Scientifically Based Reading Research

The term scientifically based reading research' means research that
(A) applies rigorous, systematic, and objective procedures to obtain
valid knowledge relevant to reading development, reading
instruction, and reading difficulties; and
(B) includes research that —
(i) employs systematic, empirical methods that draw on
observation or experiment;
(ii) involves rigorous data analyses that are adequate to test the
stated hypotheses and justify the general conclusions drawn;
(iii) relies on measurements or observational methods that
provide valid data across evaluators and observers and
across multiple measurements and observations; and
(iv) has been accepted by a peer-reviewed journal or approved
by a panel of independent experts through a comparably
rigorous, objective, and scientific review.

Levels of Evidence

Lowest Level of Confidence
- Cardiac – I know in my heart this is the way children learn.
- Belief, philosophy, opinion, tradition.
- Don’t bother me with evidence, I already know the answer.
- Many, many different positions, often held with extreme and emotional conviction.

Higher Level of Confidence
- A controlled, carefully designed study is conducted to test the proposed component or procedure.
- Must have an opportunity not to work.
- Peer review enhances our confidence in the findings.
Levels of Evidence

Even Higher Confidence
- Replication - the controlled, carefully designed study is repeated with different children, different researchers, different interventionists, different procedures.
- Peer review enhances our confidence in the findings.
- Fewer findings are replicated by many researchers.

Meta-Analysis of many studies under varying conditions with varying threats to conclusions and a strong, robust effect is obtained under all or most conditions.
- Again, peer review of the meta-analysis enhances our confidence in the findings.
- Very few findings are examined and summarized by meta-analyses.

Great Confidence
- A panel of experts spends 2 years summarizing 115,000 research studies on early literacy. Selects studies that meet high standards of rigor for design and experimental control. Conducts a meta-analysis of the findings. Distills important components of effective early literacy instruction.
- 5 Core Components meet this level of confidence.

Greatest Confidence
- You obtain powerful and persuasive evidence on an ongoing basis regarding the effectiveness of instruction and outcomes for your children.
- Your children, your implementation, your setting, your conditions, current information.
- Immediate, vivid, personal.
- Lots of sites can replicate under lots of conditions.
Beginning Reading Core Components

#1. **Phonemic Awareness** – The understanding that individual sounds of spoken language (phonemes) work together to make words. This allows readers to hear, identify, and manipulate the individual sounds.

#2. **Phonics** – The relationship between the sounds of spoken language (phonemes) and the letters representing those sounds in written language (graphemes). Skill in phonics helps students to recognize familiar words and decode unfamiliar ones.

#3. **Fluency** – The skill of reading texts accurately and quickly, which allows readers to recognize and comprehend words at the same time.


Beginning Reading Core Components

#4. **Vocabulary** – The ability to store information about the meaning and pronunciation of words. There are four types of vocabulary: listening, speaking, reading, and writing.

#5. **Reading Comprehension** – Understanding, remembering, and communicating with others about what has been read. Comprehension strategies help readers to make sense of a text.


Model of Big Ideas, Indicators, and Timeline

Adapted from 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*, 257-288.

Beginning Reading Core Components

Indicadores dinámicos del éxito en la lectura 6ta Edición (IDEL)

Good, Bank, & Watson (2003)

- A “reinvention” of the DIBELS
- Designed to be indicators of important early literacy skills in Spanish
- Directions and Assessment in Spanish
- Seven measures:
### The Measures

<table>
<thead>
<tr>
<th>DIBELS Measure (English)</th>
<th>IDEL Measure (Spanish)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Letter Naming Fluency (LNF)</td>
<td>Fluidez en el nombramiento de las letras (FNL)</td>
</tr>
<tr>
<td>Initial Sound Fluency (ISF)</td>
<td>Fluidez en los sonidos iniciales (FSI)</td>
</tr>
<tr>
<td>Phonemic Segmentation Fluency (PSF)</td>
<td>Fluidez en la segmentación de fonemas (FSF)</td>
</tr>
<tr>
<td>Nonsense-Word Fluency (NWF)</td>
<td>Fluidez en las palabras sin sentido (FPS)</td>
</tr>
<tr>
<td>DIBELS Oral Reading Fluency (DORF)</td>
<td>Fluidez en la lectura oral IDEL (FLO)</td>
</tr>
<tr>
<td>DIBELS Oral Retell</td>
<td>Fluidez en el recuerdo oral del cuento (ROC)</td>
</tr>
<tr>
<td>Word Use Fluency (WUF)</td>
<td>Fluidez en el uso de las palabras (FUP)</td>
</tr>
</tbody>
</table>

### Instructional Goals for Core Components of Beginning Reading

**Benchmark Goals to be On Grade Level:**

**Middle K:** *Phonological Awareness* with 25 - 35 on DIBELS Initial Sound Fluency by mid kindergarten (and 18 on PSF)

**End K:** *Phonemic Awareness* with 35 - 45 on DIBELS Phoneme Segmentation Fluency by end of kindergarten (and 25 on NWF)

**Middle 1st:** *Alphabetic principle* 50 - 60 on DIBELS Nonsense Word Fluency by mid first grade with at least 15 words recoded (and 20 on DORF)

**End 1st:** *Fluency* with 40 - 50 on DIBELS Oral reading fluency by end of first grade (and RTF 25% or more).

**End 2nd:** *Fluency* with 90 + on DIBELS Oral reading fluency by end of second grade (and RTF 25% or more)

**End 3rd:** *Fluency* with 110 + on DIBELS Oral reading fluency by end of third grade (and RTF 25% or more)

### Two Pathways to Literacy

**Spanish – L1**

- Phonemic Awareness
- Alphabetic Principle
- Accuracy and Fluency in Spanish
- Vocabulary & Language in Spanish

**English – L2**

- Phonemic Awareness
- Alphabetic Principle
- Accuracy and Fluency in English
- Vocabulary & Language in English

### Official DIBELS Home Page

- The Dynamic Indicators of Basic Early Literacy Skills (DIBELS) are a set of standardized, individually administered measures of early literacy development. They are designed to be short (one minute) fluency measures used to regularly monitor the development of pre-reading and early reading skills.

