

easyCBM User Conference

Eugene, OR

Valley River Inn

October 6-7, 2014



easyCBM™ User Conference Agenda

October 6, 2014 • Valley River Inn

8:00–9:00 AM	Registration and Continental Breakfast – McKenzie Foyer
9:00–9:15 AM	Welcome and Introductions
9:15–10:00 AM	Historical overview of easyCBM from 2000–2014, highlighting the development of different components
10:00–11:00 AM	District Sharing: Each representative will share how easyCBM is used in their district (five minutes per district)
11:00 AM–12:00 PM	Sharing Our Current Planned Development for 2015 and Beyond <ul style="list-style-type: none">• New Reports and Navigation• Early Literacy• Early Numeracy• PD Enhancements• Voice Capture for ORF Measures (CORE Grant)
12:00–1:00 PM	Lunch — McKenzie Foyer
1:00–2:00 PM	User Feedback (districts work in small teams) <ul style="list-style-type: none">• Key Strengths of easyCBM ('do not change' Features)• Key Requests for Additional Enhancements
2:00–3:00 PM	Meet the Software Developers <ul style="list-style-type: none">• Background on Programming Process• Q&A
3:00–3:30 PM	Item Development Process – Shawn Irvin
3:30–4:00 PM	CCSS Math: Iterative Test Development – Daniel Anderson
4:00–4:30 PM	Break and meet in lobby for transportation to campus <ul style="list-style-type: none">• Campus tour• BRT office tour
6:30 PM	Dinner – SweetWaters on The River (Valley River Inn)



easyCBM™ User Conference Agenda

October 7, 2014 • Valley River Inn

8:00–9:00 AM	Continental Breakfast – McKenzie Foyer
9:00–10:00 AM	Research Highlights <ul style="list-style-type: none">• Jess Saven: Presentation of National Norm Study Results• Joe Nese: Growth in CBM• Leilani Saez: Letter Sounds/Early Literacy and Interventions
10:00–11:00 AM	District Highlights <ul style="list-style-type: none">• Springfield School District• Shelton School District• Hillsborough School District
11:00 AM–12:00 PM	Setting the Future Course
12:00 PM	Adjourn – boxed lunches Safe travels!

Measuring Oral Reading Fluency: Computerized Oral Reading Evaluation - **CORE**

- Supported by the Institute of Education Sciences, U.S. Department of Education, through Grant R305A140203 to the University of Oregon
- Budget: \$1,599,289 : August 2014 – July 2018
- Co-PI: Akihito Kamata, Southern Methodist University

CORE

- Develop and validate a new computerized assessment system of ORF.
- Automated scoring algorithm based on a speech recognition engine.
- A latent variable psychometric model.
- Vertically scaled scores for Grades 2-4.
- Technically adequate for improving reading outcomes for students across reading proficiency levels.

CORE

- Years 1-2
 - Develop and Validate Passages
 - +110 passages (word counts: ≈ 25 , ≈ 50 , ≈ 85)
 - Example: *“Tim grew very tall. When he was ten everyone thought he’d play basketball. But Tim surprised them all. He loved to play the piano.”*
 - Compare
 - wcpm: easyCBM vs. CORE
 - Hand score live vs. CORE vs. hand score of recording
 - Development of the psychometric model.

CORE

- Year 3
 - Passage parameters horizontally equated and vertically linked.
 - 1,000 students per Grade 2-4
 - Administered with easyCBM benchmarks (fall, winter, spring)
- Year 4
 - Consequential Validity
 - 1,000 students per Grade 2-4
 - 9 assessments across the year (including easyCBM benchmarks)
 - Growth study
 - Trajectory of student growth, CORE and easyCBM
 - Reliability of points and growth
- Teacher feedback

Pre-K/Kindergarten Assessment & Data Use Case Studies

Leilani Sáez

Behavioral Research and Teaching
College of Education – UO

Pre-K/K Assessment Purpose

- easyCBM is helpful for tracking academic skill progress over time *as* children are developing cognitive skills and fluency in literacy and numeracy
- A clearer understanding of children's emergent skill levels is needed to capture their **learning receptiveness** for building early fluency

What's Planned?

- Development of an innovative online assessment of critical classroom behaviors, cognitive processing/ learning constraints, and emergent academic levels
- Anticipated Time Involved:
 - 15 min for teacher to complete rating scale (for the entire class)
 - 20 to 30 min for children to complete tablet based assessment

Teacher Rating Scale

- Approximately 30 items that focus on children's learning supportive behaviors:
 - Participation
 - Self Control & Cooperation
 - Working Memory & Distractibility

Teacher: For each child, 1) Press the child's name and 2) then one of the rating options below. When you have entered a rating for all children in your class, choose Save and Continue.

No basis for rating	1	2	3	4	5
NBR	Definitely does not describe child well	Does not describe child well	Somewhat describes child	Describes child well	Definitely does describe child well
Does the child...					
When beginning a new task, need additional teacher support to complete it (e.g., reminders of what to do)?					
Jim A					5
John B					2
Mary C					3

Save & Continue

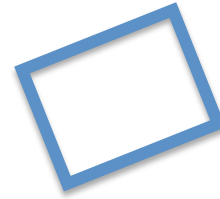
Untimed Literacy Tasks (4)

- Book & Print Concepts
- Letter Names
- Phoneme Sensitivity (Rhyming, Blending, Segmenting word and word parts)
- Letter Sounds



Untimed Numeracy Tasks (3)

- Shape & Pattern Recognition



- Number Identification, Sequencing, & Counting



- Addition & Subtraction (with pictures & numbers)

Working Memory



Case Studies Purpose

- Bring voice to how real schools are using student data for decision-making, to culminate in a book chapter
- Looking for contributors who are easyCBM users

Case Studies General Format

- Brief introduction
- Demographics (school, teacher, student) and brief description of instruction delivered behind the data
- Brief description of easyCBM features used and procedures (interpretation, who was involved, etc.)
- Results (including graphed data)

Example Research Questions

Administrator

- How does the risk analysis inform grade-level practice in literacy and math?
- What's the progress being made to improve student learning school- and district-wide? To what do you attribute this progress?
- How are easyCBM score reports used for goal setting and team meetings?

Teacher

- What's the effect of **instructional approach** on passage reading fluency?
- How are fall benchmark scores used to group students? How do you consider performance on the different subtests?
- What does growth in beginning reading skills look like for different struggling readers?
- Describe the process used to decide how to monitor progress. What do you consider when deciding to maintain, change, or discontinue intervention?

Two New Projects Ahead !

- **Pre-K/K Assessment Development-** We'll be looking for classrooms to pilot items
- **Case Studies-** We'll be looking for professionals interested in sharing their stories of data use

Interested?

- Contact Leilani Sáez @ BRT

Lsaez@uoregon.edu




Please provide the following:

List of contributors (in order of contribution),
Research question, Location (city/state),
Grades and easyCBM features involved


For More Information

<http://www.brtprojects.org>

<http://easyCBM.com>



[About Us](#)[Publications](#)[BRT Labs](#)[Contact](#)



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>

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

Overview

[Presentations](#)

[Technical Reports](#)

[Training Modules](#)

[Archives](#)

BRT Research Partnerships

➤ [For Districts](#)

➤ [For Teachers](#)

BRT Technology Team

Meet the easyCBM Programmers



The Team



Aaron Glasgow

Tech Coordinator

- Developer Support
- BRT employee since 1996



Trevor Cords

Web Developer

- Primary easyCBM developer and deployment coordinator
- “github” aficionado



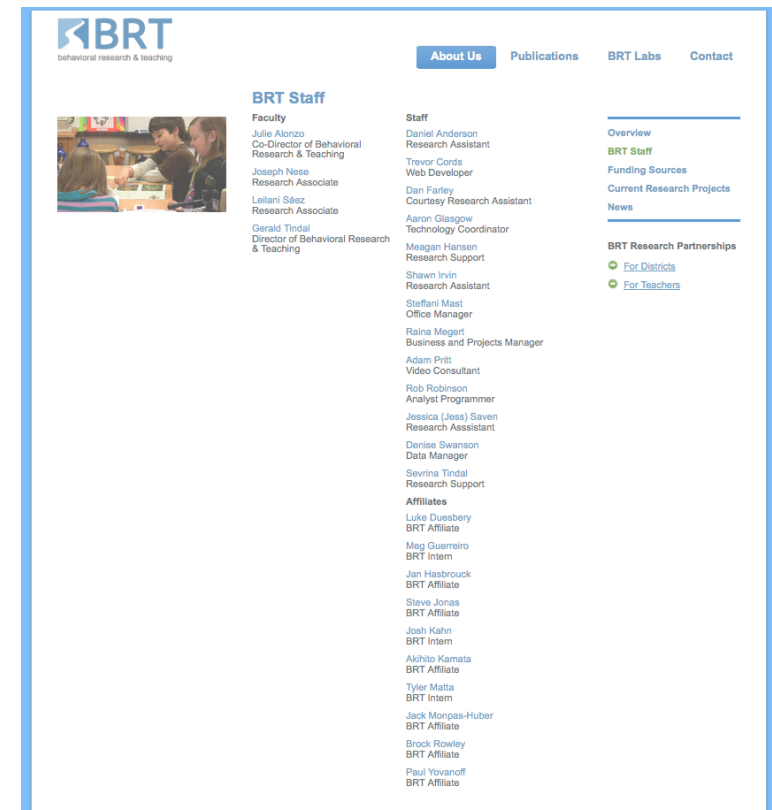
Rob Robinson

Web Developer

- “stolen” from the UC system
- loves data visualization & javascript charting libraries

The BRT Team (continued...)

- Dr. Jerry Tindal
- Dr. Julie Alonzo
- Raina Megert
- and all of the BRT family
- <http://brtprojects.org>



What else does the Tech Team do?

- Alternate Assessments: OR, AK, PA

PASA READING & MATH

Home Students Docs Videos Admin

Student Setup

The enrollment period for 2014-2015 PASA Reading & Math testing is September 29 to December 12. The deadline has been extended by several weeks this year in an effort to reduce the additional mailings that have to take place due to late enrollments. We understand that students sometimes begin receiving instruction at a service provider after the end of the enrollment period, but we must have all students enrolled by the deadline in order to ship materials ready for distribution in January/February. You should continue to enroll these few students that you will not receive their materials in your initial mailing. Materials for all students are shipped once the test window opens.

The list below serves as your live Coordinator or Assessor roster. (Note: only the live roster is used for shipping materials. You will not receive a printed roster this year, as those become out-of-date as soon as they are printed.)

Admin Area

Select a District:

Add New Student

PASA ID	Last Name	First Name	Grade	Assessor
51000	Anderson	Pierre	8	Newman, Nancy
100006	Dudley	Howard	4	Assessor, Sally
51004	Gomez	Penelope	7	Newman, Nancy
104279	Johnson	Pearl	3	Unregistered, Regina
51001	Jones	Benedict	5	Unregistered, Regina
100008	London	Sam	6	Assessor, Sally
51002	Smith	Sebastian	4	Unregistered, Regina

OR K12Test.com

Home Training Proficiency Materials Admin Account

Welcome Aaron Glasgow Aaron Glasgow Super Admin

(Last login was on 9/22/2014 at 1:04 pm. [View History](#))

- Training** Learn to administer and score the Oregon Extended Assessments. [Training >](#)
- Proficiency** Test your proficiency and become a Qualified Assessor. [Proficiency >](#)
- Secure Tests** Order and download student testing materials. [Secure Tests >](#)
- Score Entry** Enter student information and test scores. [Score Entry >](#)
- View Materials** Access training materials and other QT files, as well as practice tests for each subject. [View Materials >](#)
- Admin** Certify other users, view login history, and access other restricted functions. [Admin >](#)
- Account** Change your password and edit other account information. [Account >](#)

Note: It is highly recommended that you use headphones when viewing and listening to the videos in both the Training section and the Proficiency section of this web site.

Home | About | Contact | Training | Proficiency | Materials | Admin | Account

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Welcome Alaska Teachers!

Alaska Alternate Assessment. Qualified Assessors must

to assessment materials, online reporting for qualified assessors. training in both AK-DLM English AKAA Science alternate proficiency evaluation.

site, please view the [System](#) on the Register link to sign up to

If you are having trouble and cannot remember your login or password, please contact the DRA Helpdesk (tel: 1-800-838-3163 or sevrina@dillardresearchassociates.com)

Registered User Login

Email:

Password:

[Register](#) [Reset Password](#)

[About](#) - [Contact](#) - [Requirements](#) - [FAQ](#) - [Login](#) - [Navigating Guidance](#) - [Register](#)

What else (continued...)

- Federal Grants and Projects: \$50 Million
- National Center on Assessment and Accountability for Special Education (USD OE, IES)
 - Developed software tools for data storage, retrieval, and manipulation
 - Developed secure data transfer for network of researchers
 - Build and maintain statistics computing environment(s)

What else (continued...)

- Federal Grants and Projects (continued...)
- Integrated Technology Tools for Optimizing Instruction and Assessment Results for Students with Disabilities (USDOE, OSEP)
 - Guiding technology integration of (selected) easyCBM (formative assessment) and MyiLogs (standards based instruction) dashboard reporting
 - Cross application data export and retrieval


What else (continued...)


- Measuring Oral Reading Fluency:
Computerized Oral Reading Evaluation (CORE)
(USDOE, IES)
 - Software platform for teacher access, student roster, student reporting, student ORF measurement
 - Interface with speech recognition technology for automated scoring
 - Possible future easyCBM integration

What else (continued...)

- Support Item development
- Review and Piloting

easyCBM Item Piloting				
2013 Math Item Pilot Stats				
Completed Tests				
Grade Form Completed Started				
K	1	48	55	
K	2	48	51	
K	3	50	57	
K	4	49	56	
K	5	48	52	
K	6	48	52	
K	7	48	52	
K	8	50	52	

 UNIVERSITY OF OREGON


 Distributed Item Review
UO Behavioral Research and Teaching



[CONTACT](#) [REQUIREMENTS](#)

Distributed Item Review

Distributed Item Review is one of the projects at [Behavioral Research and Teaching \(BRT\)](#). The intent of this website is to collect data from the ratings that teachers and education specialists make on individual test items.

BRT is comprised of a small group of researchers conducting research and development in student academic assessment. The shop is funded from federal grants and state contracts and is comprised of faculty, staff, and students committed to the development of effective educational programs for all students. For more information on BRT see the home website: <http://www.brtprojects.org/>.



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What else (continued...)

- Development, Operations, Support for BRT:
- Select, configure, and manage both in house and cloud based servers: web, virtual desktop, data storage and backup.
- Commercial software licensing and versioning
- Fix email
- Fix wireless access
- Setup and fix mobile devices

easyCBM!

