Using DIBELS Next® to Predict Performance on Statewide ELA Assessments: A Tale of Two Tests

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Purpose of the Study

The purpose of this study is to examine expectations for reading proficiency in context of Common Core State Standards assessments (CCSS) such as AzMERIT and Smarter Balanced and how DIBELS Next can inform decisions about student skills.

Acknowledgements

We would like to thank John Wilson. Research, Evaluation, and Assessment Director for the Tempe, Arizona school district of his support in securing AzMERIT data and in consulting with us about data results.

In addition, we would like to thank David VanLoo, Director of School Improvement in the Bend-LaPine School District for his support in facilitating data transfer and in collaborating on data interpretation.

Finally, the DMG staff who daily keep our research moving forward.


https://dibels.org/pubs.html

Methodology: Participants

Large School District, Arizona
- Assessment: AzMERIT ELA
- 2014–2015 School Year
- Grades 3–4
- Number of schools: 16
- \( n = 1,256 \) (664 third-graders, 592 fourth-graders)

Large School District, Oregon
- Assessment: SBAC ELA
- 2015-2016 School Year
- Grades 3–5
- Number of schools: 18
- \( n = 2,138 \) (758 third-graders, 696 fourth-graders, 684 fifth-graders)
Correlations between DIBELS Next DORF Words Correct, DCS, and SBAC ELA Score

<table>
<thead>
<tr>
<th>Grade and Time of Year</th>
<th>DORF Words Correct Correlated with SBAC ELA Score</th>
<th>DIBELS Composite Score Correlated with SBAC ELA Score</th>
<th>Additional Variance Explained by DIBELS Next Composite Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 3 Beginning of Year</td>
<td>.672</td>
<td>.708</td>
<td>5%</td>
</tr>
<tr>
<td>Grade 3 Middle of Year</td>
<td>.697</td>
<td>.739</td>
<td>6%</td>
</tr>
<tr>
<td>Grade 3 End of Year</td>
<td>.700</td>
<td>.751</td>
<td>7%</td>
</tr>
<tr>
<td>Grade 4 Beginning of Year</td>
<td>.683</td>
<td>.721</td>
<td>5%</td>
</tr>
<tr>
<td>Grade 4 Middle of Year</td>
<td>.681</td>
<td>.718</td>
<td>5%</td>
</tr>
<tr>
<td>Grade 4 End of Year</td>
<td>.675</td>
<td>.726</td>
<td>7%</td>
</tr>
</tbody>
</table>

Smarter Balanced Assessment Consortium English Language Arts Achievement Standard (SBAC Standard)

Level 1 “has not met the achievement standard,”
Level 2 “has nearly met the achievement standard,”
Level 3 “has met the achievement standard,”
Level 4 “has exceeded the achievement standard.”

Table 1. SBAC English Language Arts Descriptive Levels with SBAC Achievement Standard (percentile)

<table>
<thead>
<tr>
<th>Grade</th>
<th>Level 4</th>
<th>Level 3</th>
<th>Level 2</th>
<th>Level 1</th>
<th>SBAC Achievement Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>&gt;2489</td>
<td>2432–2489</td>
<td>2367–2431</td>
<td>&lt;2367</td>
<td>58th Percentile</td>
</tr>
<tr>
<td>4</td>
<td>&gt;2532</td>
<td>2473–2532</td>
<td>2416–2472</td>
<td>&lt;2416</td>
<td>57th Percentile</td>
</tr>
<tr>
<td>5</td>
<td>&gt;2581</td>
<td>2502–2581</td>
<td>2442–2501</td>
<td>&lt;2442</td>
<td>52nd Percentile</td>
</tr>
</tbody>
</table>

Note: Unlikely interpreted percentages from http://www.smarterbalanced.org/assessments/development/percentiles/ are provided in parentheses.
Arizona’s Measurement of Educational Readiness to Inform Teaching ELA Achievement Standard (AzMERIT Standard)

Level 1 “minimally proficient,”
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<tbody>
<tr>
<td>3</td>
<td>2541–2605</td>
<td>2509–2540</td>
<td>2497–2508</td>
<td>2394–2496</td>
</tr>
</tbody>
</table>

Source: https://lcms.azed.gov/home/GetDocumentFile?id=57f639b5a9d8f0a04b2b709

DIBELS Next Achievement Standard

Performance at or above the 40th percentile on any high quality reading outcome measure was the achievement standard used to represent adequate reading proficiency for DIBELS Next.

