeld, 2001, for a more complete description of these interactive variables). That is, any changes in process or content in any one of the core implementation components requires adjustments in other core implementation components as well.

The descriptions of the core implementation components provide a template for analyzing and attending to implementation. A given practice or program may require more or less attention to any given core implementation component in order for the practice or program to be implemented successfully, and some practices may be designed specifically to eliminate the need for one or more of the core implementation components (e.g., Baker et al., 2000; Embry, 2004). In addition, the compensatory nature of the core implementation components helps to ensure that there are multiple systems, procedures, and opportunities to support high fidelity implementation. For example, in an implementation infrastructure that has minimal training opportunities for practitioners, intensive coaching with frequent feedback loops may compensate for the lack of training. Or, careful selection and very well-designed staff performance evaluations may compensate for less training and coaching.

In addition to analyzing the overall impact and benefits of the core implementation components in an implementation infrastructure, it should be recognized that the core implementation components also compensate for the fact that practitioners acquire skills and abilities at different rates over time. For example, one practitioner may significantly benefit from sound skill-based training and require less frequent coaching while another practitioner may leave the preservice training a little overwhelmed and require significant on-the-job coaching. The integrated and compensatory nature of the core implementation components may prove to provide a robust and flexible approach to ensuring high fidelity implementation. Efforts to make use of a practice or program on a significant scale require careful consideration and specification of each core implementation component and the role each one plays in supporting skillful implementation of the evidence-based program or practice.

### **Sources of Core Implementation Components**

Who provides the selection, training, coaching, evaluation, and administrative support services at an implementation site? Who intervenes with larger systems when needed? Will this be done by people inside the organization or contracted to individuals or groups outside the implementation site? For example, implementation sites using Multisystemic Therapy (MST) participate in a complex mix of core implementation components. Practitioners in new MST implementation sites are selected by staff at the implementation site

based on MST Services, Inc., criteria, trained by MST Services, Inc., at a central location in South Carolina, coached by local consultants who are trained and coached by MST Services, Inc., consultants, evaluated via monthly submissions of fidelity results to the MST Web site, and administratively supported by staff employed by the implementation site (Schoenwald et al., 2000). At least initially, interventions in larger systems issues (referrals, funding streams, interagency collaboration) are carried out jointly by MST Services, Inc., and the implementation site.

For Multidimensional Treatment Foster Care (MTFC), the implementation site identifies a core group to be trained (an administrator, supervisor, therapist, and a foster-parent trainer/recruiter) in a 3-day training session in Oregon that includes training and exposure to the important aspects of a fully operational program (Chamberlain, 2003). Next, two trainers from Oregon go to the implementation site to train the first cohort of foster parents, conduct additional training with the core staff group, and introduce them to the parent daily report (PDR) Web site. After youths are placed in the foster homes, the Oregon staff monitors the PDR data, and the Oregon staff provides weekly telephone consultation to the program supervisor and therapist. During the 1st year of implementation, the Oregon staff provides three additional 2-day training sessions at the implementation site.

In the implementation systems described in these two examples, the ongoing operations of an implementation site are always tied to the work of outside contractors. Although these hybrid systems probably retain the compensatory benefits discussed above, ongoing integration of functional treatment components and core implementation component functions may be difficult to achieve and maintain over the years. A different approach is to develop regional implementation sites (Slavin & Madden, 1999) that have the full capacity to provide all of the core implementation components within their own organization (these are sometimes called "intermediary organizations"). For example in the Teaching-Family Model, carefully selected staff members employed by an implementation site are specially trained and coached to provide selection, training, coaching, evaluation, facilitative administration, and systems interventions for treatment programs within easy driving distance (Blase et al., 1984; Wolf, Kirigin, Fixsen, Blase, & Braukmann, 1995). In this approach, each implementation site becomes the source of its own core implementation components without continuing reliance on outside contractors. For these implementation sites, fidelity is measured at the practitioner level to assure competent delivery of the core intervention components and

measured at the implementation site level to assure competent delivery of the core implementation components. Purveyors of Functional Family Therapy also work to develop self-sufficient implementation sites (Sexton & Alexander, 2000) and, recently, MST Services, Inc., has begun to develop organizations (“network partners”) to provide training and support services at a more local level. A concurrent challenge for these “intermediary” arrangements is the development of procedures to ensure fidelity to the implementation processes and outcomes and to track the intervention processes and outcomes in tandem.

### Roles of Purveyors

We make use of the notion of a *purveyor*. By that we mean an individual or group of individuals representing a program or practice who actively work to implement that practice or program with fidelity and good effect (Blase et al., 1984; Stetler et al., 2006). For example, MST Services, Inc., is the purveyor of the MST program for serious and chronic juvenile offenders and the Success for All (SFA) Foundation is the purveyor for the SFA whole-school intervention program. These are clear-cut examples of purveyors and each has a set of activities designed to help new organizations (“implementation sites”) use their respective programs effectively. In other cases, the “purveyor” is not so readily identified nor are the activities well described. For example, the Assertive Community Treatment program designed to reduce hospitalization of adult mental health patients (Drake et al., 2001) and the wraparound approach for highly individualized treatment of children and families (Burchard, Bruns, & Burchard, 2002) seem to have several individuals who act as consultants to communities and agencies interested in adopting those programs. The group studying the wraparound approach has recognized the problem of multiple definitions of their approach being used by different purveyors and have formed a national network to develop a common definition of the approach and a common set of processes for assessing the fidelity of new implementation sites (Bruns, Suter, Leverentz-Brady, & Burchard, 2004).