- Feature Identification and Implementation
- Operations
- BRT Tech Support



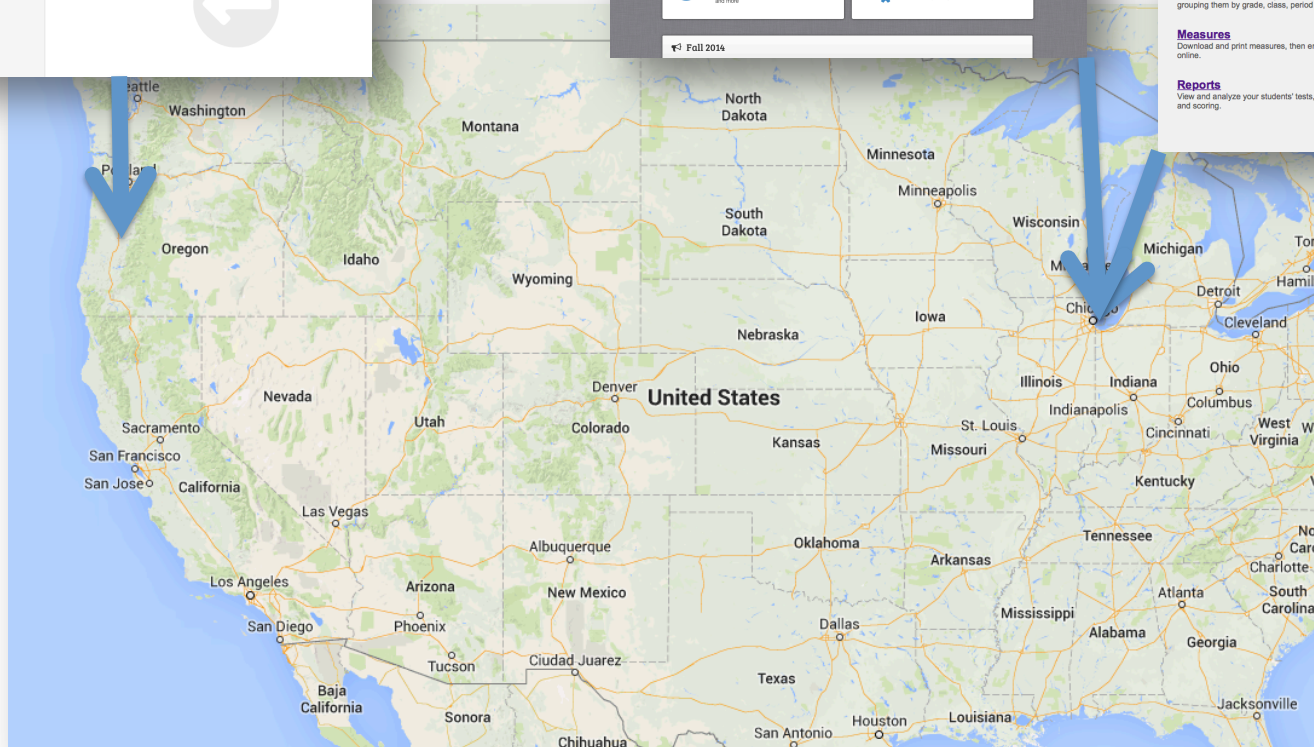
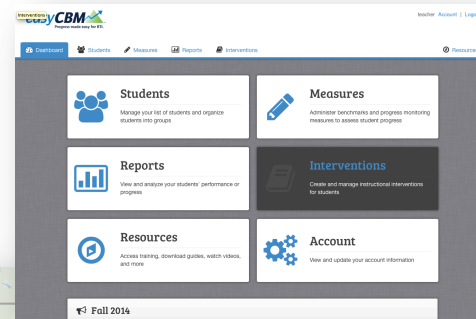
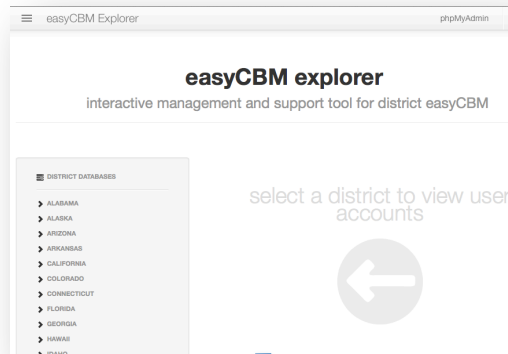
easyCBM: New Feature Identification

- Author Requests: best practice or user requests
- Riverside Requests: pre-sales and market opportunities
- Put em in the grinder: time to implement, opportunity, scheduling
- Do what our bosses tell us

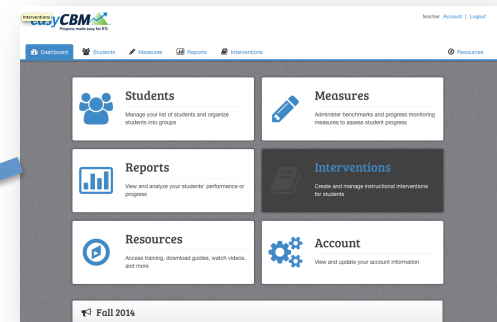
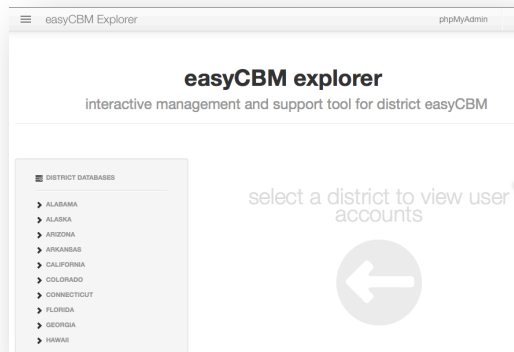
easyCBM: New Feature Implementation

- Specifications document: mockups, text descriptions, similar work
- Stakeholders approve and we schedule work
- Meetings, version control, preview sites
- QA and testing
- Release to Riverside for UAT
- Approval and release to production (Wed and Sun)

easyCBM Operations



easyCBM Operations



easyCBM Support: escalation

Self Serve:

- Manuals, Resources, Videos, Quick Guides
- Automated password and username

District Expertise:

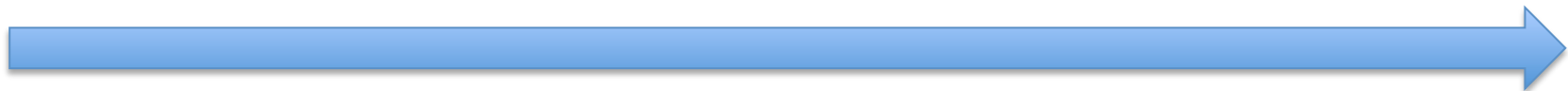
- easyCBM Instance Admin
- trainers, qualified staff

Riverside:

rpcsupport@hmhpub.com
[1-866-433-8763](tel:1-866-433-8763)

BRT Tech Team

- ticket



easyCBM Support: BRT Tech Team handles the tough tech questions

- Distribute ticket based on expertise and workload
- Often need to interface with Authors, Riverside sales and support, District expertise
- Develop and test fixes: internal to BRT -> Riverside UAT (User Acceptance Testing) -> Riverside production (typically Wed or Sun evenings)

Trevor Cords!

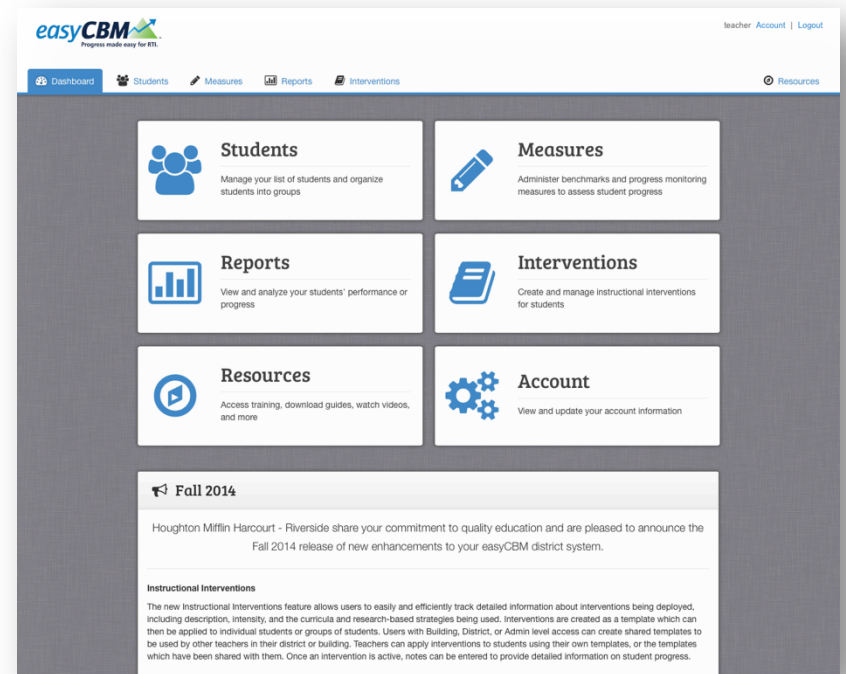
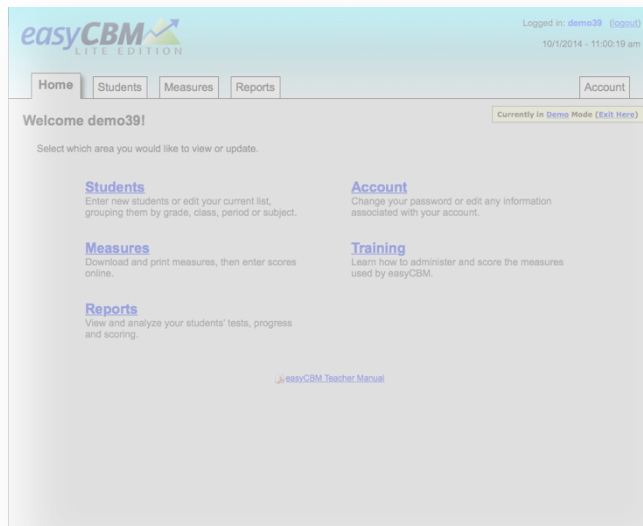
- BRT Hire Date: May 1, 2013
- Intro
- easyCBM codebase in 2013 was 2006 technology: robust but presenting challenges to implement new features. Reminder: iPhone introduced in 2007, iPad 2010.

Major Feature: Auto Upload

- Request from users, Alief ISD in particular
- Requirements gathering including phone calls
- Description of solution
- Current usage

Major Feature: New Look

- Bootstrap (custom)
- Sticky Menu



Major Feature: Interventions

- History and specifications process
- Major development milestones
- Screenshots and description of current use
- Next steps: admin export of data

Major Feature: Ideas and Possibilities

- API
- New Framework
- easyCBM 2.0

Major Feature: BRT easyCBM support tools

- dbtools
- History and need
- Screenshots or demo

Rob Robinson!

- Intro
- 1st easyCBM project: district stats

district stats

- Informs development -> browsers used
- Support deployment -> displays use in near real time

	Desktop	Tablet	Mobile	Other	Browsers
Parkrose SD	100%	ipad 50%, other 50%			
Potters House Academy	100%	ipad 50%, other 50%			
Carver Public Schools	100%	ipad 50%, other 50%			
Noble Academy of Cleveland	20%	other 80%	ipad 16.67%, other 16.67%		
Marshall H.S.	20%	72%	other 8%		
Waverly SD	100%	other 85.34%			
Independence Charter	100%	other 66.26%			
Bullock Creek	100%	ipad 35.49%, other 35.49%			
Reynolds SD	100%	ipad 33.33%, other 33.33%			
Atlanta PSD Morningside Elem	86%	10.88%	2.28%, other 0.83%	ipad 2.23%, other 2.23%	
West Fargo School District	75%	25%			
Echo Joint Acad. Of Learning	16%	other 84%			
Fern Ridge School District	93%	0.98%	3.03%	2.73%, other 0.26%	desktop 97.83%, android 1.09%, other 1.09%
Waterville - Elysian	100%				
Wright City Schools	100%				
Leroy Gridley SD	100%				
Renaissance Tradition	100%				
The Family School PS 443	100%				
Diocese of Dallas St. Philip Catholic School	100%				
St Joseph Orphanage & Altercrest	100%				
St Helens SD	100%				
St. Germaine School	100%				
Solon SD Legacy	100%				
New Berlin SD	100%				
Phoenix - Talent	100%				
Orofino Joint SD	100%				
Chicago PSD (Oriole Park)	100%				
Oreville Elementary	100%				

CBMskills

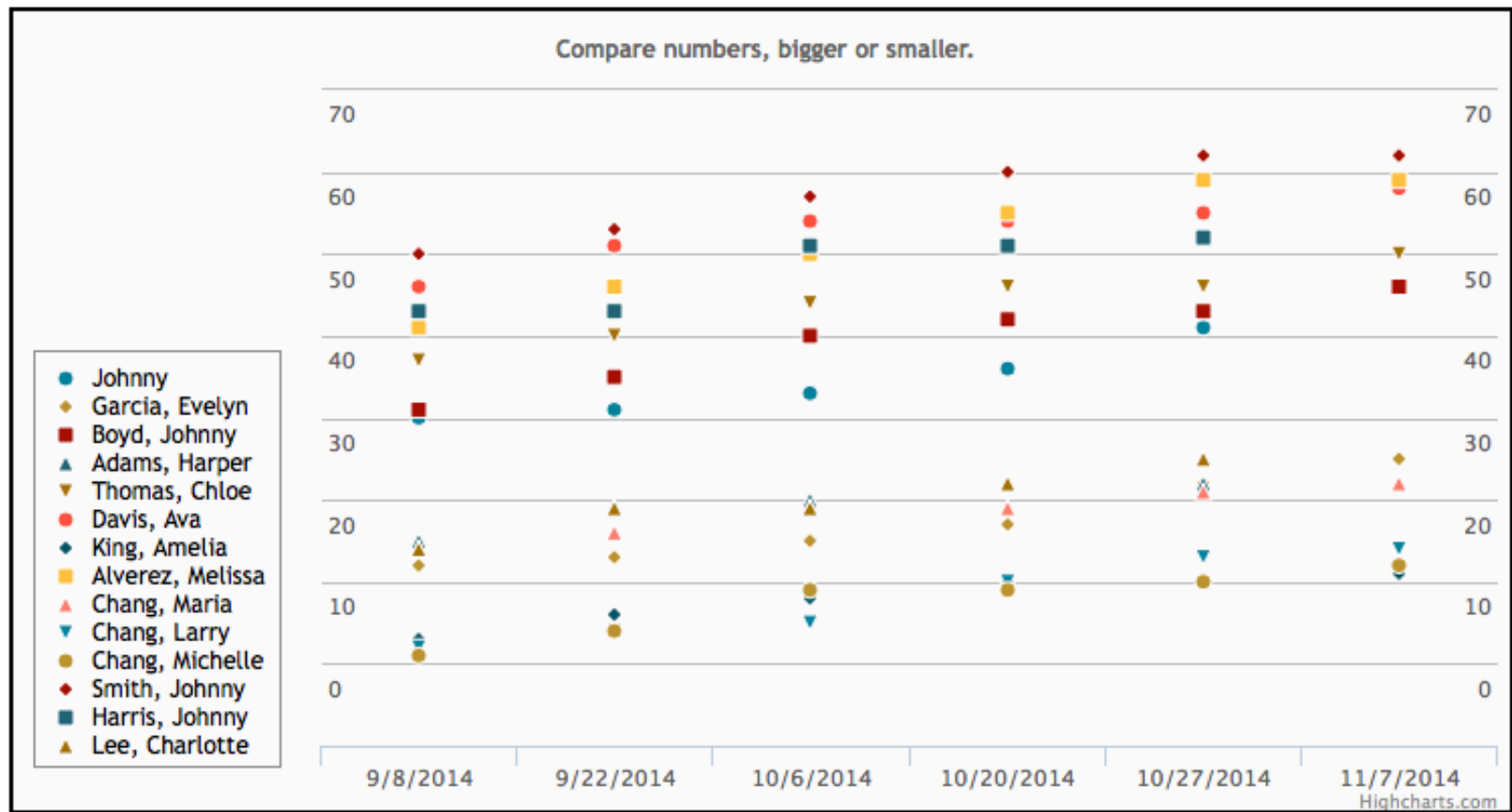
- Mathematics teaching and learning may be best captured using a mastery model in which skills are addressed sequentially.
- Select from our virtually unlimited CCSS aligned elementary math problems. CBMskills administers them to your students.
- We created all of our measures to focus on specific skills that allow teachers to easily administer, score, record, and monitor student learning progressions.