For DIBELS Next, the Group Reading Assessment and Diagnostic Evaluation (GRADE) was used as an outcome measure representative of high-quality, group administered, standardized, norm-referenced reading assessments.

For example, on the SBAC, a score of 2410 is at the 40th percentile on SBAC national norms in third grade.

http://www.smarterbalanced.org/assessments/development/percentiles/

Accessed: 2018-02-06

DIBELS Next Benchmark Goal

DIBELS Next Benchmark Goals are designed to identify the level where the odds are in favor of that student achieving later reading outcomes.

- **At or Above Benchmark**: Odds are generally 80% to 90% of achieving subsequent benchmark goals and important reading outcomes. **Student is likely to make adequate progress with effective core instruction.**
  - **Well Above Benchmark**: 80th percentile or higher
  - **Above Benchmark**: 60th percentile
  - **At Benchmark**: Benchmark goal to 59th percentile

Likelihood of Meeting Later Reading Goals and DIBELS Next Benchmark Status

<table>
<thead>
<tr>
<th>Likelihood of Meeting Later Reading Goals</th>
<th>Benchmark Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;99%</td>
<td>At or Above Benchmark</td>
</tr>
<tr>
<td>95%</td>
<td>At Benchmark</td>
</tr>
<tr>
<td>90%</td>
<td>Above Benchmark, overall likelihood of achieving subsequent early literacy goals: 90% to 99%</td>
</tr>
<tr>
<td>80%</td>
<td>At Benchmark</td>
</tr>
<tr>
<td>70%</td>
<td>Above Benchmark, overall likelihood of achieving subsequent early literacy goals: 90% to 99%</td>
</tr>
<tr>
<td>60%</td>
<td>Below Benchmark, overall likelihood of achieving subsequent early literacy goals: 40% to 69%</td>
</tr>
<tr>
<td>55%</td>
<td>Below Benchmark, overall likelihood of achieving subsequent early literacy goals: 40% to 69%</td>
</tr>
<tr>
<td>50%</td>
<td>Below Benchmark, overall likelihood of achieving subsequent early literacy goals: 10% to 39%</td>
</tr>
<tr>
<td>45%</td>
<td>Below Benchmark, overall likelihood of achieving subsequent early literacy goals: 10% to 39%</td>
</tr>
<tr>
<td>40%</td>
<td>Well Below Benchmark, overall likelihood of achieving subsequent early literacy goals: 10% to 29%</td>
</tr>
<tr>
<td>30%</td>
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DIBELS Next Standard: 40th percentile on any high quality reading outcome measure

Horizontal axis is the Grade 3, End-of-year DIBELS Next Composite Score

The first line (orange) is the DIBELS Next Cut Point for Risk

The second line (green) is the DIBELS Next Benchmark Goal

The third line (blue) is the DIBELS Next Above Benchmark Level (60th percentile on DIBELS Next)
DIBELS Next Standard: 40th percentile on any high quality reading outcome measure

The fourth line (purple) is the 80th percentile on DIBELS Next.

Vertical axis is the probability or the likelihood or the odds of achieving an outcome standard, in this case the DIBELS Next Standard.

Above the 60% line students are likely to achieve the standard.

Between the 40% line and 60% line we cannot make a confident prediction of reading outcomes.
DIBELS Next Standard: 40th percentile on any high quality reading outcome measure

Below the 40% line students are unlikely to achieve the reading standard, unless we provide intensive intervention.

