

Linking Assessment to Instruction: Using Dynamic Indicators of Basic Early Literacy Skills in an Outcomes-Driven Model

Ruth A. Kaminski, Ph.D., Kelli D. Cummings, Ph.D., NCSP, Dynamic Measurement Group

Overview

As educators increasingly are held responsible for student achievement, school personnel struggle to find ways to effectively document student responsiveness to interventions and track progress toward important outcomes. While many educators focus on high-stakes tests as a means of documenting student achievement of important outcomes, other assessment approaches may be better suited to assessing student progress. Assessment that can be used to adapt teaching to meet student needs is called formative assessment. Because the primary purpose of formative assessment is to support student learning, it may arguably be considered the most important assessment practice in which educators engage. This paper will focus on linking assessment

to instruction to improve student outcomes through the use of Dynamic Indicators of Basic Early Literacy Skills (DIBELS) within an Outcomes-Driven Model.

What are DIBELS?

Dynamic Indicators of Basic Early Literacy Skills (DIBELS) comprise a set of procedures and measures for assessing the acquisition of early literacy and reading skills from kindergarten through sixth grade. DIBELS were designed for use in identifying children experiencing difficulty in the acquisition of basic early literacy skills in order to provide support early and prevent the occurrence of later reading difficulties. As part of the formative assessment process, DIBELS were designed to evaluate the effectiveness of interventions for those

children receiving support in order to make changes when indicated to maximize student learning and growth.

DIBELS measures, by design, are indicators of each of the basic early literacy skills. For example, DIBELS do not measure all possible phonemic awareness skills such as rhyming, alliteration, blending, and segmenting. Instead, the DIBELS measure of phonemic awareness, Phoneme Segmentation Fluency (PSF), is designed to be an indicator of a student's progress toward the long-term phonemic awareness outcome of segmenting words.

Overview of DIBELS Measures

Core Components of Reading		DIBELS Indicator
1	Phonemic Awareness	Initial Sound Fluency Phoneme Segmentation Fluency
2	Alphabetic Principle and Phonics	Nonsense Word Fluency ¹ Oral Reading Fluency ²
3	Accuracy and Fluency with Connected Text	Oral Reading Fluency
4	Comprehension	At least through grade 3: A combination of Oral Reading Fluency and Retell Fluency
5	Vocabulary and Oral Language	Word Use Fluency

Figure 1

Notes: ¹Nonsense Word Fluency is an indicator of early phonics skills or the alphabetic principle, specifically, does the student know the most common sound for each letter and can he/she correctly blend the sound with the sounds before and after to read an unknown word. ²Oral Reading Fluency accuracy is an indicator of a child's advanced phonics skills. If accuracy is less than 95% on ORF, it is likely that a student may need support in the area of decoding not reading fluency. Reading fluency is an appropriate instructional goal when accuracy is at least 95%, i.e., the student is reading accurately but slowly.