CBMskills (continued)

- Also a testbed for new technology – data visualization and interaction.

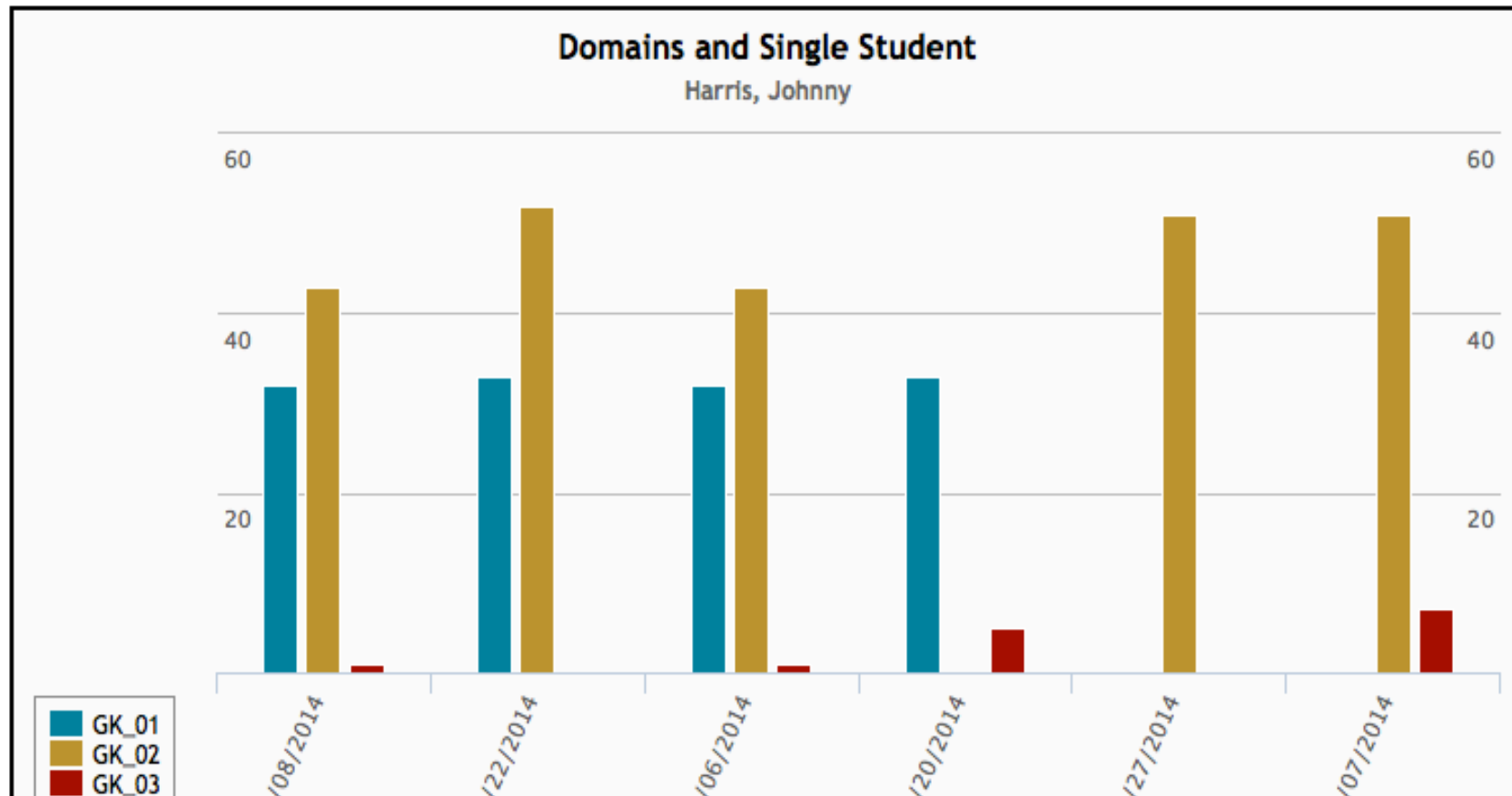


CBMskills demo: Class Report



CBMskills demo: Student Overview

« Harris, Johnny »

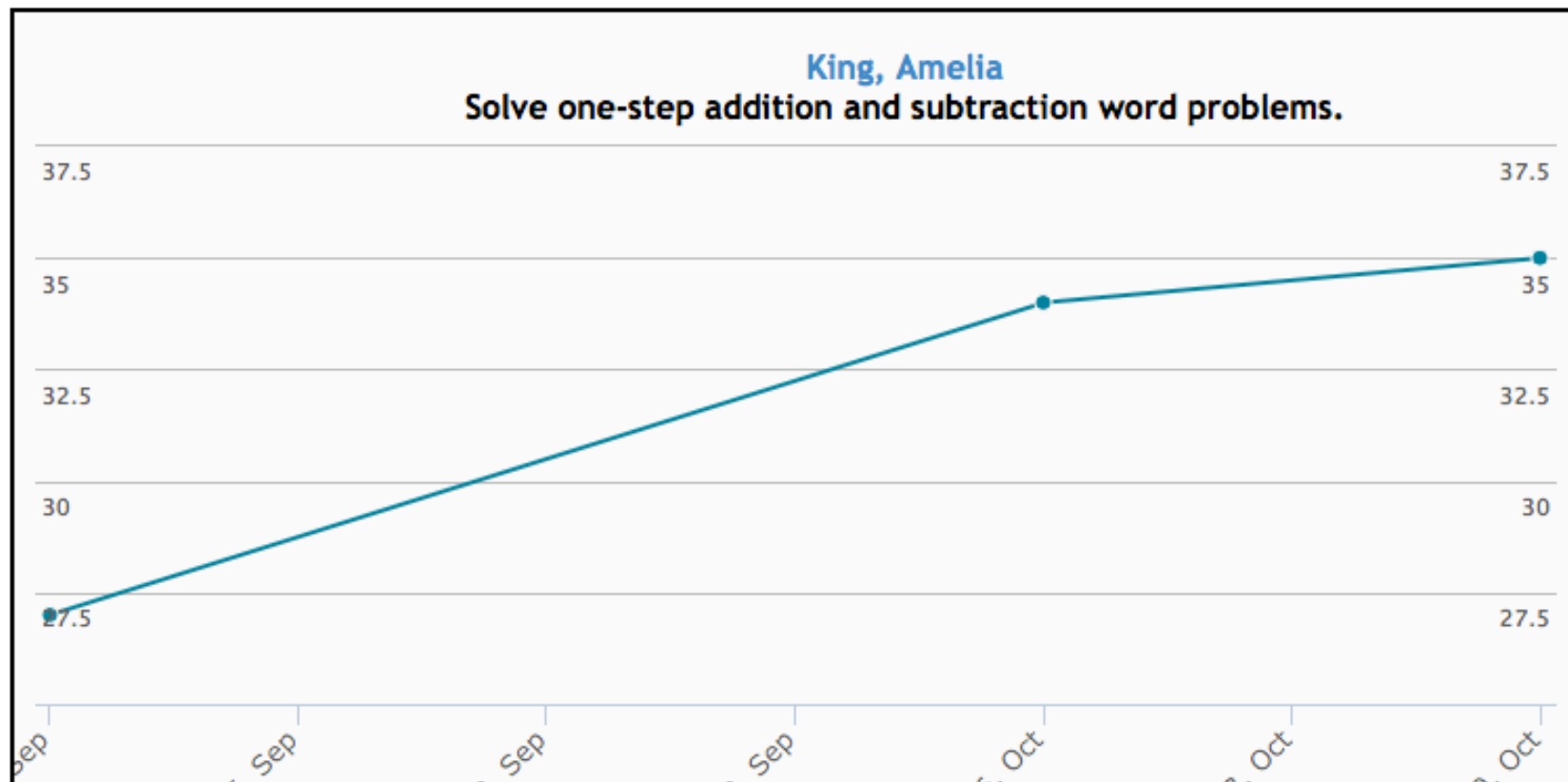


CBMskills demo: Student and Domain

«

Solve one-step addition and subtraction word problems.

»





[ABOUT](#) | [FAQ](#) | [SUPPORT](#) | [SIGN-IN](#)

FREE Student practice
with integrated tracking and
mastery reports

CCSS aligned progress monitoring in the elementary classroom!

COMING

SOON!

What is Mastery Monitoring?

Mathematics teachers are using mastery monitoring using CBMskills, which items are administered sequentially. We base our measures on 30 years of research on student learning by leading education researchers throughout the country. We selected all of our measures to focus on specific skills that would allow teachers to easily administer, score, record, and monitor student learning progressions. You select from our list of virtually unlimited CCSS aligned elementary math problems and our systems computer (or tablet) administers them to your students. The problems are presented in a high quality and advertisement free environment,



Quality items

The items your students see are carefully selected from a CBMskills item bank that is designed to reflect learning progressions. This allows you to progress monitor as many times as needed while your students work towards skill mastery. You

Some serious and some not so serious Q&A

- To get the ball rolling...
- Q: What browsers, hardware, and software are you compatible with.
- A1: Every single one of them!
- A2: Windows: Firefox 3.0+ or Internet Explorer 7.0+; Mac: Safari 2.0+ or Firefox 3.0+
- A3: current and latest couple of versions of Firefox, IE, and Chrome.

Q&A Continued

- Single Sign On / District authentication
- Q: Do you support it
- A1: Sure
- A2: Every one is different. Would be a custom feature, many ways to do it, best to work with a partner district or two.

Q&A Continued

- From the audience?

Wrap Up: easyCBM Stats

- 68k lines of code (php)
- 463 commits since July 1, 2013
- 1.5 million tests since Aug 1, 2013 (district only)

Thank-you!



...and all of BRT

easyCBM: Historical Overview

2014 easyCBM User Conference
Eugene, OR

easyCBM Through the Years

- 1980's: Introduction of CBM, University of MN
- 1990's: Teacher Consultation Program, UO
- 2003 +/- : 4j Reading Kit (Eugene 4j SD)
- 2004 +/- : Bethel Math (Bethel SD)
- BRT (Denise) created, printed, and scanned 35,000 scan sheets fall, winter, and spring
 - Reading and Math

easyCBM Through the Years

- 2006: OSEP Funded Model Demonstration
 - Early Literacy, K-4
 - January = funding came through
 - April = K-4 tests developed
 - LN, LS, Seg, WRF, PRF, MCRC (Grades 3 & 4 only)
 - May – June = all K-4 test forms piloted
 - LN, LS, Seg, WRF, PRF, MCRC (Grades 3 & 4 only)
 - September: new website launched
 - Eugene 4j, Bethel, Springfield were only districts using

easyCBM Through the Years

- 2007
 - Added MCRC Grades 2 & 5
 - Began developing MCRC Grades 6-8
 - Added PRF, Grades 6-8
- 2008
 - Added Math, K-8 (applications and computations)
 - Expanded to 10 districts
 - 3 in Washington, 7 in Oregon

easyCBM Through the Years

- 2009
 - Began development of math based on NCTM Focal Point Standards
 - Refined development of District version
 - Added initial MCRC measures 6-8

easyCBM Through the Years

- 2010
 - Riverside began distribution
 - Released NCTM-based math items, Gr. K-8
 - Began development of easier-access reading comprehension and vocabulary measures
 - Expanded number of MCRC measures

easyCBM Through the Years

- 2011
 - Alignment Studies
 - Piloted vocabulary and easier-access comprehension items.
 - Worked on graphs / displays and grouping features on the site.

easyCBM Through the Years

- 2012
 - Alignment Studies
 - Piloted CCSS Math items, developed additional items to enhance technical adequacy,
 - Studies of system use (interventions, selection of measures, etc.)
 - Studies of technical adequacy
 - Reliability / Validity

easyCBM Through the Years

- 2013
 - Added CCSS Math tests
 - Added Spanish Literacy Measures, K-2
 - Added Spanish translations of all math items, K-8
 - Continued refinement of graphs / displays

easyCBM Through the Years

- 2014
 - Added Intervention template interface
 - Began work on developing specs for easyCBM 2.0
- 2015
 - Work with select users to focus development and test easyCBM 2.0 features; planned release (internal) 15-18 months from now

easyCBM Test Item Development: Merging Researcher and Practitioner Expertise for Student Improvement

P. Shawn Irvin

Behavioral Research & Teaching

College of Education – UO

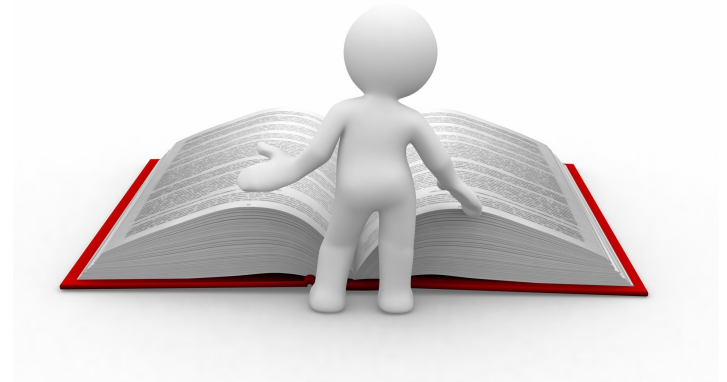
Road Map

- Foundations of Item Development
- Item Development Process
 - Item Writing
 - Editing and Review
 - Graphics/Audio
 - Standards Alignment/Quality
 - Piloting and Scaling
- Test Form Creation/Equating
- Ongoing Research



Foundations

- Accountability
- Standards-based Instruction
- Research
 - English Language Arts and *The Big 5* (NICHD, 2000)
 - phonemic awareness, alphabetic principles, fluency, vocabulary, and comprehension
 - Mathematics
 - numeracy, operations, reasoning skillsets, etc.



Foundations cont.

