# Evaluating the Predictive Validity of DIBELS NEXT Composite Scores in the Context of an International School in South America

Kristen MacConnell, Ph.D.
Roland Good, Ph.D.

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## Purpose

•Discuss the findings of a study that examined the predictive validity of benchmark goals from DIBELS Next in relation to a published, norm-refereneced achievment test of reading

• International schools provide a unique context for addressing cross-cultural issues in the assessment of reading proficiency.


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## International School: Santiago, Chile

School and Community:

- Established in 1934 as a private, co-educational, non-sectarian day school.
- Currently serves over 1,600 students from more than 53 countries
- Offers a comprehensive college preparatory educational program from Early Childhood (age three) through grade 12
- School serves the international business and diplomatic community of Santiago, as well as, local students seeking an English language, US style education
- Current enrollment is composed of 50% U.S. and international students and 50% host country students.


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## International School: Santiago, Chile

School Calendar

The academic year comprises two semesters extending August to December and mid-February to June. There is a four-week break during the month of July, and the Southern Hemisphere summer vacation (semester break) extends from mid-December through mid-February.


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## International School: Santiago, Chile

Instruction

•All classes are taught in English except Spanish language classes, which are required at all grade levels from kindergarten to grade 12.

•The school offers special classes to support non-native English speakers. However, entrance to middle and high school grades require prerequisite levels of English proficiency.

•In the Elementary School, 4 hours out of the 6.5 hour school day is allocated to academic instruction in English.

•The remaining hours are allocated for Spanish instruction, Art, Music, Physical Education, library, recess, and lunch



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## International School: Santiago, Chile

Elementary Reading Instruction:

- No specific, consistent program in place
  - Components of the 2008 Reading Street
  - Guided Reading
  - Daily 5/CAFE (Comprehension, Accuracy, Fluency, Expanding Vocabulary)
  - Reader's/Writer's Workshop
- Teachers use common standards to achieve literacy goals
  - Standards are grounded in the California Language Arts Framework (2007)

Use of Assessment: Currently two assessments are in place for screening students and evaluating outcomes*; All students participate in testing unless no English is spoken*

- DIBELS Next
- Iowa Test of Basic Skills (ITBS)



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## Linking Assessment Outcomes to Instructional Decision-Making with DIBELS Next

•**Low Risk**: Odds are in favor of achieving subsequent reading outcomes

- Likely to need good tier 1 instruction, should benefit from current reading instruction

•**Some Risk:** Odds are 50-50 odds of achieving subsequent reading outcomes. In other words, we are in a zone of uncertainty

- Likely to require additional resources to achieve subsequent outcomes
- Likely to need a tier 2 level of support that includes targeted skill instruction

•**High Risk:** Odds are against achieving subsequent reading outcomes without additional intensive instruction

- Likely to require additional resources to achieve subsequent outcomes
- Likely to need a tier 3 level of support that includes extremely careful, effective, intensively designed instruction

(Slide adapted from Good and Cummins, PCRC)



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## Framework for Instructional Decision-Making

•Screen all students in grades K-5 using DIBELS Next 3 times/year (August, February, Late May/Early June)

•Use data within the context of an RtI model where students with instructional needs in reading receive 30 minutes of tier 2 reading instruction 4 days per week or 45 minutes of tier 3 reading instruction 5 days per week

•DIBELS Next is also used for progress monitoring purposes

•ITBS and DIBELS Next data are used to examine overall achievement and are also used as a performance comparison against students in the US



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## Research Question

What is the predictive validity of the beginning, middle, and end of year DIBELS Composite Scores with respect to the ITBS?



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## Method

Participants:

| Grade | N |
|---|---|
| Grade 3 | 91 |
| Grade 4 | 98 |
| Grade 5 | 107 |

Participants: A total of 296 students in grades 3-5 from a private international school in Santiago, Chile

- Included students receiving reading support services and students who are English Language Learners

Data was captured through an extant data base, DIBELS.net



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## Procedures

- Data were collected by trained staff from the International School based on the site's existing procedures. Reliability checks were conducted prior to each benchmark period for the DIBELS Next Benchmark testing.
- DIBELS Next Benchmark testing occurred in August, Februrary, and June
- ITBS data was collected by classroom teachers in May and computer-scored by the testing publisher



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## Assessments

- DIBELS Next Composite
  - In grades 3-5 the Composite score is comprised of the follow DIBELS Next Assessments at each benchmark testing period:
    - DORF (oral reading fluency and accuracy)
    - Retell (number of words used to retell the passage, related to the passage read)
    - DAZE (silent reading, maze task)
- Iowa Test of Basic Skills (ITBS)
  - Reading total is comprised of the follow assessments:
    - Reading Comprehension
    - Vocabulary