Reliability & Validity

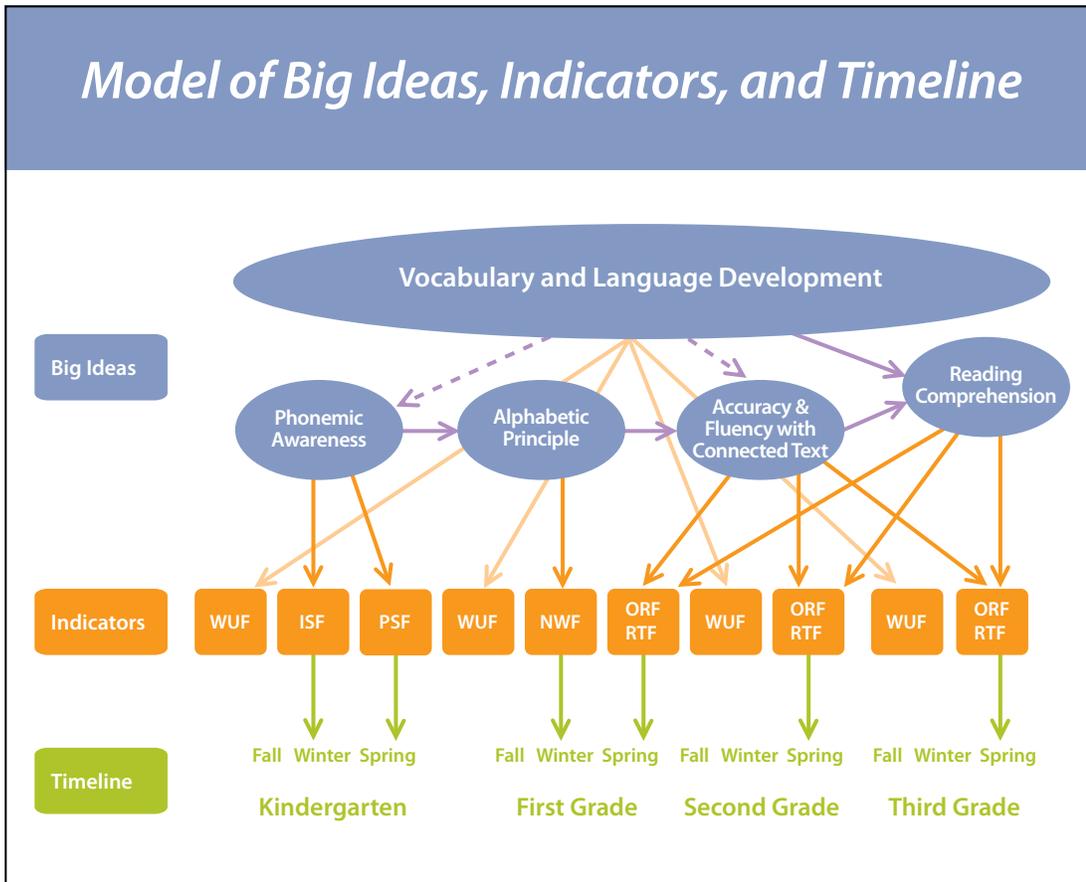


Figure 2

Adapted from Good, R. H., Simmons, D. C., & Kame'enui, E. J. (2001).

Data on DIBELS

Measure	Alternate Form Reliability	Criterion-Related Validity
Phoneme Segmentation Fluency	1 probe: .88 3 probes ^a : .96	.73 – .91
Initial Sound Fluency	1 probe: .65 5 probes: .90	.44 – .60
Nonsense Word Fluency	1 probe: .92 3 probes: .98	.84
Word Use Fluency	1 probe: .65 5 probes: .90	.42 – .71
Oral Reading Fluency	1 probe: .90	.70 – .80
Retell Fluency	.68 – .72	.73 – .81
Letter Naming Fluency	1 probe: .93 3 probes: .98	.72 – .98

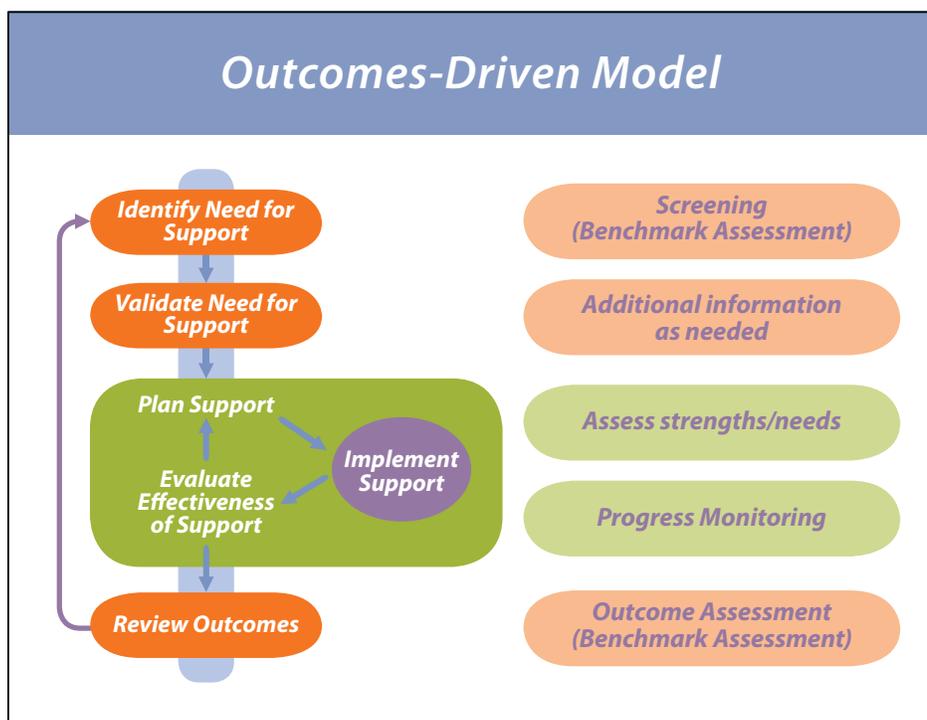
Figure 3

Reliability and Validity (Good & Kaminski, 2002; Rouse & Fantuzzo, 2006)