- Developing technically adequate interim-formative assessment measures to:
 - Screen for risk, gauge status, and monitor change
(McConnell, McEvoy, & Priest, 2002)
 - Establish valid/parsimonious factor structures
(Justice, Invernizzi, Geller, Sullivan, & Welsch, 2005)
- easyCBM
 - Reading (early/emergent) and Math
 - RTI framework to improve student learning outcomes through school-wide improvement

Item Development Process

1. Item Writing (P, R)
2. Editing and Review (P, R)
3. Graphics/Audio (P, R)
4. Standards Alignment/Quality (P, R)
5. Piloting and Scaling (P, S, R)



Key stakeholders: Practitioners (P);
Students (S); Researchers (R)

1. Item Writing

Recruitment of item writers/reviewers

- Representative sample of practitioner experts
- Experience/expertise (i.e., content, years of experience, position held, education level)
- General/Special educators
- e.g., K-5 CCSS Math: 18 individuals, 16 with Masters, ave of 14 yrs experience (r = 3-32), GenEd/SPED



1. Item Writing cont.

Training of item writers (and reviewers)

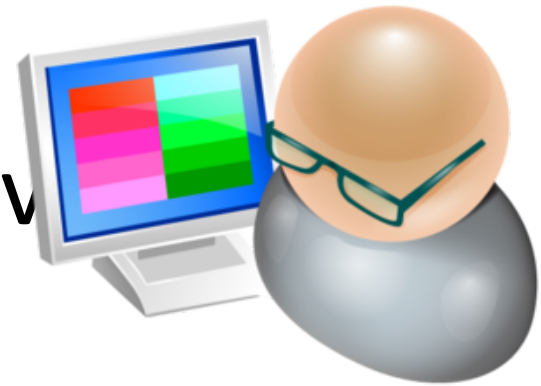
- Half-day, webinar/in-person sessions
- High-quality items, according to principles of:
 - Universal Design for Assessment (UDA; precise construct targets, accessible to diverse popns, lack of bias) (Thompson, Johnstone, & Thurlow, 2002)
 - Research-based construction (e.g., Haladyna, 2002; 2004)
 - Logistics (e.g., written >> operational, alignment, style, formatting, templates)
 - Examples/non-examples of quality items
 - Targeted practice

2. Editing and Review

- Multi-stage and iterative
 - Concurrent with item writing
 - Subsequent to item writing, concurrent with graphics/audio
- Employing both in- and out-of-house content and test development experts



3. Graphics and Audio Dev



- Professional graphic artists hired to create graphics according to UDA
- In-house audio for most items
 - Students with diverse learning/assessment needs
 - English and Spanish audio created for items/measures (e.g., NCTM/CCSS)

4. Item Alignment/Quality

Alignment/quality addressed two-fold:

- Before and during writing/review
- Formal alignment research studies using the Distributed Item Review (DIR)
 - Content/instructional experts judge test items as student would see them in the operational measure
 - Address issues of bias, sensitivity, accessibility
 - Feedback for further improvement (i.e., items revised or discarded)



4. Item Alignment/Quality cont.

Distributed Item Review (DIR; BRT, 2013)

- Distribute test items to expert users across appropriate geography (e.g., national, state)
- Examine dimensions of item quality (e.g., alignment/linkage, bias, sensitivity, accessibility)
- Essential features: diverse item types, pertinent support resources, organized assignment to participants, review contexts (e.g., development, review/improvement).

4. Item Alignment/Quality cont.

Item 4 of 30

- ✓ Elementary Science 1
- ✓ Elementary Science 2
- ✓ Elementary Science 3
- **Elementary Science 4**
- Elementary Science 5
- Elementary Science 6
- Elementary Science 7
- Elementary Science 8
- Elementary Science 9
- Elementary Science 10
- Middle School Science 1
- Middle School Science 2
- Middle School Science 3
- Middle School Science 4
- Middle School Science 5
- Middle School Science 6
- Middle School Science 7
- Middle School Science 8
- Middle School Science 9
- Middle School Science 10
- High School Science 1
- High School Science 2
- High School Science 3
- High School Science 4
- High School Science 5

Science Field Test Item Review - Extended Assessments - Science - Fall 2011

Elementary Science - 4

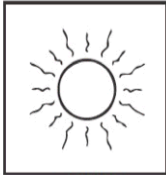
SCORING PROTOCOL - ITEM PROMPT

• Here are three pictures showing sunny, rainy, and snowy weather. (Point to each.)


In what type of weather would you most likely get a sunburn: sunny, rainy, or snowy? (Point to answer choices as you read them.)

[0 = Incorrect / 2 = sunny]

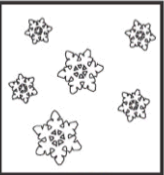
In what type of weather would you most likely get a sunburn?



sunny



rainy




snowy

Resources


- [Oregon Math Common Core Standards](#)
- [Extended Assessments Reduced in Depth, Breadth, and Complexity](#)
- [Power Point for Field Test Item Review](#)

Videos

- **Oregon Extended Assessment Student Population**



- **Webinar of DIR Item Review 10/10/2012**



4. Item Alignment/Quality cont.

				SPED	Gen-Ed	Total	
2012	K-8	Rdg/Math	61	6	5	11	SA

- 4,245 assessment items
- ELA, Math, Science – easyCBM/OR alternate assessment
- 121 SPEDucators
- 110 GenEducators
- 38 states
- Multi-purpose studies (alignment, b-s-a)
- More on the horizon!!! 😊

Note. Abbreviations are as follows: ELA = English Language Arts; RC = Reading Comprehension; EL = Early Literacy; Rdg = Reading; SPED = Special Education; Gen-Ed = General Education; B-S = Bias-Sensitivity; SA = Standards Alignment.

5. Item Piloting and Scaling

Students of varying ability take multiple test items in carefully designed pilot forms to analyze the quality of item functioning and to calibrate items (from a given measure) to a common scale. ***This makes it so that item difficulty is directly comparable within (and sometimes across) grades.***



6th and 8th Grade Piloting Plan

Form	Total new items on form																	
1	5A ₁	30U ₁	10VS ₁	5A ₂														45
2				5A ₂	30U ₂	10VS ₁	5A ₃											35
3							5A ₃	30U ₃	10VS ₁	5A ₄								35
4										5A ₄	30U ₄	10VS ₁	5A ₅					35
5													5A ₄	30U ₅	10VS ₁	5A ₅		35
6	5A ₅	30U ₆	10VS ₂	5A ₆														40
7				5A ₆	30U ₇	10VS ₂	5A ₇											35
8							5A ₇	30U ₈	10VS ₂	5A ₈								35
9										5A ₈	30U ₉	10VS ₂	5A ₉					35
10													5A ₉	30U ₁₀	10VS ₂	5A ₁₀		35
11	5A ₁₀	30U ₁₁	10VS ₃	5A ₁₁														40
12				5A ₁₁	30U ₁₂	10VS ₃	5A ₁₂											35
13							5A ₁₂	30U ₁₃	10VS ₃	5A ₁₃								35
14										5A ₁₃	30U ₁₄	10VS ₃	5A ₁₄					35
15													5A ₁₄	30U ₁₅	10VS ₃	5A ₁₅		35
16	5A ₁₅	30U ₁₆	10VS ₄	5A ₁₆														40
17				5A ₁₆	30U ₁₇	10VS ₄	5A ₁₇											35
18							5A ₁₇	30U ₁₈	10VS ₄	5A ₁₈								35
19																		35
20																		35
21	5A ₂₁	30U ₂₁																35
22																		35
23																		35
24										5A ₂₄	30U ₂₄	10VS ₅	5A ₂₅					35
25													5A ₂₅	30U ₂₄	10VS ₅	5A ₁		30

Horizontal anchor items link test forms across grades allowing calibration to common scale

Vertical anchor items link test forms across grades allowing calibration to common scale

...and pilot forms always have unique items.

Note. A – horizontal anchor items; VS – anchor items for vertical scaling; U – unique items to the form

5. Item Piloting and Scaling cont.

- Items analyzed using *item response theory* (IRT)
- Item-level stats, pre-defined criteria (e.g., Wright and Linacre, 1994)
 - *Mean square outfit* – indicator of item performance given item difficulty and student ability
 - *Discrimination* – indicator of relation b/t item and test success, i.e., Does the item yield unique info? Does the item distinguish b/t students with higher-lower performance?
- Poorly functioning items edited/discarded

Test Form Construction/Equating

- Standard (domain) representation
- Range of difficulty – sensitivity at “lower” end of the performance spectrum
- Alternate forms of appx equivalent difficulty (status *and* growth, teacher/school DM)
- Nuances to reduce construct-irrelevant variance (e.g., domain clustering, ramping difficulty)

Ongoing Research and Collaboration


- Reliability
- Validity
- Cross-validation and Diagnostic Efficiency
- National and Regional Norms
- Test Use and Associated Teacher Decision-making




Thank you! Questions?

<http://www.brtprojects.org>

<http://easyCBM.com>



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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>

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

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easyCBM Iterative Measurement Development: CCSS Math

Behavioral Research & Teaching

Outline

- Original item development
 - Item writing
 - Scaling & test form creation
- Reliability
 - Initial screen
 - Revisions Made
 - Current Reliability
- Criterion Validity Evidence
- Future Directions

Item Development

Test Blueprint

- Written to specifically align with CCSS Math Standards
- Three response options
- “Oversampling” of Items (~50%)
- Universal Design
 - Minimal, simple, and direct language
 - Line art
 - White Space

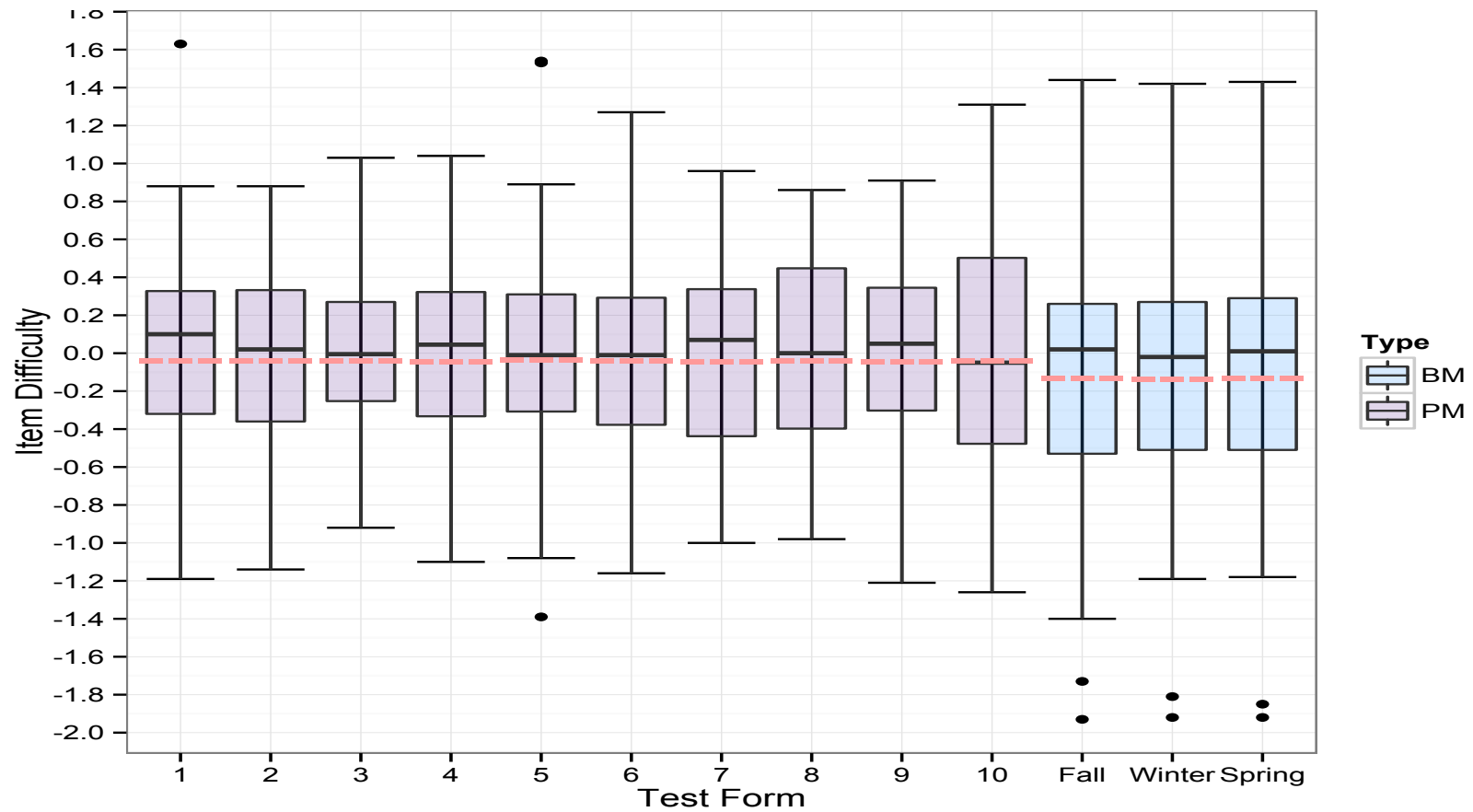
Item Writers

- Master/mentor model
 - 5 teacher leads: intensive in-house training
 - 18 item writers: trained and monitored by teacher leads
- All item writers were middle school mathematics teachers (GenEd & SpEd)
- Master trainers were district math specialists, or had extensive teaching experience

Item Screening

- Minimum of 200 students from across the country responded to each pilot item.
- Items calibrated with item response theory
 - Common scale (all item difficulties directly comparable across grades)
- Items removed from consideration if:
 - Pilot data suggested poor functioning
 - Alignment data suggested the item did not measure the intended standard

Form Creation



Investigating Test Functioning: Reliability

- **Reliability is**

“concerned solely with how the scores resulting from a measurement procedure would be expected to vary across replications of that procedure” (Haertel, 2006)

- Separate from validity (but is a prerequisite)
- Multiple types of reliability

Internal Consistency	Alternate Form
Test-retest	Split-half
Generalizability Theory	Etc.

Initial Investigations into Reliability

- Sample included ~1,000 students in Oregon, with Five CCSS test forms per grade investigated
- Initial screening of data suggested some items weren't working well
- Items were removed, and reliability was adequate, but still less than ideal

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- Initial screening of data suggested some items weren't working well
- Items were removed, and reliability was adequate, but still less than ideal

Brief Dive into Results

Grade 6 Test Form Point-Biserial Correlations

Item	Form				
	6	7	8	9	10
1	.277**	.386**	.473**	.269**	.342**
2	.201**	.382**	.283**	.263**	.461**
3	.534**	.358**	.383**	.404**	.0126
4	.617**	.199**	.343**	.366**	.201**
5	.220**	.415**	.198**	.265**	.343**
6	.508**	.431**	.266**	.231**	.301**
7	.480**	.255**	.467**	.395**	.240**
8	.404**	.156*	.319**	.343**	.237**
9	.313**	-0.003	.0137	.268**	.0124
10	.256**	.188**	.0007	.144*	.0081
11	.241**	.416**	.261**	.266**	.442**
12	.530**	.388**	.396**	.487**	.349**
13	.471**	.373**	.404**	.0063	.377**
14	.409**	.335**	.441**	.410**	.323**
15	.248**	.227**	.512**	.407**	.267**
16	.338**	.405**	.253**	.351**	.282**
17	.402**	.385**	.497**	.463**	.445**
18	.346**	.395**	.315**	.424**	.342**
19	.337**	.219**	.520**	.195**	.386**
20	.478**	.252**	.148*	.284**	.409**
21	.322**	.288**	.290**	.510**	.259**
22	.0042	.472**	.314**	.250**	.420**
23	.400**	.518**	.479**	.174*	.154*
24	.228**	.0138	.156*	.245**	.0048
25	.281**	.258**	.507**	.184*	.154*

Note. Items displayed in red font were removed prior to subsequent analyses.

