

Data Management, Data Mining, and Data Utilization with Curriculum-Based Measurement Systems

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Disclosure

- We are the authors of easyCBM but have the assigned copyright to the University of Oregon.
- Riverside is the exclusive distributor of easyCBM and provides extensive training and support.
- As authors, we make no profit on this product; income (if any) goes to the UO→BRT to support further research on RTI systems.
- At this point, we have invested approximately 7 million dollars in research and development of easyCBM.

Use of Technology

- Three critical aspects where technology is useful
 - **Data management**
 - **Data mining**
 - **Data decision making**
- Automation is achieved and error is reduced.
- Student record archival is available.
- We have developed easy CBM to reflect these various features and this presentation will focus on all three.
- We address the science of big data sets to better understand not just how programs (teachers) work but to ensure that they work.



Behavioral Research and Teaching

The projects at BRT concentrate on access to learning so that appropriate and accurate information can be collected from all students to improve decision-making. We focus on developing information systems with three primary goals:

- Improve basic skills assessments so that all students can read, write, and compute.
- Enhance learning of middle and secondary content subject matter so that all students have the opportunity to develop a broad knowledge base.
- Provide accessibility to large-scale testing so that all students can demonstrate their proficiencies on state and local achievement standards.

Teacher Opportunities: Participate in research, help refine reading assessments, earn resources for your classroom! Go to: www.brtprojects.org/about/current-research

District easyCBM™ is an enhanced district assessment system designed by researchers at the University of Oregon as an integral part of an RTI (Response to Intervention) model. Distributed exclusively by Riverside, it provides school districts, administrators, and teachers with a full suite of assessment and reporting options, offering a complete solution at every tier of the RTI process. Riversidepublishing.com/easycbm

News & Updates

- **Council for Exceptional Children (CEC) 2012 Convention & Expo.-Denver, CO**
Apr, 2012
Invited Session on Accountability and Large Scale Assessment presented by Dr. Gerald Tindal.
- **National Council on Measurement in Education (NCME) 74th Annual Meeting-Vancouver, British Columbia, Canada**
Apr, 2012
The National Council on Measurement in Education (NCME) conducted its annual meeting for its professional members involved in assessment, evaluation, testing, and other aspects of educational measurement.
- **American Educational Research Association (AERA) 2012 Annual Meeting-Vancouver, British Columbia, Canada**
Apr, 2012
"Non Satis Scire: To Know Is Not Enough"
The program consisted primarily of presentations selected through an open call for submissions and a peer review process guided by program chairs of divisions, committees, and special interest groups (SIGs). In addition, there will be invited speakers and symposia, panel discussions, professional development courses, and graduate student programs.
- **Dr. Gerald Tindal Awarded Distinguished Researcher Award** Apr, 2012
Presentation at AERA Conference in Vancouver, B.C. during the Special Education Research SIG Business Meeting.

Current Research

- **Study 5: easyCBM Common Core Math Scaling - Open (Actively Recruiting Participants)**
- **Study 7: easyCBM CCSS Math Item Piloting - Open (Actively Recruiting Participants)**
- **Study 1: easyCBM Beginning Reading Growth - Closed (Recruitment Completed)**
- **Study 2: easyCBM Common Core Math & Response to Intervention - (Recruitment Completed)**
- **Study 3: easyCBM Reading Criterion-Validity - Closed (Recruitment Completed)**
- **Study 4: easyCBM Common Core Math Reliability - (Recruitment Completed)**
- **Study 6: easyCBM Common Core Math Item Writing and Review - Closed (Recruitment Completed)**



Featured Web Project:

[cbmtraining](#)

Register and login for free access to training on interventions in reading and mathematics as well as middle school concept-based instruction.

<http://slds.ziptrain.com>

Technical Reports

A technical report can be described as the nuts and bolts of a research project. Associates are asked to develop technical reports for many of the research projects BRT is involved with to better help colleagues duplicate findings. If you are interested in a technical report not linked below, please feel free to contact BRT for a copy.