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# ITBS Reading Total

- The DIBELS Composite explains more than DORF Words Correct alone for all comparisons.
- Typically about 12% additional variance explained.

| Grade | Time of Year | Correlation with ITBS Reading Total: DORF Words Correct | Correlation with ITBS Reading Total: DIBELS Composite Score | Percent Additional Variance Explained |
|---|---|---|---|---|
| Third | BOY | .62 | .73 | 15% |
| | MOY | .70 | .76 | 9% |
| | EOY | .71 | .79 | 12% |
| Fourth | BOY | .67 | .72 | 7% |
| | MOY | .71 | .79 | 12% |
| | EOY | .66 | .75 | 13% |
| Fifth | BOY | .65 | .77 | 17% |
| | MOY | .72 | .77 | 7% |
| | EOY | .71 | .73 | 3% |
| Total | min | .62 | .72 | 3% |
| | max | .72 | .79 | 17% |
| | median | .70 | .76 | 12% |


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# Results

Grade 3


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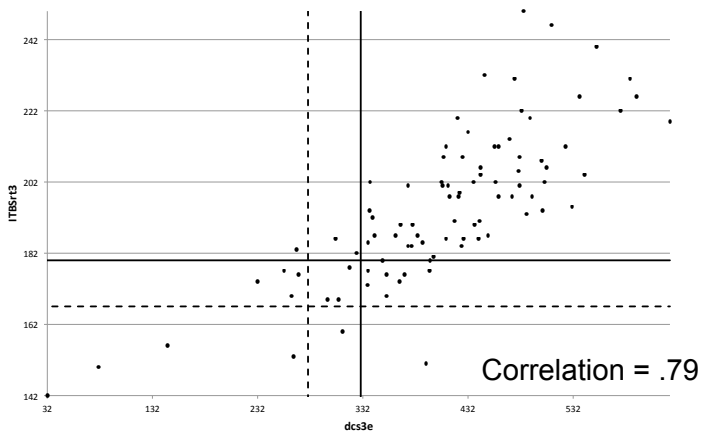
## Scatterplot with benchmark goals (solid lines) and cut points for risk (dashed lines)





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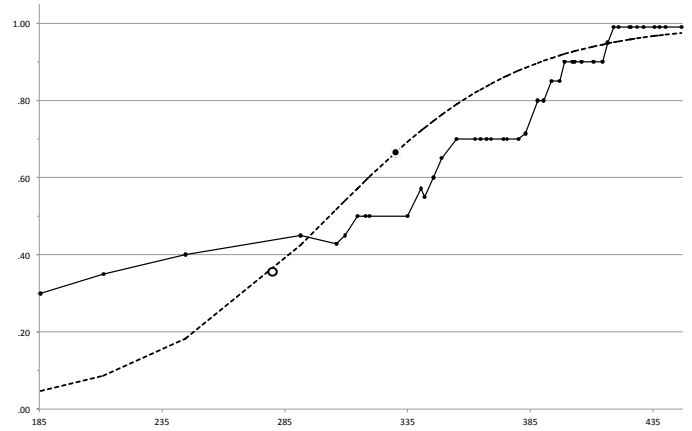
## Logistic regression with goal (solid dot) and cut point (open dot)





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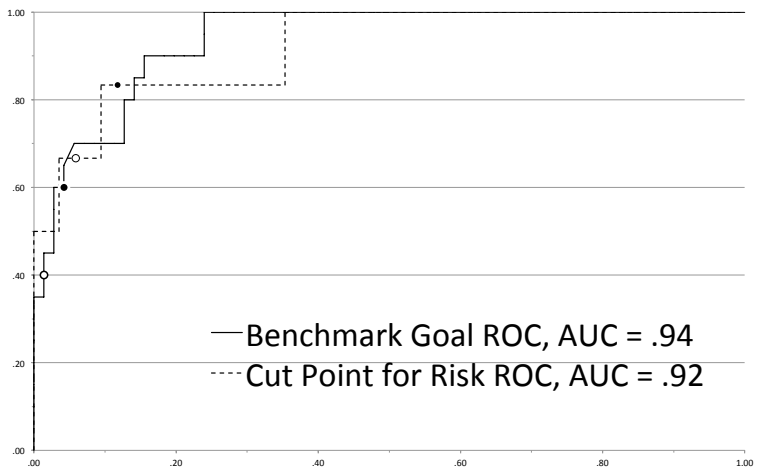
## Receiver Operator Characteristic (ROC) Curves



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## What are the odds?

