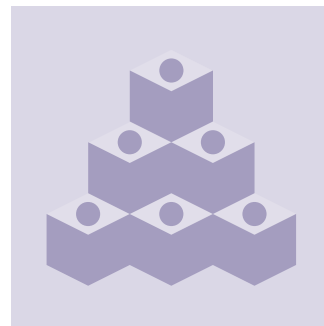
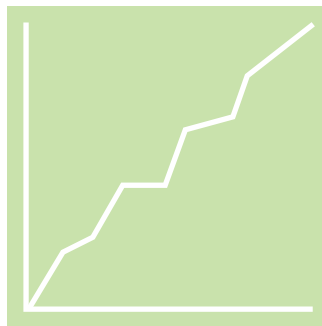


# Users Guide to Instructional Intervention Tools Chart



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National Center on Response to Intervention  
<http://www.rti4success.org>

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## About the National Center on Response to Intervention

Through funding from the U.S. Department of Education's Office of Special Education Programs, the American Institutes for Research and researchers from Vanderbilt University and the University of Kansas have established the National Center on Response to Intervention. The Center provides technical assistance to states and districts and builds the capacity of states to assist districts in implementing proven response to intervention frameworks.



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## The Basics of the Chart

### **What Is the Tools Chart?**

The tools chart is a list of commercially-available instructional programs and research studies documenting each program's effectiveness. The chart includes instructional programs designed for use in a secondary intervention context; in other words, these programs should be used in a small group setting with students not progressing in the core general education curriculum. Each of the studies on the chart has been reviewed by the National Center on Response to Intervention (NCRTI)'s Technical Review Committee (TRC) on instructional intervention. The chart offers information on the quality of the research studies, the effect sizes found in the studies, cost, and implementation requirements of the programs. It can be viewed online at: <http://www.rti4success.org/instructionTools>

### **What Is the Purpose of the Tools Chart?**

The purpose of the chart is to assist educators and families in becoming informed consumers who can select instructional programs that best meet their individual needs. The chart is not intended to endorse any program, or to compare programs to one another. Each study was rated against a standard set of criteria regarding the technical quality of the study.

### **Who Rated the Tools on the Chart?**

Ratings were made by the Technical Review Committee (TRC), a group of 23 national experts in research methodology and tiered instruction. Selection criteria for the instructional intervention TRC were that the member has (a) strong methodological skills and (b) a background in tiered instruction. Special attention was paid to including members with expertise on culturally and linguistically diverse populations. A list of instructional intervention TRC members can be found online at: <http://www.rti4success.org/trcMembers>



## Tips for Using the Chart

The tools chart includes a large amount of information designed to assist you in selecting an instructional program that is most appropriate for use as secondary intervention in your classroom, school, or district. The “best” program is not going to be the same for every user and is not determined by any single element on the chart. Users of the chart should review all of the elements of the chart when making a decision.



### **We recommend a six-step process for using the chart:**

1. Gather a team
2. Determine your needs
3. Determine your priorities
4. Familiarize yourself with the content and language of the chart
5. Review the data
6. Ask for more information

## **1. Gather a Team**

Often, decisions about appropriate instructional programs will involve the input of multiple administrators, teachers, and staff. When using the tools chart, it will be important to gather a team of key constituents in your school and district to review the information together.



### **Before you begin, ask yourself:**

- Who should be involved in selecting an instructional program?
- What types of expertise and what perspectives will I need to be available among those involved in selecting a program?



## 2. Determine Your Needs

The most appropriate instructional program for you will depend on your specific needs.



### Questions to think about, as a team, include:

- For what skills do we need a secondary intervention instructional program? Is there a specific academic outcome or measure we are interested in providing supplemental instruction for?
- For what grades do we need an instructional program?
- Will this program be used with all students who are not progressing in the core curriculum or only with specific sub-groups of students? Which sub-groups?

## 3. Determine Your Priorities

In addition to determining your needs for an instructional program, your team should consider its priorities.



### What is the most important thing to look for in a secondary intervention instructional program?

- Is it a program that can be purchased for a reasonable cost?
- Is it a program that does not take long to administer?
- Is it a program that does not require specialized expertise or lengthy training to administer?
- Is it a program that offers ready access to training and technical support for staff?
- Is it a program that has documented evidence of efficacy through the most rigorous research?
- Is it a program whose effectiveness has been studied and demonstrated in our district or state?

