DOCUMENT RESUME

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with connected text--are provided and each step of the Outcomes-Driven Model
is described with examples provided illustrating each component decisions for
individual students. The monograph concludes with a discussion of the use of

DIBELS data within an Outcomes-Driven Model to make school- or district-wide decisions at a systems level. (Contains 28 references, and 10 figures and 2 tables of data.) (Author/RS)

Using Dynamic Indicators of Basic Early Literacy Skills (DIBELS) in an Outcomes-Driven Model:

Steps to Reading Outcomes

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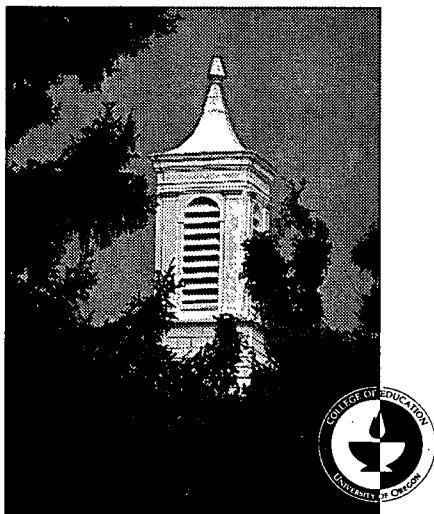## Steps to Reading Outcomes

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Abstract

The importance of all children achieving adequate reading outcomes by the end of third grade cannot be overstated. Awareness is growing nationwide of the dividends of early reading success and the dire consequences of early reading failure. Schools need a prevention-oriented assessment and intervention system to prevent reading difficulties from occurring and keep children on track for achieving reading outcomes.

This monograph describes the use of Dynamic Indicators of Basic Early Literacy Skills (DIBELS) and Curriculum-Based Measurement Reading within an Outcomes-Driven Model of educational decision making. The model is prevention-oriented and is designed to preempt reading difficulties and support all children to achieve adequate reading outcomes by the end of third grade. The model incorporates conceptual foundations regarding crucial early literacy skills for assessment and instruction and is focused on empirically validated outcomes for each early literacy skill. The model builds on reliable and valid measures of essential early literacy skills (DIBELS) to be used to document growth toward outcomes, as well as a set of steps for using the data generated by the measures at both the individual and systems levels.

In this monograph, descriptions of the big ideas of early literacy—phonological awareness, alphabetic principle, accuracy and fluency with connected text—are provided. An overview of DIBELS measures is provided and each step of the Outcomes-Driven Model is described with examples provided illustrating each of the component decisions for individual students. The monograph concludes with a discussion of the use of DIBELS data within an Outcomes-Driven Model to make school- or district-wide decisions at a systems level.

Using Dynamic Indicators of Basic Early Literacy Skills (DIBELS) in an Outcomes-Driven Model:

Steps to Reading Outcomes

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Across the nation, there is growing awareness of the dividends of early reading success and of the stark consequences of early reading failure. Though the reading levels of students in the United States remained relatively stable over the past two decades (National Center for Education Statistics, 1998), these reading proficiency levels no longer satisfy today's societal requirements and aggressive economic environment. The demands of the knowledge-based, 21st-century workplace (Drucker, 1993; Murnane & Levy, 1996) have raised the literacy bar for America's students, and schools must now respond in kind to heightened expectations. Improving the reading achievement of *all* America's children is a monumental goal embraced broadly and invoked frequently at national, state, and local levels. One of the most promising strategies to address this state of affairs is to prevent reading difficulties and to ensure that all children are readers early in their educational careers (National Research Council, 1998).

"All children will read by the end of Grade 3" is the fashionable mantra resounding from school-board conference rooms to political platforms, with popular appeal to legislators, business community, parents, and practitioners alike (Kame'enui, 1998). The goal of reading by Grade 3 is frequently translated into a high-stakes, third-grade assessment of reading outcomes (Bond, Roeber, & Connealy, 1998; *Education Week*, 1999; Frase-Blunt, 2000). These high-stakes assessments have focused national attention, effort, and resources on reading outcomes. The dark side of these assessments is that, at best, they provide summative information identifying children only after they have not met the standards. By this time, students are performing well below their peers, and it is too late to modify beginning reading instruction to promote the acquisition of initial reading skills.

One of the most replicated and disturbing conclusions from studies of reading is that students with poor reading skills initially are likely to have poor reading skills later (e.g., Juel, 1988; Shaywitz, Escobar, Shaywitz, Fletcher, & Makuch, 1992). Differences in developmental reading trajectories can be explained, in part, by a predictable and consequential series of reading-related activities that begin with difficulty in foundational skills, progress to fewer encounters and exposure to print, and culminate in lowered motivation and desire to read (Stanovich, 1986; Stanovich, 2000). Low initial skills and low learning trajectories make catching up all but impossible for many readers at risk for reading difficulties. In an era of high-stakes outcomes, the message is clear: If we are going to promise all children they will be competent and proficient readers by third grade, we need a prevention-oriented, school-based assessment and intervention system designed to preempt early reading difficulty and progress step-by-step toward outcomes that result in established, adequate reading achievement.

Assessment for educational prevention requires more than just a new test; it requires a different conceptual approach from the current high stakes assessment procedures currently used. In the primary grades, such an assessment system in schools at minimum must reliably (a) measure growth on foundational reading skills on a frequent and ongoing basis, (b) predict success or failure on criterion measures of performance (i.e., high-stakes tests), and (c) provide an instructional goal that, if met, will prevent reading failure and promote reading success. Such an assessment system is based on the assumption that the measures not only document whether students are learning but whether they are learning enough prerequisite, foundational skills in a timely manner to achieve benchmark levels on high-stakes tests. The utility and validity of the assessment system is grounded in two fundamental features: (a) identifying the foundational skills of beginning reading and (b) dynamically evaluating growth of foundational skills efficiently and reliably.

Measuring What's Important: The Foundational Skills of Beginning Reading

Converging and convincing evidence substantiates that reading competence is causally influenced by proficiency on foundational skills in beginning reading (National Reading Panel, 2000, National Research Council, 1998). Among the commonly recognized and empirically validated foundational skills are skills we refer to as

"big ideas" in beginning reading. Big ideas are skills and strategies that are prerequisite and fundamental to later success in a content area or domain. They are skills that differentiate successful from less successful readers and, most important, are amenable to change through instruction (Kame'enui & Carnine, 1998; Simmons & Kame'enui, 1998). In the area of beginning reading, selected foundational skills include: (a) phonological awareness or the ability to hear and manipulate the sound structure of language, (b) alphabetic principle including alphabetic understanding or the mapping of print to speech and the phonological recoding of letter strings into corresponding sounds and blending stored sounds into words, and (c) accuracy and fluency with connected text or the facile and seemingly effortless recognition of words in connected text (Adams, 1990; National Reading Panel, 2000; National Research Council, 1996; Simmons & Kame'enui, 1998).

Evaluating Growth Efficiently and Reliably

The concept of growth is fundamental to any comprehensive discussion of assessment (Francis, Shaywitz, Stuebing, Shaywitz, & Fletcher, 1994). Measuring early reading growth in a prevention-oriented assessment and intervention system requires measures and methodology that (a) first and foremost measure growth reliably and validly, (b) specify criterion-levels of performance for a single measure, (c) assess performance on a continuum of linked measures that relate to one another, and (d) reliably document a child's progression toward meaningful outcomes. The goal for prevention-oriented assessment is to equip schools with a measurement system that reliably predicts performance on critical outcomes early and in ways that are relevant to instruction. Core to this system are instruments capable of measuring beginning reading growth functionally and frequently in the complex host environments of schools (O'Connor, 2000; Simmons et al., 2000; Torgesen, 1998), where time is finite and resources are fixed. We propose that Dynamic Indicators of Basic Early Literacy Skills and Curriculum-Based Measurement of reading readily lend themselves to these purposes and conditions.

Dynamic Indicators of Basic Early Literacy Skills

The proposed Outcomes-Driven Model to support students to achieve crucial steppingstones to early literacy and reading achievement builds upon a prevention-oriented assessment and intervention system incorporating Dynamic Indicators of Basic Early Literacy Skills (DIBELS) and Curriculum-Based Measurement of oral reading fluency (CBM ORF). The DIBELS benchmark assessment materials and progress-monitoring materials

are available for free download to registered users at http://idea.uoregon.edu/~dibels/. Users are requested to register to document usage and to provide a way to alert users to modifications, revisions, and additions to the DIBELS materials. Once users have downloaded and printed a copy of the assessment materials, that copy is used as a photocopy master to create sufficient assessment materials for the school or district. Also available at the DIBELS web site is DIBELS Web, a data entry and reporting service currently available on a fee for service basis. DIBELS Web users can enter scores using a web browser and obtain the class and school reports illustrated in this monograph. The DIBELS Web basic service is currently available for $1.00 per student per year. Alternatively, schools can create their own reports and summaries to accomplish the purposes described in this monograph.

DIBELS Onset Recognition Fluency (OnRF)

DIBELS Onset Recognition Fluency (OnRF) is a standardized, individually administered measure of phonological awareness that assesses a child's ability to recognize and produce the initial sound in an orally presented word (Kaminski & Good, 1996, 1998; Laimon, 1994). The examiner presents four pictures to the child, names each picture, and then asks the child to identify (i.e., point to or say) the picture that begins with the sound produced orally by the examiner. For example, the examiner says "This is sink, cat, gloves and hat. Which picture begins with /s/?" and the student points to the correct picture. The child is also asked to orally produce the beginning sound for an orally presented word that matches one of the given pictures. The examiner calculates the amount of time taken to identify/produce the correct sound and converts the score into the number of onsets correct in a minute.

The OnRF measure takes about 3 minutes to administer and has over 20 alternate forms to monitor progress. Alternate-form reliability of the OnRF measure is .72 in January of kindergarten (Good, Kaminski, Shinn, Bratten, Shinn, & Laimon, in preparation). While that level of reliability is low with respect to standards for educational decision-making (e.g., Salvia & Ysseldyke, 2001), it is remarkable in a one-minute measure—especially one that can be repeated. By repeating the assessment four times, the resulting average has a reliability of .91 (Nunnally, 1978). The concurrent criterion-related validity of OnRF with DIBELS PSF is .48 in January of kindergarten and .36 with the Woodcock-Johnson Psycho-Educational Battery readiness cluster score (Good et al., in preparation). The predictive validity of OnRF with respect to spring-of-first-grade reading on CBM ORF is .45 and .36 with the Woodcock-Johnson Psycho-Educational Battery total reading cluster score (Good et al., in preparation).

