***Policy Brief:***

***Scaling up Effective Educational Innovations***

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This document is prepared at the request of the US Department of Education to outline considerations in the development of policy that will promote large scale implementation of evidence-based practices in education. There are currently over 100,000 schools in the United States and any systematic effort to improve educational practices must include not only strategies for assessing effectiveness, but strategies for sustained implementation at levels of social and educational importance. A need exists for establishing a better understanding of the variables that affect large scale implementation.

Ample evidence suggests that scientifically validated educational practices are not being implemented or sustained at levels that are in the best interest of children (Carnine, 1997; Latham, 1988). Given a growing focus on policies that facilitate large scale implementation of evidence-based practices, we encourage consideration of variables related to defining (a) core features of scalable innovations, (b) foundation variables that affect large-scale implementation, (c) implementation for capacity building, and (d) phases of implementation.

***Core features of scalable innovations***

An evidence-based innovation is most likely to be implemented at scale if the innovation is effective, efficient, and sufficiently comprehensive to affect highly valued outcomes. Thus, scalable implementation planning must consider the following core features of innovations:

Focus on valued outcomes: Large scale implementation of evidence-based innovations in education will be most likely if the innovation is functionally linked to improvement in one or more highly valued educational outcomes: (a) academic achievement (math, reading, language), (b) social development, and (c) safety. While an array of sub-outcomes can be defined under each of these categories, evidence-based innovations that are insufficiently comprehensive to produce substantive improvement in core outcomes are less likely to be adopted at a large scale.

Operational definition of innovation practices: The practices that make up an evidence-based innovation must be defined with sufficient precision to allow direct observation of their performance. Too often educational practices are defined broadly, but without the precision needed for replication. Operational definitions allow measurement of implementation fidelity, and encourage iterative self-assessment during adoption cycles. Evidence based innovations that make up a comprehensive, research based framework should be defined with sufficient precision to allow direct observation of their performance.

Operational definition of context, recipients, impact: No evidence-based educational innovation is equally effective for all children in all contexts to achieve all outcomes. An innovation that is most likely to be implemented on a large scale, will define (a) the recipient audience (e.g., children with autism, typically developing children in grades k-3), (b) the context in which the innovation is implemented (e.g., resource rooms, family homes, classrooms, playgrounds), (c) the specific impact of the innovation on valued outcomes (e.g., improved reading progress monitoring scores; reduction in office discipline referrals; reduction in referrals to special education), and (d) the community context where implementation is expected (e.g., culture, language, families, neighborhood).

Efficacy Research: Large scale implementation should be limited to educational innovations that are evidence-based. Ideally, an innovation should provide a conceptual model defining the formal mechanisms by which gains will occur and can be explained, and published research documenting a causal relationship between use of the innovation and improvement in measured outcomes. In practice, a challenge exists in the precision with which evidence can be provided. Educational innovations that address highly valued outcomes seldom rely on simple use of a single procedure in a single setting. Often, an innovation will involve multiple practices in multiple settings, and systematic testing of the combined elements will only be possible under sizable scales of implementation. The standards for defining an educational innovation as “evidence-based” remain under development (Graham (2005), *Exceptional Children*, special issue). At this time, however, it seems unwise to invest resources in large-scale implementation without empirical demonstration that implementation of an innovation is associated with change in educationally valued outcomes.

Effectiveness Research: Educational practices may be demonstrated to be effective, but may be difficult to implement under typical conditions. Evidence-based educational innovations will be more likely to be implemented at a large scale if documentation exists that the practices can be implemented with fidelity by typical agents (families, teachers, administrators), in typical contexts, and with typical resources. Collecting and disseminating this detailed documentation is an excellent role for ‘technical assistance’ centers.

***Foundations for Scalability***

Traditionally, the focus of educational innovations has been on the specific practices that affect child behavior (e.g., development of phonemic awareness; teaching school-wide behavioral expectations; use of picture-schedules with children who have autism spectrum disorders). We propose that at least five “foundation variables” affect the extent to which innovative practices can be adopted on a large scale.