- The measures were developed based on the essential early literacy domains discussed in both the National Reading Panel (2000) and National Research Council (1998) reports to assess student development of phonological awareness, alphabetic understanding, and automaticity and fluency with the code. Each measure has been thoroughly researched and demonstrated to be reliable and valid indicators of early literacy development and predictors of later reading proficiency to aid in the early identification of students who are not progressing as expected. When used as recommended, the results can be used to evaluate individual student development as well as provide grade-level feedback toward validated instructional objectives.

- The DIBELS measures are FREE to download and use. Just go [here](http://DIBELS.uoregon.edu) to learn, or sign up for a materials download account if you do not already have one.

NEW! The Spanish version of DIBELS, *Indicadores dinámicos del éxito en la lectura 6a Edición (IDEL)*, is now available. Log in to the materials download page [here](http://DIBELS.uoregon.edu) and click on the IDEL link.

We also offer an optional additional service, the DIBELS Data System, which allows you to enter your students' DIBELS data online and generate automated reports, for $1 per student, per year.
The Robin’s Nest

There was a robin’s nest outside our kitchen window. The mother robin sat in the nest all day long. One day when I was watching, the mother bird flew away. I saw the eggs she was sitting on. There were four blue eggs.

I watched and watched. The eggs moved. I watched some more. The eggs started to crack. Finally, the eggs hatched. I saw four baby birds. The baby birds opened their beaks wide. I heard them peeping. Soon the mother bird came back. Then the mother robin put worms in their mouths.

Every day I watched the baby birds and their mother. Pretty soon the babies were so fat there was no room for the mother. Then one morning the nest was gone from the bush.

Fluidez en la Lectura Oral (FLO)
Por favor lee esto (señale) en voz alta. Si te atoras, te digo la palabra para que puedas seguir leyendo. Cuando digo “para” te puedo preguntar sobre lo que leíste, así que trata de leer lo mejor que puedas. Empieza aquí (señale la primera palabra del pasaje).

Por favor cuéntame sobre todo lo que acabas de leer. Trata de contarme todo lo que puedas. Empieza.
Low risk reader
DORF 40 to 45

At risk reader
DORF 5 to 10

I’ve thrown a lot of rocks into the lake by our cabin. Sometimes I think I’ve thrown in enough to fill the whole lake. But it never seems to get full. As you can tell, I like to throw rocks. But throwing rocks is always a lot more fun with Grandpa. He can make anything….

DIBELS Nonsense Word Fluency

Here are some more make-believe words (point to the student probe). Start here (point to the student probe). Start here (point to the first word) and go across the page (point to the student probe). When I say, “begin”, read the words the best you can. Point to each letter and tell me the sound or read the whole word. Read the words the best you can. Put your finger on the first word. Ready, begin.

Fluidez en las palabras sin sentido

Mira esta palabra (señale la primera palabra en la copia de práctica). No es una palabra verdadera. Es una palabra sin sentido. Observa cómo leo la palabra: /m/ /o/ /s/ /i/ “mosi” (señale cada letra, después pase el dedo rápidamente debajo de toda la palabra) Puedo decir los sonidos de las letras, /m/ /o/ /s/ /i/ (señale cada letra), o puedo leer la palabra completa “mosi” (pase el dedo rápidamente debajo de toda la palabra).

Ahora te toca a ti leer una palabra sin sentido. Lee la palabra lo mejor que puedas (señale la palabra “lu”). Asegúrate de decir todos los sonidos que sepas.

Role of Mid First Alphabetic Principle

- Odds of being on track with ORF in end of first grade when Established with NWF in middle of first grade is 117 out of 136, or 86%
- Odds of being on track with ORF in end of First Grade when Deficit with NWF in middle of first grade is 5 out of 46, or 11%
Similar Odds, Different Outcome

- Odds of being on track with ORF in end of first grade when Established with NWF in middle of first grade are 12 out of 18, or 67%
- Odds of being on track with ORF in end of first grade when Deficit with NWF in middle of first grade are 3 out of 21, or 14%

Similar Odds, Different Outcome

- Odds of being on track with ORF in end of first grade when Established with NWF in middle of first grade are 5 out of 8, or 63%
- Odds of being on track with ORF in end of first grade when Deficit with NWF in middle of first grade are 6 out of 62, or 10%

How do I support my children to learn the alphabetic principle so well they reach NWF of 50?

- Foundation of Phonemic Awareness
- Systematic and Explicit Instruction
- Start Early and Move in the Direction
- Practice
- Assess to inform decisions that change outcomes
- Monitor Progress
- Do Something About Lack of Adequate Progress
Practice? Should I use DIBELS NWF to practice decoding nonsense words?

- Absolutely not.
- Under no conditions should DIBELS assessment materials be used for instruction or practice.
- Reason 1: Children should always be tested cold on the skills. If they aren’t tested cold we don’t know what their scores mean. We don’t know if they are on track or not.
- Reason 2: More important, the DIBELS NWF score is not the point. The alphabetic principle is the point. Our instruction should always focus on the big idea or core component: phonics and the alphabetic principle.

Practice what? Should I never have my children practice reading nonsense words?