Link to a Decision Making Model

Outcomes-Driven Model for Educational Decisions		
ODM Step	Decisions/Questions	Data
1. Identify Need	Are there students who may need support? How many? Which students?	Screening data (DIBELS Benchmark data)
2. Validate Need	Are we confident that the identified students need support?	Diagnostic assessment data and additional information as needed
3. Plan and Implement Support	What level of support for which students? How to group students? What goals, specific skills, curriculum/program, instructional strategies?	Diagnostic assessment data and additional information as needed
4. Evaluate and Modify Support	Is the support effective for individual students?	Progress Monitoring data (DIBELS progress monitoring data)
5. Evaluate Outcomes	As a school/district: How effective is our core (benchmark) support? How effective is our supplemental (strategic) support? How effective is our intervention (intensive) support?	Outcome Assessment information (DIBELS Benchmark data)

Figure 4



Link to a DMM (Kaminski, Cummings, Powell-Smith, & Good, 2008)

Figure 5

Outcomes-Driven Model

DIBELS were developed to be inextricably linked to a model of data-based decision making. The Outcomes-Driven Model described here is based on foundational work with a problem-solving model (see Deno, 1989; Shinn, 1995; Tilly, 2008) and the initial application of the problem-solving model to early literacy skills (Kaminski & Good, 1998). The Outcomes-Driven Model was developed to address specific questions within a prevention-oriented framework designed to pre-empt early reading difficulty and ensure step-by-step progress toward outcomes that will result in established, adequate reading achievement. The Outcomes-Driven Model accomplishes these goals through a set of five educational decisions: (1) identify need for support, (2) validate need for support, (3) plan support, (4) evaluate and modify support, and (5) review outcomes. A key premise of the Outcomes-Driven Model is prevention for all students.