DIBELS Phoneme Segmentation Fluency (PSF)

DIBELS Phoneme Segmentation Fluency (PSF) is a standardized, individually administered test of phonological awareness (Kaminski & Good, 1996). The PSF measure assesses a student's ability to segment three- and four-phoneme words into their individual phonemes fluently. The PSF measure has been found to be a good predictor of later reading achievement and is intended for use with students from the winter of kindergarten to the middle of first grade (Kaminski & Good, 1996). The PSF task is administered by the examiner orally presenting words of three to four phonemes. It requires the student to produce verbally the individual phonemes for each word. For example, the examiner says "sat" and the student says "/s/ /a/ /t/" to receive three possible points for the word. After the student responds, the examiner presents the next word, and the number of correct phonemes produced in one minute determines the final score. The PSF measure takes about 2 minutes to administer and has over 20 alternate forms for monitoring progress. The two-week, alternate-form reliability for the PSF measure is .88 (Kaminski & Good, 1996), and the one-month, alternate-form reliability is .79 in May of kindergarten (Good et al., in preparation). Concurrent validity of PSF is .54 with the Woodcock-Johnson Psycho-Educational Battery readiness cluster score in spring of kindergarten (Good et al., in preparation). The predictive validity of spring-of-kindergarten PSF with (a) winter-of-first-grade DIBELS NWF is .62, (b) spring-of-first-grade Woodcock-Johnson Psycho-Educational Battery total reading cluster score is .68, and (c) spring-of-first-grade CBM ORF is .62 (Good et al., in preparation).

DIBELS Nonsense Word Fluency (NWF)

DIBELS Nonsense Word Fluency (NWF) is a standardized, individually administered test of the alphabetic principle—including letter-sound correspondence and the ability to blend letters into words in which letters represent their most common sounds (Kaminski & Good, 1996). The student is presented an 8.5" x 11" sheet of paper with randomly ordered VC and CVC nonsense words (e.g., *sig, rav, ov*) and asked to produce verbally the individual letter sound of each letter or verbally produce, or read, the whole nonsense word. For example, if the stimulus word is "vaj" the student could say /v/ /a/ /j/ or say the word /vaj/ to obtain a total of three letter sounds correct. The student is allowed 1 minute to produce as many letter-sounds as he/she can, and the final score is the number of letter-sounds produced correctly in one minute. Because the measure is fluency based, students receive a higher score if they are phonologically recoding the word and receive a lower score if they are providing letter sounds in isolation. The NWF measure also takes about 2 minutes to administer and has over 20 alternate forms for monitoring progress. The one-month, alternate-form reliability for NWF in January of first grade is .83 (Good et al., in preparation). The concurrent validity of DIBELS NWF with the Woodcock-Johnson Psycho-Educational Battery-Revised readiness cluster score is .36 in January and .59 in February of first grade (Good et al., in preparation). The predictive validity of DIBELS NWF in January of first grade with (a) CBM ORF in May of first grade is .82, (b) CBM ORF in May of second grade is .60, (c) Woodcock-Johnson Psycho-Educational Battery total reading cluster score is .66 (Good et al., in preparation).

DIBELS Letter Naming Fluency (LNF)

DIBELS Letter Naming Fluency (LNF) is a standardized, individually administered test that provides a measure of risk. Students are presented with upper- and lower-case letters arranged in a random order and are asked to name as many letters as they can. Students are told if they do not know a letter they will be told the letter. The student is allowed 1 minute to produce as many letter names as he/she can, and the score is the number of letters named correctly in 1 minute. Students are considered *at risk* for difficulty achieving early literacy benchmark goals if they perform in the lowest 20% of students in their district. That is, below the 20th percentile using local district norms. Students are considered at *some risk* if they perform between the 20th and 40th percentile using local norms. Students are considered at *low risk* if they perform above the 40th percentile using local norms. The 1-month, alternate-form reliability of LNF is .88 in kindergarten (Good et al., in preparation). The median criterion-related validity of LNF with the Woodcock-Johnson Psycho-Educational Battery-Revised readiness cluster standard score is .70 in kindergarten (Good et al., in preparation). The predictive validity of kindergarten LNF with first-grade Woodcock-Johnson Psycho-Educational Battery-Revised reading cluster standard score is .65 and .71 with first-grade CBM reading (Good et al., in preparation).

Curriculum-Based Measurement of Oral Reading Fluency (CBM ORF)

Curriculum-Based Measurement of Oral Reading Fluency (CBM ORF) is a standardized procedure to assess accuracy and fluency with connected text. A version of CBM ORF has been published as The Test of Reading Fluency (TORF) (Children's Educational Services, 1987). The TORF is a standardized set of passages and administration procedures designed to (a) identify children who may need further intensive assessment and (b) measure growth in reading skills (Children's Educational Services, 1987, p. 1). Passages were calibrated for each grade level, and student

performance is measured by having students read each of three passages aloud for one minute. Words omitted, substituted, and hesitations of more than three seconds are scored as errors. Words self-corrected within three seconds are scored as accurate. The median correct words per minute from the three passages is selected as the oral reading fluency rate.

A series of studies has confirmed the technical adequacy of the TORF. Test-retest reliabilities of elementary students ranged from .92 to .97; alternate-form reliability of different reading passages drawn from the same level ranged from .89 to .94 (Tindal, Marston, & Deno, 1983). Criterion-related validity studied in eight separate studies in the 1980s reported coefficients ranging from .52-.91 (Good & Jefferson, 1998).

A Preventive Measurement Model: Conceptual, Procedural, and Developmental Dimensions

Few would argue with the concept of prevention and the need for formative assessment to inform instruction. In the following figure, we make concrete the conceptual and procedural dimensions of such a measurement model and outline a developmental timeline for the acquisition of crucial reading skills (See Figure 1) (Good, Simmons, & Kame'enui, in press). The top level of ellipses summarizes the conceptual dimensions of reading acquisition that include three "big ideas" of beginning reading: (a) phonological awareness, (b) alphabetic principle, (c) and accuracy and fluency with connected text. These big ideas provide a foundation for meeting expectations on high-stakes outcome measures of reading proficiency. This model is not intended to capture all the complexities and nuances of reading acquisition, but to represent key skills within the instructional domain that are necessary but not sufficient for successful reading.

The second level of rectangles in Figure 1 summarizes the assessment sequence, which provides an efficient indication of acquisition of big ideas of early reading. In Oregon, the sequence culminates with the Oregon Statewide Assessment (OSA), a high-stakes assessment of reading outcomes. Many other states have a similar high-stakes outcome measure. The assessment sequence builds on the *Dynamic Indicators of Basic Early Literacy Skills* (DIBELS) (Kaminski & Good, 1996) and curriculum-based measurement (CBM) oral reading fluency (Fuchs, Fuchs, & Hosp, in press; Deno, Mirkin, & Chiang, 1983). DIBELS and CBM are established measurement systems that provide extremely brief (about 1 minute), reliable, and valid indicators of crucial skills that are repeatable (more than 20 alternate forms of each). Perhaps most important, we know the level of skills necessary to move toward the achievement of reading. The Early Childhood Research Institute on Measuring Growth and Development is completing an extensive development and validation project for DIBELS and CBM in kindergarten through third grade (McConnell, McEvoy, Carta, Greenwood, Kaminski, Good, & Shinn, 1996). Copies of measures are published on the web for free download to registered users at *idea.uoregon.edu/~dibels/*.

The third level of the model provides a timeline for the acquisition of reading skills necessary to meet expectations on high-stakes measures of reading outcomes. By combining a level of skill and a timeline for acquisition, benchmark goals can be established. The benchmark goals and timelines for a trajectory of progress toward high-stakes reading outcomes are summarized in Table 1 and validated by research in different settings (Good, Kaminski, Shinn, Bratten, Shinn, & Laimon, in progress; Good, Simmons, & Kame'enui, in press). For example, Onset Recognition Fluency (OnRF) provides an indicator of the child's knowledge and awareness of initial sounds
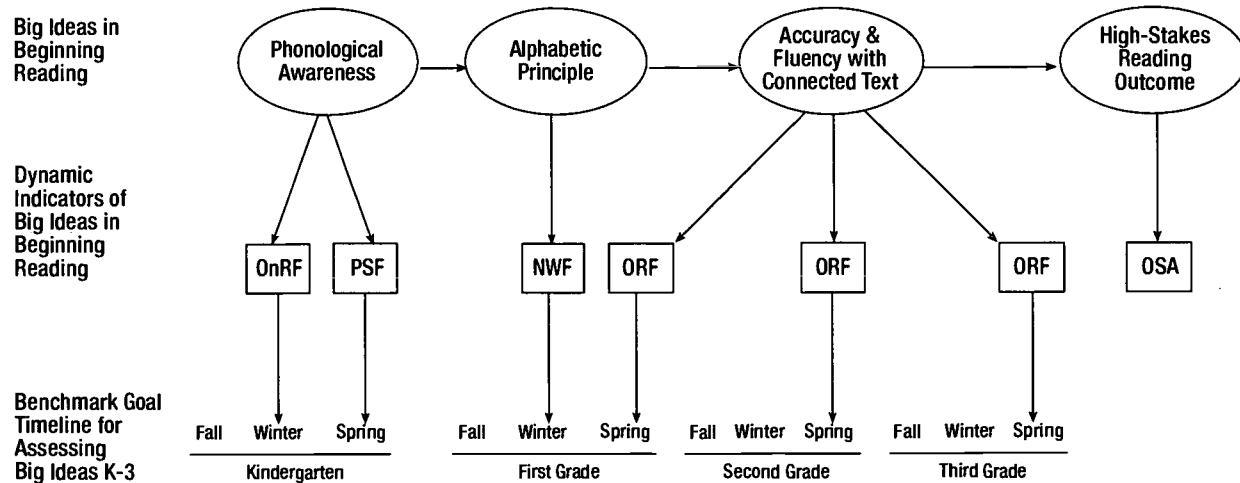

Figure 1. Conceptual and procedural dimensions and timeline for acquisition of reading and early literacy skills.