- I think practicing decoding and reading words is great: real words and nonsense words both.
- Keep in mind the big idea goal: To have a powerful strategy to encounter an unknown word and confidently obtain a reasonable pronunciation of the word.
- Practice should occur in the context of meaningful and important instruction on the alphabetic principle.
- Don’t forget recoding: using letter sound knowledge to recover the pronunciation of the whole word.
- For example, The Alien Word Game (Source unknown)

Adapted from 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, 257-288.
The Alien Word Game (Source unknown)

- Start with a set of magnetic or felt letters, a mixture of consonants and vowels, that the students have been learning and practicing. For example, a o i m t l p s r n

- have the students review the sounds of all the letters, group and individual turns, signal for group response so low kids respond at the same time as the group. Make sure low kids are accurate with the letter sounds.

- make a word “tap” and practice reading the word: first sound by sound then say it fast – what word? tap Is it an alien word? No

- next switch out one of the letters – trade the p for an n. read the word: sound by sound, say it fast, what word? tan Is it an alien word? No

- next switch out another letter – trade t for l. Read the word: sound by sound, say it fast, what word? lan Is it an alien word? Yes, it is an alien word. It is not a real word, it is a make believe word. It might be a new word that someone makes up some day.

- as students develop skill in reading a variety of words with these letters, real and alien, you can fade the sound by sound part so they are reading words and judging what the word is. (i.e., they are recoding the words fluently and automatically)

Reading First:
Four Kinds/Purposes of Reading Assessment

An effective, comprehensive, reading program includes reading assessments to accomplish four purposes:

- **Outcome** - Assessments that provide a bottom-line evaluation of the effectiveness of the reading program.

- **Screening** - Assessments that are administered to determine which children are at risk for reading difficulty and who will need additional intervention.

- **Diagnosis** - Assessments that help teachers plan instruction by providing in-depth information about students’ skills and instructional needs.

- **Progress Monitoring** - Assessments that determine if students are making adequate progress or need more intervention to achieve grade level reading outcomes.

Source: Reading First Initiative: Secretary’s Leadership Academy

Using an Outcomes Driven Model to Provide Decision Rules for Progress Monitoring

**Outcomes Driven** model: Decision making steps

1. Identifying Need for Support
2. Validating Need for Instructional Support
3. Planning and Implementing Instructional Support
4. Evaluating and Modifying Instructional Support
5. Reviewing Outcomes for Individuals and Systems

Key Decision for **Screening Assessment**:

- Which children may need additional instructional support to attain important reading outcomes?

Data used to inform the decision:

- Compare individual student’s performance to **local normative context** or **expected performance** to evaluate need for additional instructional support.

  - **Local normative context**: First, choose a percentile cutoff. 20th percentile seems a good place to start, but a district could choose 15th percentile or 25th percentile or other cutoff depending on resources.

  - **Expected performance**: A deficit in a foundation skill is a strong indicator that instructional support will be needed to attain later benchmark goals.

Source: Reading First Initiative: Secretary’s Leadership Academy


Beginning of First Grade

### Considering Initial Skills, Does Slope Add to Predictions of Outcomes?

- Students with complete data from 2002-2003 in the DIBELS Data System were examined for level of risk, slope of progress, and reading outcomes.

#### Initial Skills on NWF are a Very Strong Predictor of Reading Outcomes

#### Decision Utility of DIBELS Fall of 1st

- **LNF >= 37, DIBELS PSF >= 35, DIBELS NWF >= 24**
  - Instructional Recommendation: Benchmark - At grade level. Effective core curriculum and instruction recommended,
  - Odds of reading 40 or more words correct per minute at the end of first grade: 84%

- **LNF < 25, DIBELS PSF < 10, DIBELS NWF < 13**
  - Instructional Rec: Intensive - Needs substantial intervention:
  - Odds of reading 40 or more words correct per minute at the end of first grade: 18% (unless given intensive intervention)

Value of knowing the instructional recommendation and the goal early enough to change the outcome: Priceless.
2. Validate Need for Support

Key Decision:
- Are we reasonably confident the student needs instructional support?
- Rule out easy reasons for poor performance: Bad day, confused on directions or task, ill, shy, or similar.
- More reliable information is needed to validate need for support than for screening decisions.

Data used to inform the decision:
- Repeated assessments on different days under different conditions
- Compare individual student’s performance to local normative context or expected performance to evaluate discrepancy.

Validating Need for Support
- Verify need for instructional support by retesting with alternate forms until we are reasonably confident.

3. Planning and Implementing Instructional Support

Key Decisions for Diagnostic Assessment:
- What are the Goals of instruction?
  - Where are we? Where do we need to be? By when? What course do we need to follow to get there?
- What skills should we teach to get there?
  - Focus on the beginning reading core areas: Phonological Awareness, Alphabetic Principle, Accuracy and Fluency with Connected Text
  - Specific skills based on error analysis or additional diagnostic assessment (e.g., CTOPP).
- How much instructional support is needed?
  - Intensive Instructional Support
  - Strategic Instructional Support
  - Benchmark Instruction

Kindergarten Instructional Goals
- Establish an Instructional Goal for Alphabetic Principle that is moving in the direction of achieving the middle of first grade goal.
First Grade Instructional Goals

- Establish an Instructional Goal for *Alphabetic Principle* that will change odds of being a reader

Oregon Reading First Review of Supplemental and Intervention Programs

- OR Reading First developed review criteria for supplemental and intervention programs and reviewed 106 programs for the percent of criteria met. [http://oregonreadingfirst.uoregon.edu/SIreport.php](http://oregonreadingfirst.uoregon.edu/SIreport.php)
  - Phonemic Awareness
    - Early Reading Intervention 96%
    - Road to the Code 80%
    - Phonemic Awareness in Young Children 75%
  - Phonics or Alphabetic Principle
    - Reading Master Fast Cycle 96%
    - Read Well 94%
    - Voyager Passport 92%
    - Early Reading Intervention 81%
    - Funnix ??%
  - Fluency with Connected Text
    - Read Naturally 92%
    - Great Leaps 66%
    - Headsprout 61%