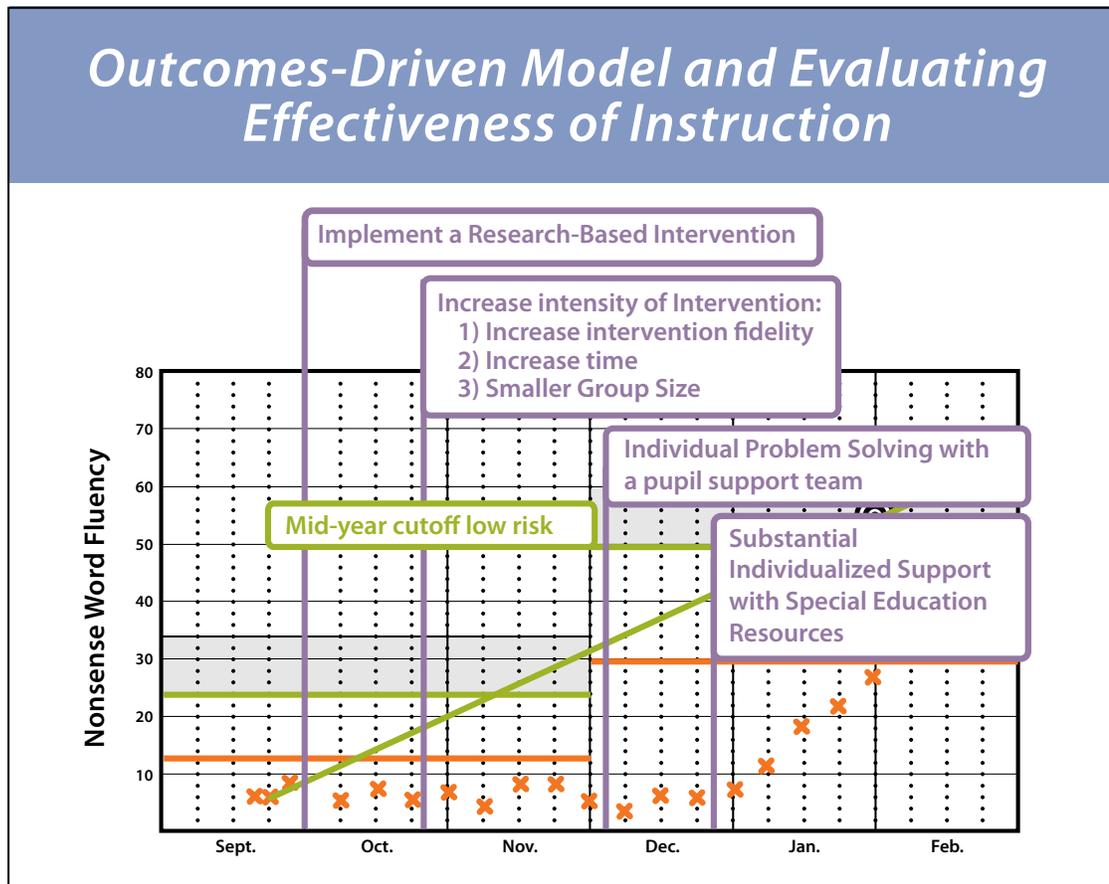


Figure 6

Way to evaluate overall system of support (Good, Kaminski, Smith, Simmons, Kame'enui, & Wallin, 2003; Kaminski & Cummings, 2007)

DIBELS as GOMs

General Outcome Measures (GOMs) like DIBELS differ in meaningful and important ways from other commonly used formative assessment approaches. With GOMs such as DIBELS, student performance on a common task is sampled over time to assess growth and development toward meaningful long-term outcomes. GOMs are deliberately intended not to be comprehensive and therefore do not assess each individual skill related to a domain. Instead, GOMs measure key skills that are representative of and related to an important global outcome such as reading competence. GOMs include multiple alternate forms of approximately equal difficulty that sample these key skills. Also, the administration and scoring of GOMs is standardized so that the assessment procedures are delivered uniformly across students. GOMs are efficient, generally taking from 1 to 5 minutes to administer and score yet provide data that are highly relevant to instructional planning.

Finally, GOMs are highly sensitive to small, but important changes in student performance. Because of these design features,

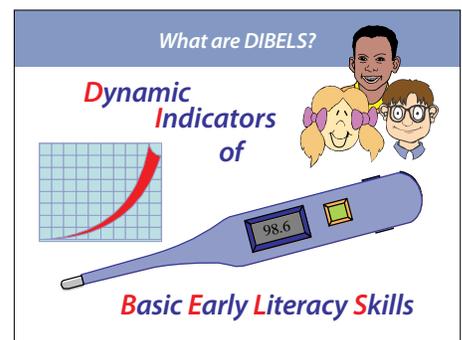


Figure 7

GOMs can be administered frequently over time. Differences in scores are attributable to student growth, not differences in the materials or assessment procedures so educators can compare assessment results over time. In much the same way as an individual's temperature or blood pressure can be used to indicate the effectiveness of a medical intervention, GOMs in the area of education can be used to indicate the effectiveness of our teaching.

Dynamic Indicators of Basic Early Literacy Skills (DIBELS®) Link with Instruction

The use of formative assessment tools for instructional planning in special education has a relatively long history (c.f. E. Deno, 1970; S. Deno, 1986). However, their recent popularity as general education tools to provide universal screening (Good, Simmons, & Kame'enui, 2001), prediction of performance on high stakes tests (Shapiro, Keller, Lutz, Santoro, & Hintze, 2006; Silberglitt & Hintze, 2005), and decisions regarding special education eligibility (Fuchs & Fuchs, 1998; Ardoin, Witt, Connell, & Koenig, 2005), have launched such tools to the forefront of the educational forum.

In addition to meeting rigorous professional and ethical standards for reliability and validity, we agree with a recent article by Barnett et al. (2006) that highlights the need for formative assessment tools to provide evidence beyond the static reliability and validity data found in traditional assessment tools. Particularly, these authors note the need for formative assessment tools that are

linked with a well-defined, decision-making model. We note that in order for formative assessment tools to be used effectively to link assessment to instruction, they must also (a) accurately identify risk early, (b) provide meaningful and important goals, (c) evaluate adequate progress toward those goals, and (d) provide a way to evaluate both the overall system of support as well as the students' response to that support.