2012

- Irvin, P. S., Park, B. J., Alonzo, J., Tindal, G. (2012). The Alignment of the easyCBM Grades 6-8 Math Measures to the Common Core Standards (Technical Report No. 1230). Eugene, OR: Behavioral Research and Teaching, University of Oregon.
[\(Click to Download PDF Document\)](#)
- Park, B. J., Irvin, P. S., Alonzo, J., Tindal, G. (2012). The Alignment of the easyCBM Grades 3-5 Math Measures to the Common Core Standards (Technical Report No. 1229). Eugene, OR: Behavioral Research and Teaching, University of Oregon.
[\(Click to Download PDF Document\)](#)
- Irvin, P. S., Park, B. J., Alonzo, J., Tindal, G. (2012). The Alignment of the easyCBM Grades K-2 Math Measures to the Common Core Standards (Technical Report No. 1228). Eugene, OR: Behavioral Research and Teaching, University of Oregon.
[\(Click to Download PDF Document\)](#)
- Sáez, L., Irvin, P. S., Alonzo, J., Tindal, G. (2012). Phoneme Segmenting Alignment with the Common Core Foundational Skills Standard Two: Grades K-1 (Technical Report No. 1227). Eugene, OR: Behavioral Research and Teaching, University of Oregon.
[\(Click to Download PDF Document\)](#)
- Alonzo, J., Park, B. J., & Tindal, G. (2012). The Development of the easyCBM CCSS Reading Assessments: Grade 8 (Technical Report No. 1226). Eugene, OR: Behavioral Research and Teaching, University of Oregon.
[\(Click to Download PDF Document\)](#)
- Alonzo, J., Park, B. J., & Tindal, G. (2012). The Development of the easyCBM CCSS Reading Assessments: Grade 7 (Technical Report No. 1225). Eugene, OR: Behavioral Research and Teaching, University of Oregon.
[\(Click to Download PDF Document\)](#)
- Alonzo, J., Park, B. J., & Tindal, G. (2012). The Development of the easyCBM CCSS Reading Assessments: Grade 6 (Technical Report No.

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BRT Research Partnerships

➤ [For Districts](#)

➤ [For Teachers](#)

Dan Rather [From Wikipedia] and the CBS Report

- “September 8, 2004, Rather reported on [60 Minutes Wednesday](#) that a series of memos critical of President George W. Bush's Texas [Air National Guard](#) service record had been discovered in the personal files of Lt. Bush's former commanding officer, Lt. Col. [Jerry B. Killian](#)”. The memos were forgeries.
- Rather and CBS initially defended the story, insisting that the documents had been authenticated by experts.
- On September 20, 2004, CBS retracted the story. The controversy has been referred to by some as "Memogate" and "Rathergate.”
- On January 5, 2005, Thornburgh and Boccardi completed their report: “The Panel has not been able to conclude with absolute certainty...a number of issues raise questions”(p. 3 – Executive Summary of the report).

- <https://datatrans.ncaase.com>
- State specific systems

Chapter 2

Data Structures
datastore

Data
Transfer

Possible
Protocols

Data-Report
datastore

Chapter 3

- State test
- AZ
 - NC
 - OR
 - PA
 - NWEA

- easyCBM
- District
 - Lite

- BRT Projects
- Math 6-8
 - Reading 3-8
 - Alt. Assess

Chapter 4

Data
Process

- coe-ncaase.stats.uoregon.edu
through datastore
- <https://datatrans.ncaase.com>
- [dataorder \(researcher request\)](#)

Chapter 5

Data
Structure

- Remote Terminal
- SQL Database

- SPSS
- HLM
- AMOS
- SAS
- R
- M+

Report
Storage

- <http://ncaase.com>
- <http://brtprojects.org>



Data Integrity

```
SELECT COUNT(*) AS `Rows` , `gender`  
FROM `all_measures_1112_gr1r_WIDE`  
GROUP BY `gender`  
ORDER BY `gender`  
LIMIT 0, 30
```

Count	Values
4,381	
1	5
11,803	F
1	<u>femaile</u>
1,205	Female
12,717	M
1,201	Male