Purpose of Diagnostic Assessment: Adequate Progress

- Provide *increased confidence* of need for educational support.
- Target essential component for intervention focus.
  - Deficit on PA → Intervention targeting PA
  - Established PA, Deficit on AP → Intervention targeting AP
  - Established PA and AP, Deficit on fluency with connected text → Intervention targeting reading connected text and fluency building.
  - Identify level of support and intensity of intervention
    - e.g., strategic or intensive
  - Identify specific skill deficits or other instructionally relevant characteristics (e.g., program placement, behavior needs, RAN, language skills, background knowledge) to directly inform instruction.
Role of Expensive, Time-Consuming, Diagnostic Assessment

- “Because they are expensive and time-consuming to administer, diagnostic tests should not be given routinely to every struggling reader in a class or grade.” (Torgesen, 2004)
- Use screening, progress monitoring, and outcome assessments, and specific program placement tests to obtain initial information to guide instruction.
- Time-consuming diagnostic assessment should only be used when we do not have sufficient information to support a student to make adequate progress.
- When we are providing appropriate instruction or intervention and a child is making adequate progress, additional diagnostic information is not indicated.

Determining need for Expensive, Time-Consuming, Diagnostic Assessment

2. Implement research based intervention targeting the essential component (e.g., ERI for phonemic awareness)
3. Evaluate the adequacy of the intervention using progress monitoring assessment.
   - If adequate progress → maintain
   - If lack of adequate progress → increase intensity
     A. Examine and increase integrity of implementation
     B. Examine and increase intervention time
     C. Examine and decrease group size
   - If adequate progress → maintain
4. Only when a child has a serious, sustained, lack of adequate progress with intensive intervention and increased intensity would additional, targeted, diagnostic assessment be indicated.

4. Evaluating and Modifying Instructional Support

Key Decision for Progress Monitoring Assessment:
- Is the intervention effective in improving the child’s early literacy skills?

How much instructional support is needed?
- Enough to get the child on trajectory for Benchmark Goal.

When is increased support needed?
- Monitor child’s progress during intervention by graphing and comparing their performance and progress to past performance and their aimline. Three consecutive assessments below the aimline indicates a need to increase instructional support.

Evaluating Support: Modify Instruction?

Whoops! Time to make a change!
Evaluating Support: Is Instructional Support Sufficient Now?

Progress Monitoring
- Repeated, formative assessment to evaluate progress toward important goals for the purpose of modifying instruction or intervention.
- Frequency of Progress Monitoring
  - 3 times per year for students at low risk (All Students)
    - Benchmark
  - 1 per month for students with some risk
    - Strategic
  - 1 per week for students at risk
    - Intensive

Research on Progress Monitoring
- Progress monitoring has been extensively researched in Special Education
- For example:
- With Reading First, progress monitoring is not just for special education any more.
Effects of Progress Monitoring

- Fuchs and Fuchs (1986) found the average effect size associated with progress monitoring was:
  - +0.70 for monitoring progress
  - +0.80 when graphing of progress was added
  - +0.90 when decision rules were added
- A student at the 50th percentile would be expected to move to the 82nd percentile (i.e., a score of 100 would move to a score of 114)
- Perhaps more important, a student at the 6th percentile would be expected to move to the average range (25th percentile) (i.e., a score of 76 would move to a score of 90)

Progress Monitoring Tools

- Meaningful and important goals, waypoints, or benchmarks representing reading health or wellness.
  - Meaningful and Important
  - Public and Measurable
  - Ambitious
- Brief, repeatable, formative assessment of progress toward benchmark goals that is sensitive to intervention.
  - Brief and Efficient
  - Repeatable - weekly or monthly
  - Reliable and Valid indication of risk and growth

Is Progress is Related to Outcomes?

- The logic of the Evaluating and Modifying Support step relies on evidence that amount of progress toward goals is related to important reading outcomes.
- Given or controlling for initial skills, is slope of progress on NWF in the Fall of first grade related to first grade reading outcomes for at risk students?
  - Evaluations of the relation between slope of progress and outcomes must consider the student’s initial skills.

Progress GIVEN initial skills.

- Nora has a slope twice that of Nick, but substantially lower reading outcome because her initial skills are so much lower.
Similar Initial Skills – Slope is related to outcomes

- Nora and Nell have similar initial skills – Nell’s higher slope predicts higher skills in middle of first grade and higher reading outcomes.

![Graph showing NWF Correct Letter Sounds over time for Nick, Nell, and Nora](image)

Nell Predicted Spring DORF = 36

Nora Predicted Spring DORF = 26

Does Slope Add to the Prediction of Reading Outcomes After Risk Level and Initial Skills? [All Students]

- Sequential model predicting first grade DORF reading outcomes from (1) risk category, (2) initial NWF skill given risk, and (3) slope given risk and initial skill.

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>R² change</th>
</tr>
</thead>
<tbody>
<tr>
<td>NWF Risk Category</td>
<td>3</td>
<td>0.40</td>
</tr>
<tr>
<td>Initial NWF Skill Given Risk</td>
<td>1</td>
<td>0.08</td>
</tr>
<tr>
<td>Slope Given Risk, Initial Skill</td>
<td>1</td>
<td>0.11</td>
</tr>
<tr>
<td>Total</td>
<td>9</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Risk category, initial skills, and slope combined explain 59% of reading outcomes.

Variance Explained by Slope for Each Risk Category

- A separate analysis was conducted for each risk category.

<table>
<thead>
<tr>
<th>Group</th>
<th>NWF Initial Skills</th>
<th>NWF Slope Given Initial Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>At Risk NWF 0 to 12</td>
<td>8%</td>
<td>26%</td>
</tr>
<tr>
<td>Some Risk NWF 13 to 23</td>
<td>2%</td>
<td>21%</td>
</tr>
<tr>
<td>Low Risk NWF 24 to 49</td>
<td>8%</td>
<td>21%</td>
</tr>
<tr>
<td>High AP NWF 50 to 255</td>
<td>25%</td>
<td>11%</td>
</tr>
</tbody>
</table>

But, is the variance explained by slope (given risk and initial skills) educationally important?