DIBELS are a set of General Outcomes Measures designed for formative assessment (see Figures 1, 2, and 7). The measures have established reliability and validity and are linked to a decision making model (see Figures 3, 4, and 5). DIBELS link assessment to instruction by providing a way to accurately identify a student's need for support early, monitor progress toward individual goals, and evaluate the effectiveness of the support provided for that student (see Figures 6, 8, 9, and 10).

Treatment Utility

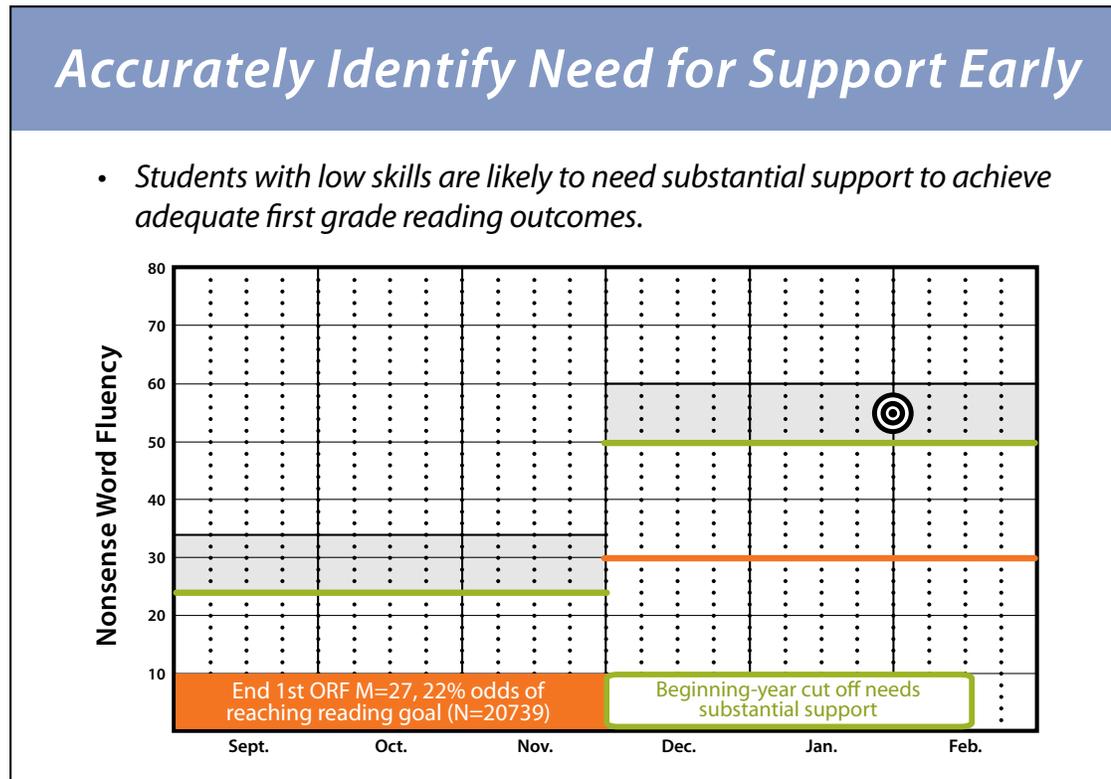


Figure 8

Provide Meaningful and Important Goals

- Most students reaching alphabetic principle goal in mid first grade achieve adequate first grade reading outcomes.