While you may ideally want a program that meets all of these criteria, there may not be one that does so. You will need to weigh your priorities carefully when making your selection.



## 4. Familiarize Yourself With the Content and Language of the Chart

The tools chart includes information on three aspects of a program study's quality: study quality, effect size, and implementation requirements.

Program	Study	Study Quality					Effect Size			
		Participants	Design	Fidelity of Implementation	Measures		# of Outcome Measures	Mean based on adjusted posttests		Disaggregated Data Available
					Proximal	Distal		Proximal (P) Distal (D)	Proximal (P) Distal (D)	

### *Study quality*

The TRC has established four dimensions of study quality for instructional programs:

- **Participants:** Are the students in the study at-risk?
- **Design:** Does the study design allow us to conclude that the intervention program, rather than extraneous variables, was responsible for the results?
- **Fidelity of implementation:** Was it clear that the intervention program was implemented as it is designed to be used?
- **Measures:** Were the study measures accurate and important?

For each of these dimensions, the TRC reviewed data from the studies submitted by developers of the programs, and gave a rating of “convincing,”<sup>1</sup> “partially convincing,” or “unconvincing.” By clicking on the actual standard name in the column headers of the chart, you will come to a window that includes a rubric describing the specific criteria used by the TRC to rate studies on that dimension.

It is important to remember that the study quality ratings reflect an assessment of the quality and technical rigor of a research study. They do not say anything about the results of the study; they do not present any assessment of whether or not the study provided evidence of program effectiveness. For information on program effectiveness, you should review data in the “Effect Size” section of the chart.

<sup>1</sup> For the Participants dimension, “Convincing” and “Unconvincing” are the only options.



## ***Effect size***

The last four columns of the chart offer information about the effect sizes found in each study. The effect size is a measure of the magnitude of the relationship between two variables. Specifically, on this chart, the effect size represents the magnitude of the relationship between participating in a particular intervention and an academic outcome of interest. The larger the effect size, the greater the impact that participating in the intervention had on the outcome. Furthermore, a positive effect size indicates that participating in the intervention led to improvement in performance on the academic outcome measure, while a negative effect size indicates that participating in the intervention led to a decline in performance on the academic outcome measure.

When reviewing effect size data, you should pay particular attention to effect sizes for outcomes in which you are interested. Most studies have multiple outcome measures, and it is not uncommon to see large effect sizes for some outcomes and smaller effect sizes for others. On the tools chart, effect sizes are reported separately for *proximal* and *distal* measures. Proximal measures assess aspects of competence that the program was directly targeted to improve. Distal measures assess aspects of competence that are related to the skills targeted by the program but not directly taught in the program. Because of the more direct relationship between proximal measures and an intervention's instructional content, effect sizes for proximal measures are often higher than effect sizes for distal measures. It is important to keep this distinction in mind when reviewing and comparing effect size data across measures and studies.

There are many different methods for calculating effect size. In order to ensure comparability of effect size across studies on this chart, the NCRTI has used two standard formulas to calculate effect size across all studies and outcome measures—one based on adjusted posttests and one based on unadjusted posttests. Developers of programs on the chart were asked to submit the necessary data to compute the effect sizes, and results from both methods are reported on the chart.

The *adjusted* posttest refers to posttests that have been adjusted to correct for any pretest differences between the program and control groups, and therefore the TRC considers the formula based on adjusted posttests to be the more rigorous of the two. The formula based on unadjusted posttests



is typically used only in instances in which we can *assume pretest group equivalency*. Therefore, NCRTI will only be reporting effect size based on unadjusted posttests for studies that either (a) use random assignment or (b) are quasi-experiments but pretest differences on outcome measures are not statistically significant and fall within 0.5 standard deviations.