1-10, 20, 30, 40,99, 639	American Indian/Alaska <u>NativeWhite</u>	Black/African <u>AmericanWhite</u> Caucasian or White	MR MU Multi Multi Race - Two or More Races Multi-Racial Multiple Multiple Races Multiracial	Non-Hispanic Non-US Native American Not Hispanic / Latino Not Specified NULL O, P P-Nat Hawaiian/Pac Islander PI T Two or More Two or More Races Unknown W W - White W-White WH White White or Caucasian White, non- Hispanic Y Yes
A	<u>AmerIndian/Al</u>	D, E, H, H - Hispanic/Latino H-Hispanic Hawaiian/Pacifi c Islander HI		
A - Asian	askan Native			
A-Asian	<u>Amr</u>			
African	Indian/ <u>Alska</u>			
American	Nat			
<u>Amer</u>	AS			
Indian/Alaska	Asian			
Native	Asian or Pacific	<u>Hisp</u>	N	Islander
AMER.INDIA	Isl	Hispanic	Nat American	PI
N/ALASKA	<u>AsianWhite</u>	Hispanic - Any Race	Native	T
NATIVE	B, B -	Hispanic / Latino	Alaskan/Ameri can Indian Native	Two or More Two or More Races
American	Black/African American	Hispanic Ethnicity	Hawaiian or Other	Unknown W
Indian / Alaska	B-Black/Not Hispanic	Hispanic or Latino	Native	W - White W-White
Native	BL	HP	Hawaiian Pacific Islander	WH
American	Black	I	Native	White
Indian or	Black or	I-American	Hawaiian/Other Pacific Islander	White or Caucasian
Alaska	African	Indian	Native	White, non- Hispanic
American	Black	IN	Hawaiian/Pacifi c Islander	Y
Indian or	Black, non- Hispanic	M		
Alaskan Native	Black/African American	M - Multiracial M-Multi Race		
American				
Indian/Alaska				
Native				

Data Integrity

Rows	<u>ethnicity_recode</u>
13,880	
321	American Indian or Alaskan Native
473	Asian
1,054	Black or African American
4,077	Hispanic or Latino
698	Multi
39	Native Hawaiian or Other Pacific Islander
1,615	Not Hispanic
9,152	White

Meaning in Measurement

First Month of Measurement – Grade Three

<i>Month</i>	<i>Count</i>	<i>Percent</i>
9	354	15.2
10	994	42.6
11	376	16.1
12	104	4.5
1	202	8.7
2	123	5.3
3	127	5.4
4	42	1.8
5	10	.4
Total	2332	100.0

Consistency in Measurement

Grade Level of Measures – Grade Three First Occasion

	Count	Percent	Valid %
Grade 1	128	5.5	5.5
Grade 2	200	8.6	8.6
Grade 3	1979	84.9	84.9
Grade 4	22	.9	.9
Grade 5	3	.1	.1
Total	2332	100.0	100.0

