

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

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## Acknowledgements

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



## Disclosure

Roland Good is a co-owner of Dynamic Measurement Group, Inc. (DMG). Kelly Powell-Smith, Mary Abbott, and Amy Warnock are employees of DMG.

DMG is an educational company that is dedicated to supporting success for children and schools. DMG was founded by Roland H. Good III and Ruth Kaminski, authors of the Dynamic Indicators of Basic Early Literacy Skills (DIBELS®), and is the official home of DIBELS research, development, and training.

DMG receives revenue from the publication of DIBELS assessments, training and professional development, and the operation of the DIBELSnet® data reporting service.

DIBELS Next® is available for free download and unlimited photocopying for educational purposes at <https://dibels.org/>.

Additional information about DMG is available at <https://dibels.org/>.



## Participant Objectives

1. Understand the association between *DIBELS Next* and ELA achievement standards on CCSS statewide assessments
2. Learn about the utility of *DIBELS Next* results for predicting performance on CCSS statewide assessments
3. Gain insight regarding how to use the information learned in this presentation to inform educational decisions within an MTSS service delivery model.

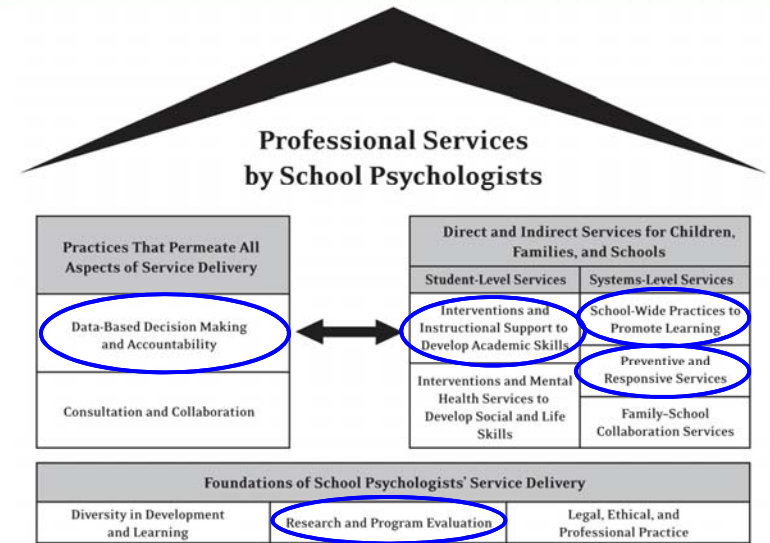
## Agenda

- ▶ Introduction & Context
- ▶ Purpose & Research Questions
- ▶ Procedures
- ▶ Results
- ▶ Discussion & Questions



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## NASP Practice Model



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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.



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## Research Questions

Research questions include:

1. What is the strength of the association between the DIBELS Next Composite Score and the SBAC and AzMERIT ELA scores?
2. What percent of students meet or exceed the grade-level SBAC or AzMERIT ELA standards for each DIBELS Next benchmark status category?
3. What is the estimated probability of meeting or exceeding the grade-level SBAC or AzMERIT ELA standards given each DIBELS Next Composite Score?

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## Methodology: Participants

### Large School District, Arizona

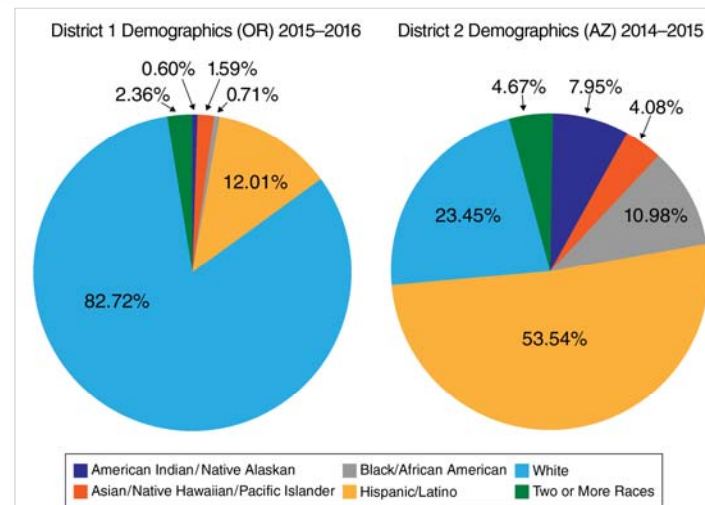
- Assessment: AzMERIT ELA
- 2014–2015 School Year
- Grades 3–4
- Number of schools: 16
- $n = 1,256$  (664 third-graders, 592 fourth-graders)