dcs3e Screening Decision:

| ITBSrt3 Outcome: | Likely to need intensive support | Likely to need strategic support | Likely to need core support | Marginal total | Marginal percent |
|---|---|---|---|---|---|
| At or Above Benchmark | 1 | 2 | 68 | 71 | 78% |
| Below Benchmark | 4 | 3 | 7 | 14 | 15% |
| Well Below Benchmark | 4 | 1 | 1 | 6 | 7% |
| Marginal Total | 9 | 6 | 76 | 91 | |
| Marginal Percent | 10% | 7% | 84% | | |
| Odds (conditional percent) of students with screening decision achieving goal (At or Above Benchmark) | 11% | 33% | 89% | | |



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## Results

Grade 4



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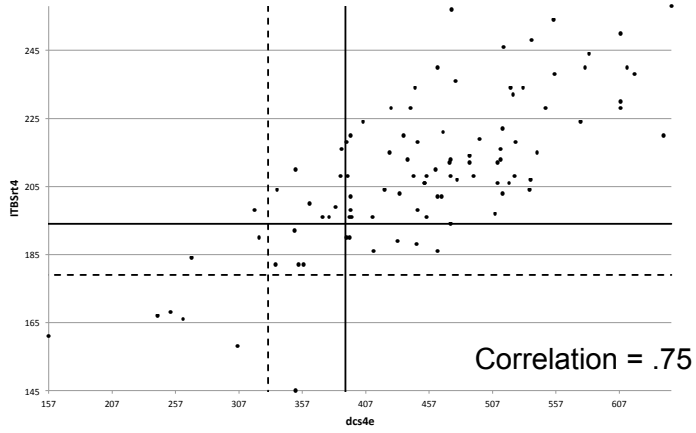
## Scatterplot with benchmark goals (solid lines) and cut points for risk (dashed lines)



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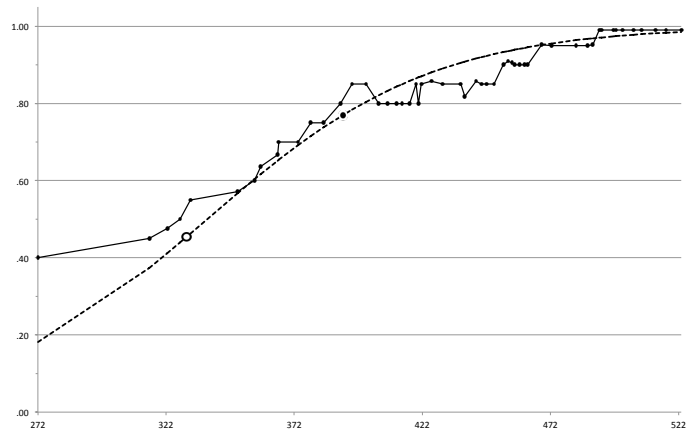
## Logistic regression with goal (solid dot) and cut point (open dot)



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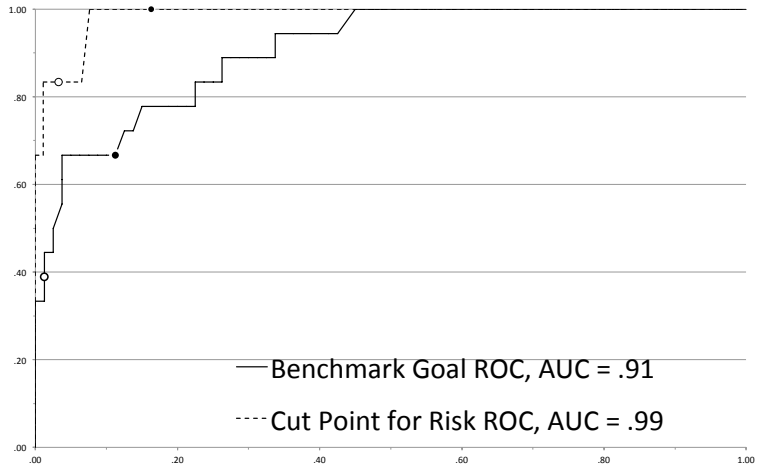




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## What are the odds?

| | dcs4e Screening Decision: | | | | |
|---|---|---|---|---|---|
| ITBSrt4 Outcome: | Likely to need intensive support | Likely to need strategic support | Likely to need core support | Marginal total | Marginal percent |
| At or Above Benchmark | 1 | 8 | 71 | 80 | 82% |
| Below Benchmark | 2 | 4 | 6 | 12 | 12% |
| Well Below Benchmark | 5 | 1 | 0 | 6 | 6% |
| Marginal Total | 8 | 13 | 77 | 98 | |
| Marginal Percent | 8% | 13% | 79% | | |
| Odds (conditional percent) of students with screening decision achieving goal (At or Above Benchmark) | 13% | 62% | 92% | | |