The Complete Data Set

Complete Data Collection System

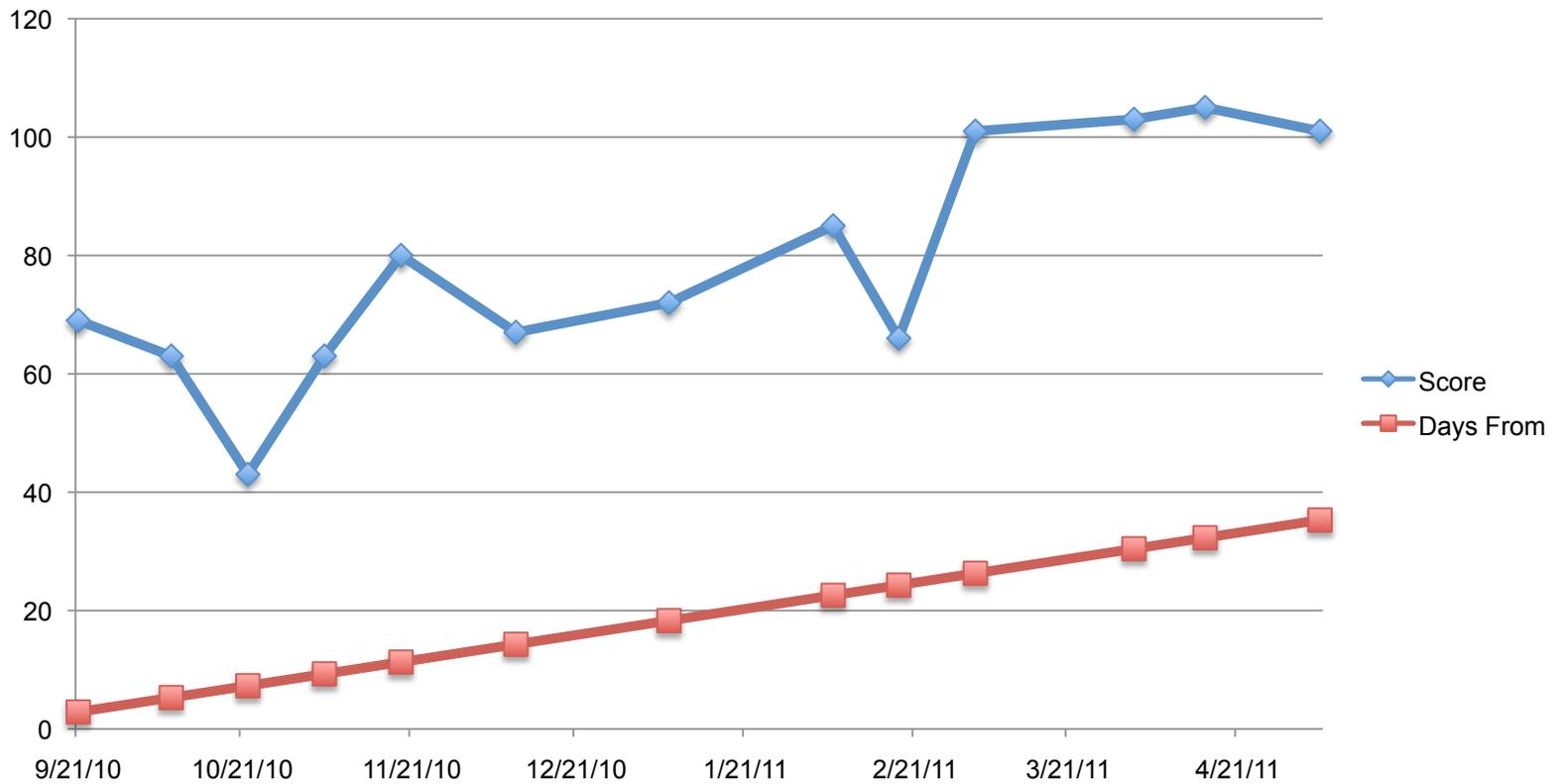
File	No. Records
Kindergarten	225,659
Grade 1	318,547
Grade 2	402,726
Grade 3	379,524
Grade 4	381,360
Grade 5	359,512
Grade 6	276,076
Grade 7	218,683
Grade 8	200,103
TOTAL	2,762,190

Complete Measurement

Complete Measurement System

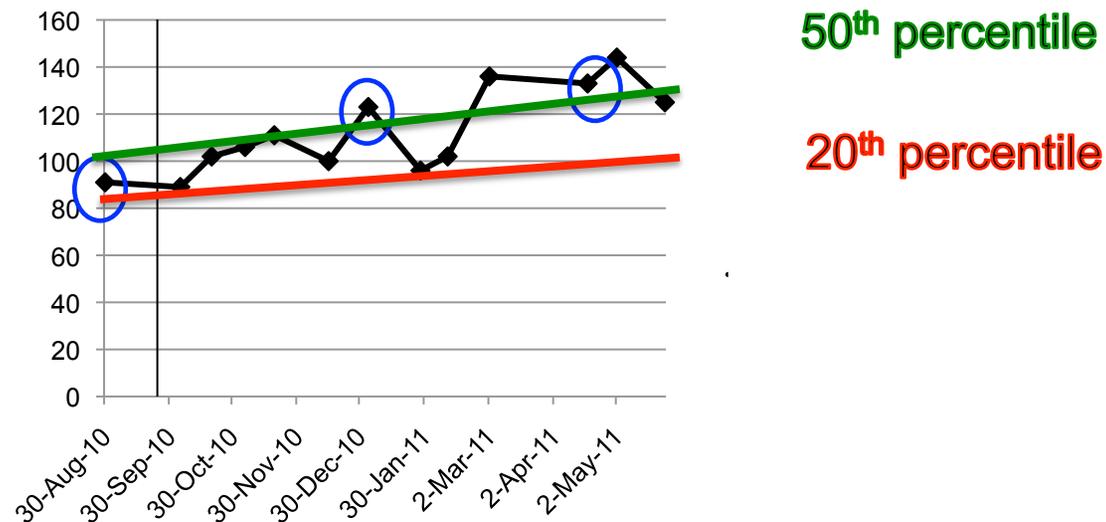
GRADE K		GRADE 8	
<u>cbm_type</u>	COUNT	<u>cbm_type</u>	COUNT
<u>ln</u>	27,012	<u>ln</u>	16
<u>ls</u>	58,354	<u>ls</u>	2
<u>math</u>	39,069	<u>math</u>	45,084
<u>math_alg</u>	1	<u>math_alg</u>	6,702
<u>math_danao</u>	15	<u>math_danao</u>	5,979
<u>math_geo</u>	4,987	<u>math_geo</u>	180
<u>math_msmt</u>	3,619	<u>math_geomsmt</u>	3,723
<u>math_noag</u>	4	<u>math_gma</u>	246
<u>math_numop</u>	8,591	<u>math_mda</u>	143
<u>math_numopalg</u>	260	<u>math_mga</u>	450
<u>mcrc</u>	20	<u>math_msmt</u>	57
<u>prf</u>	62	<u>math_noag</u>	637
<u>ps</u>	50,279	<u>math_numop</u>	3,019
<u>vocab</u>	37	<u>math_numopalg</u>	1,969
<u>wrf</u>	33,349	<u>math_numoprat</u>	205
TOTAL	225,659	<u>mcrc</u>	52,609
		<u>prf</u>	31,862
		<u>ps</u>	4
		<u>vocab</u>	46,997
		<u>wrf</u>	219
		TOTAL	200,103