Rate of progress in alphabetic principle is especially important for students who are at risk for low reading outcomes.

Variability in Slope for At Risk Students

- About 68% of At Risk student’s trajectories are between the low slope and the high slope.
Slope of Progress for At Risk Students

- **Goal Slope.** The slope of progress necessary to achieve the Alphabetic Principle Benchmark Goal of 50 on NWF in the middle of first grade and predict successful first grade reading outcomes. **Adequate Progress.**
- **High Slope.** One standard deviation above the mean – the 86th percentile compared to other children at risk for reading difficulty. Indicates a very effective intervention is in place. **Adequate Progress.**
- **Typical Slope.** Average or typical progress. Most students continue to be at risk. **Not making adequate progress.**
- **Low Slope.** One standard deviation below the mean – the 14th percentile compared to other children at risk for reading difficulty. Indicates the lack of an effective intervention. Most at risk students continue to be at risk. **Not making adequate progress.**

Differences in Slope are Educationally Meaningful for At Risk Students

- Predicted reading outcomes are substantially different. Goal slope predicts 40 end of first DORF.

Conclusions:

Validity of DIBELS NWF Slope

- Initial risk status and initial skills on DIBELS Nonsense Word Fluency are very important in predicting reading outcomes in first grade, explaining 48% of variance in outcomes.
- An increasing pattern of scores through the first semester of first grade on DIBELS Nonsense Word Fluency appears to be a very important predictor of reading outcomes for students who are at risk, and indeed for each risk category.
- We can be confident that increases in DIBELS Nonsense Word Fluency reflect improved performance on alphabetic principle skills that contribute to important end-of-year reading outcomes.

Key Decisions for Outcome/Accountability Assessment:

- Does the child have the early literacy skills predictive of successful reading outcomes?
- Does the school have a schoolwide system of instruction and support so their students achieve literacy outcomes?

Data used to inform the decision:

- Evaluate individual student’s performance with respect to benchmark goals that with the odds in favor of achieving subsequent literacy goals.
- Compare school/district outcomes to goals and outcomes from previous year and to other schools in the district or region.
- Evaluate the schoolwide system (core curriculum and instruction, supplemental support, and intervention) for each step to identify strengths and targets of opportunity for improvement.
Schoolwide System of Instruction and Support

--- Core Curriculum and Instruction ---
- Not just the reading curriculum selected but also the way it is delivered.
- aka Primary Prevention or Benchmark Instruction
- **Primary Goal:** Meet the needs of 80% of students in the school. If the school has lots of children who need strategic or intensive support, the core curriculum and instruction will need to include many features of strategic support and intensive intervention.
- **Primary Step-Goal:** Support all benchmark students to make adequate progress and achieve the benchmark goal.
- **Secondary Step-Goal:** Support 50% of strategic students to achieve the benchmark goal.

--- Supplemental Support ---
- Additional time, smaller group, more intensive, supplemental or intervention program, delivered with fidelity.
- aka Secondary Prevention or Strategic Support
- **Primary Goal:** Meet the needs of 15% of students in the school who will need more support than the core curriculum and instruction can provide.
- **Primary Step-Goal:** Adequate progress to reduce risk of reading difficulty. Support strategic students to achieve the benchmark goal.

--- Intervention ---
- Additional time, smaller group, more intensive, supplemental or intervention program, delivered with fidelity.
- aka Tertiary Prevention or Intensive Intervention
- **Primary Goal:** Meet the needs of the 5% of students in the school who will need very intensive intervention to achieve literacy goals.
- **Primary Step-Goal:** Accelerate learning and progress to support intensive students to achieve the benchmark goal or reduce their risk of reading difficulty to strategic. If one step can get them to strategic, the next step can get them to benchmark.
Steps to Achieving Reading Outcomes

Adapted from 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, 257-288.

Instructional Goals for Essential Components of Beginning Reading

Benchmark Goals to be On Grade Level:
Middle K: Phonological Awareness with 25 - 35 on DIBELS Initial Sound Fluency by mid kindergarten (and 18 on PSF)
End K: Phonemic Awareness with 35 - 45 on DIBELS Phoneme Segmentation Fluency by end of kindergarten (and 25 on NWF)

Middle 1st: Alphabetic principle 50 - 60 on DIBELS Nonsense Word Fluency by mid first grade with at least 15 words recoded (and 20 on DORF)
End 1st: Fluency with 40 - 50 on DIBELS Oral reading fluency by end of first grade (and RTF 25% or more).
End 2nd: Fluency with 90 + on DIBELS Oral reading fluency by end of second grade (and RTF 25% or more)
End 3rd: Fluency with 110 + on DIBELS Oral reading fluency by end of third grade (and RTF 25% or more)

Reviewing Outcomes: Effectiveness of Benchmark Instruction (Core Curriculum)

- For each step toward literacy outcomes, a school with an effective core curriculum and instruction supports students who are on track (i.e., low risk or benchmark) to achieve each literacy goal.

- For students with the odds in favor of achieving literacy goals, it is the job of the core to teach the essential components so that all students (100%) achieve the goals.

Evaluating Effectiveness

I. Outcomes Criterion – Bottom line

- 95% of students achieve the early literacy goal.