The literature is not always clear about the activities of a purveyor. For example, the Quantum Opportunity Program (Maxfield, Schirm, & Rodriguez-Planas, 2003) was implemented in several sites in a major, multistate test of the program. The report of the findings simply noted that the originators of the program had received funding to provide technical assistance to the implementation sites. Given the uneven results, it is

unfortunate that there was no link back to purveyor activities. Nevertheless, in all of these instances, a purveyor works in more or less organized ways with the intention to implement a specified practice or program at a particular location. Over the years, a purveyor also has been described as a “change agent” (Fairweather et al., 1974; Havelock & Havelock, 1973), “linking agent” (Kraft, Mezoff, Sogolow, Neumann, & Thomas, 2000), “program consultant” (Gendreau, Goggin, & Smith, 1999), and “site coordinator” (Blase et al., 1984).

An advantage of having a well-organized and persistent approach to implementation of evidence-based practices and programs may be that the purveyor can accumulate knowledge over time (Fixsen & Blase, 1993; Fixsen, Phillips, & Wolf, 1978; Winter & Szulanski, 2001). Each attempted implementation of a program reveals barriers that need to be overcome and their (eventual) solutions. Problems encountered later on may be preventable with different actions earlier in the implementation process. Thus, with experience, the purveyor group can learn to change their approaches early in the process to proactively set the stage for progress and avoid some of the later problems. In addition, an experienced purveyor can describe to the managers of an implementation site the likely problems that will arise and the likely solutions that can be applied. This seems to engender confidence and may lead to greater persistence to “see it through” when the going gets rough during the early stages of implementation. A problem is that the feedback loops for implementation efforts are very long. It often takes years to develop an implementation site and then see how well that site performs with respect to implementation and intervention outcomes and a few more years to adjust strategies and experience new results in an ongoing iterative process (Blase et al., 1984; Fixsen & Blase, 1993; Fixsen et al., 2001; Phillips, Phillips, Fixsen, & Wolf, 1974). Having a consistent group involved as purveyors of a given program or practice may create a repository for (more or less carefully evaluated) experiential knowledge and wisdom accumulated from a series of (more or less successful) implementation attempts over many years (Schofield, 2004).

### Next Steps

In this article, we have summarized the core implementation components. As the review of the literature and the review of current implementation best practices have shown, there is nothing really new about the implementation stages or any one of the core components.



What is new is the realization that the stages and components are highly integrated parts of a whole new thing that is identifiably “implementation.” Thus, now we can see that the missing link in the science to service chain is implementation. And, when implementation teams and purveyors are doing their work effectively, we can identify where they are in the implementation process (stages) and what they are doing (core components).

To have a useful and significant impact, we must learn how to make use of well-researched programs and practices on a national scale. In Elliott and Mihalic’s (2004) report of findings from the Blueprint Replication Initiative, they stated that although the 10 blueprint programs they studied had completed the necessary efficacy and effectiveness trials and met rigorous evaluation standards required for certification as a blueprints program, they were not necessarily prepared to deliver these programs on a wide scale. Only 4 of the 10 programs had the organizational capacity to deliver their program to 10 or more new implementation sites a year. “Although we have taken giant strides in determining what works and promoting the use of science-based programs, we have lagged behind in building the internal capacity of designers to deliver their programs” (Elliott & Mihalic, 2004, p. 48).

As noted in the introduction, our challenge in making use of science is how to build the science and quality into the daily performances of millions of practitioners internationally. How many experienced and skillful purveyors will that take? How will we know if the purveyors are doing a good job? How can we help federal and state human service systems keep up with the changing landscape at the evidence-based practice level?

These questions relate to three seminal issues that must be resolved if we truly wish to close the science to service gap:

1. We need to develop measures of the implementation stages and implementation components to provide practical signposts for policy makers and funders, useful feedback systems for purveyors, and common outcomes for researchers to assess.
2. We need to develop training academies to develop systematically, effectively, and efficiently a whole generation of purveyors who have the requisite knowledge and skill to do implementation work competently.
3. We need to engage policy makers and politicians in a determined effort to defragment human service systems and fully align funding, licensing, accreditation, monitoring, and bureaucratic functions with the needs of effective practitioners working in the

context of facilitative provider organizations. Current state and federal systems are “legacy systems” more attuned to the past than to the future.

The practice and science of implementation have improved to the point where more is known, but to bridge the gap between research and practice and to foster the science of implementation, we need to be as empirically sound in choosing our implementation strategies as in choosing our interventions.

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