Identifying Educational Practices Supported by Rigorous Evidence

A Guide to the Selection of Evidence-Based Practices

RRCP
Regional Resource Center Program

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An Understanding of Evidence-Based Practices

One component of the recently required State Systemic Improvement Plan (SSIP) for State Departments of Education calls for the selection and implementation of evidence-based practices (EBPs). Specifically, language within Indicator 17 of the 2015 Part B SPP/APR and Indicator 11 of the Part C SPP/APR requires "LEA/EIS implementation of EBPs to improve the State-identified result(s)" for infants, toddlers, children and youth with disabilities.

McColskey & Lewis (2007) note that EBP means delivering services to students (clients) in ways that integrate (a) best available evidence from data, research, and evaluation; (b) professional wisdom gained from experience; and (c) contextual knowledge of the particular classroom, school, district, or state that might impact the design or implementation. More recently, Dean Fixsen and colleagues at the University of North Carolina at Chapel Hill (Fixsen, Blase, Metz & Van Dyke, 2013) proposed a formula for successful uses of evidence-based programs in typical human service settings that can be characterized as:

Effective Interventions x Effective Implementation = Improved Outcomes

Note that the formula for success involves multiplication. If interventions are not effective (intervention = zero), then the intended outcomes will not be achieved. If implementation supports are not effective (implementation = zero), then the intended outcomes will not be achieved. This document is meant to assist state and school leaders in making decisions around this formula – particularly decisions around selecting EBPs that have the greatest potential to result in improved outcomes for all students.

Identifying Educational Practices Supported by Rigorous Evidence
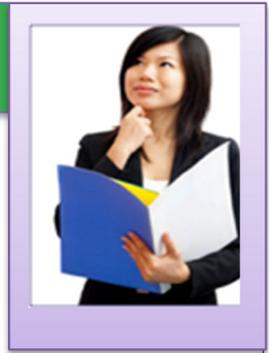
The U. S. Department of Health and Human Services' document *Identifying and Selecting Evidence-Based Programs and Practices: Questions to Consider* provides helpful steps and key questions to consider when charged with selecting EBPs that meet the needs of a target population. Using this document as a framework, the following steps, along with suggested tools and resources, provide a recommended route for identifying and selecting educational EBPs that will closely align with the needs of your state, district or school.

(1) Begin with the End in Mind – Determine Targeted Outcomes

Begin the process by determining what it is you would like your target population to be able to know or do as a result of taking part in the EBP or program. The following questions can help in identifying outcomes for your targeted population in specific, observable and measurable terms:

Outcome Identification
- *Who is the target population?*
- *What is the issue you are trying to address?*
- *Why or how did the issue develop?*
- *What variables contribute to the issue?*
- *What is currently being done to address the issue? Why is this not sufficient?*
- *What are the desired outcomes from School, District, and/or State Level perspective(s)?*

Conducting a thorough data analysis and developing a detailed Theory of Action or Logic Model can help generate answers to these questions. Logic models help plan with the end in mind – the targeted outcomes. Their purpose is also to communicate the underlying "theory" or set of assumptions or hypotheses that program proponents have about why a potential program will work, or why it is a good solution to an identified problem. For more information about logic models, see your RRCP liaison.

(2) Identify Potential Evidence-Based Practices (EBP)

Once outcomes have been clearly established, the next step is to identify potential EBPs that target the variable(s) contributing to the cause of the issue(s) you are trying to address. Before beginning this process, consider the following questions:

EBP Identification
- *What are the clearly defined, specific skills or knowledge sets being targeted?*
- *What types of students will the EBP target (e.g., all students, Tier 3 students, EL special education students, Grades K-5 students, students with Autism, etc.)?*
- *What is the intended reach and scope of the EBP (e.g., individual skill change, population-level skill change, etc.)?*

There are several different types of sources to help identify interventions appropriate to targeted needs. Although not inclusive of all potential sites, the following resources can aid in this search.

Related National and Federal Websites
What Works Clearinghouse
http://ies.ed.gov/ncee/wwc/
The What Works Clearinghouse (WWC) was established in 2002 as an initiative of the Institute for Education Sciences (IES) at the U.S. Department of Education. The WWC is administered by the National Center for Education Evaluation within the IES. The goal of the WWC is to be a resource for informed educational decision-

making. To reach this goal, the WWC identifies studies that provide credible and reliable evidence of the effectiveness of a given practice, program, or policy (referred to as "interventions") and disseminates summary information and reports on the WWC website.

