RtI Update
How Did Students in "X" Intervention Perform This Year?

The terms 'research-based' and 'evidence-based' are now part of the vocabulary of most educators. Through a quick review of the Wisconsin Specific Learning Disabilities (SLD) Technical Guide (2013), scientific-research-based interventions (SRBIs) are those that have been extensively evaluated using experimental or quasi-experimental design, replication, and results have been published in a peer-reviewed journal. Evidence-based interventions (EBIs) are defined as, "scientific research-based interventions with substantial evidence of their effectiveness through multiple outcome evaluations."

School psychologists have training and experience as consumers and synthesizers of research to be valuable members of school teams. Our skills lead naturally to working with school teams to select the most effective interventions to address specific skill areas students may be lacking. A quick search reveals many sources to find information regarding evidence-based or research-based interventions. If a need is present WITH a desire to find an intervention, there are several excellent sources to validate potential options. Some of the best resources available are:

- Best Evidence Encyclopedia
- Evidence-Based Intervention Network (EBI)
- Evidence for ESSA
- Intervention Central
- National Center for Intensive Intervention (NCII)
- What Works Clearinghouse

However, when it comes to evaluating outcomes of intervention groups, there appears to be fewer options, resources, and consensus how to evaluate local results. As Response to Intervention burst onto the scene years ago, many schools adopted interventions based on marketing or continued with their current inventory or legacy practices. If asked about the effect of the intervention, anecdotes are frequently provided and it is rare that data are provided that are analyzed in a systematic manner.

In 2004, Kratochwill and Shernoff provided some guidance and recommendations how to promote EBIs in practice. At the time, they cited some confusion among researchers in the coding and methods used along with a lack of training for practitioners to deliver EBIs with fidelity. The last recommendation involves the need for a scientist-practitioner model especially with regard to the evaluation of intervention outcomes. They also mention that outcome evaluation is particularly necessary as practitioners deliver intervention in typical conditions rather than experimental.

In Best Practices V, Burns, Vanderheyden, and Boice (2010) provide a chapter regarding the best practices in the delivery of intensive academic interventions. The authors provide a summary of the aspects of effective interventions. Instruction must be aligned to student need and provided in a systematic and explicit manner. While learning skills, students must be provided a sufficient challenge and a high opportunity to respond. Finally, for an intervention to be effective, frequent feedback must be provided and targeted to the responses provided by the student. School psychologists are in unique posi-

tions to be able to help teams ensure that interventions are correctly aligned to need and delivered according to research and publisher specifications. If delivery drifts too far from the specified delivery, little confidence can be assumed in the obtained results.

Theoretical Intervention Evaluation Model:

In the following section, few citations will be provided but the objective is to provide a framework for a realistic, efficient, and consistent method to evaluation outcomes of students provided interventions relative to grade level peers. Consider this as a method using research as a springboard to infuse research to practice. To complete this, school psychologists will need access to school-wide academic screening data from fall to spring and intermediate to advanced level skills using Microsoft Excel. Granted, having an online student-information software system (e.g., ion, EduClimber), statistical analysis package (e.g., SPSS) and dedicated time will make this an easier process. For those of us scared by Excel, this is the time when you may want to consider reaching out to training programs to inquire about supervising practicum students in the future. This would be a terrific, early fall project for a student.

Producing Data Sets using MS Excel:

1. **Obtain the Data:** Retrieve ALL screening data from online systems (e.g., NWEA, STAR, FastBridge) or pull the data from district sources.
2. **Organize your data**: This will take the most time and be tedious. Also, the first time doing this will likely result in do-overs and a moderate degree of frustration. But, once the data are set, there are many options for analysis. If working with Excel, arrange your data into the following columns, or as close as possible:
   o Student ID and/or Name, School, Grade, Teacher (optional), Demographics columns (TAG, Sp/Ed, 504, Race), Fall Screening Data, Winter Screening Data, Spring Screening Data, Growth: spring minus fall scores (Google "subtract numbers excel" to obtain formulas, you will thank yourself)
   o For some measures such as CBMs or computer adaptive measures, growth percentiles or the average growth from fall to spring may be useful to gain perspective if students in the group accelerated faster or slower than average
   o If multiple screening measures are available, group fall, winter, spring, and growth together for ease of use
3. **Split** your data set into groups. For example, if one wants to evaluate an intervention that spans varying grade levels, split the data into a Tier 1 only group and an intervention group. Create separate sheets for each group. On the other hand, if evaluating several different groups across grade levels, split your data into grade levels and separate groups by grade level (e.g. Reading Recovery Grade 1 and Tier 1 Only Grade 1).
   - Pivot tables also provide a clear method to organize and view data.
4. **Fall and Spring Scores:** Calculate mean, median, and

standard deviations of fall and spring screening scores for Tier 1 only and intervention groups.

5. **Growth**: Calculate the mean, median, and standard deviation of **growth or the difference** of fall to spring in the Tier 1 only and intervention groups

   o The local mean growth score and standard deviation of the growth scores are necessary to calculate a local Effect Size (intervention vs. Tier 1 only). Furthermore, the national growth means and standard deviation are necessary to calculate an Effect Size relative to national norms (intervention vs. national).

   o Typically, it is expected that students provided an intervention will demonstrate greater than average growth. In an attempt to efficiently compare the growth of students in the intervention compared to Tier 1 only, add a column to record if students demonstrated better than average growth. Publishers typically provide the average expected growth, consider rounding to the next whole number to obtain a score necessary to theoretically close the gap with same grade peers. Enter a 0 if students failed to meet the expected growth or a 1 if students exceeded the expected growth target. In Excel, use of the "if/then" formula can also provide an efficient method of coding 0's and 1's. Report the percentage of each group that met or exceeded expected growth. This metric is basic but will provide a general indication if a greater percentage of students in the intervention exceeded the average growth target compared to students in the grade level.

