

Designing projects based on up-to-date knowledge from implementation research and effective practice

National Implementation Research Network
www.nirn.fpg.unc.edu

September 2009

The following conceptual framework and logic model guide the use of implementation science in practice. The relationships between interventions and their implementation are elaborated in the *cascading logic model* shown in Table 1. Students are expected to benefit from evidence-based practices and other innovations (the WHAT) delivered by teachers and staff with the requisite knowledge, skills, and abilities. From that point on, the logic model helps to clarify which adults need to change their practices (the HOW) in order to support the full and effective implementation of the evidence-based practice or other innovation (collectively called the “innovation” in this paper). Teachers and school staff are the adults who interact directly with children. *All of the benefits to students are derived from those adults using innovations fully and effectively.* In the next level of the cascade, the focus shifts to teachers and school staff. How will they gain the knowledge, skills, and abilities needed to make effective use of the innovation? In this logic model, the teachers and staff will learn these skills from members of an Implementation Team who will employ best implementation practices (stages and drivers). The members of an Implementation Team, in turn, will learn best implementation practices from the National Implementation Research Network or other group that has well-established implementation expertise. *All of the benefits to teachers are derived from implementation infrastructures that support teachers, staff, and administrators in their uses of innovations.*

Identifying core intervention components

As shown in the cascading logic model, effective implementation (the HOW) starts with clarity about the intervention (the WHAT). Core *intervention* components of technology practices or programs are those key elements such as materials, procedures, teacher resources, and environmental features that must be maintained for the practice or program to be effective (Bauman, Stein, & Ireys, 1991; Dale, Baker, & Racine, 2002; Fashola & Slavin, 1997). Bodilly (1996) reviewed education reform programs and found that those program developers with well specified and clearly communicated components were more successful at getting all of the components fully implemented by the end of the demonstration year. In their review of the literature, McGrew, Bond, Dietzen, and Salyers (1994) found that (a) most program models are not well defined conceptually, making it difficult to identify core intervention components, (b) when core intervention components have been identified, they are not operationally defined with agreed-upon criteria for implementation, and (c) only a few models have been around long enough to study planned and unplanned variations.

The core intervention components are, by definition, essential to achieving good outcomes for students and education systems. Thus, specifying the core intervention components becomes important to framing issues that will need to be considered when using the implementation capacity.

Table 1. **Cascading Logic Model**

Population of Concern	Strategies (the WHAT)	Expected Outcomes
Students	Full and effective use of innovations in teacher/ staff/ administrator daily interactions with students	Improved student outcomes (e.g. communication, literacy, numeracy, behavior)
Population of Concern	Strategies (the HOW)	Expected Outcomes
Teachers, schools, and LEAs	<u>School-based</u> Implementation Teams make full and effective use of implementation stages and implementation drivers	Full and effective use of innovations in teacher/ staff/ administrator daily interactions with students
School-based Implementation Team members	<u>District-based</u> Implementation Teams make full and effective use of implementation stages and implementation drivers	<u>School-based</u> Implementation Teams make full and effective use of implementation stages and implementation drivers
District-based Implementation Team members	Implementation experts make full and effective use of implementation stages and implementation drivers	<u>District-based</u> Implementation Teams make full and effective use of implementation stages and implementation drivers
Assumptions		External Factors
<ul style="list-style-type: none"> • Current knowledge of implementation science and practice will apply fully to evidence-based practices and other innovations in education settings 		<ul style="list-style-type: none"> • Sustained federal commitment to application of evidence-based practices and other innovations in education • Federal and State commitment to use of implementation-based technical assistance for educational improvements for students

Using effective implementation methods

Once the interventions have been selected, schools and teachers are left with the second part of the equation: *HOW to implement their chosen interventions with good outcomes for students*. The core implementation components consist of the implementation drivers (shown in Figure 1) needed for successful uses of the selected technology practices and programs through all phases of implementation (Exploration, Installation, Initial Implementation, Full Implementation, Innovation, and Sustainability). The challenge is how to teach these complex skills related to the science and practice of implementation to members of a school-based Implementation Team.

The *conceptual framework for implementation* developed by the NIRN is shown in Figure 1. Data and best practices that support the development of this framework can be found in a synthesis of the implementation evaluation literature (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005; <http://www.fpg.unc.edu/~nirn/>). As shown in this framework, teacher/ staff selection, training, coaching, and performance assessment are critical features for developing *competent usage* of an innovation. Having data available to support decision making by teachers, staff, and administrators; administrators who remove barriers and find ways to facilitate teachers' use of new practices; and administrators who can help align external systems with the new ways of education are essential components that define *effective organization supports* for evidence-based interventions. Technical and adaptive *leadership* (e.g. Heifetz & Laurie, 1997) also is necessary for managing the day to day operations of a school/ LEA and for solving some of the more complex and vexing problems faced by educators.