Timeline	Measure	Benchmark goals for the achievement of reading	May need intensive instructional support
Winter, Kindergarten	DIBELS OnRF	25 – 35	Below 10
Spring, Kindergarten	DIBELS PSF	35 – 45	Below 10
Winter, First Grade	DIBELS NWF	50	Below 30
Spring, First Grade	CBM ORF	40	Below 10
Spring, Second Grade	CBM ORF	90	Below 50
Spring, Third Grade	CBM ORF	110	Below 70

Table 1. Benchmark goals and timelines for a trajectory of progress toward high stakes reading outcomes ·

in words, an aspect of phonological awareness desired by winter of kindergarten if the child is on track for reading outcomes. Phoneme Segmentation Fluency (PSF) provides an indicator of phonological awareness skills necessary by spring of kindergarten. By winter of first grade, students should display alphabetic principle skills on Nonsense Word Fluency (NWF), and by spring of first grade, they should reach target levels of Oral Reading Fluency (ORF), a measure of accuracy and fluency with connected text. By spring of second grade and spring of third grade, adequate progress on measures of ORF is necessary to be on track for high-stakes reading outcomes. The model is designed to make explicit a set of parsimonious linkages between earlier and later skills at different points in time.

Steps to Outcomes: An Outcomes-Driven Model

In addition to our understanding of the big ideas of beginning reading and the steps for students to follow to outcomes, we need an overarching model driven by those outcomes for making educational decisions. The Outcomes-Driven Model described here is based on foundational work on a problem-solving model (see Deno, 1989; Shinn, 1995) and the initial application of the problem-solving model to early literacy skills (Kaminski & Good, 1998). The Outcomes-Driven Model was developed to provide a prevention-oriented assessment and intervention decision-making system designed to preempt early reading difficulty and ensure progress step-by-step toward outcomes that will result in established, adequate reading achievement. The Outcomes-Driven Model accomplishes steps to outcomes through a set of five educational decisions: (a) identifying need for support, (b) validating need for support, (c) planning support, (d) evaluating and modifying support, and (e) reviewing outcomes. A key premise of the Outcomes-Driven Model

is that failure is not an option. If we promise all students they will be readers, each step must be achieved in time. We need to match the amount and type of instructional support with the needs of individual students to enable all students to reach each benchmark step. Some students will need substantial, intensive, individualized support to reach each step. Others will benefit from regular, good, large-group, classroom instruction. Some students may achieve important reading outcomes regardless of the instruction provided. The goal of the Outcomes-Driven Model is to match students with the instructional support necessary to achieve each step to reading *before* a pattern of reading difficulty and failure has been established.

Identifying Need for Support

The first step in the Outcomes-Driven Model is to identify children early who *may* need additional instructional support to meet a benchmark goal. To identify need for support, a benchmark assessment using selected DIBELS and CBM probes is administered to all children in the school three times per year—at the beginning, middle, and end of the school year. The benchmark assessment is administered one-on-one with a tester and student and takes about 7 minutes per student. A team of five testers can assess a class of 25 students in approximately 30 minutes. The benchmark assessment provides information regarding the performance of all children in the school with respect to benchmark goals. The benchmark assessment also identifies individual students who may need additional instructional support to achieve the next benchmark goal.

Individual students needing additional instructional support can be identified using the reports provided by the DIBELS-Web data entry and reporting service (available to registered users at *idea.uoregon.edu/~dibels/*). The benchmark reports include a recommendation with respect to additional instructional support. A sample benchmark

report to the teacher for winter of kindergarten is illustrated in Figure 2. The benchmark goal for the middle of kindergarten is 25-35 correct responses per minute on OnRF. A student who achieves 25 or above typically does not require additional instructional support, and continuation of regular, good classroom instruction is recommended with benchmark assessment (three times a year). Students who perform below 10 on DIBELS OnRF and who are low on DIBELS PSF may require intensive instructional support to achieve the end-of-kindergarten step to reading outcomes. The DIBELS LNF measure provides an additional measure of risk. Students with scores on DIBELS LNF in the lowest 20 percent of students in a school or district are likely to need additional instructional support. Students who score between 10 and 25 on OnRF are judged to have emerging skills. Additional instructional support and more frequent assessment to monitor growth of skills is warranted for these students.

In the class depicted in Figure 2, Joseph and Tiffany have met the middle-of-kindergarten benchmark of 25-35, and both children are beginning to acquire skill in phoneme segmentation as indicated by PSF scores of 15 and 13 respectively. Additionally, Joseph and Tiffany are performing in the low-risk range on LNF as evidenced by percentile rankings of 66 and 85. Both Joseph and Tiffany are considered to be at low risk for the development of later reading difficulties, and the continuation of regular, good classroom instruction with benchmark assessment at the end of kindergarten is recommended.

On the other hand, Sandra, Matrix, and Brandon scored below 10 on OnRF and also scored low on PSF in the middle of kindergarten. In addition, all three students achieved percentile rank scores in the at-risk range on LNF (below 20th percentile). Based on their performance, Sandra, Matrix, and Brandon may require substantial, intensive instructional support to achieve the end-of-kindergarten benchmark goal.

Danielle also scored below 10 on OnRF on this assessment; however, her scores on PSF indicate that her phoneme segmentation skills are emerging. Her percentile rank for LNF is in the some-risk range (28th percentile). Danielle may have difficulty achieving the spring early-literacy goal, and strategic instruction and assessment may be required. Hailey and Latisha also may need strategic instruction and assessment to achieve a goal of 35-45 on Phoneme Segmentation Fluency by spring of kindergarten.

When extremely brief measures are used to obtain an indication of skills, alternative reasons for low performance must be considered. For example, students may have a bad day, be ill, be confused by the directions, or be uncomfortable with an unfamiliar examiner rather than have an actual skill deficit. For students whose skills *may* be a concern as indicated by performance on the benchmark assessment, validation of need for instructional support is the next steps.

Validating Need for Instructional Support

The next step in the Outcomes-Driven Model is to be reasonably confident that the student needs additional instructional support and that some other factor is not the reason for low performance. Several possible reasons might cause a student's score to be low on one sample of behavior at one point in time under one set of conditions. The student may be confused about the task, may be shy with an unfamiliar adult, may have had a bad experience on the playground before assessment, or may be recovering from an illness. In addition, we regularly encounter instances where a score was miscopied, entered incorrectly, or transposed. When considering a child's scores, it is important to consider first that the score might be inaccurate. The possibility of inaccurate scores is not unique to the DIBELS or CBM measures. Inaccurate scores are possible with any standardized assessment and may be more likely with younger children.

Student	Onset Recognition Fluency			Phoneme Segmentation Fluency			Letter Naming Fluency			Instructional Recommendations Based Primarily on PSF
	Score	Percentile	Initial Sound Skill Status	Score	Percentile	All Sounds Skills Status	Score	Percentile	Risk Status	
Sandra	9	4	Deficit	1	7	Deficit	8	13	At Risk	Intensive Support Indicated
Matrix	7	2	Deficit	1	7	Deficit	11	19	At Risk	Intensive Support Indicated
Halley	14	12	Emerging	2	9	Deficit	29	46	Low Risk	Strategic Support
Latisha	19	22	Emerging	3	11	Deficit	35	39	Low Risk	Strategic Support
Brandon	9	4	Deficit	3	11	Deficit	24	35	Some Risk	Intensive Support Indicated
Tiffany	42	86	Established	13	31	Emerging	48	85	Low Risk	Benchmark
Danielle	5	1	Deficit	14	33	Emerging	21	28	Some Risk	Strategic Support
Joseph	38	75	Established	15	35	Emerging	37	66	Low Risk	Benchmark

Figure 2. Sample benchmark assessment report for middle of kindergarten, with recommendation for instructional support needed to achieve next early literacy goal.

One important advantage of DIBELS and CBM over other standardized assessments is the ease with which a child's score can be rechecked. In the validating need for instructional support step, an examiner conducts brief repeat assessments of the target skill using alternate forms of the assessment under different conditions. The progress-monitoring booklet for each step (available for free download to registered users at *idea.uoregon.edu/~dibels/*) includes alternate forms of the measure that can be used by any trained teacher to retest a child. Because assessments are each about 1 minute, and because each measure has over 20 alternate forms available, repeated measures for students of concern can be conducted with reasonable efficiency. By retesting students whose skills are of concern, we can increase our confidence that a low score is indicative of low skills rather than a bad day. Each retest examines a hypothesis about poor performance. If it seems plausible that a child was uncomfortable with an unfamiliar adult, the child can be retested with a familiar teacher or aide. If the child had a bad day or was sick, he or she can be retested another day.

A sample progress-monitoring booklet illustrating the teacher's decision that Brandon needs additional instructional support and that his initial low score was not just a bad day is illustrated in Figure 3. In the first week of January, Brandon was assessed with the rest of his school in the middle-of-kindergarten benchmark assessment (i.e., identifying need for instructional support). His scores of 9 on DIBELS OnRF and 3 on DIBELS PSF were a cause for concern for his teacher, Ms. Smith. Brandon did not

meet the middle-of-kindergarten benchmark of 25-35 on OnRF, and his score of 3 on PSF indicates his phonological awareness skills are not yet emerging. Brandon's teacher wanted to make sure that his low performance on the 1-minute DIBELS measures was not because an unfamiliar person tested him right after the winter break. To validate the benchmark results, Ms. Smith personally retested Brandon with an alternate form of PSF before recess the following week and again with another alternate form after lunch the next week. Ms. Smith then examined Brandon's pattern of performance across the multiple assessments and concluded that he was at risk for not meeting the end-of-kindergarten benchmark goal of 35-45 on DIBELS PSF and additional instructional support was warranted.

