Bringing Empirically Supported Prototypes/Practices to Schools

A key facet of translational research is bringing what is learned under "laboratory" conditions into common use and, reciprocally, to have practical applications inform laboratory work. Empirically supported prototypes brought to schools are one example of the importance of translational research.

With specific respect to psychological and other intervention applications, the National Institute of Health defines translational research as "applying ideas, insights, and discoveries generated through basic scientific inquiry to the treatment or prevention of human disease." Researchers directly concerned with translational efforts include those involved with implementation science developmental/experimental psychopathology, psychosocial and educational interventions, system transformational research, and public health policy and practice.

Challenges and Stages of Translational Research

In 2016, Translational Behavioral Medicine, Volume 6, Issue 1 provided an important set of articles designed to highlight "four major translational challenges: (1) demonstrating the utility of basic science findings for prevention; (2) formulating recommendations for the transfer of scientific information across the spectrum of translation, i.e., from basic research on 'mechanisms of behavioral change' for practice and policy impact; (3) confronting the real-world challenges in applying a translational approach with recommended innovations to overcome existing obstacles and (4) coming full circle to develop methods and processes for effective prevention programs to be self-sustaining and use back-translational evidence to inform basic sciences" (Fishbein, 2016).

To provide "a more refined, interpretable, and consensual model of translational prevention science," Diana Fishbein and her colleagues (2016) offer a "full translational spectrum of prevention science and provide six basic stages of translational research."

As their graphic illustration indicates, the stages extend "from the basic sciences – taking a multi-level systems approach, including the neurobiological sciences – through to globalization" (see below). The authors suggest that "The application of a wide perspective of translation research from basic scientific discovery to international policy change promises to elicit sustainable, population-level reductions in behavioral health disorders."
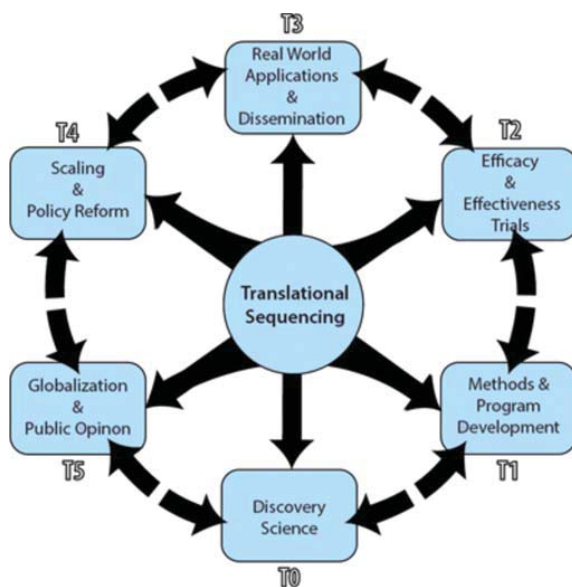
From: The full translational spectrum of prevention science: facilitating the transfer of knowledge to practices and policies that prevent behavioral health problems, *Transl Behav Med*. 2016;6(1):5-16. doi:10.1007/s13142-015-0376-2
Copyright © 2016, Society of Behavioral Medicine, Society of Behavioral Medicine

*The center is co-directed by Howard Adelman and Linda Taylor and operates under the auspices of the School Mental Health Project, Dept. of Psychology, UCLA,
Website: http://smhp.psych.ucla.edu Send comments to ltaylor@ucla.edu
Feel free to share and reproduce this document.

As the authors stress:

> "This approach involves the proactive building of an empirical basis for practices and policies in that the science (1) incorporates neurogenetic mechanisms and interacting contextual factors; (2) recognizes early onset warning signs that underlie behavioral problems and later pathological outcome(s), (3) applies a transactional method to determine the developmentally and culturally appropriate intervention or policy to enhance protective mechanisms thereby reducing exposure to and impact of liability factors, and (4) is sensitive to adaptation across time and context."

They clarify:

> "This translational process is neither linear nor circular; rather, each type, while primarily occurring as a stage in a progression (T0—T5), also may inform all of the other types. Back-translation – addressing outstanding questions to earlier phases in the translational process – applies at all stages. In brief, the stages are as follows:
>
> - Type 0 captures the phenomenon of discovery in the basic sciences and the translational step is the development of an applied theory.
>
> - Type 1 refers to the transfer of knowledge from the basic sciences to the applied sciences with the translational outcome being applied methods and program development.
>
> - Type 2 translation embraces the applied strategies generated by T1 and aims to facilitate, in part, preparation for testing and establishing evidence-based or scientifically-validated interventions.
>
> - Type 3 translational moves practices developed through T2 research beyond the academic research environment where efficacy studies are conducted and into clinical and community settings (where effectiveness and implementation studies occur) with a goal to reduce individual- and population-level behavioral health disorders.
>
> - Type 4 translation formally acknowledges and categorizes the extant research base to understand how to move efficacious prevention programs into a stage in which they are effective in clinical, non-research-oriented contexts and subsequently become self-sustaining in terms of fiscal subsidization, professional servicing, and infrastructure.
>
> - Type 5 translation takes results at the local and national levels to alter our universal understanding of the key determinants of health and well-being and reform social systems to become more responsive to human needs based on sound and well-tested scientific evidence, taking into account global political, economic, and cultural variations.
>
> Back-translation, an iterative part of the process, incorporates bidirectional exchange with earlier stages, as needed, so that there are constant modifications and refinements, allowing for continuous evaluation of outstanding questions."