### 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)

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## Demographics



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## Measures

- ▶ DIBELS Next Composite Score (see Good, Kaminski, Dewey, Wallin, Powell-Smith, & Latimer, 2013)
- ▶ AzMERIT ELA (Arizona’s Measurement of Educational Readiness to Inform Teaching)
  - Four proficiency levels: Minimally Proficient (1), Partially Proficient (2), Proficient (3), Highly Proficient (4)
  - Cut score establishing the ‘Proficient’ level is the most critical
- ▶ SBAC ELA (Smarter Balanced Assessment Consortium)
  - Embedded in the OAKS (Oregon Assessment of Knowledge and Skills)
  - Four proficiency levels: Does Not Meet (1), Nearly Meets (2), Meets (3), Exceeds (4)
  - Cut score establishing the ‘Meets’ level is the most critical

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## Arizona’s Measurement of Educational Readiness to Inform Teaching (AzMERIT ELA) Achievement Standard

Level 1 “minimally proficient,”

Level 2 “partially proficient,”

Level 3 “proficient,”

Level 4 “highly proficient.”

Grade	Level 4	Level 3	Level 2	Level 1
3	2541–2605	2509–2540	2497–2508	2394–2496
4	2559–2610	2523–2558	2510–2522	2400–2509

Source: <https://cms.azed.gov/home/GetDocumentFile?id=57f689b5aadebf0a04b267c9>

Meets or exceeds

Does not meet

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## Smarter Balanced Assessment Consortium English Language Arts (SBAC ELA) Achievement 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)

Grade	Level 4	Level 3	Level 2	Level 1	SBAC Achievement Standard
3	>2489	2432–2489	2367–2431	<2367	58th Percentile
4	>2532	2473–2532	2416–2472	<2416	57th Percentile
5	>2581	2502–2581	2442–2501	<2442	52nd Percentile

Note: Linearly interpolated percentiles from <http://www.smarterbalanced.org/assessments/development/percentiles/> are provided in parentheses.

Meets or exceeds

Does not meet

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## DIBELS Next Achievement Standard

Performance at or above the **40th percentile** on a 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.

On the SBAC, a score of **2410** is at the 40<sup>th</sup> percentile on SBAC national norms.

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

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## Different Standards (3<sup>rd</sup> Grade)

- AzMERIT Standard: 2509
  - 70<sup>th</sup> percentile on DIBELS Next National Norms using equi-percentile equating
- SBAC Standard: 2432
  - 51<sup>st</sup> percentile on SBAC National Norms
  - 47<sup>th</sup> percentile on DIBELS Next National Norms using equi-percentile equating
- DIBELS Next Benchmark Goal: 330 DIBELS Composite Score
  - 33<sup>rd</sup> percentile on DIBELS Next National Norms, Grade 3 end of year

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

Accessed: 2018-02-06

<https://dibels.org/papers/DIBELSNextNormsTechReport17.pdf>

## Data Collection

- ▶ IRB approval
- ▶ School districts invited to participate
- ▶ Parental consent
- ▶ Test data entered into spreadsheet that was uploaded to a secure site
- ▶ State assessment data matched to DIBELS Next data
- ▶ All data de-identified prior to data analysis

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# Results: Descriptive Statistics