On the chart, the effect size columns include the following information:

- **Number of outcome measures:** the number and type (e.g. reading or math) of outcomes that were gathered from students before and after the program was implemented
- **Mean (for both types of effect size):** the average effect size, reported separately for proximal outcome measures and for distal outcome measures
- **Disaggregated data available:** availability of any outcome data disaggregated for one or more sub-groups

These data are provided so that users can compare across studies which programs appear to be yielding greater effect sizes than others. Because of the differences in the two methods for calculating effect sizes, it is critical that comparisons only be made within one particular method (e.g., effect sizes based on adjusted posttests should only be compared with other effect sizes based on adjusted posttests, and effect sizes based on unadjusted posttests should only be compared with other effect sizes based on unadjusted posttests).

It is important to note that information on effect size and information on study quality should be reviewed and evaluated together. You should feel more confident in the validity of effect sizes for studies of the highest technical quality and rigor. Any flaws in study design could potentially over- or under-estimate effect sizes.

### ***Implementation requirements***

The tools chart offers an “implementation table” for each program, which can be accessed by clicking on the name of the program. Information in this table includes:

- How much does the program cost?
- How much time is required to implement the program?




- How much training is required to implement the program?
- What level of staff expertise is required to administer the program?
- Where can we get training and technical support?

## 5. Review the Data

In addition to the technical ratings and effect size summary data, the tools chart includes detail about the actual data that were submitted to the TRC for review. These data can be viewed by clicking on any of the rating bubbles in the cells in the chart.

Examining these data can be useful for a number of reasons. You may see two or more programs with studies that received the same rating for a particular dimension; in these cases, how do you know which one really best meets your needs? By clicking on the rating and viewing the actual data, you have more information available to help determine which program is most appropriate.

For example, for Participants and Measures, you will see information on the sample and measures used in the study. You may want to look for programs with studies conducted with samples similar in characteristics to the population of students you work with, and that used outcome measures similar to those you are interested in improving.



Proximal Measure	Score type and range of measure	Reliability statistics	Relevance to program instructional content
DIBELS Oral Reading Fluency	Words Correctly Pronounced / Minute	.93 (Single Probe)	Measure of decoding and fluency for familiar words
DIBELS Oral Reading Fluency	Accuracy (% correct)	.93 (Single Probe)	Measure of decoding and fluency for familiar words
DIBELS Nonword Fluency	Nonwords correctly pronounced / minute	.885 (Single Probe)	Measure of decoding and fluency for nonwords
DIBELS Nonword Fluency	Accuracy (% correct)	.885 (Single Probe)	Measure of decoding and fluency for nonwords

Distal Measure	Score type and range of measure	Reliability statistics	Relevance to program instructional content
Iowa Test of Basic Skills: Reading Comprehension Subtest	Percentile	.94 (single probe)	Reading Comprehension



Furthermore, more detail on effect sizes for each outcome measure can be found by clicking on the text in the effect size cells. Because studies often include a range of outcome measures that vary depending on the target skill for the program, it is important to review more than just the mean effect size.

4 Math	P = 1.16 <sup>a</sup> D = 0.60 <sup>a</sup>	P = 1.15 <sup>a</sup> D = 0.67 <sup>a</sup>
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Proximal Measures			
Construct	Measure	Effect Size	
		based on adjusted posttests	based on unadjusted posttests
Math	Immediate Transfer	1.16***	1.15***

Distal Measures			
Construct	Measure	Effect Size	
		based on adjusted posttests	based on unadjusted posttests
Math	Near Transfer	0.82***	0.96***
Math	Far Transfer	0.38	0.38

Key	
*	p ≤ .05
**	p ≤ .01
***	p ≤ .001

## 6. Ask for More Information

You may find that the tools chart does not provide you with all the information you need. For example, what if a program that you are interested in does not have disaggregated data available for a particular sub-group that is important to you? Ask the vendor! Developers who have chosen to submit their programs for review and publish them on the chart are interested in meeting the needs of their customers and doing more research to provide needed data.

Similarly, if a program that you currently use or are interested in learning about is not on the chart, call the developer of that program. Tell the vendor about the TRC review process and the tools chart, and ask them to consider submitting for review.



**Finally, if you are unsure about what any technical terms on the chart mean, or how to interpret any of the information on the chart, contact the National Center on Response to Intervention at 877-RTI-4ALL, or [rticenter@air.org](mailto:rticenter@air.org).**



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