Time Series Designs



Data-Based Decisions

Example 1: One intervention followed by increasing growth, no change to intervention

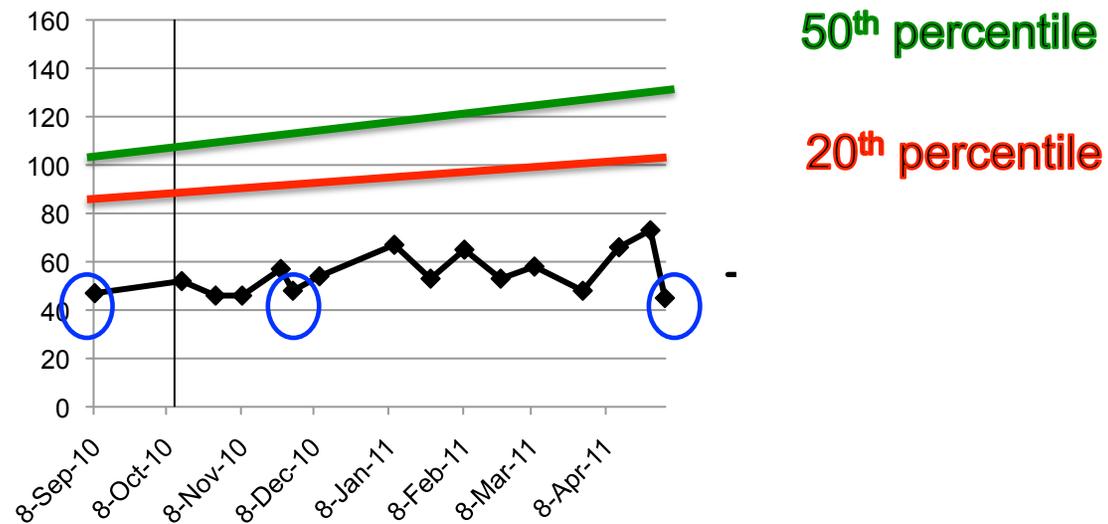


Note. Benchmark assessments are circled. Vertical line notes date of intervention.