National Secondary Transition Technical Assistance Center (NSTTAC) Evidence-Based Practices
http://www.nsttac.org/content/evidence-based-practices
NSTTAC conducts reviews of high quality group experimental (Gersten et al., 2005) and single-subject research (Horner et al., 2005) to identify evidence-based practices in the area of secondary transition services (Innes-Helsel, et al., 2006; Twyman & Sota, 2008). Practice descriptions organized by intervention (e.g., community-based instruction, response prompting) and by skill taught (e.g., academic skills for students with disabilities at the secondary level, completing a job application, grocery shopping) are available, as well as corresponding Lesson Plan Starters.

The IRIS Center Online Tools
http://iris.peabody.vanderbilt.edu/ebp/
The IRIS Center at Vanderbilt Peabody College has developed an online tool of *Evidence-Based Practice Summaries*. These summaries of research about the effectiveness of instructional strategies and interventions contain links to research reports and include information about an intervention's level of effectiveness and the age groups for which it is designed.

State Implementation & Scaling-up of Evidence-based Practices Center
http://sisep.fpg.unc.edu/
The purpose of the SISEP Center is to help to establish implementation and scaling capacity in state, regional, and district educational systems. SISEP provides content and technical assistance toward establishing large-scale, sustainable, high-fidelity implementation of effective education practices. The shared goal is to maximize academic and social outcomes of all students, especially those students with disabilities. Among its many services, the Center offers tools and resources for conducting this work, including formative and summative evaluation tools for action planning, monitoring and outcome assessment.

Additional Sites
National Autism Center (NAC)
 http://www.nationalautismcenter.org/
The National Autism Center is dedicated to serving children and adolescents with Autism Spectrum Disorders (ASD). NAC has developed guidelines and standards for identification of evidence-based practices to help researchers and practitioners make informed choices regarding interventions for students with autism. NAC has completed the *National Standards Project* that provides a set of standards for effective, research-validated educational and behavioral interventions for children/adolescents with autism. NAC has introduced an Educator Manual – *Evidence-Based Practices and Autism in Schools*, which is available for download on the NAC website.

National Professional Development Center on Autism Spectrum Disorders
http://fpg.unc.edu/news/research-backs-more-strategies-children-autism
The National Professional Development Center on Autism Spectrum Disorders *Evidence-Based Practices for Children, Youth, and Young Adults with Autism Spectrum Disorder* is another helpful document. Scientists at UNC's Frank Porter Graham Child Development Institute led the project, screening 29,000 articles about autism spectrum disorders (ASD) to locate the soundest research on interventions for children from birth to age 22. The purpose of this report is to describe a process for the identification of evidence-based practices (EBPs) and also to delineate practices that have sufficient empirical support to be termed "evidence-based."

Promising Practices Network (PPN)
http://www.promisingpractices.net
The RAND Corporation operates this project. RAND is a nonprofit research organization providing objective analysis and effective solutions that address challenges facing the public and private sectors around the world objectivity. The wide dissemination of its findings is an equally important part of RAND's mission of making research readily accessible to policymakers and others if it is to have impact on the public good.

In addition to reviewing the research on different *programs, products, practices,* and *policies* in education, the What Works Clearinghouse has produced a series of **Practice Guides** that summarize evidence-based practices and provide teaching recommendations in key academic areas. These can be directly downloaded from the WWC website. Among these Practice Guides are the following publications:

- *Teaching Math to Young Children*
- *Assisting Students Struggling with Mathematics*
- *Improving Mathematical Problem Solving in Grades 4-8*
- *Improving Reading Comprehension in Kindergarten Through 3rd Grade*
- *Assisting Students Struggling With Reading*
- *Teaching Elementary Students to Become Effective Writers*
- *Dropout Prevention*
- *Helping Students Navigate the Path to College: What High Schools Can Do*
- *Improving Adolescent Literacy: Effective Classroom and Intervention Practices*

http://ies.ed.gov/ncee/wwc/Publications_Reviews.aspx?f=All%20Publication%20and%20Review%20Types,3;#pubsearch

Technical Assistance and Dissemination Network (TA&D Network)

The **TA&D Network** is a network of approximately 45 Centers, including the Regional Resource Center Programs, funded by the Office of Special Education Programs (OSEP) and provides information and technical assistance to states, schools, educational professionals and families on topics related to special education. A list of these centers can be found at http://www.tadnet.org/pages/526-find-a-center. While all of the centers offer important information, we highlight three of these centers that may be of particular help with identifying evidence-based practices for students with disabilities.