Grade	AzMERIT ELA Score			End-of-Year DIBELS Composite Score			Grade	SBAC ELA Achievement Score			End-of-Year DIBELS Composite Score		
	n	M	SD	n	M	SD		n	M	SD	n	M	SD
3	664	2,502.16	30.36	662	402.82	124.89	3	710	2,463.39	82.55	726	415.94	112.15
4	592	2,516.43	29.93	587	462.24	124.78	4	635	2,501.06	83.01	677	459.35	106.93

## AzMERIT Cut Scores Scale Score Ranges

AzMERIT ELA	Minimally Proficient	Partially Proficient	Proficient	Highly Proficient
Grade 3	2395–2496	2497–2508	2509–2540	2541–2605
Grade 4	2400–2509	2510–2522	2523–2558	2559–2610

Source: <https://cms.azed.gov/home/GetDocumentFile?id=57f689b5aadebf0a04b267c9>

## English Language Arts/Literacy

Grade	Level 1	Level 2	Level 3	Level 4
3	<2367	2367–2431	2432–2489	>2489
4	<2416	2416–2472	2473–2532	>2532
5	<2442	2442–2501	2502–2581	>2581

Source: <http://www.smarterbalanced.org/assessments/scores/>

The Grade 3 DCS benchmark goal is 340 and the above benchmark is 405.  
The Grade 4 DCS benchmark goal is 391 and the above benchmark is 446.

# Results: Descriptive Statistics

Table 2. Descriptive Statistics for Sample and Statewide by State and Grade

	State and Grade Level			
	Arizona		Oregon	
	Grade 3	Grade 4	Grade 3	Grade 4
% At or Above Benchmark on DIBELS Next ( <i>sample</i> )	70%–75%	69%–75%	76%–81%	73%–78%
% Meeting the ELA Standard ( <i>sample</i> )	42%	42%	69%	67%
% Meeting the ELA Standard ( <i>statewide</i> )	40%	41%	47%	50%

# Correlations—DIBELS Next with AzMERIT

Grade and Time of Year	DORF Words Correct Correlated with AzMERIT ELA Score	DIBELS Composite Score Correlated with AzMERIT ELA Score	Additional Variance Explained by DIBELS Next Composite Score
Grade 3 Beginning of Year	.672	.731	8%
Grade 3 Middle of Year	.699	.740	6%
Grade 3 End of Year	.672	.721	7%
Grade 4 Beginning of Year	.714	.759	7%
Grade 4 Middle of Year	.715	.772	9%
Grade 4 End of Year	.702	.757	8%

# Correlations between DIBELS Next DORF Words Correct, DCS, and SBAC ELA Score

Grade and Time of Year	DORF Words Correct Correlated with SBAC ELA Score	DIBELS Composite Score Correlated with SBAC ELA Score	Additional Variance Explained by DIBELS Next Composite Score
Grade 3 Beginning of Year	.670	.708	5%
Grade 3 Middle of Year	.697	.739	6%
Grade 3 End of Year	.700	.751	7%
Grade 4 Beginning of Year	.683	.721	5%
Grade 4 Middle of Year	.681	.718	5%
Grade 4 End of Year	.675	.726	7%

Likelihood of Meeting Later Reading Goals	Benchmark Status	Benchmark Status Including Above Benchmark
>99%	<b>At or Above Benchmark</b> overall likelihood of achieving subsequent early literacy goals: 80% to 90%	<b>Above Benchmark</b> overall likelihood of achieving subsequent early literacy goals: 90% to 99%
95%		<b>At Benchmark</b> overall likelihood of achieving subsequent early literacy goals: 70% to 85%
90%		
80%		
70%	<b>Below Benchmark</b> overall likelihood of achieving subsequent early literacy goals: 40% to 60%	<b>Below Benchmark</b> overall likelihood of achieving subsequent early literacy goals: 40% to 60%
60%		
55%		
50%	<b>Well Below Benchmark</b> overall likelihood of achieving subsequent early literacy goals: 10% to 20%	<b>Well Below Benchmark</b> overall likelihood of achieving subsequent early literacy goals: 10% to 20%
45%		
40%		
30%		
20%		
10%		
<5%		