Three patterns of performance are possible on repeated assessments. First, if a child's scores are consistently low on two or three retests using different samples of behavior on different days under different conditions, the teacher can be reasonably confident the child's skills are low. Second, if only the initial testing is low, and the child consistently scores in the desired range on subsequent retests, the first assessment may have been inaccurate (i.e., the child was having a bad day). Third, the child may be extremely variable in performance: fine one day, but very low the next. In this case, we are alerted to other factors potentially affecting the child's performance. For example, an ear infection may negatively affect a child's hearing on some days but not others, or a child's motivation and effort may be inconsistent from one day to the next.
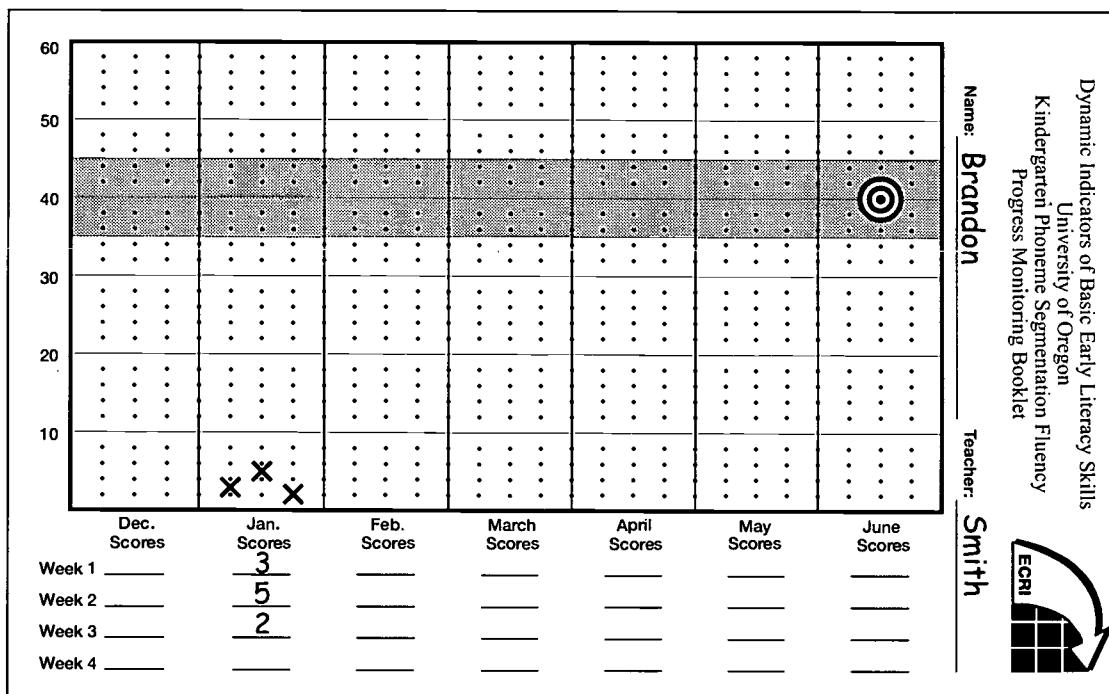

Figure 3. Sample of repeated assessments to validate need for instructional support for Brandon.

As illustrated in Figure 3, Brandon's performance on each of the retests on PSF was consistently low. Based on the repeated assessments, Brandon's teacher was confident that Brandon did have a deficit in phonological awareness and would benefit from additional instructional support to reach the next benchmark goal. The next decision-making step in the Outcomes-Driven Model is to plan instructional support for Brandon.

Planning Instructional Support

A plan for providing additional instructional support should include (a) a clear instructional goal that will be a step to outcomes for the achievement of reading, (b) a focus on essential skills that are big ideas of early literacy and reading, (c) a plan for the amount and type of support the student is likely to need, (d) a specification of the logistics of who will teach using what instructional materials, when and where, and (e) a measurement plan to evaluate progress.

For each step in the model (Figure 1), a benchmark goal has been established (Table 1) and validated (Good, Simmons, & Kame'enui, in press; ECRI, 2000). Achievement of that goal is a step to reading outcomes. An example goal is illustrated for Brandon in Figure 4. If Brandon is going to achieve the next benchmark goal of 35-45 on PSF at the end of kindergarten, he will need to progress along the aimline illustrated in Figure 4. The aimline provides a map of expected progress to be used to monitor growth and plan instruction from week to week.

The goal and systematic progress monitoring assist in focusing instructional effort on the crucial big ideas with a sense of urgency.

Research-based interventions have been developed, published, and validated to provide additional instructional support for each of the foundational early reading skills for which there is a corresponding benchmark goal. Instructional supports may be considered as falling along a continuum ranging from broad-based supports designed to build the skills of many or all children in the class (good classroom instruction) to high-intensity, individual interventions. For example, in the area of phonological awareness, the Phonemic Awareness for Children (Adams, Foorman, Lundberg, & Beeler, 1998) and Ladders to Literacy (O'Connor, Notari-Syverson, & Vadesy, 1998) curricula are available for regular classroom instruction. The Phonological Awareness Training for Reading curriculum (Torgesen, 1994) is available for small group instruction of students who are having difficulty learning phonological awareness skills. Other instructional approaches are available and have received commendation as effective and valid.

Teachers have a variety of choices of materials to match their instructional preferences. Characteristics of additional instructional support for students needing intensive and strategic support are depicted in Table 2. In addition to curricula, other characteristics of instruction that may vary to meet the needs of individual children include time, size of group, selection of examples, and
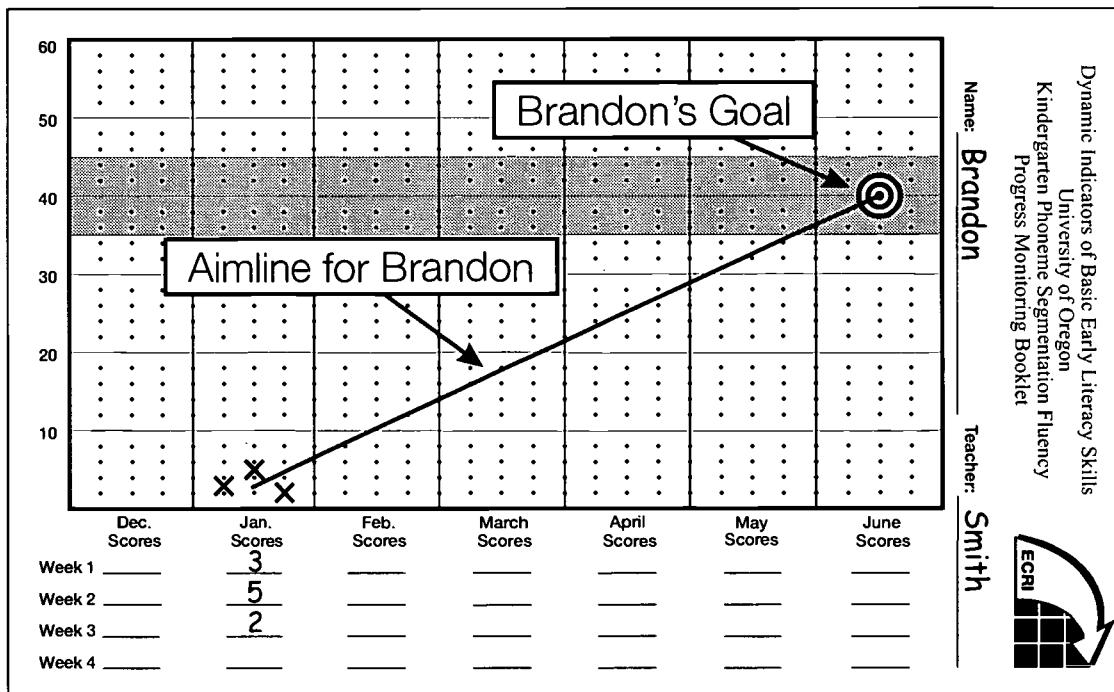

Figure 4. Planning instructional support for Brandon—Specifying a goal and aimline for satisfactory progress.

Instructional Characteristic	Intensive Instructional Support	Strategic Instructional Support	Benchmark Instructional
Frequency of progress monitoring	1 per week	1 every 2 weeks or 1 per month, depending on level of concern	3 per year: beginning, middle, and end of school year
Time allocated to instruction	Benchmark instruction, plus 20 minutes 4 times per week in small groups, plus home practice and support. Extra sessions as needed.	Benchmark instruction plus extra sessions as needed	Embedded throughout day, 20 min. per day, 4 days per week
Group size	Additional support in small groups of about 3	Additional support in small group of about 5	Whole group
Sample Phonological Awareness Curricula	• PATR • DI Reading Scripts • Optimize • Take Home Phonological Awareness	Mixture of intensive and benchmark curricula matching student needs	• Phonemic Awareness for Young Children • Road to the Code • Ladders to Literacy
Selection of examples	Carefully designed examples following a designed sequence of skills that match student skills and understanding	Examples designed to match student needs	Broad range of examples designed to move group
Amount of practice	30–40 responses per minute. Choral responding to increase engagement and opportunities to practice; mixture of group and individual practice	Mixture of intensive and benchmark activities matching student needs	10–15 responses per minute. Group and individual practice embedded in class activities.

Table 2. Characteristics of instruction for intensive, strategic, and benchmark instructional support

amount of practice. As long as the instructional support is sufficient for the student to progress along the aimline necessary to reach the goal, the choice of instructional curricula and strategies is appropriate. To determine if the instructional strategies are appropriate, however, evaluate is necessary. It may also be necessary to modify the instructional support provided.

Evaluating and Modifying Instructional Support

A key part of effective instruction is the integration of an assessment-intervention feedback loop where instructional support is evaluated and the instructional plan is modified based on student progress, until sufficient support is provided for the student to achieve the benchmark goal. A good plan is a powerful starting place for instruction, but an individual child's response to a particular curriculum or strategy is unpredictable. No matter how good the plan, if it is not supporting the student's progress toward the goal, it needs to be modified. The point of a

formative evaluation of progress is to establish an assessment-intervention feedback loop whereby progress below the aimline triggers modifications to instruction, perhaps requiring additional time or resources, or a different instructional approach incorporating more principles of effective instruction (Kame'enui & Carnine, 1998).