Intervention 1	Rewards 2x/week for 20_x000D_ Strategic and Intensive kits for comprehension and vocabulary 2 x/week for 20 min_x000D_ Read Naturally 20 min 3x/week_x000D_
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Data-Based Decisions

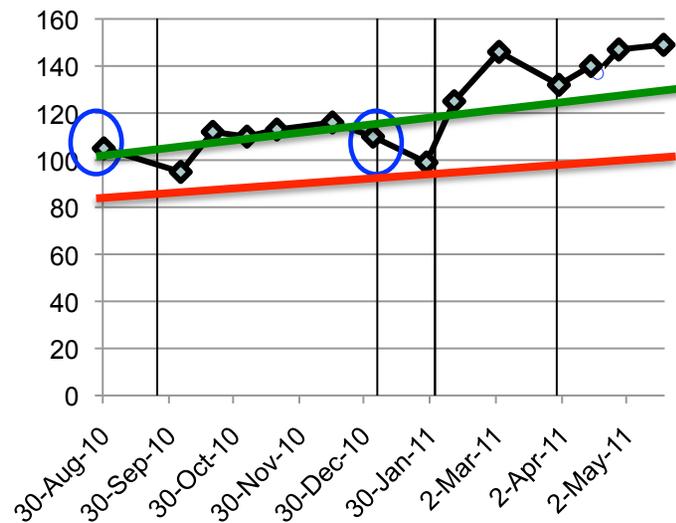
Example 2: One intervention followed by flat growth, no further interventions



Intervention 1	Tier 3b (BEST): Skill focus: Phonics & Fluency. Using 4th grade Triumphs Materials & the Rewards program. 5 students taught by an IA. 30m/day, 4x a week.
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Data-Based Decisions

Example 3: One intervention followed by flat growth, then additional intervention followed by some growth



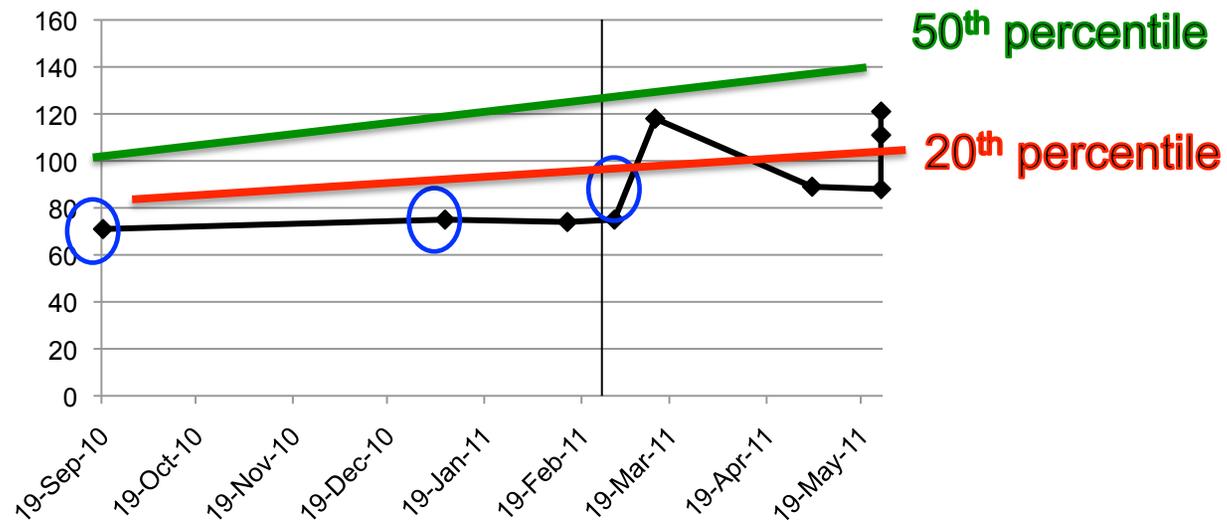
50th percentile

20th percentile

Intervention 1	Rewards 2x/week for 20_x000D_ Strategic and Intensive kits for comprehension and vocabulary 2 x/week for 20 min_x000D_ Read Naturally 20 min 3x/week_x000D_
Intervention 2	Group Change: Moved to ___'s group(smaller size). Doing Harcourt Intensive materials, Read Naturally 2x/week and Study Island 2x/week to practice fluency and comprehension.
Intervention 3	Study Skills: 20 min. of test taking practice and strategies
Intervention 4	Concerns noted with teacher about the lack of comprehension. Decided to wait a few more weeks to see if extra class helped out.