Some Additional Matters to Think About in Bringing Prototypes to School

Based on our work with schools, we would point out the following as matters that often are given short shrift in the way translational research is discussed.

In its emphasis on treatment or prevention of human problems, the work tends to deemphasize a reciprocal determinist view of etiology and mainly stresses person-oriented interventions. As a result, the full range of primary instigating factors are not discussed and consequently neither are a full continuum of person and environment/institutional interventions. These short-comings have major implications for intervention research, practice, and policy and its translation.

With respect to addressing youngsters' learning, behavior, and emotional problems, for example:

During the first stages of translational research (i.e., the discovery, developmental, efficacy and effectiveness stages),

- most of the work has been shaped by models stressing person-pathology;

- this has shaped many of the interventions that have been developed and researched (e.g., empirically supported treatments).

As a result, many of the prototypes brought to schools for effectiveness trials are extremely limited (e.g., designed to help only a few students). And sometimes, they are ill-advised (e.g., they may contribute to the continuing marginalization, fragmentation, and counterproductive competition for sparse resources that dominate school efforts to address the many students who experience learning, behavior, and emotional problems).

Even more importantly, such translational activity tends to perpetuate a limited focus on *improving* specific practices, rather than encouraging the type of comprehensive *transformation* that is essential for substantive, scalable, and sustainable school improvement in how schools address barriers to learning and teaching.

From this perspective, we stress that translational researchers have an ethical responsibility to avoid doing harm to the people and places where they carry out their research, and they need to evaluate what's involved in replicating the practice and sustaining it over time. This calls for gathering data not just on positive outcomes, but on such matters as the nature and scope of organizational disruptions, costs of capacity building (e.g., training staff), and costs of ongoing implementation and sustainability.

What Schools Should Ask

In making decisions about bringing in any empirically-supported (science-based) practice for addressing learning, behavior, and emotional problems, school decision makers should ask:

- How does what is being proposed fit into a school's efforts to address barriers to learning and teaching and its efforts to re-engage disconnected students?

    >Fit with current school priorities?
    >Fit with existing accountability demands?
    >Fit with current efforts to address barriers to learning/teaching?

And, of course, it is essential to find out:

- Will the practice improve how schools address the *many* students experiencing learning, behavior, and emotional problems (e.g., will more than a few students be helped? how much better is the intervention than current practices)?

- Will the benefits outweigh the costs?

In evaluating potential benefits, it is essential to clarify

- What specifically does the evidence indicate is the practice's impact?

This involves critically looking at the data to determine the specific nature and scope of the reported empirical support. Putting design and meta-analyses matters aside, here are concerns to consider in looking critically at the research findings:

    >Do the reported measures (i.e., the dependent variables) account for enough of the variance in the problems the school needs to address?
    >Are any long-term positive and negative outcomes reported?
    >Any cost-benefit analyses?
    >Are the samples relevant to those the school serves (e.g., given that researchers have to work with those willing to volunteer, how closely does the sample match the school's demographics)?

Broadening the Focus of Research

It is clear that schools present many unique barriers to effective implementation of any new practice. For the most part, researchers tend to focus on the problems of *rigorous implementation* (e.g., fidelity, quality, acceptability, etc.). While this is understandable, successful implementation in schools also requires assurance of a good fit.

Translational and implementation researchers need to expand the focus of *effectiveness* studies done under typical school/classroom conditions so that they can provide schools with answers to such matters as:

- How potent is the prototype for addressing the problems the school needs to address?

    >Does what was measured specifically indicate that many students will benefit?

    >How much will the school benefit in its efforts to address barriers to learning?

    >Is there any evidence about long-term positive and negative outcomes?

- Any data on scalability and sustainability?

- What are the negative outcomes and other costs of establishing the prototype at schools?

- How much will the benefits outweigh the costs for schools?

Concluding Comments

To be clear: None of the above discussion is an argument against the value of trying to use good science as one of the bases for improving schools. Our concern is that too often the "best" evidence is not good enough.

Moreover, research has just barely scratched the surface of what schools need and about the mutlifaceted problems that must be addressed.

And so, the future of science-based schooling clearly depends on the ability of translational researchers to broaden and deepen their studies to provide answers to the questions highlighted above and overcome the myriad of challenges arising from changing complex organizations and their cultures.

References Cited

Fishbein D.H. (2016). The full translational spectrum of prevention science. *Translational Behavioral Medicine, 6, 1-4.* https://academic.oup.com/tbm/article/6/1/1/4563213

Fishbein, D.H., Ridenour, T.A., Stahl, M., & Sussman, S. (2016), The full translational spectrum of prevention science: Facilitating the transfer of knowledge to practices and policies that prevent behavioral health problems, *Translational Behavioral Medicine, 6*, 5-16. *https://academic.oup.com/tbm/article/6/1/5/4563196*

Note: A power point related to this article is online at
http://smhp.psych.ucla.edu/powerpoint/translationalresearch.ppt

Also see: **Why current psychotherapies for children and adolescents may be inadequate**
http://smhp.psych.ucla.edu/pdfdocs/therapy.pdf

What did you learn in school today?   **I guess not enough; they said I have to go back tomorrow.**