The first step in evaluating support is to establish a frequency of assessment to evaluate progress. For students who need substantial, intensive instructional support, weekly monitoring of progress is indicated. For students who need less support, less frequent monitoring is sufficient. The next step is to establish decision rules to use to evaluate the data. Fuchs and colleagues recommend using a goal-oriented rule that is straightforward for teachers to understand and use (Fuchs, 1988; 1989). Student scores are plotted on a graph and compared to the aimline. When performance falls below the aimline on three consecutive points, instructional modifications are warranted (White & Haring, 1980).
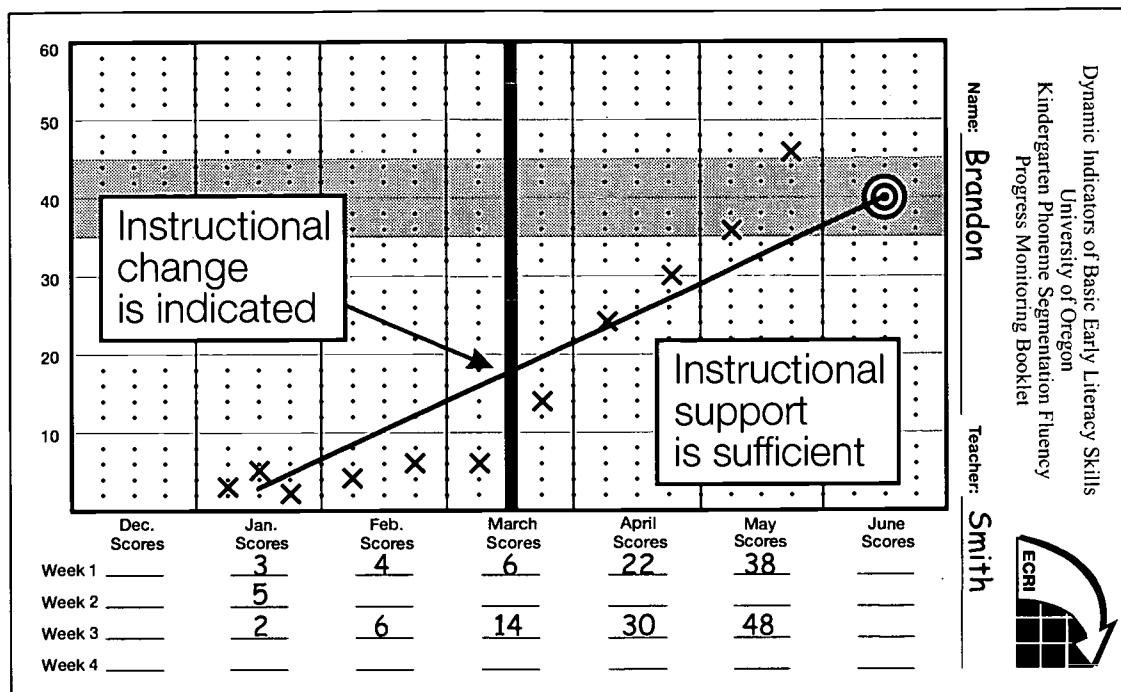
Figure 5. Evaluating and modifying instructional support for Brandon.

Figure 5 illustrates the step of evaluating and modifying instructional support for Brandon. Because of her concern about Brandon's progress, his teacher assessed Brandon's skills bi-weekly on PSF. Using the progress-monitoring booklet for PSF, Ms. Smith administered a PSF probe to Brandon using alternate forms every other week and plotted his performance on the graph.

Small-group instructional support was begun for Brandon in the beginning of February. After 6 weeks of small group instruction, the teacher had three additional PSF scores. Brandon's performance continued consistently below the aimline. Ms. Smith decided the small group instructional support was not sufficient for Brandon to achieve the benchmark goal for PSF by the end of Kindergarten. She then modified Brandon's instruction to provide additional modeling, examples, and practice. In the following weeks, Brandon's performance climbed above the aimline, indicating he was on track to achieve the end-of-year benchmark for phonemic segmentation. Toward the end of May, Brandon achieved the kindergarten benchmark goal on PSF.

Reviewing Outcomes—Individual Level

In the Outcomes-Driven Model, the bottom line is achievement of essential literacy outcomes. The purpose of the reviewing-outcomes step is to review the structure of supports the school has in place to achieve outcomes at both an individual-student level and at a systems level. For *individual students*, the teacher must decide if the student has achieved the benchmark and no longer requires additional instructional support. The benchmark assessment data for each benchmark goal can be used to answer this question using the same procedures as in identifying need for instructional support. For Brandon, the final data point in Figure 5 corresponds to his end-of-kindergarten benchmark score. Brandon's score of 38 in May of kindergarten indicates that he has achieved the benchmark goal. Brandon will continue to be assessed in the fall, winter, and spring of first grade to ensure that he stays on track to achieve the subsequent benchmark goals at the middle and end of first grade.

Reviewing Outcomes—Systems Level

At a *systems level*, a review of outcomes and the structure of instructional supports should address the overall effectiveness of curriculum and instruction in supporting *all* children to achieve important reading outcomes. A first concern is the core curriculum and instruction that serves as the educational foundation for the school. A rough rule of thumb is that the core curriculum should support about 80% of students to achieve benchmark goals. However, some students will need additional instructional support. About 15% will need specific targeted instructional support on areas of specific difficulty. Another 5% will need very intensive, carefully designed instruction to achieve benchmark goals. The educational system should have (a) an effective core curriculum and instruction, (b) procedures to identify students who need additional instructional support, (c) mechanism to deliver additional

instructional support (time, personnel, curriculum, space), and (d) procedures to escalate the amount of instructional support if needed to achieve benchmark goals. Two sections of the DIBELS reports assist in reviewing the system of core instruction and additional instructional support to students: (a) outcomes report and (b) benchmark linkage report.

The *outcome report* assists a district in reviewing outcomes at the systems level by providing a clear, vivid, bottom line assessment of outcomes. The outcome report addresses the question, What percent of students achieved essential reading outcomes? A school or district should have a clear and vivid goal and should review from year to year its effectiveness in achieving the goal. A school

district distribution from an outcome report is illustrated in Figure 6. On the horizontal axis are different levels of reading skills, and on the vertical axis is the number of students who achieved that level of reading skill. The solid bars represent students who achieved the reading outcome goal. The striped bars and dotted bars represent the students whose achievement was below or severely below the district goal.

For example, the district whose outcomes are illustrated in Figure 6 has the goal that all students will be able to read 40 or more words correct per minute on CBM Reading passages. At the end of the 1998-99 academic year (top of Figure 6), 28% of students in the district had achieved that goal. In the 1999-2000 academic year, the district focused
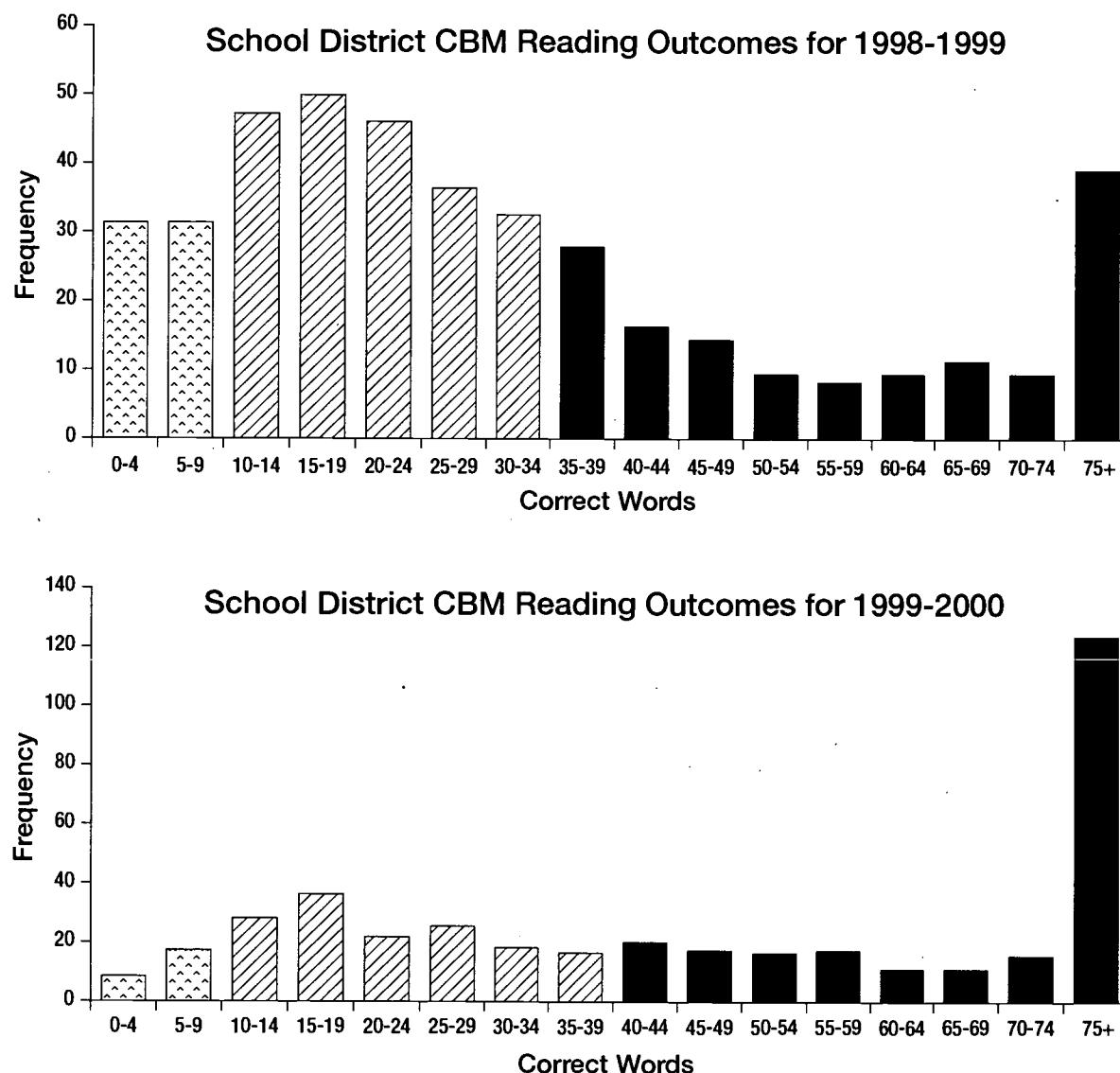

Figure 6. First-grade reading outcomes for a school district for the 1998-99 and the 1999-2000 academic years.

considerable effort on district-wide educational reform, including (a) the use of DIBELS and CBM in an Outcomes-Driven Model, (b) review and adoption of improved core early literacy instructional curriculum in early grades, and (c) targeting at-risk children and providing effective instructional support early. At the end of the 1999-2000 academic year, the district achieved the first-grade reading outcomes illustrated in the bottom of Figure 6. The number of children achieving the reading goal had doubled, to 54%. The number of students who were reading below 10 correct words per minute was cut to less than half of the previous year, to 6%.