Data-Based Decisions

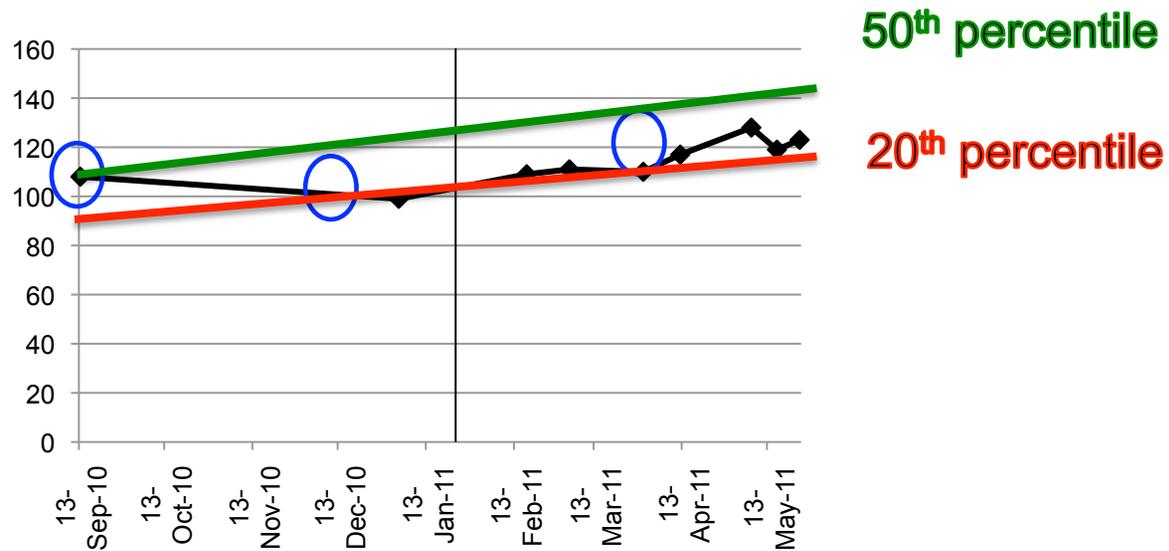
Example 4: Intervention perhaps inappropriately late in the year, then perhaps some growth after intervention



Intervention 1	Corrective Reading B-2: 40 min.4x/week;group of 6
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Data-Based Decisions

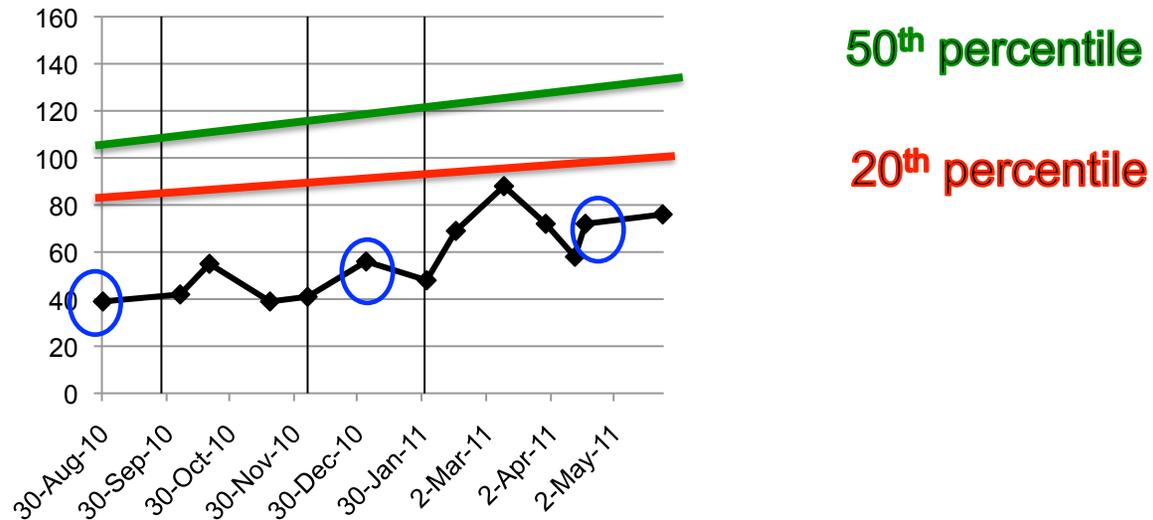
Example 5: Intervention appropriately late (given high fall benchmark score), some growth after intervention.