* $p < .05$

** $p < .01$

Brief Dive into Results

Cronbach's Alpha Reliability Coefficients

Grade	Form	Alpha			
		Day 1		Day 2	
		Full model	Reduced Model	Full model	Reduced Model
6	6	.70	.72	.77	.79
6	7	.66	.69	.67	.72
6	8	.69	.76	.74	.78
6	9	.65	.70	.61	.65
6	10	.57	.63	.59	.69

Brief Dive into Results

Test-Retest Reliability Coefficients

Grade	Form	Test-Retest r
6	6	.69
6	7	.69
6	8	.71
6	9	.73
6	10	.61

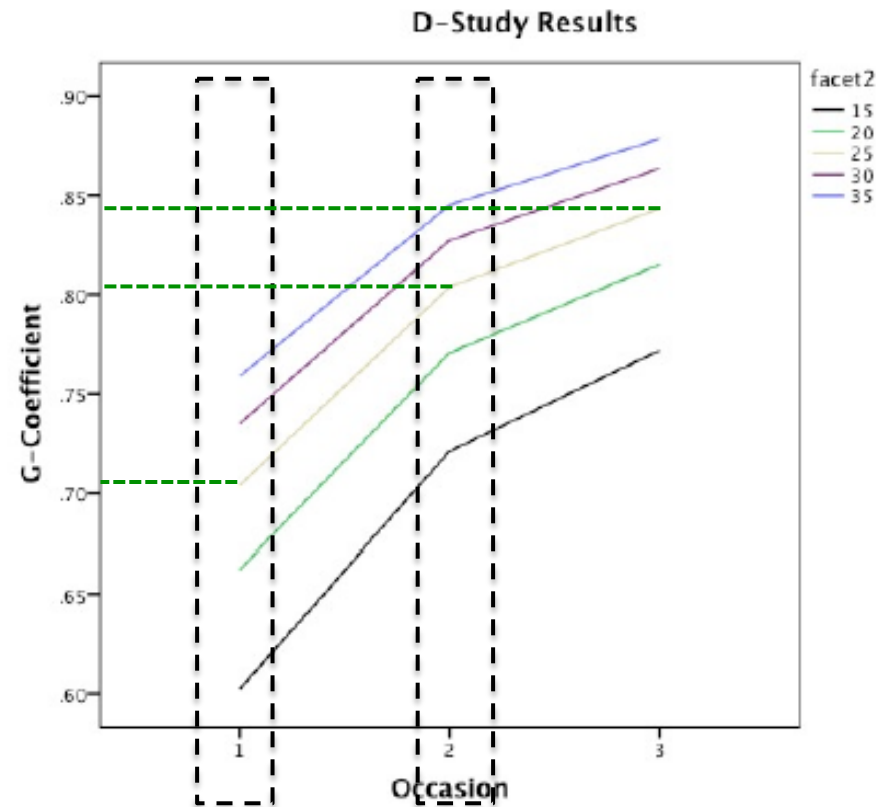
Brief Dive into Results

Grade 6: Alternate Form Reliability Coefficients

Test form	6	7	8	9	10	n
6	-	.432	.601	.597	.465	.662
7	.376	-	.819	.641	.760	.572
8	.721	.525	-	.813	.744	.591
9	.492	.720	.426	-	.752	.522
10	.197	.784	.553	.728	-	.549
n	.806	.491	.665	.743	.569	-

Note. Coefficients below the diagonal represent correlations from the first testing occasion, while the coefficients above the diagonal represent correlations from the second testing occasion occurring one week later.

Brief Dive into Results



Overall Takeaway: Not good enough

- What to do? Revise.
- Items were noticeably more difficult than NCTM
 - Included 5 NCTM items rated as aligning with the CCSS
- **Removed** 5 poorest functioning items from each form
- Conducted additional pilot
- Replaced items with those that pilot data suggest function better.

What effect did the changes have?

- Cronbach's alpha now $> .9$ for all measures investigated.
- Split-half reliability $> .8$
- Overall takeaway – it looks like it worked!



Now they're reliable, are they valid?

- **Validity** is

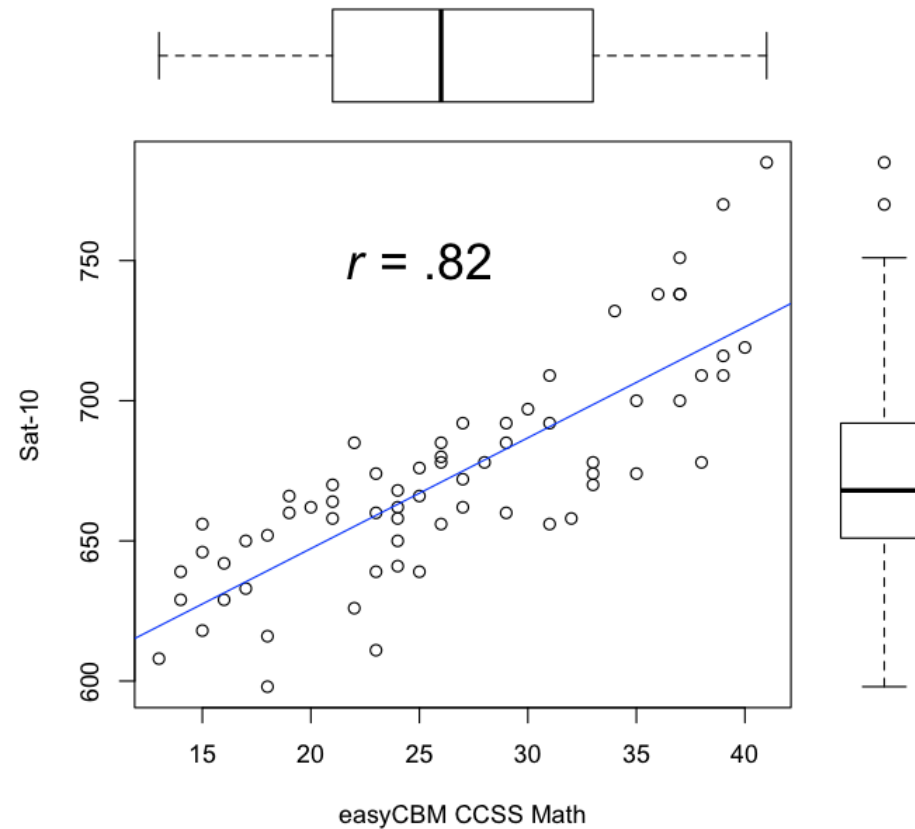
“An overall evaluative judgment of the degree to which empirical evidence and theoretical rationales support the adequacy and appropriateness of interpretations and actions based on test scores” (Messick, 1995)

- Basically – does the test **actually** measure what it **says** it measures
- Not a property of the test

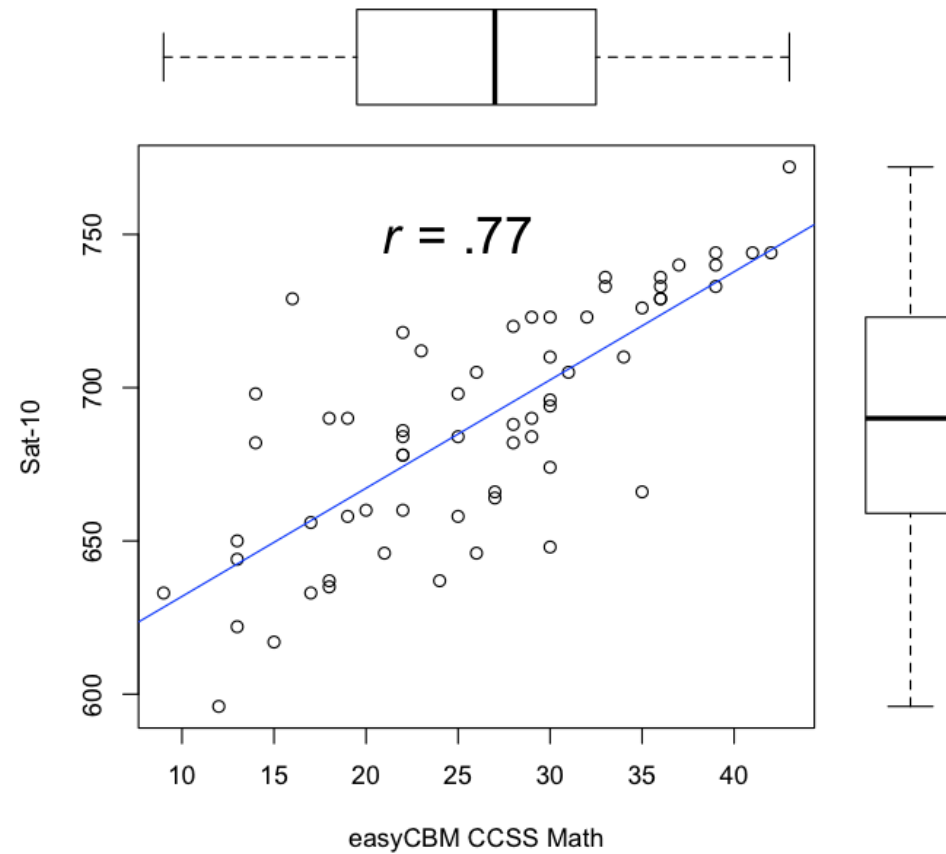
Preliminary Investigations

- Criterion validity
 - How well do students' scores on easyCBM “go along” with scores from a criterion measure
 - Note. Measures are not designed to be exactly the same, but scores should at least correlate.
- Sample
 - 65 students in Oregon in each grade.

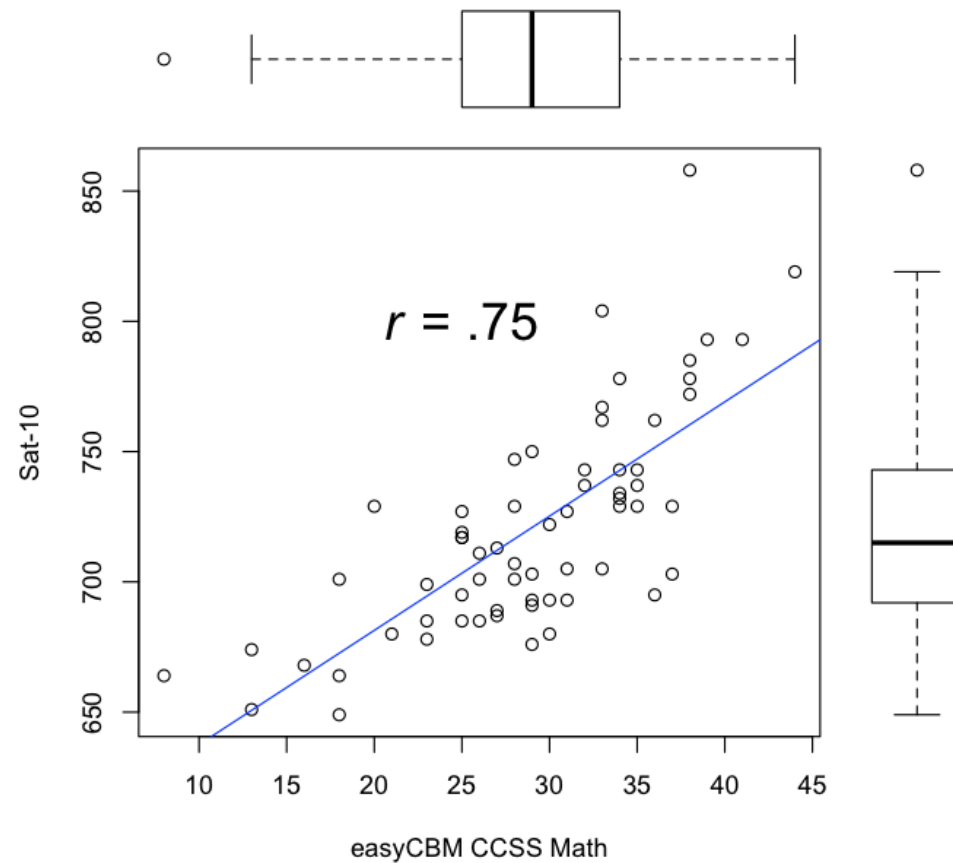
Criterion Validity Results: Grade 6



Criterion Validity Results: Grade 7

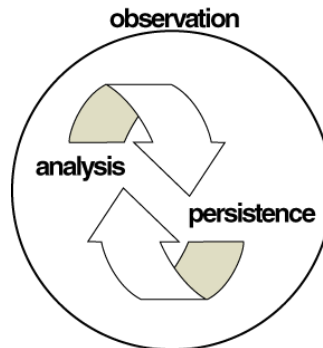


Criterion Validity Results: Grade 8



Where to from here?

- Measures appear reliable and to be measuring what we intend them to measure.
- Are we done? **NO!**
- Measurement development is **iterative**



Continued Investigations

Current

- Item functioning (annual evaluation)
- Vertical scale creation
- Dimensionality
 - Does the test only measure one thing? Multiple things?
- Average growth

Planned

- Item fairness
- More investigations into reliability & validity



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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.

2014

- ➡ Saven, J. L., Tindal, G., Irvin, P. S., Farley, D., Alonzo, J. (2014). easyCBM Norms 2014 Edition. (Technical Report No. 1409). Eugene, OR: Behavioral Research and Teaching, University of Oregon.

(Click to Download PDF Document)

- ➡ Anderson, D., Alonzo, J., Tindal, G., Farley, D., Irvin, P. S., Lai, C. F., Saven, J. L., Wray, K. A. (2014). Technical Manual: easyCBM (Technical Report No. 1408). Eugene, OR: Behavioral Research and Teaching, University of Oregon.

(Click to Download PDF Document)

- ➡ Guerreiro, M., Alonzo, J., Tindal, G. (2014). Internal Consistency of the



Featured Web Project:

CBM Skills

Sign-in and create a free student practice account with integrated tracking and mastery reports.

http://www.brtprojects.org/documents/CBM_Skills.pdf

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Thanks!