 Define necessary and sufficient conditions for implementation: The conditions under which a set of educational practices will be successful typically are defined within formal research reports. The conditions under which the same practices will be implemented with fidelity are often less easily available. Large scale implementation of educational innovation requires operational definition of the necessary and sufficient conditions within which the innovation should be attempted. An innovation may be designed for implementation within any typical k-6 school, but that implementation will be contra-indicated if the (a) administrator does not support implementation; (b) outcomes achieved by the innovation are not valued by staff, administrators or families within the school; or (c) resources needed for implementation of the innovation are not allocated. A central element for any large-scale implementation is the operational description of necessary and sufficient conditions needed to initiate implementation. These conditions should be organized within an assessment tool that is used as a prerequisite to investing in implementation efforts.

 Commitment to iterative measurement of (a) fidelity of practices and (b) impact: Educators are familiar with the on-going measurement of outcomes. However, annual measures of student progress will be insufficient for large-scale implementation of an innovation. Implementation of evidence-based innovations is not a single decision process. All substantive educational innovations require a multitude of continuous small decisions performed over extended time periods. Successful implementation will depend on regular (e.g. at least quarterly) assessment of implementation fidelity and impact. Any educational innovation that is proposed for large-scale implementation should include both clinical and research-quality measures of implementation fidelity and impact. Research-quality measures are needed to establish empirical effects. Clinical (self-assessment) measures are needed to allow efficient decision-making during implementation phases (see below).

 Systems to support effective practices: The third foundation for scalability is the operational definition of the “system” variables needed for effective employment of practices, for example, allocation of personnel, teaming practices, funding, policies and data collection/reporting capacity. The basic message is that effective practices may be of limited value if delivered within a context in which the systems needed for either initial implementation or sustained implementation are not available. Any educational innovation should include overt description of the systems that are required for both initial and sustained implementation.

 Sustainability: Large-scale application of evidence-based innovations in schools will not occur unless implementation of the innovation sustains over long time periods (e.g., 5-10 years). As such, development of a technology for large-scale implementation will require companion attention to the variables that affect sustainability. While discussions of this concern are common, empirically supported models are not. The challenge of sustainability may well reside in a requirement that any innovation include systematic procedures for ensuring *continuous regeneration*. Schools are highly dynamic environments. Not only do students change from year to year, but the faculty, administration, families, policies and funding policies also change. Any educational innovation that endures across these variations must have the capacity to continuously transfer skills and practices to new personnel. Sustainability is a core consideration for any effort to implement educational innovations at a large scale.

 Formal Process for Contextual Fit: Schools vary in many ways: size, location, student characteristics, staff characteristics, funding, organizational structure. For an evidence-based innovation to be implemented at scale it must be defined with adaptations that allow a “fit” with the local context. Just as functional behavioral assessment is used to match behavior support interventions to the specific features of a student, so an evidence-based innovation needs to include the tools that allow it to match the needs of small-large, rural-urban, diverse-homogeneous school communities. The three keys to promoting contextual fit are (a) precise definition of the core features of the innovation transcending contextual specifics, (b) self-assessment to define the smallest changes needed within a specific context to achieve the largest effect, and (c) iterative measurement of the core outcomes to facilitate continuous alignment of core features with practical impact.

***Implementation for Capacity Building***

The development of an evidence-based innovation typically involves attention to the practices that affect student outcomes. Thus, the behavior of students is the primary focus. However, with effective implementation of practices, the focus shifts to changing the behavior of adults: that is, the behavior of teachers, staff, administrators, and family members. The following model for implementation of effective practices (see Figure 1) can be applied at any scale, from initial to large-scale implementation. This model emphasizes early investment in the previously described foundation features so that innovation implementation at the local, regional, district, and state levels is of high fidelity and sustained.