Intervention 1	Read Natural: Student goes to read naturally each morning during Tiger Time (30 mins).
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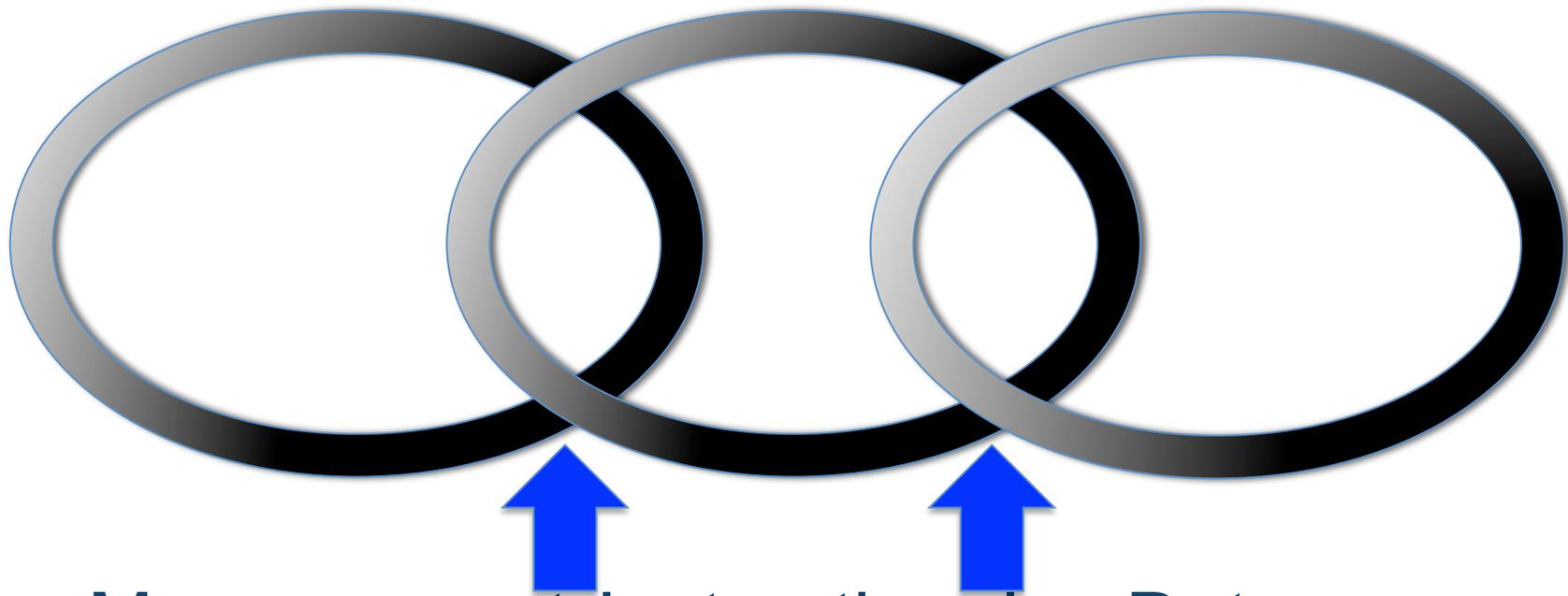
Data-Based Decisions

Example 6: Many interventions, not enough PMs between each.



Intervention 1	Read Naturally 20 minute sessions four days a week. Harcourt Strategic comprehension skills 20 minute sessions 2 days a week.
Intervention 2	Phonics for Reading Level 3. 20 min. session four days a week.
Intervention 3	New Skill Block: Moving to ___'s Skill Block. Sp. Ed.

Future Directions in Research



Measurement
Based
Sufficiency

Instructional
Integrity

Data-
Decision
Making

For More Information

<http://www.brtprojects.org>

<http://easyCBM.com>



behavioral research & teaching

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Publications

The research and development work completed in BRT for over 20 years is available in several forms:

- [Presentations](#) are from national conferences
- More recent [technical reports](#) address development of curriculum-based measurement and analyses of large-scale testing programs
- [Training modules](#) consist of curriculum materials
- [Archives](#) consisting of early initial work published as [monographs](#) present conceptual overviews of scholarly work, and [research reports](#) focus on assessment and consultation

Featured Web Project:
[easyCBM](#)
The assessment principles behind the easyCBM system are the result of over 30 years of published, peer-reviewed educational research on formative evaluation and use with response to interventions.
<http://easycbm.com>



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