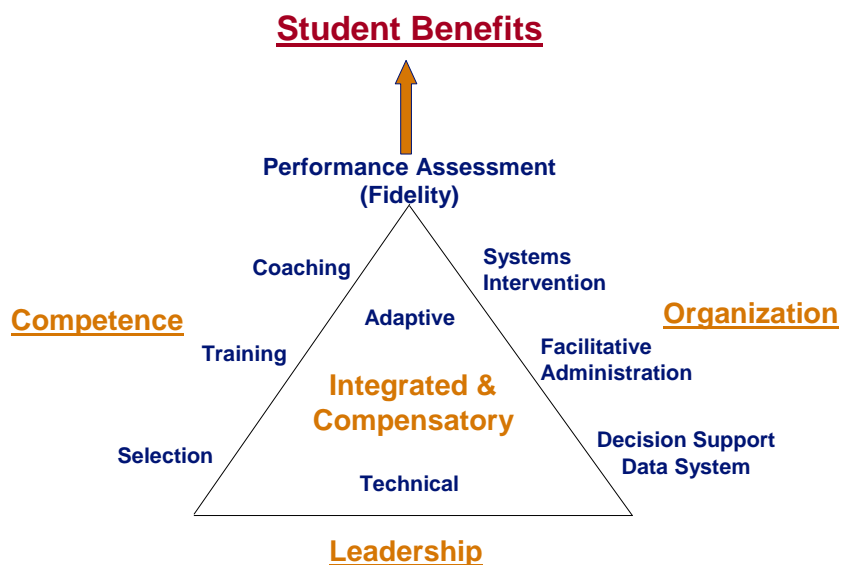


Figure 1. Implementation Framework © Fixsen & Blase, 2007

Finally, effective and sustained implementation occurs when staff

competence, organization supports, and leadership are aligned, *integrated*, and focused on effective education for each and every student. For example, Joyce & Showers (2002) conducted a meta-analysis of teacher training data from dozens of studies. They found that about 5% of the teachers effectively used interventions when they only received *excellent training* that included opportunities to practice new skills and receive feedback during training. A similar result was found in a review of training in business with about 10% of the trainees using the innovation in practice (Rogers, Wellens, & Conner, 2002). Importantly, Joyce & Showers also found that 95% of the teachers effectively used interventions when training was followed by in-class *coaching by a competent coach* (often, a master teacher in the school). They also pointed out

that coaching works best when used with interested teachers (selection) and supported administratively (facilitative administration). Thus, the use of all the Implementation Drivers in an integrated manner appears to be essential to achieving teacher and staff use of innovations. When these components are well integrated, strengths in some areas can be used to *compensate* for a weakness in another area (e.g. strong coaching can compensate for poor training; strong organization supports can compensate for a temporary drop in staff competency during periods of high turnover).

Facing the Facts

The issue for education is not just about the innovation, it also is about establishing the ability to implement innovations to produce demonstrable benefits to students. Innovations are more widely known and available. Implementation supports are not. So, how do we propose to face the facts and take on the *challenge of creating Implementation Teams* within education? As shown in the cascading logic model (Table 1), the sequence of events eventually leading to benefits for students begins with the interaction between those who have well-developed implementation expertise and members of a district-based Implementation Team. Once this implementation capacity is established, that capacity can be used to assure the effective use of all innovations in all schools in the region with demonstrable benefits to students.

The capacity to use innovations effectively consists of the knowledge, skills, and abilities of Implementation Teams. A knowledge-based infrastructure for implementation does not exist yet in education (or other human services). The work of the OSEP-funded State Implementation and Scaling up Evidence-based Practices Center is providing a pathway for establishing a statewide platform from which many evidence-based programs and other innovations can be launched (www.scalingup.org). This work will be advanced further by the upcoming Global Implementation Conference (www.implementatioconference.org). After decades of struggle, a free, appropriate, and *effective* public education for all children may be just around the corner.

NOTE: While the focus of this Brief is on education, the frameworks, cascading logic, and best practices for implementation apply equally in all human services. The science of chemistry and physics are the same anywhere in the world. Implementation science is universal as well.

References

- Bauman, L. J., Stein, R. E. K., & Ireys, H. T. (1991). Reinventing fidelity: The transfer of social technology among settings. *American Journal of Community Psychology, 19*, 619-639.
- Blase, K. A, Van Dyke, M. K., Fixsen, D. L, Duda, M., Horner, R., & Sugai, G. (March, 2009). *Scaling up and implementation institute manual*. OSEP TA Center on State Implementation and Scaling Up of Evidence Based Practices (SISEP). Chapel Hill: The University of North Carolina.
- Bodilly, S. (1996). *Lessons from New American Schools Development Corporation's demonstration phase*. Santa Monica, CA: RAND.
- Dale, N., Baker, A. J. L., & Racine, D. (2002). *Lessons learned: What the WAY Program can teach us about program replication*. Washington, DC: American Youth Policy Forum.

- Fashola, O. S., & Slavin, R. E. (1997). Promising programs for elementary and middle schools: Evidence of effectiveness and replicability. *Journal of Education for Students Placed At Risk*, 2(3), 251-307.
- Fixsen, D. L., & Blase, K. A.. (2007, September). *Implementation: Love it or be left behind*. Plenary presentation. Virginia Transformation Conference, Virginia DMHMRSAS, Office of Substance Abuse Services, Richmond, VA.
- Fixsen, D.L., Naoom, S.F., Blase, K.A., Friedman, R.M., & Wallace, F. (2005). *Implementation research: A synthesis of the literature*. Tampa, FL: University of South Florida, Louis de la Parte Florida Mental Health Institute, The National Implementation Research; available at <http://www.fpg.unc.edu/~nirn/resources/>
- Heifetz, R. A., & Laurie, D. L. (1997). The work of leadership. *Harvard Business Review*, 75(1), 124-134.
- Joyce, B., & Showers, B. (2002). *Student Achievement Through Staff Development (3rd ed.)*. Alexandria, VA: Association for Supervision and Curriculum Development.
- McGrew, J. H., Bond, G. R., Dietzen, L., & Salyers, M. (1994). Measuring the fidelity of implementation of a mental health program model. *Journal of Consulting & Clinical Psychology*, 62(4), 670-678.
- Rogers, R. W., Wellens, R. S., & Conner, J. R. (2002). *White Paper-The power of realization*. Retrieved October 10, 2007, from www.ddiworld.com/pdf/ddi_realization_whitepaper.pdf