## Likelihood of Meeting Later Reading Goals and DIBELS Next Benchmark Status

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## DIBELS Next Benchmark Goal

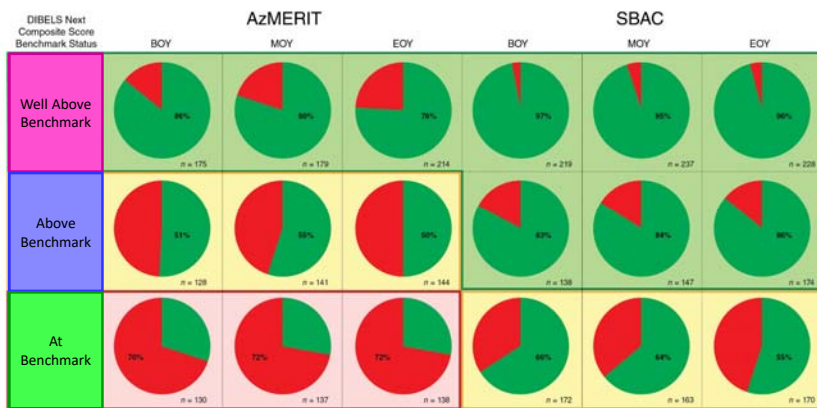
DIBELS Next Benchmark Goals are designed to identify the level where the odds are in favor of that student achieving later reading outcomes.

- ▶ **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:** 80<sup>th</sup> percentile or higher
  - ▶ **Above Benchmark:** 60<sup>th</sup> percentile to 79<sup>th</sup> percentile
  - ▶ **At Benchmark:** Benchmark goal to 59<sup>th</sup> percentile

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## At or Above Benchmark on DIBELS Next Meeting State Achievement Standard G3



Meets/Exceeds State Achievement Standard  
 Nearly Meets/Does Not Meet State Achievement Standard

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## DIBELS Next: Below the Benchmark Goal

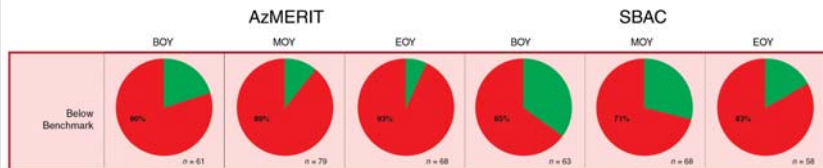
If a student achieves a Benchmark Goal, the odds are in favor of that student achieving later reading outcomes.

- ▶ **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.**

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## Below Benchmark on DIBELS Next Meeting State Achievement Standard G3



■ Meets/Exceeds State Achievement Standard  
■ Nearly Meets/Does Not Meet State Achievement Standard



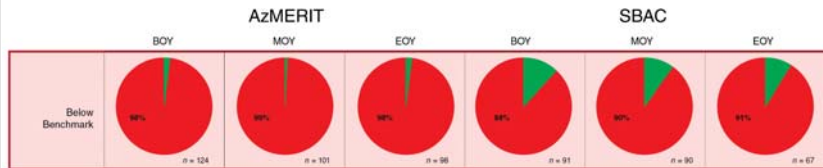
## Three Levels of Performance Compared to DIBELS Next Benchmark Goals

If a student achieves a Benchmark Goal, the odds are in favor of that student achieving later reading outcomes.