The school district in Figure 6 concluded it was moving in the right direction and had made real and meaningful progress toward the district goal. Further improvement in outcomes was still necessary to achieve the district goal of 100% established readers at the end of first grade. The outcome report assists in keeping a focus on the bottom line but provides limited assistance in figuring out the precise step in acquisition of early literacy skills where students are experiencing difficulty, and whether the core curriculum or additional instructional support systems are in need of modification. Additional information about each step in the acquisition of reading skills is available in the benchmark linkage reports.

The second type of school report to assist a district in reviewing its system of instructional support is the *benchmark linkage report*. The benchmark linkage report is also provided for schools participating in the DIBELS Web

data entry and reporting service (available to registered users at *idea.uoregon.edu/~dibels/*). The purpose of the linkage report is to provide a picture of the connection between students achieving earlier benchmark goals and achieving later benchmark goals. The goal is to make clear to teachers the importance of each benchmark goal for *their students'* progress toward reading outcomes. If teachers want students to reach the spring-of-kindergarten goal, one of the most important things they can do (in addition to teaching phonological awareness) is make sure all students reach the winter-of-kindergarten goal. The benchmark linkage report includes a "dot picture" showing student performance on an earlier benchmark and a later benchmark. In the sample dot picture illustrated in Figure 7, each student in a school is represented by a dot if his or her winter-of-kindergarten OnRF and spring-of-kindergarten PSF scores were available.

In addition to the dot picture, all teachers in the school receive a roster of their students and their scores, allowing teachers to associate a name and face to the dots representing their students. The vertical line at OnRF 25 indicates the winter-of-kindergarten benchmark goal of 25-35 on OnRF. Each dot on or to the right of the vertical line at OnRF 25 is a student who achieved the winter-of-kindergarten benchmark goal. The horizontal line at PSF 35 represents the spring-of-kindergarten benchmark goal of 35-45 on PSF. Each dot at or above the horizontal line at PSF 35 is a student who achieved the spring-of-kindergarten benchmark goal.
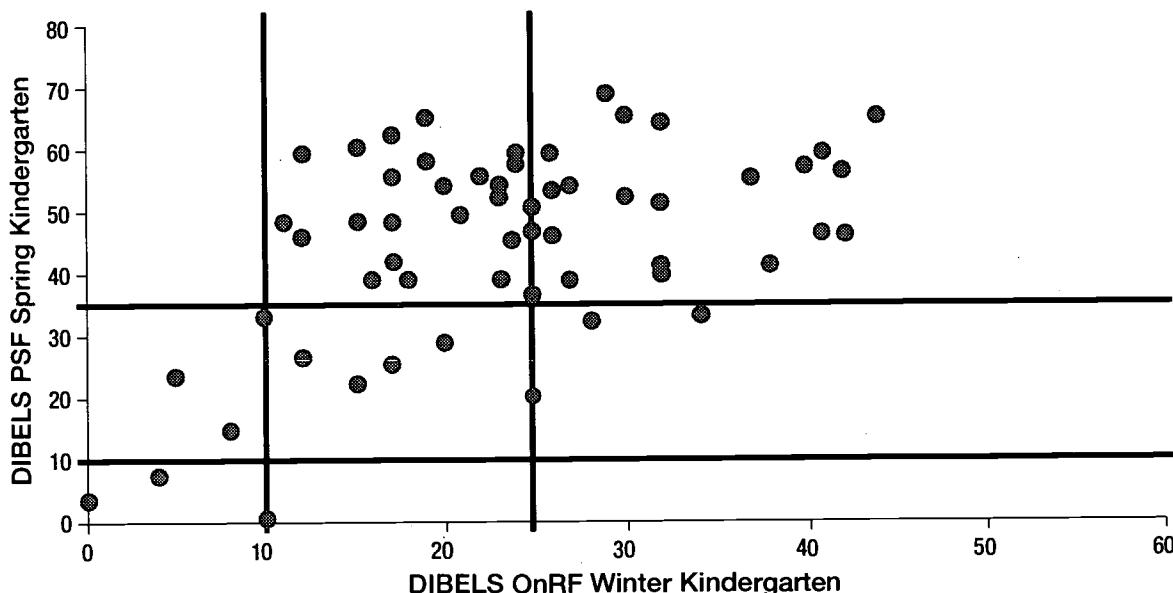

Figure 7. Linkage between achieving winter-of-kindergarten OnRF benchmark goal and achieving spring-of-kindergarten PSF benchmark goal for School 1.
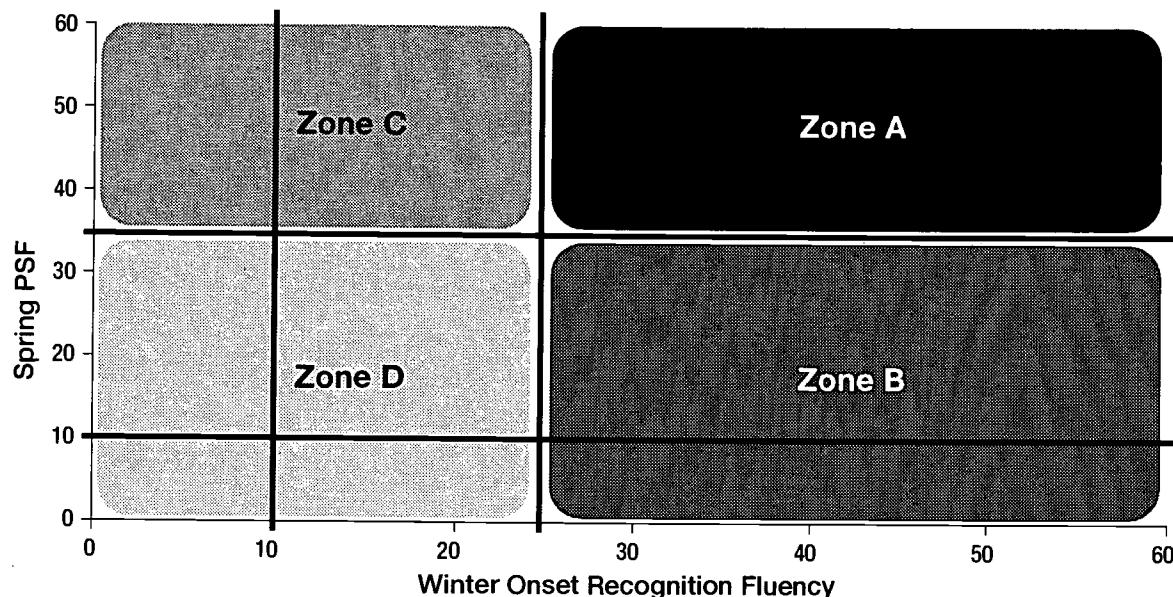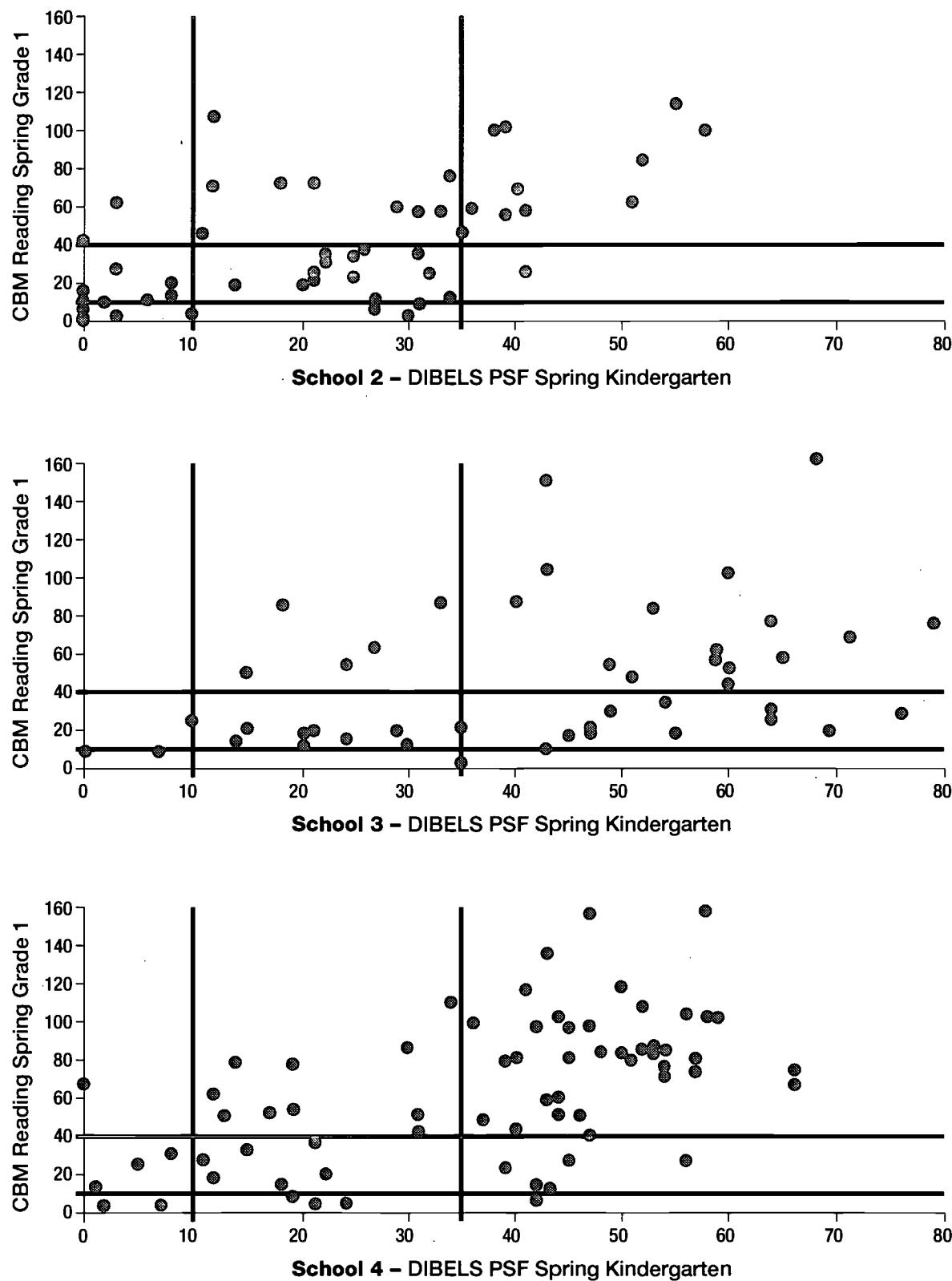
Figure 8. Instructionally interpretable zones of performance for reviewing outcomes at a systems level in an Outcomes-Driven Model of the acquisition of early literacy skills and reading proficiency.