National Center on Intensive Intervention
http://www.intensiveintervention.org/
The Center is designed to help schools work with students with severe and persistent learning or behavioral needs. Within multi-tiered systems of supports, this is often referred to as Tier III instruction. Among its resources, the Center publishes a set of tools charts focused on academics and behavior to assist educators and families in becoming informed consumers about intensive interventions. The Center also provides tool charts that assist practitioners in selecting intervention platforms and progress monitoring tools that best meet the needs of their students.

National Dropout Prevention Center for Students with Disabilities
http://www.ndpc-sd.org/
The overall goal of this Center is to provide high-quality, evidence-based technical assistance to help states build and implement sustainable programs and best practices that will yield positive results in dropout prevention, reentry, and school completion for students with disabilities. Relatedly, the **National Post-School Outcomes Center** (psocenter.org) has recently produced several products related to post-school success including *Aligning Evidence-Based Practices and Predictors for Post-School Success* that highlights evidence-based practices that support implementation of in-school predictors of post-school success.

The Family Center on Technology and Disability
www.fctd.info/resources
The Family Center on Technology and Disability (FCTD) is a resource designed to support organizations and programs that work with families of children and youth with disabilities. The Center offers a range of information and services on the subject of assistive and instructional technologies. Among these is the FCTD resource review database. Hundreds of assistive and instructional technology resources have been identified, reviewed, and annotated by topic, disability, and material type. Direct links to each resource have been provided in most cases as well.

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National Center on Accessible Instructional Materials and National Center on Universal Design for Learning
http://aim.cast.org/ and www.udlcenter.org
Many educators are aware of the Center for Applied Special Technology (CAST), but have not taken the opportunity to become familiar with the plethora of strategies, tools, research reports and other available materials for practitioners to assist students with disabilities gain access to the core curriculum. Both of these websites, along with the CAST website at www.cast.org, may be quite helpful in providing solutions to everyday challenges for students with varying disabilities.

Peer-Reviewed Journals
Peer-reviewed journals are another important source for identifying evidence-based practices and programs, including those not typically listed on prominent review sites. When reviewing articles on a particular intervention, it is wise to look at the entire body of research (all relevant documents) on an intervention rather than draw conclusions from a single piece of research.   This helps ensure that the conclusions that are drawn are based upon a consistent pattern of results rather than results from one single study.

For practitioners, using this type of literature is often very time consuming and resource intensive, particularly without ready access to academic libraries and electronic copies of journal articles. Also, it oftentimes requires technical expertise to review the literature and interpret results. Studies vary greatly when it comes to the quality of the theory on which the intervention is based, experimental design, measurement strategies used to evaluate the results and conclusions presented. In the next section, please find several key elements and questions to consider when analyzing articles in peer-reviewed journals.

(3) Determine Evidence of Effectiveness

After identifying a potential EBP that targets the variable(s) of concern, it is important to consider the strength of evidence behind the potential intervention. There are many types of designs that can be used in research studies. For example, the most rigorous studies of program effectiveness will use a research design called **random assignment,** which compares an intervention's impact on students or teachers to that of a control group that didn't get the intervention. Such experimental studies (with random assignment to the treatment and control groups) are costly and difficult to do, and often take several years to complete. Thus, not many of the programs or strategies considered will have this level of evidence. Another research design that is much more common is **quasi-experimental** design. This design also compares an intervention's impact on students or teachers to that of a control group that did not get the intervention. However, the participants were not necessarily randomly assigned to the groups. Well-done quasi-experimental studies that have been replicated also provide good evidence of effectiveness. **Single-subject studies** can also be informative. Single-subject experimental designs use participants (individuals or groups) as their own control and collect repeated measures of dependent variables over time to test the effects of a practice manipulated by the researcher*.*

For a more thorough and in-depth understanding of the quality indicators in studies of practices in special education, the Council for Exceptional Children has recently commissioned researchers to develop, vet, and pilot new standards for determining evidence-based practices (EBPs) in special education. These standards are available through the CEC's *Standards for Evidence-Based Practices in Special Education* available at
http://www.cec.sped.org/Standards/Evidence-Based-Practice-Resources-Original?sc_lang=en.