6. **Proficiency**: Insert a column next to both the fall and spring screening data and sort by small to large. In the empty column, code students who scored below proficiency with a 0 and students at or above the proficiency target with a 1. Consider use of the "if/then" in Excel.

   o This is your system 'health check" metric of your system. How many met the tier 1 target? 80%?

   o Calculate the number of students that met or exceeded proficiency for each season and screening measure. Report the percentage of each group.

   o Caution: If students enter an intervention with scores below the 25th percentile, reaching proficiency in one year may be unrealistic. However, examine the starting level of students placed in interventions to ensure that students are not placed in an intervention due to the perception of need rather than evidence indicating a need. On the other hand, also look for students who may have been placed in the intervention that may have been above the indicator level but had a history of need or teams feel the extra boost would push the student close to or above proficiency.

7. **Warning Indicator**: Insert another column next to the fall and spring screening data to code if students fell below your warning indicator score (e.g., 25th percentile). Students who scored below would be coded as a 0, whereas those above the 'indicator would receive a 1.

   o This allows calculation of the percentage of students below proficiency in fall and then in spring. It is also a way to ensure that you are shrinking the number of students who may require additional instruction instead of only evaluating intervention success.

   o Calculate the number of students that fell below the

warning trigger for each season and screening measure. Report the percentage of each group.

8. **Qualitative information**: In subsequent years, keep track of the students in interventions and monitor how many continue to score below warning indicator levels, enter additional interventions, and those that continue on a positive trend. Columns could be added if students moved to another intervention or if students continued to score below warning indicators in future seasons.

Reporting the Data:

Similar to organizing the data, reporting will be a time-consuming process the first few times. As a proposed framework, the following headings could be used to organize a program evaluation report.

- **Executive Summary**- write a one page summary of the major takeaways
   o Complete this after the report is finished

- **Questions**- pose the questions answered in the report
   o Examples:
     ■ What were the mean/median scores of students in the intervention and Tier 1 Only groups?
     ■ What was the average growth of students provided the intervention and grade level peers?

- **Graphs**- Readers will likely gravitate here. In general, less is more and keep your axes consistent on each measure. Different axes are fine between measures (e.g., between MAP and ORF).
   o **Bar graphs** are recommended to convey the following:
     ■ Percentage of each group that achieved proficiency and expected growth in fall and spring
     ■ Percentage of students in each group that were below the warning trigger in fall and then in spring
     ■ Effect Size- only use Effect Size if answers of method and interpretation can be provided with confidence
   o **Line Graphs** are recommended when presenting the fall to spring change in the Tier 1 Only compared to the Intervention group along with another line representing the 25th percentile (from published norms).
     ■ Use the same color for each group in throughout all reports generated. For example, intervention groups are green, the peer is blue, and the 25th percentile is orange. In a hypothetical ideal situation, the mean fall score of students in the intervention will start below the 25th percentile and end in spring, above the 25th percentile.

- **Recommendations**: Based on all the information contained in the report, what are the conclusions? **Objectivity** is critical as some interventions that are loved may not provide the expected results when using reliable and valid measures. Findings are neither good nor bad but can be used as signals where changes and improvements can be made. Seek out more neutral sources such as the IES Practice Guides rather than recommending adoption of new programs or products. The goals should be to highlight strengths and areas for improvement. The role of the evaluator should be to convey research-based methods that

could be integrated to improve district practice.

Admittedly, the proposed process is lengthy and takes some technical skill to complete. However, as resources and funding continue to be stretched, we owe it to students to provide services that are effective and efficient. School psychologists are encouraged to begin evaluating effectiveness even at a lesser level to help with data-based decision making at the school and district levels.

As practitioners gain experience organizing and evaluating outcome data, leaders are likely to take notice as this information can be invaluable when planning professional development or the allocation of resources each year. In Best Practices VI, Nagle and Glover-Gagnon (2014) provided a chapter on conducting needs assessments. The process described above could be used as a form of data collection and analysis when examining the needs of a school or district.

References:

Burns, M. K., Vanderheyden, A. M., & Boice, C. H. (2008). Best practices in the delivery of intensive academic interventions. In A. Thomas and P. Harrison (Eds.), *Best Practices in School Psychology V*. Bethesda, MD: NASP.

Kratochwill, T. R., & Shernoff, E. S., (2004). Evidence-based practice: Promoting evidence-based interventions in school psychology. *School Psychology Review, 23,* 34-48.

Nagle, R. J., & Glover-Gagnon, S. (2014). Best practices in designing and conducting needs assessment. In A. Thomas and P. Harrison (Eds.), *Best Practices in School Psychology VI*. Bethesda, MD: NASP.

Wisconsin Department of Public Instruction. (2013). *Wisconsin's Specific Learning Disabilities (SLD) Rule: A Technical Guide for Determining the Eligibility of Students with Specific Learning Disabilities*. Madison, WI: Author