In School 1, 27 children achieved the winter-of-kindergarten benchmark goal. Of those 27 children, 24 children, or 89%, went on to achieve the spring-of-kindergarten benchmark goal on PSF. In other words, if students are strong and confident on the initial sound in words by the middle of kindergarten, they are on track for learning all of the sounds in words. For students who meet the winter-of-kindergarten benchmark goal, their teacher teaches phonological awareness with the odds in his or her favor (89%) that students will achieve the spring-of-kindergarten goal. Of course, meeting the winter-of-kindergarten benchmark goal is not a guarantee of continued progress. In School 1, 3 children (11%) who achieved the winter goal did not achieve the spring-of-kindergarten goal. Continued effort and vigilance are indicated to catch students early and provide additional instructional support if they are not making adequate progress.

Alternatively, students who have difficulty with the initial sound in words in winter of kindergarten are likely to experience difficulty mastering all phonemes in words by spring of kindergarten. In School 1, 4 students scored less than 10 on OnRF in winter of kindergarten (i.e., their dot is to the left of the OnRF 10 vertical line), indicating significant difficulty with initial sounds in words. Of those 4 students, none (0%) achieved the spring-of-kindergarten PSF benchmark of 35-45. Meeting the winter benchmark goal puts the odds in the student's favor; deficit skills put the odds against achieving the next benchmark. In between the two levels (i.e., 10-25 on OnRF), a clear prediction is generally not possible.

Another purpose of the benchmark linkage reports is to provide information about the school's curriculum and instruction for a systems-level review of outcomes. When examining the linkage reports for a school, four zones of performance have instructional relevance (see Figure 8). In Figure 8, the linkage between OnRF in winter of kindergarten and PSF in spring of kindergarten is used for an illustration. A similar interpretation would be appropriate for each of the linked steps in the model. Zone A represents students who achieved the benchmark goal on an earlier skill at an earlier time (e.g., OnRF in winter of kindergarten) and who then achieved the benchmark goal on a later skill at a later time (e.g., PSF in spring of kindergarten). For each of the linkages examined, students in Zone A are progressing on a trajectory that predicts successful reading outcomes. Students who follow the Zone A pattern for each of the benchmark goals in the model of reading acquisition are on track for successful performance on high-stakes reading outcome measures. Thus, Zone A represents the desired pattern of performance and the goal of effective instruction.

The remaining three performance zones illustrated in Figure 8 provide information about students whose performance trajectories indicate weak "links" or instructional segments that may jeopardize successful reading outcomes. In some ways, instructing students toward reading outcomes is similar to running a relay race. Each leg of the race is critical to the overall outcome. If students pass from one benchmark goal to the next deficient in foundational skills, the high-stakes outcome is jeopardized.

Figure 9. Comparison of three schools' linkage reports for spring-of-kindergarten PSF and spring-of-first-grade CBM reading.

A weak leg of the academic race can potentially be recovered with a strong compensatory later effort; however, prior research documents that the odds of this occurring decrease with time (e.g., Juel, 1988).

Students who are not in the Zone A pattern of performance have encountered some potential difficulty in their progress toward important reading outcomes. Students who achieved the earlier benchmark goal but who did not achieve the later benchmark goal would be plotted in Zone B. This pattern tells us the instructional advantage that was established earlier was not sustained. Students who did not achieve the earlier benchmark goal but for whom a strong instructional effort was effective in achieving the subsequent benchmark goal are plotted in Zone C (see Figure 7 for an example). Finally, students plotted in Zone D did not achieve either the earlier or later benchmark goal. The reading progress of students in Zone D is not sufficient to make a confident prediction of reading outcomes. The likelihood of achieving reading outcomes decreases for students in the lower left quadrant of Zone D.

By reviewing the linkages from kindergarten through third grade, a school can identify strengths and weaknesses in their system of instructional support. If one or two students are in a zone of concern, a first question is whether they were having a bad day. Indeed, for any single student, a first hypothesis to be examined is if low performance was caused by a problem not necessarily related to low skills (e.g., uncomfortable with the tester). But, if there is a pattern of many students in a zone of concern, it is unlikely everyone was having a bad day at the same time, and more systemic explanations should be examined. A first systemic explanation to be considered is whether the integrity and standardization of DIBELS Benchmark Assessment procedures were sufficient to draw meaningful conclusions. Testing, scoring, and entering of scores into the DIBELS Web system should be monitored to make sure there were no points of confusion in administration and scoring procedures that would make the scores uninterpretable. However, once reasonable confidence in the scores is established, curriculum and instruction are the most important systemic factors to consider.

A striking feature of the DIBELS benchmark linkage reports is the school-to-school consistency with which meeting the earlier benchmark increases the odds of achieving the next benchmark. Equally striking are the school-to-school differences in the pattern of linkage from earlier to later benchmarks. Examining zones of performance in the linkage reports allows a review of outcomes with respect to: (a) the quality, focus, and intensity of the core instruction and curriculum and the system for providing additional instructional support *prior* to the first benchmark; and (b) the quality, focus, and intensity of the core instruction and curriculum and system for providing additional instructional support *between* the first and second benchmark.

Each linkage between achievement of an earlier benchmark goal and achievement of a later benchmark goal can be examined in the same manner. For example, the linkage between spring-of-kindergarten PSF goal and the spring-of-first-grade CBM reading goal is compared for three schools in Figure 9. Several important characteristics of each school's early literacy instruction and curriculum are apparent. First, many students (61%) in School 2 are not achieving the desired first-grade reading outcome. This is a clear signal that the school should examine its instruction and curriculum to identify ways to improve reading outcomes. Overall, the most students in School 2 were found in Zone D, indicating that they had not achieved either the spring-of-kindergarten goal or the first-grade reading goal. The reading growth and development of these students will be a serious concern for the school as the students move through subsequent grades (Juel, 1988, Good, Simmons, & Smith, 1998). The large number of students in Zone D is a signal the core kindergarten instruction and curriculum are not effective in supporting students to achieve the kindergarten goal, and is the initial cause of poor reading outcomes in first grade. For those students who achieved the kindergarten benchmark goal, the core first-grade curriculum and instruction were effective in supporting most students (92%) to achieve the first-grade goal. In other words, given students achieved benchmark in winter of kindergarten, the conditional percent of children who achieved the first-grade benchmark goal was 92%. Therefore, an important change for School 2 is to revise the core kindergarten curriculum and instruction to focus on phonological awareness skills and support all students to achieve the kindergarten benchmark goal in phonological awareness.

In School 3, the core kindergarten phonological awareness curriculum and instruction are more effective than School 2 in supporting most students (63%) to achieve the spring-of-kindergarten PSF goal. However, School 2 still needs a system to identify children who may need additional instructional support to achieve the goal and a system to provide that additional support. In addition, only half (55%) of the students who achieved the kindergarten PSF goal achieved the spring-of-first-grade reading goal. First-grade core curriculum and instruction must be reviewed to determine if more effective instruction or curriculum options are available.

In School 4, the most frequently occurring pattern of performance is Zone A (52%), with most students making satisfactory progress toward important reading outcomes. However, a substantial number of students are still not

achieving the spring-of-kindergarten PSF goal in phonological awareness and the spring-of-first-grade CBM reading goal. Students who do not achieve reading goals in first grade are likely to continue experiencing reading difficulty (Good, Simmons, & Smith, 1998) and may require remedial or special education services during their school career. School 4 can benefit from improving its system for providing additional instructional support by identifying early those children who need additional instructional support, and by providing additional instructional support sufficient for all children (100%) to achieve early literacy benchmark goals.

Decision Loops in the Outcomes-Driven Model

The Outcomes-Driven Model is intended to be a continuous, recursive model with three primary decision loops. Completion of one cycle of a loop is intended to provide information to improve and refine the next iteration of the loop. The circular aspect of the Outcomes-Driven Model is depicted in Figure 10. The first decision loop is the assessment-intervention feedback loop described in the planning instructional support and evaluating instructional support sections. All too often assessment and intervention are treated as separate and unrelated activi-

ties. A premise of the Outcomes-Driven Model is that effective instruction incorporates an integrated, ongoing assessment-interaction feedback loop. Based on the student's progress toward an important goal, the instructional plan is changed, the implementation of instructional support is changed, the changes are evaluated, and the instructional plan is modified accordingly. The assessment-intervention feedback loop is satisfied when the student is making adequate progress toward the goal.