II. Adequate Progress Criteria – are all students making adequate progress?

- Core Curriculum and Instruction: Benchmark students make adequate progress and achieve goals
- Supplemental Support: Strategic students make adequate progress and achieve goals
- Intensive Intervention: Intensive students make adequate progress and achieve goals or at least reduce risk.
I. Outcomes Criterion

- **Strength** – The schoolwide instructional system is a strength, including Core Curriculum and Instruction, Supplemental Support, and Intensive Intervention.
  - **Absolute Standard**: 95% or more of students schoolwide achieve the next literacy goal.
  - If outcomes criterion is not met, evaluate the effectiveness of each layer of the system using the Adequate Progress Criteria, including:
    - Core Curriculum and Instruction,
    - Supplemental Support, and
    - Intensive Interventions.

II. Adequate Progress Criterion

- **Benchmark Students** are making adequate progress if they achieve the next early literacy goal.
  - **Effective core curriculum and instruction** should support 95% of benchmark students to achieve each literacy goal.
- **Strategic Students** are making adequate progress if they achieve the next literacy goal.
  - **Effective supplemental support** should get 80% of strategic students to achieve each literacy goal.
- **Intensive Students** are making adequate progress if they achieve the literacy goal or progress to lower risk.
  - **Effective interventions** should help 80% of intensive students to achieve the goal or achieve emerging or some risk status.

Absolute Standard and Relative Standard

- **Absolute Standard** – held constant from year to year, represents an ambitious goal that all schools could attain. **Strength:**
  - Adequate progress for 95% of Benchmark
  - Adequate progress for 80% of Strategic
  - Adequate progress for 80% of Intensive
- **Relative Standard** – Based on most recently available schoolwide norms. Represents the current state of curriculum, supplemental support, intervention.
  - **Strength**: Upper third compared to other schools
  - **Needs Support**: Middle third compared to other schools
  - **Needs Substantial Support**: Lower third compared to other schools

II. Adequate Progress – Benchmark Students

Core Curriculum and Instruction

- **Strength** – Research-based effective reading core curriculum and delivery of that curriculum.
  - Logic: The core curriculum and instruction should support benchmark students to achieve literacy goals.
  - **Absolute Standard**: 95% of benchmark students achieve the next literacy goal.
  - **Relative Standard**: Upper third of effectiveness of core curriculum and instruction compared to other schools.
  - Meet either the absolute standard or the relative standard and the effectiveness of the core is a strength for the school.
II. Adequate Progress – Needs Support
Core Curriculum and Instruction

- Needs Support – School (a) does not meet the Outcome Criterion, (b) does not meet the absolute standard for adequate progress and (c) the school is in the middle third of effectiveness compared to other schools.
  - The school needs support in terms of professional development, curriculum materials, integrity of delivery, or time investment to increase the effectiveness of the core.

II. Adequate Progress – Substantial Support
Core Curriculum and Instruction

- Needs Substantial Support – School (a) does not meet the Outcome Criterion, (b) does not meet the absolute standard for adequate progress and (c) the school is in the lower third of effectiveness compared to other schools.
  - Schoolwide priority for professional development, curriculum materials, integrity of instruction, and time investment.

Focus on Support

- What can we do systemically to support the effectiveness of the Schoolwide System of Instruction?
- What would it take to help the school achieve literacy goals?
  - Professional development on essential components of early literacy?
  - More powerful interventions or supplemental materials?
  - Coaching to improve fidelity of implementation?
  - Additional resources to meet the needs of challenging students (e.g., ELL, high mobility)?
  - Administrative support to invest substantial time and resources to change outcomes?

Evaluating Effectiveness Example

- Test District is a real school district that has been blinded – all school names, district names, class names, and student names are fictitious.
- Focus first on schoolwide evaluation of the core curriculum and instruction.
  - Powerful and effective core enhances outcomes for all students: Benchmark, Strategic, Intensive.
- Focus step by step. A school can have effective core curriculum and instruction for one step but not another.
  - First Semester of First Grade appears nationally to be a target of opportunity to change reading outcomes.
Evaluating Effectiveness Worksheet

- First, clarify the *primary instructional goal* for the first semester of first grade.
  - **Essential Component:** Phonics or Alphabetic Principle
  - **DIBELS Indicator:** Nonsense Word Fluency (NWF)
  - **Goal Skill Level:** 50 letter sounds correct per minute with recoding
  - **Timeline:** by the middle of first grade.

First, Examine Schoolwide Outcomes

I. Outcomes Criterion:
   - Schoolwide system of instruction and support in the first semester of first grade is a **strength** if 95% of students are Established on DIBELS NWF in the middle of first grade.
   - Core curriculum and instruction is effective
   - System of additional interventions is effective

- For Example, schools on next slides have McKinley Washington
  - Established: 42%  82%
  - Emerging: 43% 12%
  - Deficit: 15% 7%

- Neither school meets the Outcomes Criterion for **Strength** in their schoolwide system of instruction and support for the first semester of first grade.

- Next step: Are students making adequate progress in the first semester of first grade?

Examining Outcomes for Alphabetic Principle Instruction

--McKinley School--

- **Middle 1st NWF Histogram Report**
  - 15% Deficit
  - 42% Established
  - 43% Emerging
Examining Outcomes for Alphabetic Principle Instruction
--Washington School--

Middle 1st NWF Histogram Report

7% Deficit
82% Established
12% Emerging

Examine progress of Benchmark Students – Are benchmark students reaching goal?
- Effective core curriculum and instruction should support benchmark students to make adequate progress and achieve essential early literacy goals.
- Use Effectiveness Report
  - Focus on schoolwide summary
  - Classroom report illustrates individual classrooms and children
- For example,
  - Washington School on the next slides has 95% of Benchmark students reaching the middle of first grade goal.
  - McKinley School on the next slides has 67% of Benchmark students reaching the middle of first grade goal.

Summary of Effectiveness by School or District

NOTE: Netscape Navigator/Netscape Communicator versions 4 and below are buggy and cannot print unmodified results of forms, including online reports for this system. However, the PDF reports will print fine on any platform. If you need to print an online report that isn’t available in PDF format, you can use any other browser.