The curving line is the likelihood of meeting the standard for every Grade 3, end-of-year Composite Score

For example, students a 250 end-of-year Composite Score have about a 23% likelihood of meeting the DIBELS Next Standard

For each score between the cut point for risk and the benchmark goal, the likelihood of meeting the DIBELS Next Standard is 40% to 60%. For the entire range of scores between the cut point for risk and the Benchmark Goal, the likelihood of meeting the DIBELS Next Standard is 41%.
Conclusions:

The DIBELS Next Benchmark Goal and cut point for risk are working well and as designed with respect to the DIBELS Next Achievement Standard.

- **At or Above Benchmark:** Odds are generally 80% to 90% of achieving subsequent benchmark goals and important reading outcomes. Student is likely to make adequate progress with effective core instruction.

- **Below Benchmark:** Odds are generally 40% to 60% of achieving subsequent benchmark goals and important reading outcomes. Student is likely to need strategic support to make adequate progress.

- **Well-Below Benchmark:** Odds are generally 10% to 20% of achieving subsequent benchmark goals and important reading outcomes. Student is likely to need intensive support to make adequate progress.

**Smarter Balanced Assessment Consortium English Language Arts Achievement Standard (SBAC Standard)**

Level 1 “has not met the achievement standard,”
Level 2 “has nearly met the achievement standard,”
Level 3 “has met the achievement standard,”
Level 4 “has exceeded the achievement standard.”

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Notes: Linearly interpolated percentiles from [http://www.smarterbalanced.org/assessments/development/percentiles/](http://www.smarterbalanced.org/assessments/development/percentiles/) are provided in parentheses.

Meets or exceeds | Does not meet
---|---

Scores at the DIBELS Next Benchmark Goal have less than 40% likelihood of meeting the SBAC Standard.
Arizona’s Measurement of Educational Readiness to Inform Teaching ELA Achievement Standard (AzMERIT Standard)

Level 1 “minimally proficient,”
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Source: https://cms.azed.gov/home/GetDocumentFile?id=576b89b5aadbf0304b267c9

Likelihood of Proficient or Highly Proficient on AZMerit Standard

The DIBELS Next Above Benchmark level (60th percentile) is not likely to meet the AZMerit Standard

DIBELS Next Well Above Benchmark (80th percentile) and Above Benchmark level work well for adequate progress decisions using the AZMerit Standard
Different Standards (3rd Grade)

- DIBELS Next Benchmark Goal: 330 DIBELS Composite Score
  - 33rd percentile on DIBELS Next National Norms
- SBAC Standard: 2432
  - 51st percentile on SBAC National Norms
- AzMERIT Standard: 2509
  - 70th percentile on DIBELS Next National Norms using equi-percentile equating

http://www.smarterbalanced.org/assessments/development/percentiles/
Accessed: 2018-02-06

DIBELS Next Scores for AzMERIT Standard

<table>
<thead>
<tr>
<th>Grade and Time of Year</th>
<th>DIBELS Next Composite Score corresponding to ≥40 or less estimated probability of meeting the AzMERIT ELA achievement standard</th>
<th>DIBELS Next Composite Score corresponding to ≥60 or greater estimated probability of meeting the AzMERIT ELA achievement standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 3 Beginning of Year</td>
<td>282 (57)</td>
<td>327 (73)</td>
</tr>
<tr>
<td>Grade 3 Middle of Year</td>
<td>350 (60)</td>
<td>397 (76)</td>
</tr>
<tr>
<td>Grade 3 End of Year</td>
<td>415 (63)</td>
<td>468 (60)</td>
</tr>
<tr>
<td>Grade 4 Beginning of Year</td>
<td>355 (65)</td>
<td>409 (81)</td>
</tr>
<tr>
<td>Grade 4 Middle of Year</td>
<td>402 (67)</td>
<td>454 (63)</td>
</tr>
<tr>
<td>Grade 4 End of Year</td>
<td>475 (70)</td>
<td>526 (65)</td>
</tr>
</tbody>
</table>

Note: Percentile rank corresponding to DIBELS Next Composite Score is in parentheses.