- Daniel Anderson: Behavioral Research and Teaching
 - daniela@uoregon.edu
 - <http://www.brtprojects.org/publications/technical-reports>

easyCBM Norms Development

-Jess Saven

Behavioral Research and Teaching

College of Education – UO

Previous Norms

- Generated using scores from ALL students
- Representative of students taking tests, as opposed to nationally representative
- No sampling
- Predominantly West
- Predominantly White

Current Types of Norms

1. region:

- Midwest
- Northeast
- Southeast
- West

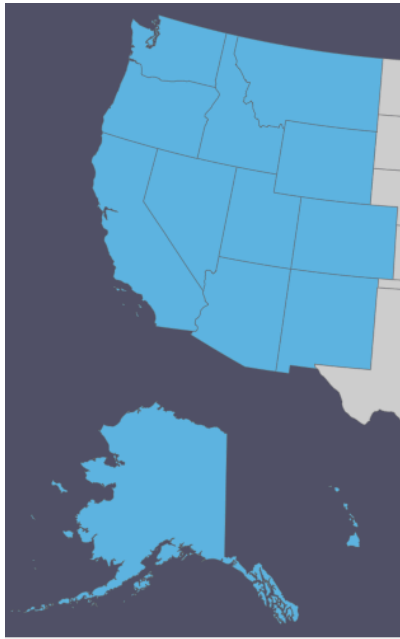
2. race-ethnicity-gender

- nonWhite male
- nonWhite female
- White male
- White female

1: Specify Regions

State	Region	State	Region	State	Region	State	Region
AR	MW	CT	NE	AL	SE	AK	W
IL	MW	DE	NE	FL	SE	AZ	W
IN	MW	ME	NE	GA	SE	CA	W
IA	MW	MA	NE	KY	SE	CO	W
KS	MW	NH	NE	LA	SE	HI	W
MI	MW	NJ	NE	MD	SE	ID	W
MN	MW	NY	NE	MS	SE	MT	W
MO	MW	PA	NE	NC	SE	NV	W
NE	MW	RI	NE	SC	SE	NM	W
ND	MW	VT	NE	TN	SE	OR	W
OH	MW			VA	SE	UT	W
OK	MW			WV	SE	WA	W
SD	MW					WY	W
TX	MW						
WI	MW						

Regions Visualized



2: Investigate CCD Data

Grade	Ethnicity–Race	Gender	Region
KG=kindergarten	AM= American Indian/Alaska Native	M=Male	MW
1-8=Grades 1...8	AS= Asian/Hawaiian Native/ Pacific Islander or Asian	F=Female	NE
	HI=Hispanic		SE
	BL=Black		W
	WH=White		
	HP= Hawaiian Native/Pacific Islander		
	TR= Two or more races		

3. Sample by Region

Region	Need	Have	Sample
MW	501	2,717	0.18
NE	525	784	0.67
SE	502	4,277	0.12
W	500	14,017	0.04

Region	Need	Have	Sample
MW	500	2,717	0.18
NE	500	784	0.64
SE	500	4,277	0.12
W	500	14,017	0.04

gender/race/ethnicity

Region	Need	Have	Sample
White Male	550	2,497	0.22
White Female	517	2,449	0.21
Non-White Male	498	1,917	0.26
Non-White Female	472	1,890	0.25

Region	Need	Have	Sample
White Male	500	2,497	0.20
White Female	500	2,449	0.20
Non-White Male	500	1,917	0.26
Non-White Female	500	1,890	0.26

Data Display Tables – Grade 5 PRF

Region	5 th	10 th	15 th	20 th	25 th	30 th	50 th	75 th	90 th
MW	69	83	98	104	113	119	139	164	190
NE	63	86	100	109	118	123	144	167	192
SE	84	101	107	116	122	132	146	171	194
W	74	94	106	116	122	127	148	174	200
Median		90			120		145	169	193

Students	5 th	10 th	15 th	20 th	25 th	30 th	50 th	75 th	90 th
White Females	77	97	106	116	121	126	149	181	209
White Males	57	83	97	104	111	120	145	173	192
Non White Females	71	89	102	108	114	119	140	166	193
Non White Males	55	74	88	96	102	105	124	151	175
Median		86			113		143	170	193

Means and Standard Deviations

Region	N	Ave	SD
MW	500	137.7	40.8
NE	500	140.4	43.6
SE	500	145.7	38.4
W	500	145.7	41.7

Students	N	Ave	SD
White Females	500	149.7	46.2
White Males	500	140.3	45.1
Non White Females	500	140.5	41.1
Non White Males	500	124.3	40.4

DISCLAIMER!

- **TWO** sets of norms
- IPRs = system
- District = planning



<http://nutricaoodofuturo.wordpress.com/2012/09/23/enxaqueca-a-cura-existe-e-so-depends-de-voce/>

To Help Navigate 170 Pages....

Passage Reading Fluency

	Grade 1			Grade 2			Grade 3		
Percentile	Fall	Winter	Spring	Fall	Winter	Spring	Fall	Winter	Spring
10th	*	10	20	26	32	45	47	72	64
25th	*	16	37	41	57	73	68	92	89
50th	*	32	60	64	83	102	87	117	116
75th	*	69	95	89	108	129	112	150	144
90th	*	107	124	116	128	156	138	172	174

*Not normed in this cycle

	Grade 4			Grade 5			Grade 6		
Percentile	Fall	Winter	Spring	Fall	Winter	Spring	Fall	Winter	Spring
10th	69	85	87	90	97	115	92	94	102
25th	87	112	112	120	123	137	114	128	132
50th	107	138	138	145	150	166	139	156	165
75th	132	159	167	169	176	193	164	183	198
90th	156	181	193	193	204	212	189	209	222

	Grade 7			Grade 8		
Percentile	Fall	Winter	Spring	Fall	Winter	Spring
10th	110	109	103	118	107	109
25th	127	137	135	140	127	130
50th	150	166	163	167	157	160
75th	174	193	190	194	186	184
90th	200	219	213	219	211	207

Fall Grade 5 Passage Reading Fluency

Random Sample by Region

Region	5th	10th	15th	20th	25th	30th	50th	75th	90th
MW	69	83	98	104	113	119	139	164	190
NE	63	86	100	109	118	123	144	167	192
SE	84	101	107	116	122	132	146	171	194
W	74	94	106	116	122	127	148	174	200
MEDIAN		90			120		145	169	193

By Region

Region	N	Mean	SD
MW	500	137.7	40.8
NE	500	140.4	43.6
SE	500	145.7	38.4
W	500	145.7	41.7

By Gender and Ethnicity-Race

Students	N	Mean	SD
White Females	500	149.7	46.2
White Males	500	140.3	45.1
Non White Females	500	140.5	41.1
Non White Males	500	124.3	40.4

Random Sample by Gender and Ethnicity-Race

Students	5th	10th	15th	20th	25th	30th	50th	75th	90th
White Females	77	97	106	116	121	126	149	181	209
White Males	57	83	97	104	111	120	145	173	192
Non White Females	71	89	102	108	114	119	140	166	193
Non White Males	55	74	88	96	102	105	124	151	175
MEDIAN		86			113		143	170	193

Score	Percentile	Score	Percentile	Score	Percentile	Score	Percentile	Score	Percentile
3	0	11	21	11	15	36	2	87	9
4	1	12	27	12	19	37	2	88	9
5	2	13	35	13	24	38	2	89	9
6	3	14	46	14	32	39	2	90	9
7	6	15	58	15	44	40	2	91	10
8	10	16	71	16	61	41	2	92	10
9	15	17	84	17	78	42	2	93	10
10	21	18	94	18	92	43	2	94	11
11	27	19	98	19	98	44	2	95	11
12	37	20	99	20	99	45	2	96	11
13	46	5, winter mcrc Multiple Choice Reading Comprehension	5, fall prf Passage Reading Fluency	46	2	97	12		
14	58			47	2	98	12		
15	73			48	2	99	12		
16	89			49	2	100	13		
5, spring math_numopalg Math Progress Monitoring				50	2	101	13		
0	0	0	0	51	3	102	14		
1	0	1	0	52	3	103	14		
2	0	2	1	53	3	104	16		
3	0	3	1	54	3	105	17		
4	1	4	1	55	3	106	17		
5	1	5	2	56	3	107	18		
6	2	6	3	57	3	108	19		
7	4	7	4	58	3	109	19		
8	7	8	6	59	3	110	20		
9	10	9	8	60	3	111	20		
10	14	10	11	61	3	112	21		
11	19	11	14	62	3	113	21		
12	24	12	17	63	3	114	22		
13	30	13	21	64	3	115	22		
14	38	14	27	65	4	116	23		
15	50	15	33	66	4	117	24		
16	72	16	41	67	4	118	25		
5, fall mcrc Multiple Choice Reading Comprehension	5, spring mcrc Multiple Choice Reading Comprehension	17	51	68	4	119	26		
		18	65	69	4	120	28		
		19	81	70	4	121	28		
		20	95	71	5	122	29		
		21	1	72	5	123	29		
0	0	0	0	22	1	73	5	124	30
1	1	1	1	23	1	74	5	125	31
2	1	2	1	24	1	75	6	126	32
3	1	3	1	25	1	76	6	127	33
4	2	4	1	26	1	77	6	128	34
5	3	5	1	27	1	78	6	129	35
6	4	6	3	28	1	79	7	130	37
7	6	7	4	29	1	80	7	131	38
8	10	8	7	30	1	81	7	132	38
9	13	9	9	31	2	82	7	133	39
10	17	10	12	32	2	83	7	134	40
				33	2	84	8	135	41
				34	2	85	8	136	41
				35	2	86	8	137	42

For More Information

<http://www.brtprojects.org>

#1409 #1408



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[Publications](#)

[BRT Labs](#)

[Contact](#)

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.

2014

- ➡ Saven, J. L., Tindal, G., Irvin, P. S., Farley, D., Alonzo, J. (2014). easyCBM Norms 2014 Edition. (Technical Report No. 1409). Eugene, OR: Behavioral Research and Teaching, University of Oregon.

 [\(Click to Download PDF Document\)](#)

- ➡ Anderson, D., Alonzo, J., Tindal, G., Farley, D., Irvin, P. S., Lai, C. F., Saven, J. L., Wray, K. A. (2014). Technical Manual: easyCBM (Technical Report No. 1408). Eugene, OR: Behavioral Research and Teaching, University of Oregon.

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[Archives](#)

BRT Research Partnerships

➡ [For Districts](#)

➡ [For Teachers](#)

Growth in easyCBM

- PRF WITHIN all grades
- PRF ACROSS all grades
- PRF within GRADE 4
- LSF Kindergarten Growth

Growth in easyCBM

Joe Nese

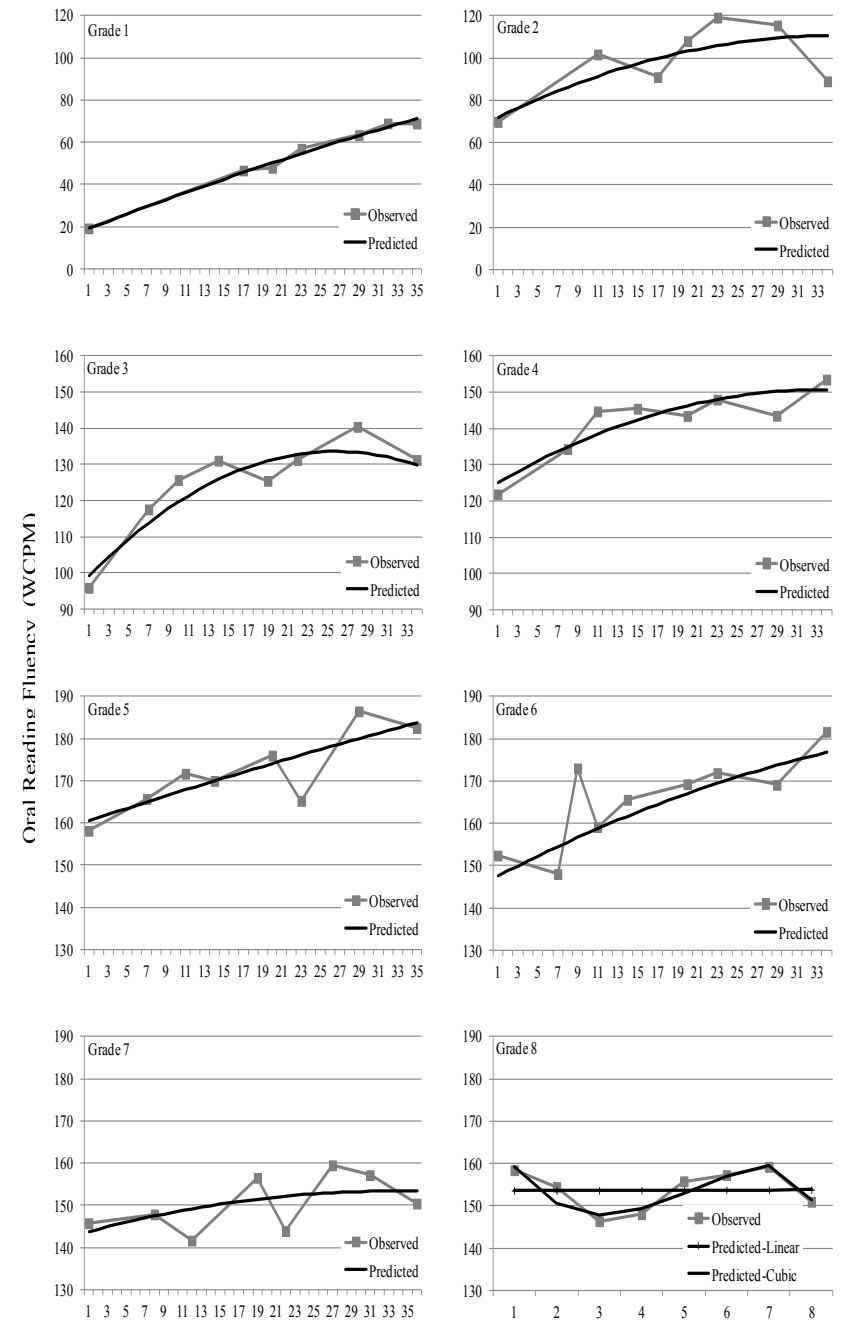
PRF WITHIN all Grades

- In Search Of Average Growth: Describing Within-year Oral Reading Fluency Growth For Grades 1-8
 - Nese, Biancarosa, Cummings, Kennedy, Alonzo, Tindal
 - Journal of School Psychology, 2013

PRF WITHIN all Grades

- Rates of growth in research and aim lines in practice are used to characterize student growth; in either case, growth is generally defined as linear, increasing at a constant rate over time.
- Linearity assumption may be inaccurate.
- We examined ORF growth within-year for students in Grades 1-8.
 - Other research limited by using only 3 testing occasions.
 - Our sample included Grade 1 to 8 students, drawn from the full range of abilities within each grade level and assessed up to 8 times per year.

- Comparing the trajectories across grades, we found that a decelerating growth curve best described ORF data.
- Grade 8...different.
- On average, across grades, students, actuality experience a natural decrease in growth across the year.
- Why?
 - Many potential reasons:
 - summer effect,
 - state testing at the year end,
 - BUT, we cannot answer that question here.