The second decision loop in the Outcomes-Driven Model is from one benchmark goal to the next for individual students. In the beginning of kindergarten, students who may need additional instructional support are identified, and sufficient instructional support is provided for the students to achieve the mid-kindergarten goal. The mid-kindergarten benchmark assessment of all students provides a basis to review outcomes of the instructional support provided and to identify students who may need additional support to achieve the end-of-kindergarten benchmark goal. In turn, the end-of-kindergarten benchmark assessment provides a basis to review outcomes and identify students who may need additional instructional support to achieve the mid-first-grade goal, and so on. The completion of each step toward literacy outcomes is the beginning of the next cycle of the Outcomes-Driven Model.
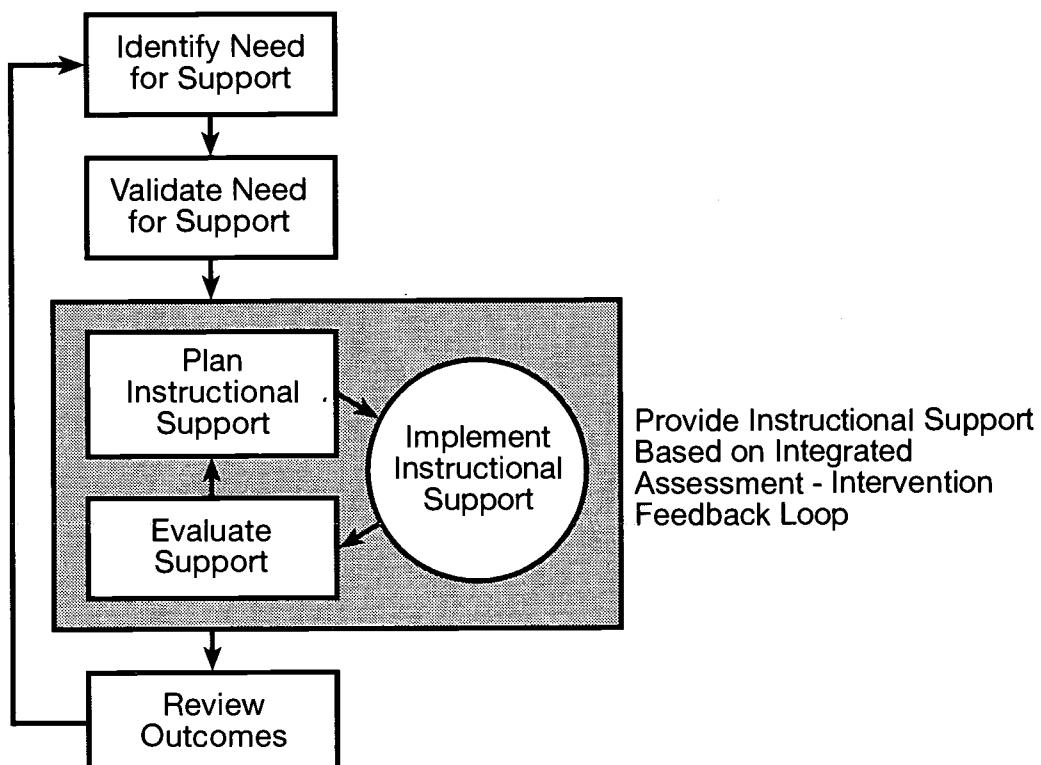

Figure 10. Continuous feedback within an Outcomes-Driven Model

The third decision loop in the Outcomes-Driven Model is from year to year as outcomes of the instructional support system are reviewed and the system is thereby modified. This third decision loop is described in the section on reviewing outcomes at the systems level. Based on the review of benchmark linkage reports, for example, the school may decide a stronger focus on and more effort invested in early phonological awareness instruction, including initial sounds in words, is desirable in the first part of kindergarten. The school's early-literacy team might decide to adopt Ladders to Literacy (O'Connor, Notari-Syverson, & Vadasy, 1998) as a part of the core, early-kindergarten curriculum. The following year, mid-kindergarten outcomes should be reviewed and compared with outcomes of prior years. Not all changes in curriculum and instruction are improvements. Educational reforms that improve outcomes and achieve goal levels should be maintained; reforms that improve outcomes but not enough to achieve goal levels should be strengthened; and reforms that decrease outcomes should be abandoned. It is reasonable to anticipate that achieving life-changing goals may be a multi-year process of improvement and refinement, but progress toward outcome goals should be apparent. It is not reasonable to take 7-10 years to abandon ineffective practices.

Conclusions

The prevention of reading difficulties is a national imperative. Despite a proliferation of high-stakes tests of reading outcomes developed to address reading failure, if we want to *prevent reading problems*, we cannot wait until children fail on third-grade, high-stakes tests. The Outcomes-Driven Model was developed to provide a prevention-oriented, assessment and intervention decision-making system to preempt early reading difficulty and ensure progress step-by-step toward outcomes that result in reading achievement for all children. Inherent in the model is the premise that failure is not an option. Providing additional instructional support sufficient for each and every student to achieve each benchmark goal is the only acceptable option. The choice is stark. Schools can invest resources in preventing reading difficulty and failure, or schools can expend substantial resources—year after year—attempting to remediate reading difficulty and failure. The costs of the second option to schools, society, and our children are unacceptable.

In this discussion of benchmark goals, it is important to clarify that DIBELS benchmark goals described in this monograph and summarized in Table 1 are goals for the lowest student—not goals for the middle student or 90% of students, but goals for the lowest-achieving student in the school. Each goal is a steppingstone toward literacy. The sequence builds upon prior goals, with achievement of each goal supporting achievement of the subsequent goal (with effective instruction). The first goal is modest: for the student to be confident and fluent with the initial sounds of words, that the word "cat" starts with the sound /k/, for example. If a school decides that skill is essential for all students, can we teach all students with sufficient practice and support to achieve the goal? The DIBELS benchmark goals are the minimal level students need to achieve to ensure they are on track for literacy outcomes. The ultimate goal is for 100% of children within a school to achieve each benchmark.

The Outcomes-Driven Model incorporates reliable and valid measures of big ideas of early reading, empirically validated benchmark goals for each of the big ideas, and a series of decision-making steps for teachers and administrators. The bottom line in the Outcomes-Driven Model is the achievement of crucial literacy outcomes for both individual students and systems at the classroom, school, and school-district levels. The outcomes drive the decisions. If outcomes for individual children and/or groups of children are adequate, the instruction and curricula are deemed to be adequate. However, if outcomes are not adequate, a change is warranted. Changes that increase outcomes are maintained; changes that decrease outcomes are abandoned. Because data are collected on an ongoing basis documenting growth toward important benchmark skills, instructional and or curricular modifications can be made in a timely fashion to ensure all children achieve the goal of becoming established readers by the end of Grade 3.

Author's Note

References

Adams, M. J. (1990). *Beginning to read: Thinking and learning about print.* Cambridge, MA: MIT Press.

Adams, M. J., Foorman, B. R., Lundberg, I., & Beeler, T. (1998). *Phonemic Awareness in Young Children: A Classroom Curriculum.* Baltimore, MD: Brookes.

Bond, L., Roeber, E., & Connealy, S. (1998). *Trends in state student assessment programs.* Washington, DC: Council of Chief State School Officers.

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.

Deno, S. L., Mirkin, P., & Chiang, B. (1982). Identifying valid measures of reading. *Exceptional Children, 49,* 36-45.

Drucker, P. F. (1993). The rise of the knowledge society. *The Wilson Quarterly, 17,* 52-72.

Editor. (1999). Quality counts '99. An Education Week/ Pew Charitable Trusts report on education in the 50 states. *Education Week, 18*(17).

Frase-Blunt, M. (2000). High stakes testing a mixed blessing for special students. *CEC Today, 7*(2), 1, 5, 7, 15.

Fuchs, L. S. (1988). Effects of computer-managed instruction on teachers' implementation of systematic monitoring programs, student achievement, and student awareness of learning. *Journal of Educational Research, 81,* 294-304.

Fuchs, L. S. (1989). Evaluating solutions: Monitoring progress and revising intervention plans. In M. Shinn (Ed.), *Curriculum-based measurement: Assessing special children.* New York: Guilford.

Fuchs, L. S., Fuchs, D., & Hosp, M. K. (in press). Oral reading fluency as an indicator of reading competence: A theoretical, empirical, and historical analysis. *Scientific Studies of Reading.*

Good, R. H., Kaminski, R. A., Shinn, M., Bratten, J., Shinn, M., Laimon, L. (in progress). *Technical Adequacy and Decision Making Utility of DIBELS.* Technical Report. University of Oregon.

Good, R. H., Simmons, D. C., & Kame'enui, E. J. (in press). 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.*

Good, R., III, Simmons, D. C., & Smith, S. (1998). Effective academic interventions in the United States: Evaluating and enhancing the acquisition of early reading skills. *School Psychology Review, 27,* 45-56.

Juel, C. (1988). Learning to read and write: A longitudinal study of 54 children from first through fourth grades. *Journal of Educational Psychology, 80,* 437-447.

Kame'enui, E. J., & Carnine, D. W. (Eds.). (1998). *Effective teaching strategies that accommodate diverse learners.* Columbus, OH: Merrill, Prentice Hall.

Kaminski, R. A., & Good, R. H., III. (1996). Toward a technology for assessing basic early literacy skills. *School Psychology Review, 25,* 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.

McConnell, S. R., McEvoy, M. A., Carta, J. J., Greenwood, C. R., Kaminski, R., Good, R. H., Shinn, M. R. (1996, May). *Early childhood research institute on program performance measures: A growth and development approach.* U.S. Department of Education, Early Education Programs for Children with Disabilities, Office of Special Education and Rehabilitation Services.

Murnane, R. J., & Levy, F. (1996). *Teaching the new basic skills: Principles for educating children to thrive in a changing economy.* New York: The Free Press.

National Center for Education Statistics. (1999). *NAEP 1998 reading: Report card for the nation and the states.* Washington, DC: U. S. Department of Education, Office of Educational Research and Improvement.

National Reading Panel. (2000). *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction: Reports of the subgroups.* Bethesda, MD: National Institute of Child Health and Human Development.

National Research Council. (1998). *Preventing reading difficulties in young children.* Washington, DC: National Academy Press.

O'Connor, R., Notari-Syverson, A., & Vadasy, P. (1998). *Ladders to Literacy: An Activity Book For Kindergarten Children:* Brookes.

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.

Simmons, D. C., & Kame'enui, E. J. (Eds.). (1998). *What reading research tells us about children with diverse learning needs: Bases and basics.* Mahwah, NJ: Lawrence Erlbaum Associates.

Torgesen, J. K., & Bryant, B. R. (1994). *Phonological Awareness Training for Reading.* Austin, TX: PRO-ED.

White, O.R., & Haring, N.G. (1980). *Exceptional teaching* (2nd ed.). Columbus OH: Merrill.

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