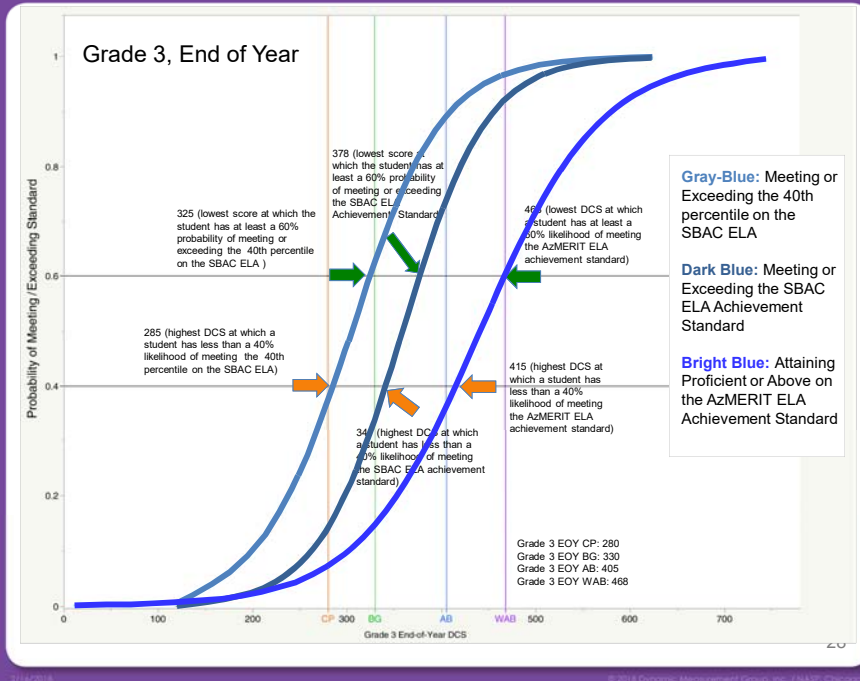
- ▶ **Well-Below Benchmark:** Odds are generally 10% to 20% of achieving subsequent benchmark goals and important reading outcomes. **Student is likely to need intensive support to make adequate progress.**

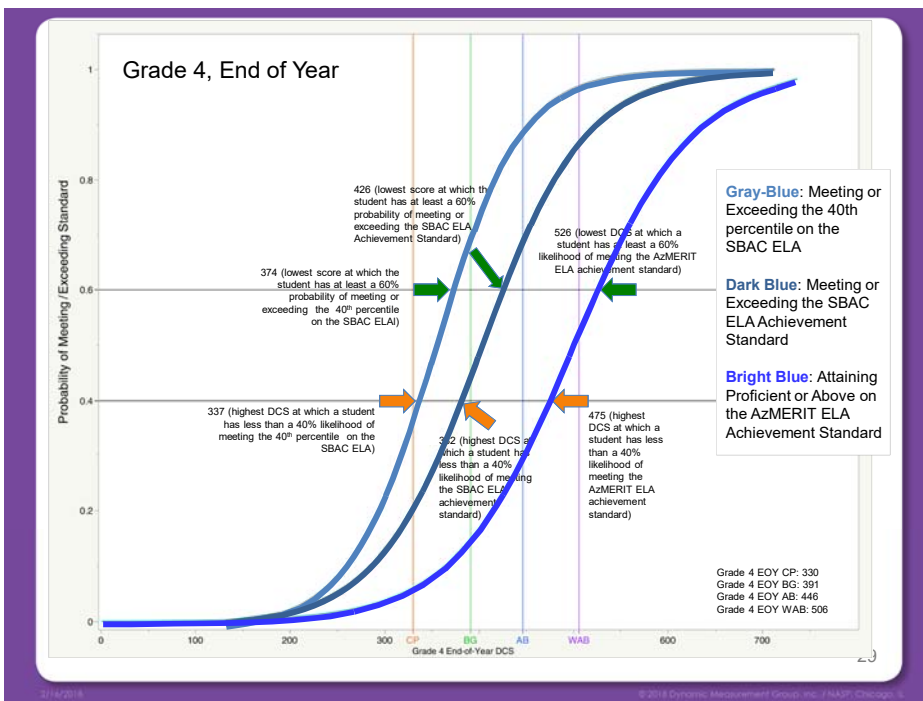


## Well Below Benchmark on DIBELS Next Meeting State Achievement Standard G3



■ Meets/Exceeds State Achievement Standard  
■ Nearly Meets/Does Not Meet State Achievement Standard