PDF Reports for Downloading and Printing

School and District Reports
Combined PDF Reports: Histograms, Box Plots, Class Lists, and Norms
Summary of Effectiveness by School or District: Progress of students by Instructional Recommendation over time.
Class Reports
Class Progress Graph: Student scores for one class and measure graphed over time.
Summary of Effectiveness for Class: Progress of students by Instructional Recommendation over time.
Individual Student Reports
Individual Student Performance Profiles: Student performance across grades K-3 for each student in a class.
Evaluating the Effectiveness of Core Curriculum and Instruction: 2001 – 2002 Schoolwide Norms

- McKinley School is not meeting the absolute standard for effective core curriculum and instruction. How are their outcomes compared to other schools?
  - 2001 – 2002 norms, Table 3, pages 8 & 9, 67% of benchmark students achieving the middle of first grade goal is in the middle third compared to other schools.

- Washington School is meeting the absolute standard for effective core curriculum and instruction. 95% of benchmark students achieve the middle of first grade goal.

- Updated norms for 2003-2004 are in progress and should be available shortly.

A typical (or middle) school had 59% to 75% of benchmark students achieve the middle of first grade goal of 50 or more with recoding on DIBELS NWF.

Schools with 58% or fewer of their benchmark students achieving the middle first grade NWF goal are in the lower third of effectiveness.

Schools with 76% or more of their benchmark students achieving the middle first grade NWF goal are in the upper third of effectiveness.
Compare to Decision Rules and Other Schools to evaluate effectiveness

- Effective core curriculum and instruction supports 95% of benchmark students to achieve the goal.
  - Washington: Met - **Strength**
  - McKinley: Not met.
- Compared to other schools, McKinley School is in the
  - Upper Third - Strength
  - Middle Third - Support
  - Lower Third – Substantial Support

Use Models of Effective Core Curriculum and Instruction

- Seek models of success in the district, state, or region.
- Within the district, Washington School is an exemplar of effective core instruction in the first semester of first grade with students with similar skills at the beginning of first grade.
- How are they structuring the school day?
- How are they assigning resources?
- What curriculum are they using?
- How can we support McKinley to accomplish the same outcomes?

### Classroom and Student Level Reports

- Classroom level reports can identify strengths and weaknesses within a school, but caution is indicated.
  - Sometimes students with additional needs or challenges are grouped together in a class.
  - Sometimes reading instructional groups are organized across classes.
  - Sometimes student mobility impacts one class more than another.
- The most important level of interpretation and the clearest information is the schoolwide report.

---

**McKinley Elementary School**

<table>
<thead>
<tr>
<th>Instructional Step Grade, Semester</th>
<th>Core Curriculum and Instruction</th>
<th>Supplemental Support</th>
<th>Intensive Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kinder, 1st Sem: Phonemic Awareness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kinder, 2nd Sem: Phonemic Awareness and Phonics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First, 1st Sem: Phonics and Fluency</td>
<td><strong>Support</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First, 2nd Sem: Fluency and Comprehension</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Second, 1st Sem: Fluency and Comp.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Second, 2nd Sem: Fluency and Comp.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Third, 1st Sem: Fluency and Comp.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Third, 2nd Sem: Fluency and Comp.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Target of Opportunity

- Identifying a classroom, schoolwide, or even districtwide are needing substantial support is a target of opportunity.

- **Needs Support** or **Needs Substantial Support** means we have the knowledge, skills, curriculum, interventions to accomplish better outcomes for the instructional step and contribute to changing reading outcomes in third grade.

Themes

- Don’t lose track of the bottom line. Are we getting closer to important and meaningful outcomes?

- Review Outcomes on -- and teach -- what is important: Phonemic Awareness, Alphabetic Principle, Accuracy and Fluency with Connected Text

- **Alphabetic Principle** is an important instructional goal and target of reviewing outcomes.

- Use Effectiveness Reports to make decisions that support systems to change outcomes for children.

- Evaluating Effectiveness should be efficient and purposeful.

- Start early! Trajectories of reading progress are very difficult to change.
IDEL Fluidez en la segmentación de fonemas

“Voy a decir una palabra. Después de que la diga, quiero que me digas todos los sonidos que tiene la palabra. Por ejemplo, si yo digo, “oso,” tú dices /o/ /s/ /o/.” Vamos a probar. (pausa) Dime los sonidos en “mesa.”

Bien. Aquí viene tu primera palabra.

Directions for Scoring

1. Underline the sound segments in the word the student produces that are correctly pronounced.
   - Total Parts – Todas Las Partes (TLP): Students receive 1 point for each different, correct, part of the word – Same scoring rule as PSF.
   - Syllable Parts – Sílabas (Síl): 1 point for each different, correct, syllable part, excluding one syllable words (no cuente monosílabos).
2. Put a slash (/) through segments pronounced incorrectly.
3. Leave segments that are omitted blank.
4. If the student says the whole word, circle the entire word and give 0 points.

Correct Phoneme Segmentation

Scoring Examples:

Terminación 3: Kindergarten

IDEL Fluidez en la segmentación de fonemas IDEL™

salir /s/ /a/ /l/ /e/ /r/ /a/ /l/ 

Corrección de errores

RESPUESTA CORRECTA: Si el alumno dice /m/ /e/ /s/ /a/, usted dice,

Muy bien. Los sonidos en la palabra “mesas” son /m/ /e/ /s/ /a/.

RESPUESTA INCORRECTA: Si el alumno dice cualquier otra respuesta, usted dice,

Los sonidos en la palabra “mesas” son /m/ /e/ /s/ /a/. Ahora te toca a ti. Dime los sonidos en “mesa”.