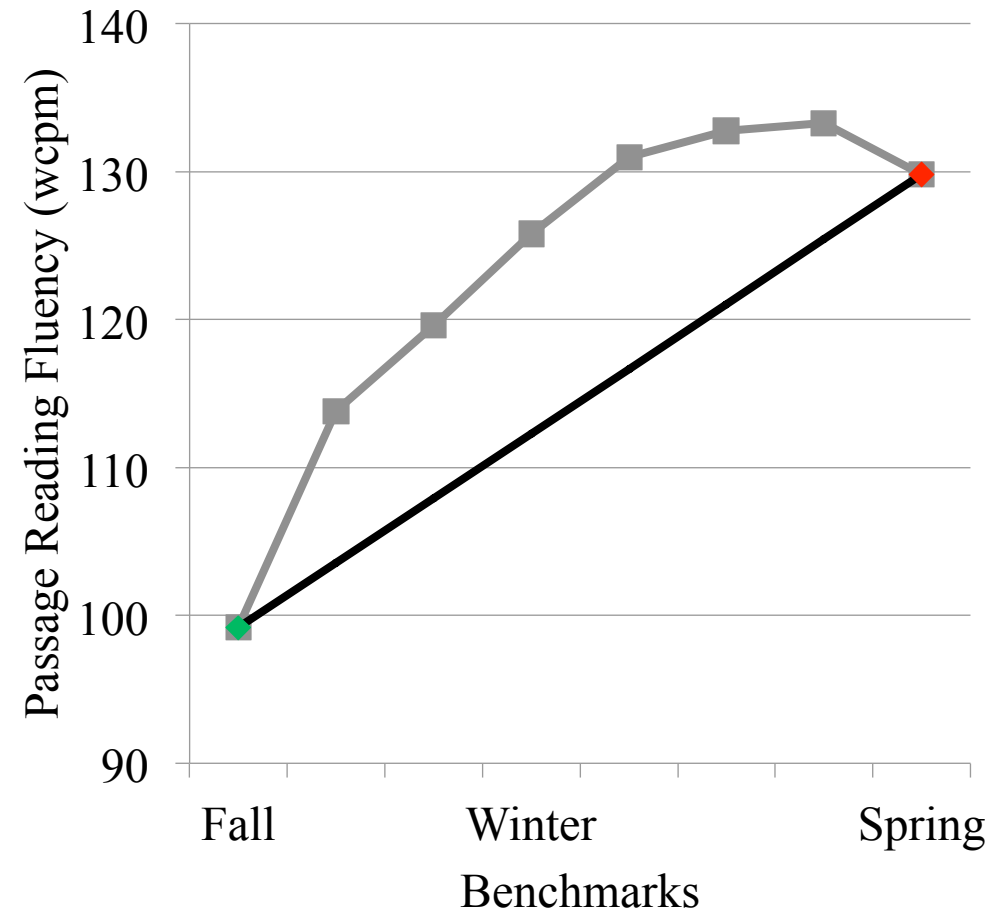


Time (grades 1-7 average weeks, grade 8 months)

PRF WITHIN all Grades

Grade3

- Appropriate instructional planning to reach target.



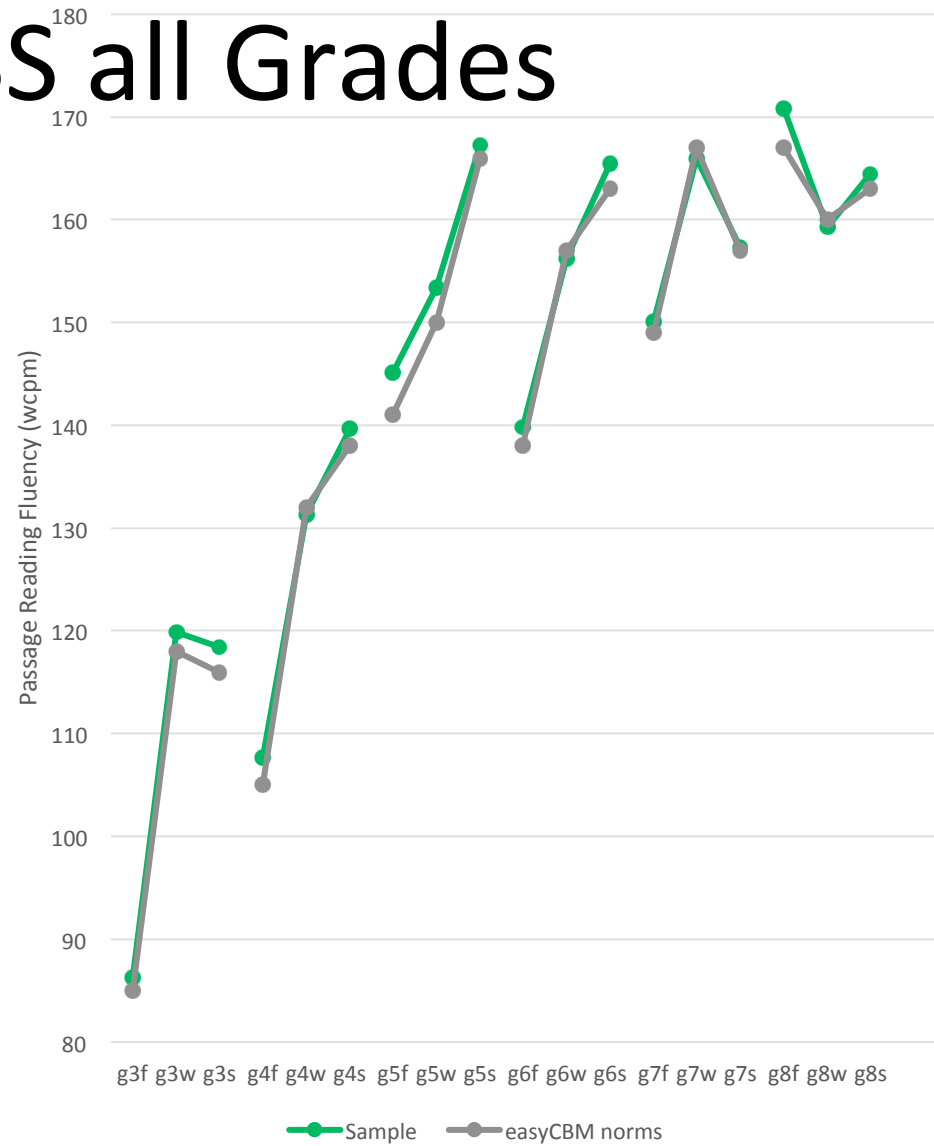
PRF WITHIN all Grades

- Planned study with a partner district
- All students assessed 8 times/year (including benchmarks)

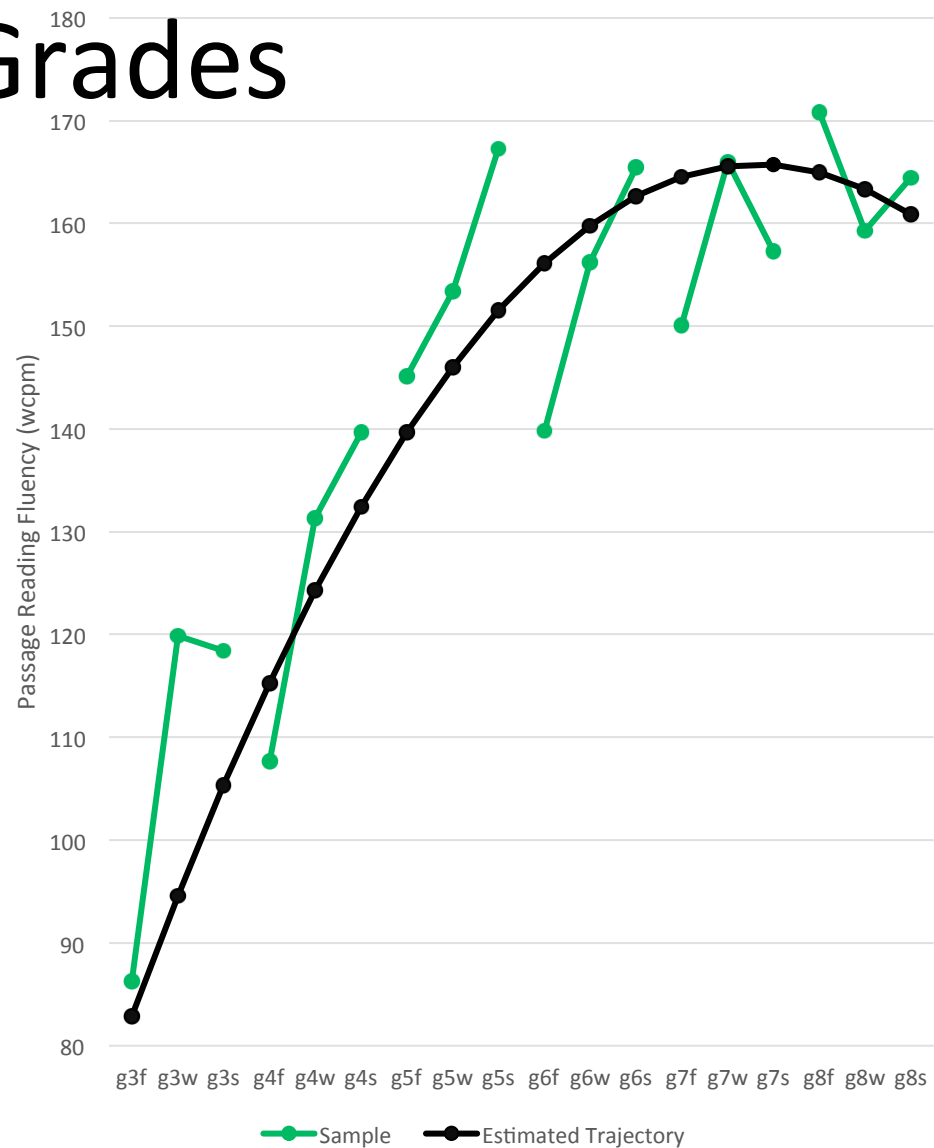
PRF ACROSS all Grades

- Ascending The ORF Slope: Three Methods To Identify Meaningful ORF Plateaus
 - Nese, Alonzo, Sàez, Tindal
- The purpose of this study is to estimate PRF “plateau” that represents the transition from acquisition to mastery for average student.
- Efficient with resources.
- *Note:* One approach of many to answer this question.