DIBELS Next Scores for SBAC Standard

<table>
<thead>
<tr>
<th>Grade and Time of Year</th>
<th>DIBELS Next Composite Score corresponding to ≥40 or less estimated probability of meeting SBAC ELA achievement standard</th>
<th>DIBELS Next Composite Score corresponding to ≥60 or greater estimated probability of meeting SBAC ELA achievement standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 3 Beginning of Year</td>
<td>203 (20)</td>
<td>245 (43)</td>
</tr>
<tr>
<td>Grade 3 Middle of Year</td>
<td>276 (20)</td>
<td>317 (47)</td>
</tr>
<tr>
<td>Grade 3 End of Year</td>
<td>342 (37)</td>
<td>376 (50)</td>
</tr>
<tr>
<td>Grade 4 Beginning of Year</td>
<td>256 (32)</td>
<td>313 (50)</td>
</tr>
<tr>
<td>Grade 4 Middle of Year</td>
<td>313 (33)</td>
<td>360 (51)</td>
</tr>
<tr>
<td>Grade 4 End of Year</td>
<td>382 (34)</td>
<td>426 (51)</td>
</tr>
</tbody>
</table>

Note: Percentile rank corresponding to DIBELS Next Composite Score is in parentheses.

Conclusions: Relation to State Outcomes

1. The correlations between the DIBELS Next Composite Score and the SBAC ELA and AzMERIT ELA scores were strong, ranging from .71 to .77.
2. The DIBELS Next Composite Score explained more variance in outcomes than DORF Words Correct alone, ranging from 5% to 9% additional variance explained.
Conclusions:

**DIBELS Next Benchmark Goals**

3. The DIBELS Next Benchmark goals function well for the purposes for which they were designed. Students who are at or above the DIBELS Next Benchmark Goals are likely to score at or above the 40th percentile on high quality reading outcome measures.
   - The DIBELS Next Benchmark goal has always been intended to represent the lowest level of adequate reading.
4. The DIBELS Next Benchmark goals are not sufficient to place the odds in favor of meeting or exceeding the SBAC ELA achievement standard or the AzMERIT ELA achievement standard.

**SBAC ELA Achievement Standard**

5. Students who score Above Benchmark on DIBELS Next are likely to meet or exceed SBAC ELA achievement standards.
6. Between the Benchmark Goal and the Above Benchmark level, we cannot make a clear prediction.
7. Students who scored Below Benchmark on the DCS at any time of year are unlikely to meet the SBAC ELA achievement standard.
8. Students who scored Well Below Benchmark on DCS have very little chance of meeting the SBAC ELA achievement standard.

**AzMERIT ELA Achievement Standard**

9. Students scoring Well Above Benchmark (80th percentile) on DIBELS Next are likely to meet or exceed the AzMERIT ELA achievement standard.
10. Between the Above Benchmark level and the 80th percentile, we cannot make a clear prediction.
11. Students who score At Benchmark or below on DIBELS Next are unlikely to meet the AzMERIT ELA achievement standards.
12. Students who score Below Benchmark or Well Below benchmark have very little chance of meeting the AzMERIT ELA achievement standard.

**Implications for Practice**

In short, challenge each student.

1. If a student is in the Below Benchmark or Well Below Benchmark, go for Benchmark (go for the Green)
2. If a student is At Benchmark, go for Above Benchmark (go for the Blue)
3. If a student is above benchmark, go for the 80th percentile.
Sebastian with a beginning-of-year composite score of 295 offers a different challenge. The end-of-year benchmark goal may not be ambitious enough.

Limitations

- These data represent the way DIBELS Next is used in practice.
- Things we do not know:
  - Assessment fidelity
  - Assessor training
  - Level of instructional support
  - Changes in levels of support
- Data from two school districts, potentially limiting generalizability.