### DIBELS Next Scores for AzMERIT Standard

Grade and Time of Year	DIBELS Next Composite Score corresponding to <b>.40 or less</b> estimated probability of meeting the AzMERIT ELA achievement standard	DIBELS Next Composite Score corresponding to <b>.60 or greater</b> estimated probability of meeting the AzMERIT ELA achievement standard
Grade 3 Beginning of Year	282 (57)	327 (73)
Grade 3 Middle of Year	350 (60)	397 (76)
Grade 3 End of Year	415 (63)	468 (80)
Grade 4 Beginning of Year	355 (65)	409 (81)
Grade 4 Middle of Year	402 (67)	454 (83)
Grade 4 End of Year	475 (70)	526 (85)

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

### DIBELS Next Scores for SBAC Standard

Grade and Time of Year	DIBELS Next Composite Score Corresponding to <b>.40 or less</b> estimated probability of or exceeding meeting SBAC ELA achievement standard	DIBELS Next Composite Score Corresponding to <b>.60 or greater</b> estimated probability of meeting or exceeding SBAC ELA achievement standard
Grade 3 Beginning of Year	203 (28)	248 (43)
Grade 3 Middle of Year	276 (32)	317 (47)
Grade 3 End of Year	342 (37)	378 (50)
Grade 4 Beginning of Year	258 (32)	313 (50)
Grade 4 Middle of Year	313 (33)	360 (51)
Grade 4 End of Year	382 (34)	426 (51)

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

- ### Conclusions: Relation to State Outcomes
1. Our results indicate that there is a strong association between DIBELS Next and statewide ELA outcomes. The correlations between the DCS and the AzMERIT and SBAC ELA are strong, ranging from .71 to .77.
  2. Across all grades and times of year, the DCS explained more variance in AzMERIT and SBAC ELA outcomes than the DORF Words Correct score 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 40<sup>th</sup> 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.

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## Conclusions: AzMERIT ELA Achievement Standard

5. that students scoring **Well Above Benchmark** on *DIBELS Next* are likely to meet or exceed the AzMERIT ELA achievement standards,
  - At or above the 73<sup>rd</sup> percentile (BOY Grade 3) to 85<sup>th</sup> percentile (EOY Grade 4).
6. Students who score **At Benchmark** or below on DIBELS Next are unlikely to meet the AzMERIT ELA achievement standards,
7. Students who score **Below Benchmark** or **Well Below benchmark** have very little chance of meeting the AzMERIT ELA achievement standard.

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## Conclusions SBAC ELA Achievement Standard

7. Students who score **Above Benchmark** on *DIBELS Next* are likely to meet or exceed SBAC ELA achievement standards
8. Students who scored **Below Benchmark** on the DCS at any time of year are unlikely to meet the SBAC ELA achievement standard.
9. Students who scored **Well Below Benchmark** on DCS have very little chance of meeting the SBAC ELA achievement standard.

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## 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.

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## Implications for Practice

- ▶ The purpose of DIBELS Next is to inform decisions about which students **need instructional support** to achieve important future reading outcomes and to monitor progress for students who are provided additional support.
- ▶ The DIBELS Next benchmark goals represent **the lowest level of reading skill** that puts the odds in a student's favor of reaching subsequent goals.
- ▶ The information from this study will assist schools using DIBELS Next to identify and provide instructional support to students at-risk of falling below the statewide assessment standards.
- ▶ The standards set by the SBAC and AzMERIT are rigorous. The increased rigor in these standards likely will require **increases in Tier 1 instructional rigor** as well.

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## Implications for Future Research

- ▶ This study provides one of the very few examinations of the linkage of DIBELS Next performance on performance on statewide CCSS-aligned assessments.
- ▶ Future research should replicate these results.
- ▶ Additionally, future research might examine these results for subgroups of students.

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## References

Good, R. H., Kaminski, R. A., Dewey, E. N., Wallin, J., Powell-Smith, K. A., & Latimer, R. J. (2013). *DIBELS Next Technical Manual*. Eugene, OR: Dynamic Measurement Group. Available: <http://DIBELS.org/next>

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## Discussion & Questions



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Thank YOU!

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