It is recommended that if using peer-review journals to determine the effectiveness of an intervention, individuals with expertise in this area be consulted. The following more general questions can also help guide discussions around evidence for effectiveness:

Evidence of Effectiveness
- ⑨ *What outcomes has the EBP achieved?*
- ⑨ *Has the EBP been implemented successfully within a similar setting and population as ours (e.g. age, ethnicity, disability)?*
- ⑨ *Has the EBP been evaluated with a research design including a comparison or control group, with significant findings* (simple pre-post studies and comparison-group studies in which the intervention and comparison groups are not well-matched do not provide solid evidence)?
- ⑨ *Have the results been replicated in other studies?*
- ⑨ *Have evaluation studies found the EBP to be effective compared to other evidence-based practices?*

(4) Analyze Organizational Fit

At this point, potential evidence-based practice(s) that have good evidence of effectiveness have been identified.   The next step is to query whether the EBP is feasible for your organization taking into account organizational policies, procedures and structures.

Organizational Fit Questions
- ⑨ *Is the EPB culturally feasible, taking into account the mission, vision, values, and culture of the educational community?*
- ⑨ *Is the EBP compatible with priorities and current initiatives already in place at the State, District and/or School Levels?*
- ⑨ *Are there individuals that are able to "champion" the EBP?*
- ⑨ *Will and what leadership personnel will support the EBP implementation and sustainability?*
- ⑨ *What type of changes to the organizational framework will be needed in order to provide adequate support to frontline staff implementing the EBP?*

The **National Implementation Research Network (NIRN)** also has excellent resources that can help organizations work through needed discussions around selecting evidence based practices, particularly organizational fit and the organization's capacity and resources to support potential EBPs. In particular, **NIRN's Hexagon Tool** can be used as a planning tool to evaluate evidence-based programs and practices during the Exploration Stage of Implementation.   Information about the Hexagon Tool can be found at the NIRN website, http://implementation.fpg.unc.edu/resources/hexagon-tool-exploring-context.

(5) Analyze Capacity and Resources

An organization considering adoption of a particular EBP also needs to determine if it has the capacity and resources necessary to carry out the program or practice as it was intended.   Essentially, the organization is looking to see if there is a match with the community's resources and capacity to implement a program—with the requirements of the program itself.   For example, if considering implementation of a new intervention at a district or school level, many skills that are needed by practitioners can be initially introduced during formal training. However, research indicates these skills are best learned with follow-up through "on-the-job training" typically delivered by someone in an instructional coach position. As researchers Joyce and Showers (2002) indicate, training and coaching should be one

continuous set of operations designed to produce actual changes in the classroom actions of teachers. One without the other is insufficient. If the district or school does not have the capacity to support such needed coaching, it may not be the most feasible EBP for the district or school to select.

Capacity and Resources Questions
Working through the following types of questions can be helpful to this process:
⑨ *Is the EBP financially feasible, taking into account costs to purchase implementation materials and provide technical assistance?*
⑨ *How much will it cost to recruit, train, and fund additional staff to ensure staff competencies and skills match the EBP requirements (e.g., trainers, coaches, and implementation teams)?*
⑨ *Does the EBP fit in with scheduling demands of the State, District and/or School?*
⑨ *What are the EBP's logistical requirements (e.g. technology, space, equipment, etc.)?*
⑨ Do the benefits outweigh the costs of implementing the new EBP?

(6) Consider Monitoring and Sustainability Issues

Considerations for monitoring and sustainability of EBPs are also critical and should be discussed prior to adopting a potential EBP. Planning for sustainability should begin *before* implementation occurs. Additionally, a plan for evaluation of your desired outcomes should be developed prior to implementation so that effects of the practice or program can be determined. The following questions may be of assistance in working through these considerations.

Monitoring and Sustainability Questions
⑨ *What monitoring or evaluation tools are available to help track implementation quality (i.e., fidelity measures)?*
⑨ *Have the developers of the EBP measured the rate of success in sustaining their model with fidelity?*
⑨ *Do we have the resources and staff to ensure such tracking?*
⑨ *What are the long-term costs associated with maintaining the EBP and the organizational infrastructure required for sustainability?*
⑨ *What funding resources are available for continued support of the EBP?*
⑨ *Can we build mechanisms into the implementation process to ensure sustainability?*

In Conclusion
The selection of EBPs that target desired outcomes is a challenging endeavor. Starting the process with clearly defining outcomes your state, district or school hopes to achieve is a critical first step and perhaps key to the entire process. Identifying potential EBPs and studying the evidence behind these potential interventions are important next steps, but clearly not enough. Spending thorough time and effort analyzing the organizational fit with potential EBPs, including organizational resources and capacity, is essential.

By following the steps outlined in this brief, we hope you will be able to select and utilize the EBP(s) that most appropriately match your desired outcomes. For assistance and more information, please contact your Regional Resource Center Program.

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