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## Results

Grade 5



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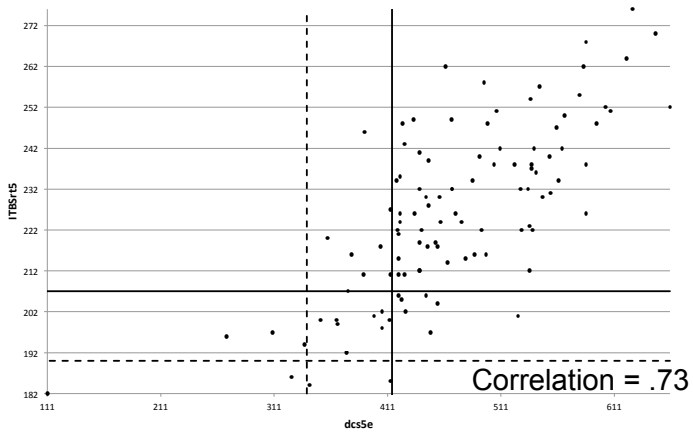
## Scatterplot with benchmark goals (solid lines) and cut points for risk (dashed lines)



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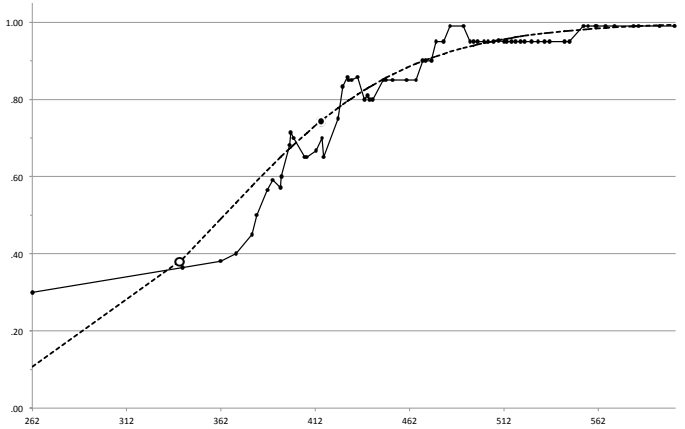
## Logistic regression with goal (solid dot) and cut point (open dot)





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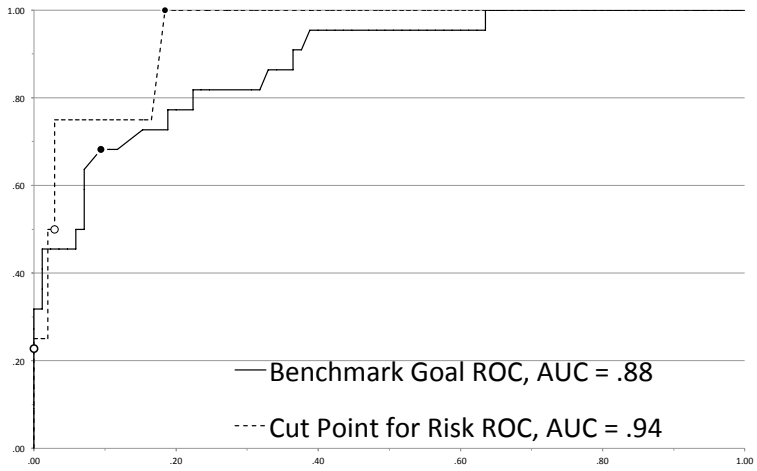
## Receiver Operator Characteristic (ROC) Curves



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## What are the odds?

| | dcs5e Screening Decision: | | | | |
|---|---|---|---|---|---|
| ITBSrt5 Outcome: | Likely to need intensive support | Likely to need strategic support | Likely to need core support | Marginal total | Marginal percent |
| At or Above Benchmark | 0 | 8 | 77 | 85 | 79% |
| Below Benchmark | 3 | 8 | 7 | 18 | 17% |
| Well Below Benchmark | 2 | 2 | 0 | 4 | 4% |
| Marginal Total | 5 | 18 | 84 | 107 | |
| Marginal Percent | 5% | 17% | 79% | | |
| Odds (conditional percent) of students with screening decision achieving goal (At or Above Benchmark) | 0% | 44% | 92% | | |



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# Conclusions

The validity and utility of benchmark goals, in different cultural contexts, is critically important for their effective use in regards to making educational decisions in these contexts. Schools need an efficient measurement for early identification of students who need additional support to achieve important educational outcomes.

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# Contact Information

Kristen MacConnell, Ph.D.
Literacy Specialist
kmacconnell@nido.cl

or

Kristen MacConnell, Ph.D.
International Consultant, Dynamic Measurement Group
kmacconnell@dibles.org



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