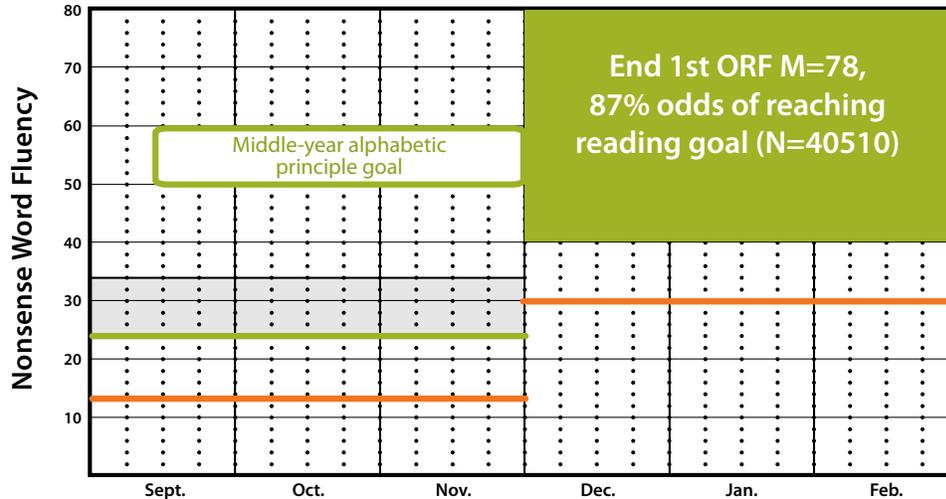


Figure 9

Evaluate Adequate Progress toward Goals

- Adequate progress toward instructional goals has a meaningful impact on first grade reading outcomes and the odds of reaching the end of first grade reading goal.

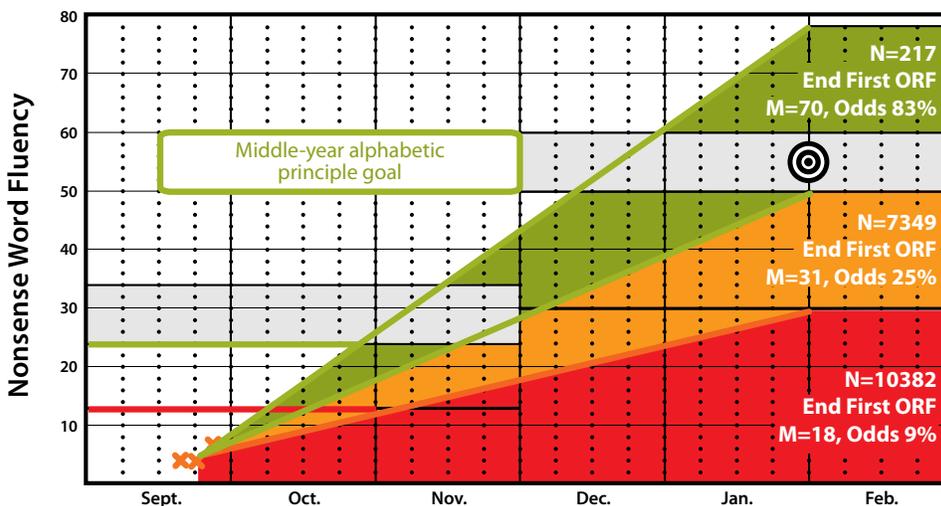


Figure 10

Treatment Utility (i.e. provides meaningful and important goals; Knutson, Simmons, Good, & McDonagh, 2004; Runge & Watkins, 2006)

Websites and Contact Information:



Dynamic Measurement Group
<http://www.dibels.org>

rkamin@dibels.org
kcummings@dibels.org
 Information: info@dibels.org

University of Oregon DIBELS® Data System
<http://dibels.uoregon.edu>

References

- Ardoin, S.P., Witt, J.C., Connell, J.E., & Koenig, J.L. (2005). Application of a three-tiered Response to Intervention model for instructional planning, decision-making, and the identification of children in need of services. *Journal of Psychoeducational Assessment*, 23(4), 362-380.
- Barnett, D.W., Elliott, N., Graden, J., Ihlo, T., Macmann, G., Nantais, M., & Prasse, D. (2006). Technical adequacy for Response to Intervention practices. *Assessment for Effective Intervention*, 32(1), 20-31.
- Cummings, K.D., Atkins, T.A., Allison, R., & Cole, C. (2008). Response to Intervention: investigating the new role of special educators. *Teaching Exceptional Children*, 40(4), 24-31.
- Deno, S. L. (1986). Formative evaluation of individual student programs: A new role for school psychologists. *School Psychology Review*, 15(3), 358-374.
- Deno, S. L. (1989). Curriculum-Based Measurement and special education services: A fundamental and direct relationship. In M. R. Shinn (Ed.), *Curriculum-Based Measurement: Assessing special children* (pp. 1-17). New York: Guilford.
- Fuchs, L. S., & Fuchs, D. (1998). Treatment validity: A unifying concept for reconceptualizing the identification of learning disabilities. *Learning Disabilities Research & Practice*, 13(4), 204-219.
- Good, R.H., & Kaminski, R.A. (1996). Assessment for instructional decisions: Toward a proactive/prevention model of decision-making for early literacy skills. *School Psychology Quarterly*, 11(4), 326-336.
- Good, R. H., & Kaminski, R. A. (2002). Dynamic Indicators of Basic Early Literacy Skills: administration and scoring guide. Eugene, OR: University of Oregon. Retrieved June 27, 2007, from <http://dibels.uoregon.edu>
- Good, R. H., Kaminski, R. A., Simmons, D., & Kame'enui, E. J. (2001). Using Dynamic Indicators of Basic Early Literacy Skills (DIBELS) in an Outcomes-Driven Model: Steps to Reading Outcomes. *OSSC Bulletin*, 44(1).
- Good, R. H., Kaminski, R. A., Smith, S. B., Simmons, D. C., Kame'enui, E. J., & Wallin, J. (2003). Reviewing outcomes: Using DIBELS to evaluate kindergarten curricula and interventions. In S. R. Vaughn & K. L. Briggs (Eds.), *Reading in the classroom: Systems for the observation of teaching and learning* (pp. 221-259). Baltimore, MD: Brookes.
- Good, R. H., Simmons, D. C., & Kame'enui, E. J. (2001). The importance and decision-making utility of a continuum of fluency-based indicators of foundational reading skills for third-grade high-stakes outcomes. *Scientific Studies of Reading*, 5(3), 257-288.
- Kaminski, R.A. & Cummings, K. D. (2007). Assessment for learning: Using general outcomes measures. *Threshold*, Winter, 2007, 26-28. Retrieved June 27, 2007, from <http://ciconline.org/threshold>
- Kaminski, R.A., Cummings, K.D., Powell-Smith, K.A., Good, R.H. (2008). Best practices in using Dynamic Indicators of Basic Early Literacy Skills (DIBELS) in an Outcomes-Driven model. In A. Thomas and J. Grimes (Eds.), *Best Practices in School Psychology V*. Bethesda, MD: National Association of School Psychologists.
- Kaminski, R. A., & Good, R. H. (1996). Toward a technology for assessing basic early literacy skills. *School Psychology Review*, 25(2), 215-227.
- Kaminski, R. A., & Good, R. H. (1998). Assessing early literacy skills in a problem-solving model: Dynamic Indicators of Basic Early Literacy Skills. In M. R. Shinn (Ed.), *Advanced applications of Curriculum-Based Measurement* (pp. 113-142). New York: Guilford.
- Knutson, J.S., Simmons, D.C., Good, R.H., & McDonagh, S.H. (2004). Specially designed assessment and instruction for children who have not responded adequately to reading intervention. *Assessment for Effective Intervention*, 29(4), 47-58.
- Rouse, H. L., & Fantuzzo, J. W. (2006). Validity of the Dynamic Indicators for Basic Early Literacy Skills as an indicator of early literacy for urban kindergarten children. *School Psychology Review*, 35(3), 341-355.
- Shapiro, E.S., Keller, M.A., Lutz, J.G., Santoro, L.E., & Hintze, J.M. (2006). Curriculum-based measures and performance on state assessment and standardized tests: Reading and math performance in Pennsylvania. *Journal of Psychoeducational Assessment*, 24(1), 19-35.
- Shinn, M. R. (1995). Best practices in curriculum-based measurement and its use in a problem-solving model. In A. Thomas & J. Grimes (Eds.), *Best Practices in School Psychology III* (pp. 547-567). Washington, DC: National Association of School Psychologists.
- Silberglitt, B., & Hintze, J.M. (2005). Formative assessment using CBM-R cut scores to track progress toward success on state-mandated achievement tests: a comparison of methods. *Journal of Psychoeducational Assessment*, 23(4), 304-325.
- Tilly, D. (2008). The Evolution of School Psychology to Science-Based Practice. In A. Thomas and J. Grimes (Eds.), *Best Practices in School Psychology V*. Bethesda, MD: National Association of School Psychologists.