 A central component of a large scale implementation is the establishment of a leadership structure or team that guides and coordinates the implementation for capacity building process. This team has representation from initiatives that have related outcome priorities, and based on regular self-assessment, develops a three to five year action plan for sustained and expanded implementation of an innovation.

 The activities and outcomes of this team are centered around the development of supports that enable effective and efficient functioning. Typically, this support is based on securing recurring and stable funding, continuous and widespread visibility, and political support from policy and fiscal decision makers. With these supports in place, action planning focuses on establishing self-sustaining capacity at the district, regional, and state levels for (a) training or professional development to maintain a competent implementation, (b) coaching or facilitation structures to prompt and maintain accurate implementation, and (c) continuous evaluation for contextually relevant decision making and action planning.

 Finally, the leadership team invests in the establishment and sustained operation of demonstrations of each level (i.e., school, district, region, state) of the innovation implementation. Successful and sustained demonstrations provide exemplar opportunities for implementation visibility, political support, professional development, and outcome evidence.

**Leadership Team**

Funding

Visibility

Political Support

Training

Coaching

Evaluation

Active Coordination

Local School Teams/Demonstrations

Figure 1

***Phases of Implementation***

We propose that implementation of an educational innovation is not a linear process of small to large scale occurring at one point in time, but rather is a process that is repeated across different geographical, organizational and structural contexts. For example, while one state may be actively engaged in large-scale implementation, a neighboring state may need to start with individual site demonstration before the political and fiscal capacity is developed for large-scale implementation. With this understanding, we propose that any approach to nationally significant scales of implementation will require an iterative process that can occur at different rates and stages across many different parts of the country. The central message is that an evidence-based innovation must achieve a level of implementation where is ceases to be an “idea” or “initiative” and becomes the institutional “standard” or “norm.” An innovation is implemented at full scale when it is simply “the way we do business.” Understanding the process of achieving this state of acceptance requires careful attention to at least four core phases of implementation.

 Emergence: At the initial stage of implementation an innovation is introduced. The innovation must be tied to a valued outcome (e.g. reading achievement), and defined with (a) operational precision, (b) clear logic defining the mechanisms by which the innovative practices affect the valued outcome, and (c) scientific documentation of a relationship between practices and outcomes.

 Demonstration: The second stage of implementation involves active demonstration that local sites (schools) are capable of implementing the practices and achieving desired effects. An essential part of initial demonstration efforts, however, is to establish the capacity for local coaching, training, evaluation and expansion.

 Elaboration: The third stage of implementation involves elaboration of the process to a district/region/state level. At this point the implementation process needs to be locally controlled, locally administered, but coordinated so that the “implementation process” adapts to local cultural and social needs while ensuring that the actual innovation practices remain implemented with fidelity.

 An important feature of the elaboration phase is documentation that implementation at a larger scale enhances cost effectiveness. The expense per school for the first 50 implementations needs to be reduced for the next 500. In most cases this reduction will occur as local trainers and coaches take over the role of more expensive external trainers, and training shifts from larger distant events to smaller, local events (Blonigen et al., 2005).

System Adoption: The final stage of implementation occurs when a sufficient proportion of schools within a district/region/state adopt the innovation and the innovation ceases to be a new initiative and becomes the standard practice. We have yet to learn the exact proportion needed for this shift to occur, but theory proposes that when 35% to 40% of schools adopt an effective innovation, it becomes difficult to prevent on-going adoption.

***Summary***

Improving school outcomes is associated with the selection and adoption of innovations that are proven to be effective, efficient, and relevant in achieving those outcomes. However, real success is associated with the accurate implementation of an innovation over time and across larger organization units. If classroom and school-wide innovations are to be scaled for sustained implementation at the district, regional, and state levels, priority must be directed toward the establishment of leadership structures that emphasize capacity building for sustained and scalable innovation implementation. In addition, efficiency adjustments must be based on the phase of innovation implementation (emergence, demonstration, elaboration, and system adoption). Real innovation adoption is evident when it becomes part of policy, organizational routines, and enhanced student and school outcomes.

References

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