Tipos de errores:

Todas Las Partes (TLP): 18

Sílabas (Síl): 1

(no cuente monosílabos)
Correct Syllable Segmentation

Scoring Examples:
Underline Correct Sound Segments

Examiner says “abajo” student says “a...ba...jo”
Examiner says “lista” student says “lis...ta”
Examiner says “lana” student says “la...na”
Examiner says “sala” student says “sa...la”

<table>
<thead>
<tr>
<th>Word</th>
<th>TLP</th>
<th>Síl</th>
</tr>
</thead>
<tbody>
<tr>
<td>abajo</td>
<td>5/10</td>
<td>5/5</td>
</tr>
<tr>
<td>lista</td>
<td>8/10</td>
<td>3/5</td>
</tr>
<tr>
<td>lana</td>
<td>4/8</td>
<td>4/4</td>
</tr>
<tr>
<td>sala</td>
<td>6/8</td>
<td>2/4</td>
</tr>
</tbody>
</table>

Todas Las Partes (TLP): 9
Sílabas (Síl): 9
Tipos de errores: (no cuente monosílabos)

Mixed Phoneme & Syllable Segmentation

Underline Correct Sound Segments

Examiner says “abajo” student says “a...b...a...jo”
Examiner says “lista” student says “l...i...s...ta”
Examiner says “lana” student says “l...a...na”
Examiner says “sala” student says “s...a...la”

<table>
<thead>
<tr>
<th>Word</th>
<th>TLP</th>
<th>Síl</th>
</tr>
</thead>
<tbody>
<tr>
<td>abajo</td>
<td>5/10</td>
<td>5/5</td>
</tr>
<tr>
<td>lista</td>
<td>8/10</td>
<td>3/5</td>
</tr>
<tr>
<td>lana</td>
<td>4/8</td>
<td>4/4</td>
</tr>
<tr>
<td>sala</td>
<td>6/8</td>
<td>2/4</td>
</tr>
</tbody>
</table>

Todas Las Partes (TLP): 14
Sílabas (Síl): 5
Tipos de errores: (no cuente monosílabos)

Practice Scoring
Phonemes and Syllables

<table>
<thead>
<tr>
<th>Word</th>
<th>TLP</th>
<th>Síl</th>
</tr>
</thead>
<tbody>
<tr>
<td>ella</td>
<td>4/7</td>
<td>4/4</td>
</tr>
<tr>
<td>bebé</td>
<td>7/10</td>
<td>2/4</td>
</tr>
<tr>
<td>unas</td>
<td>7/7</td>
<td>1/2</td>
</tr>
<tr>
<td>pan</td>
<td>4/7</td>
<td>4/4</td>
</tr>
</tbody>
</table>

Todas Las Partes (TLP): 18
Sílabas (Síl): 7
(no cuente monosílabos)

Pronunciation Guide

- Different countries or regions of a country use different Spanish dialects. These pronunciation examples may be modified consistent with regional dialects and conventions.

- For example, /s/ as in gustar is pronounced as a /j/ in certain regions of Central America and the Caribbean. Our examples are typical of the pronunciation in Mexico City.
### Pronunciation Guide

<table>
<thead>
<tr>
<th>Fonema</th>
<th>Ejemplo de Fonema</th>
<th>Fonema</th>
<th>Ejemplo de Fonema</th>
</tr>
</thead>
<tbody>
<tr>
<td>/a/</td>
<td>hablar</td>
<td>/g/</td>
<td>tango, gusta</td>
</tr>
<tr>
<td>/e/</td>
<td>gente, ellos</td>
<td>/i/</td>
<td>gente; juvenil; México</td>
</tr>
<tr>
<td>/i/</td>
<td>hijo, iglesia</td>
<td>/l/</td>
<td>loro, habla</td>
</tr>
<tr>
<td>/o/</td>
<td>oso, ruido</td>
<td>/m/</td>
<td>mano, vamos</td>
</tr>
<tr>
<td>/u/</td>
<td>suyo, uno</td>
<td>/n/</td>
<td>nadie, tren, una</td>
</tr>
<tr>
<td>/ai/</td>
<td>aire, bailar</td>
<td>/n/</td>
<td>año; muñeco</td>
</tr>
<tr>
<td>/au/</td>
<td>jaula</td>
<td>/p/</td>
<td>lápiz, piel</td>
</tr>
<tr>
<td>/ei/</td>
<td>beisbol, seís</td>
<td>/rl/</td>
<td>ratón, comporta</td>
</tr>
<tr>
<td>/eu/</td>
<td>eucalipto, Europa</td>
<td>/rr/</td>
<td>chorro, perro</td>
</tr>
<tr>
<td></td>
<td>oigo</td>
<td>/s/</td>
<td>rosa, cenar, zapato, siete</td>
</tr>
<tr>
<td>/b/</td>
<td>vista; combinación</td>
<td>/t/</td>
<td>tapa, boleto</td>
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<tr>
<td>/ch/</td>
<td>chocolate, leche</td>
<td>/x/</td>
<td>extraño</td>
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<td>/d/</td>
<td>dedo, morado</td>
<td>/y/</td>
<td>amarillo, ya</td>
</tr>
<tr>
<td>/f/</td>
<td>fino, café</td>
<td>/z/</td>
<td>zorro</td>
</tr>
</tbody>
</table>

### Accommodations for FSF

- **Setting/Examiner**
  - **Retest**: Repeated assessment on different days with different probes.
  - **Test in alternate setting**, e.g., complete quiet, minimal distractions, enhanced lighting.
  - **Test with familiar person, interpreter, specialist etc. present**
  - **Test by person with specialized training** (e.g., SLP).

- **Directions**
  - **Check child’s understanding** (have the child repeat what to do).
  - **Provide directions in child’s primary language**.
  - **Repeat practice example, provide an additional example**.
  - **Provide lead example** (e.g., do it with me) in addition to model.