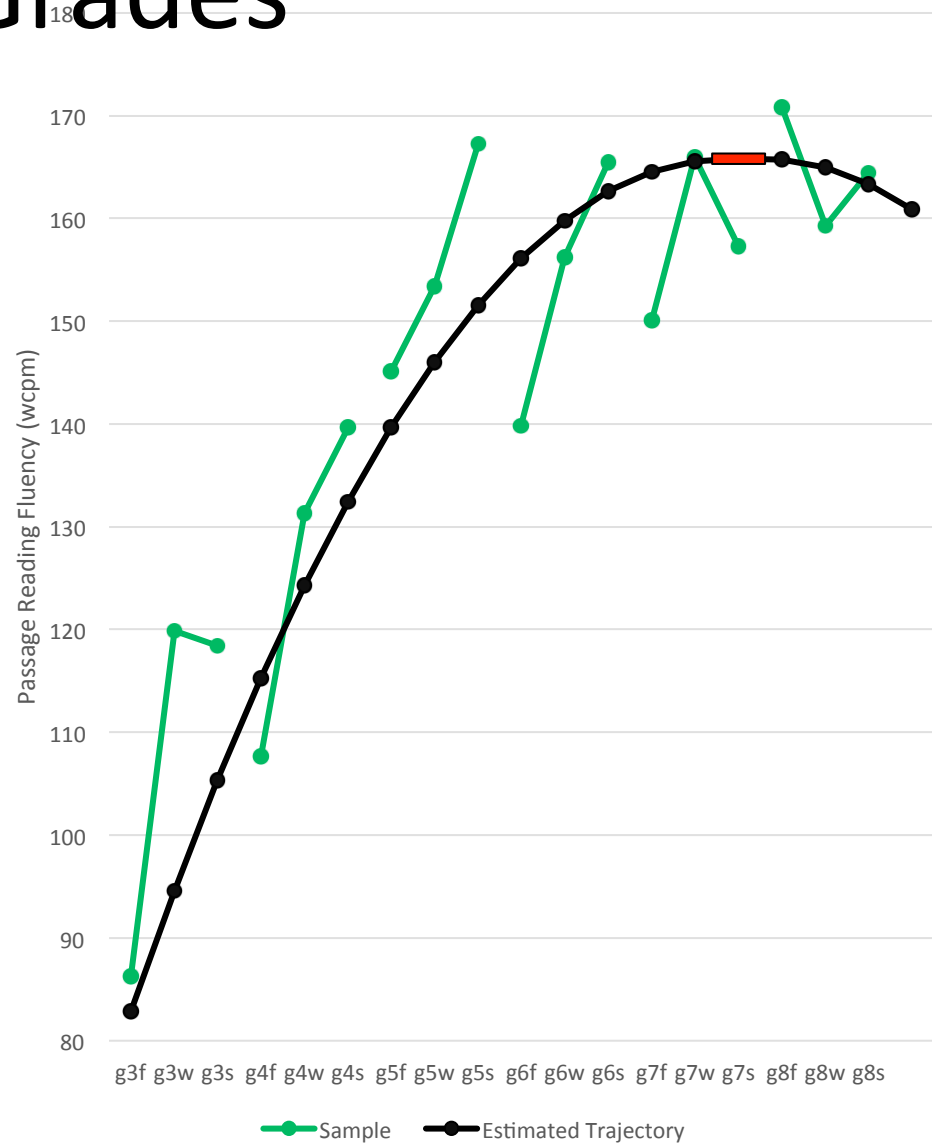
PRF ACROSS all Grades



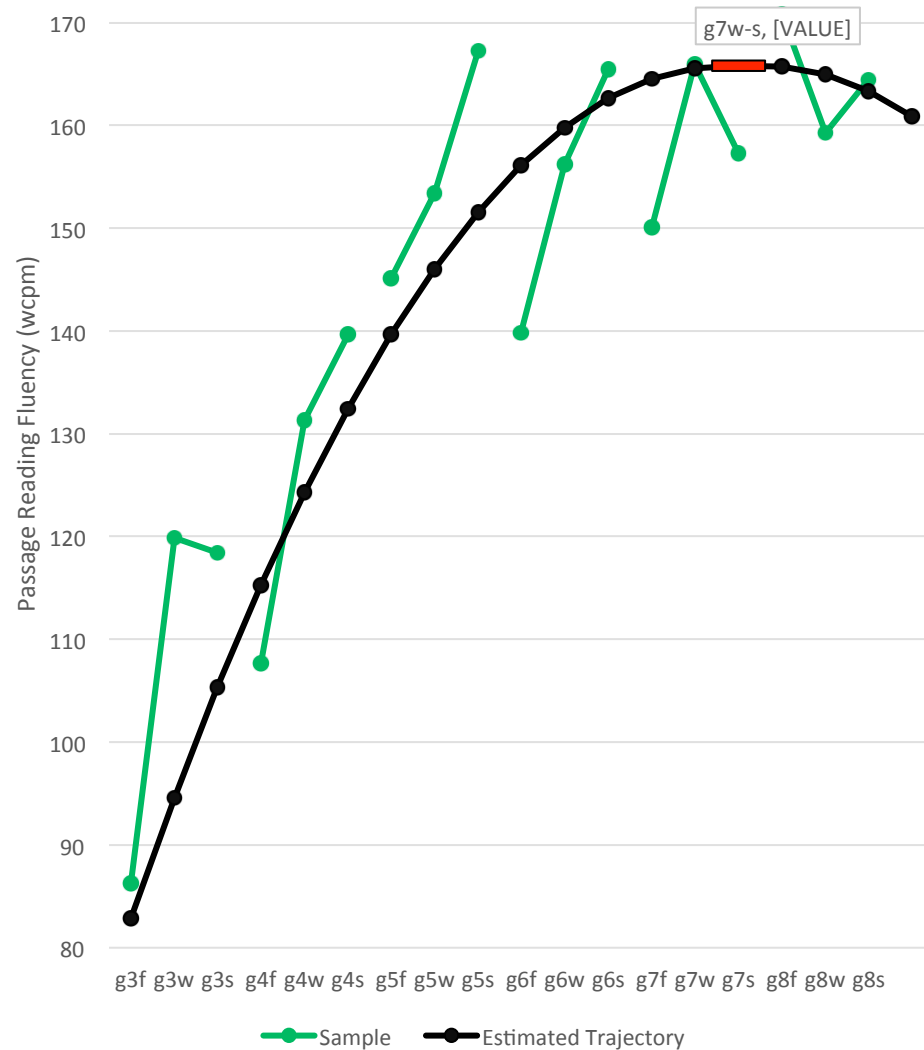
PRF ACROSS all Grades



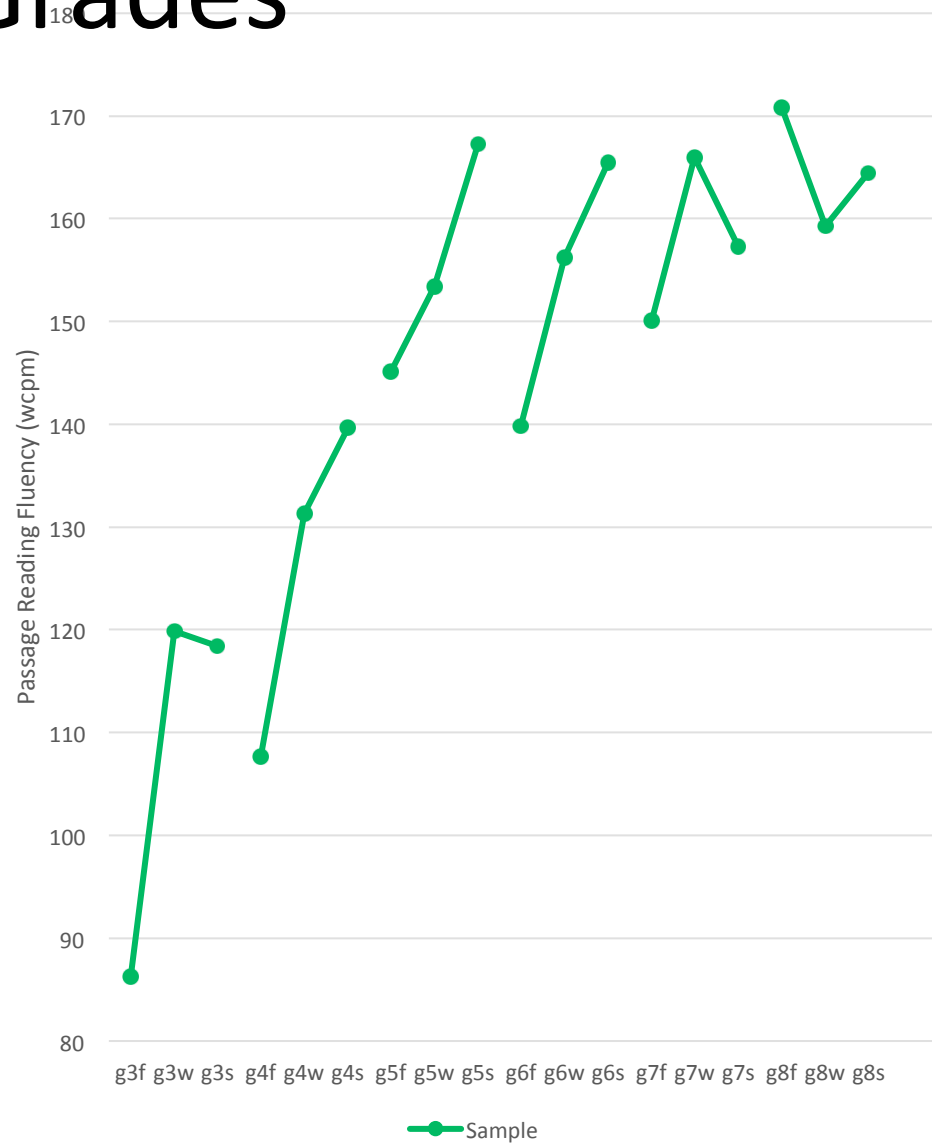
PRF ACROSS all Grades



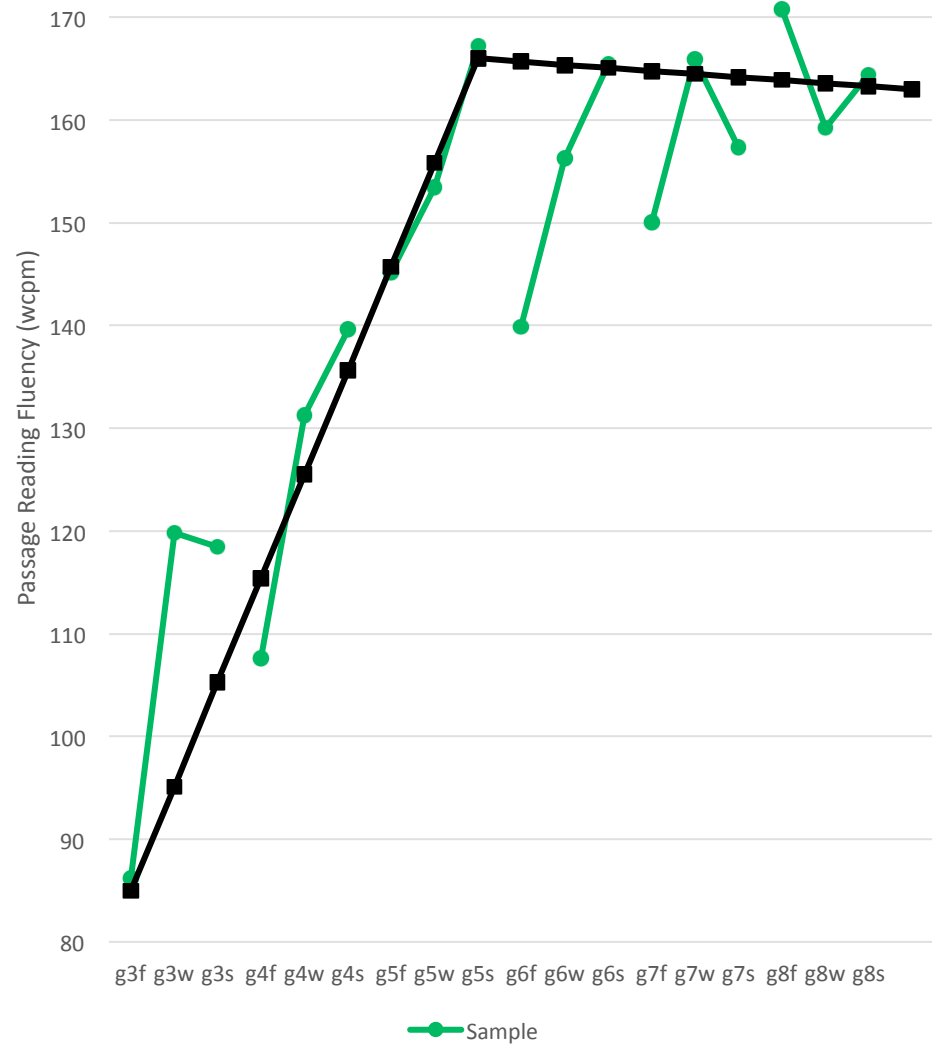
PRF ACROSS all Grades



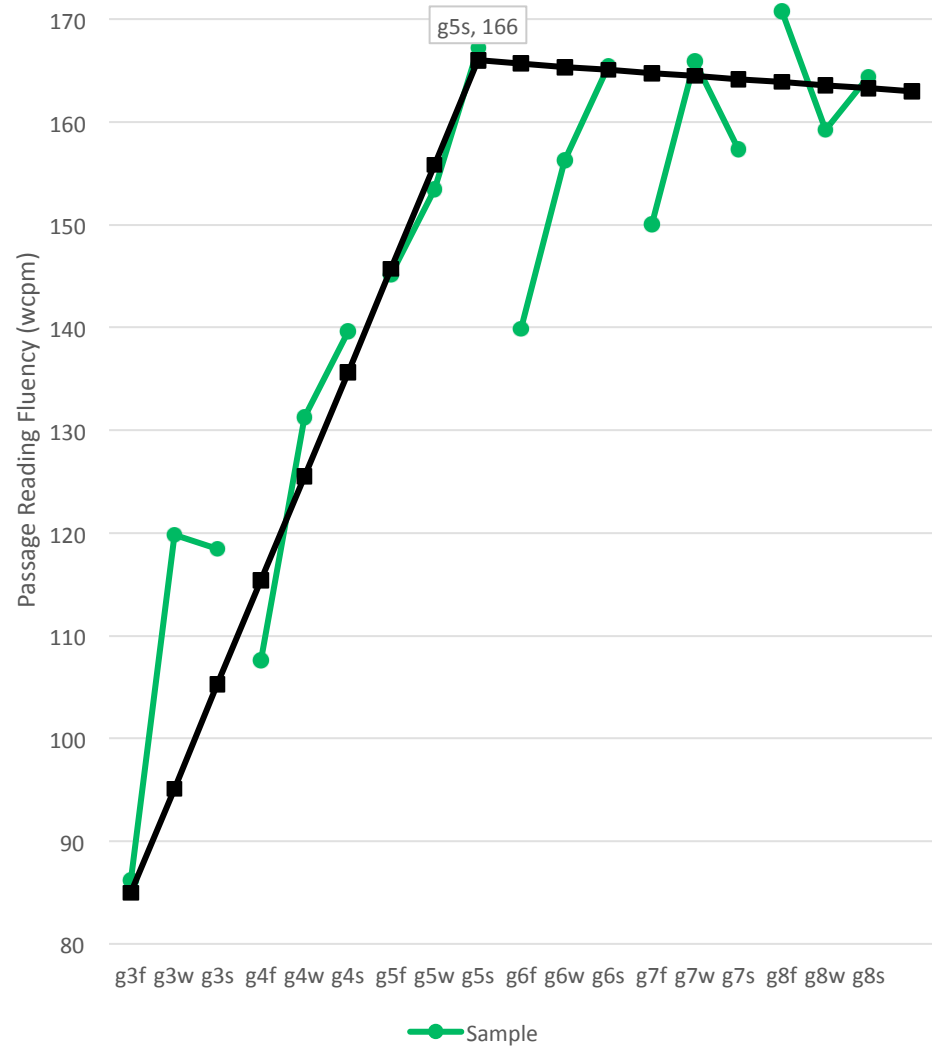
PRF ACROSS all Grades



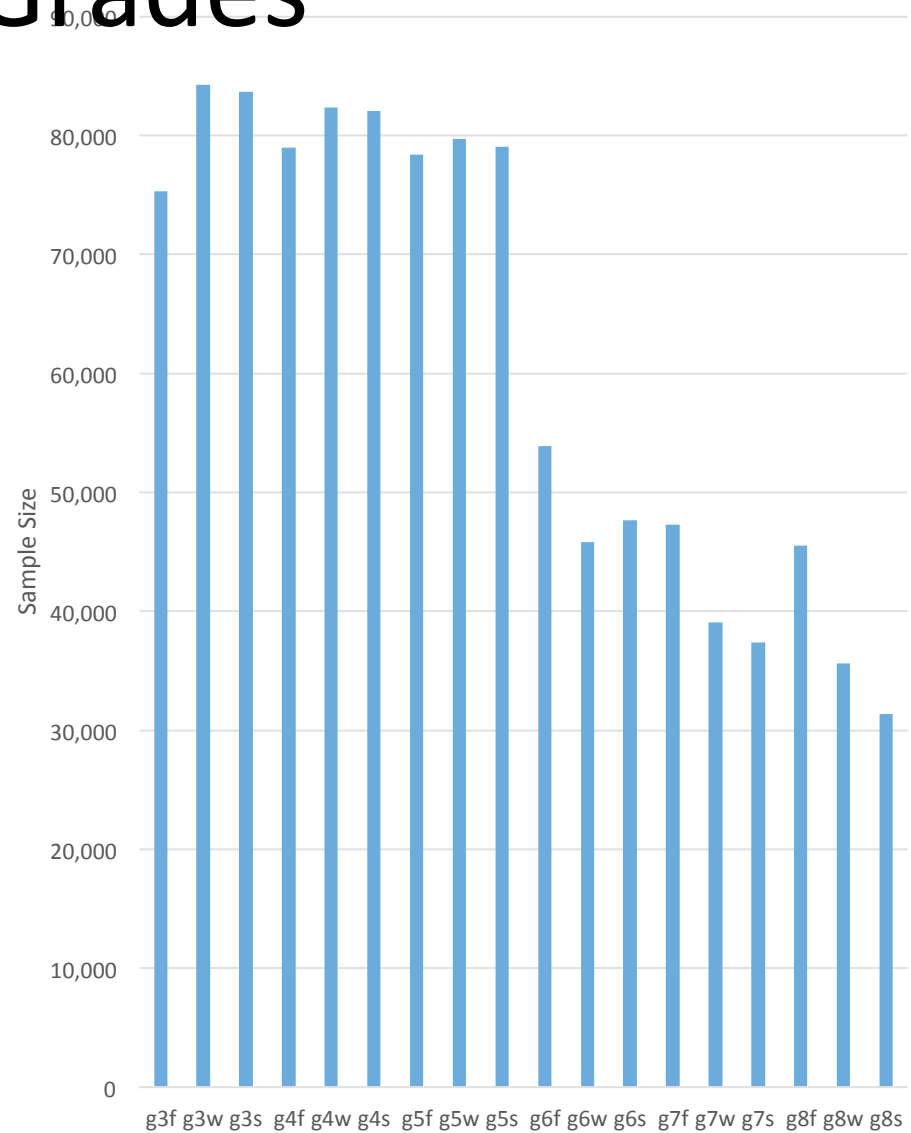
PRF ACROSS all Grades



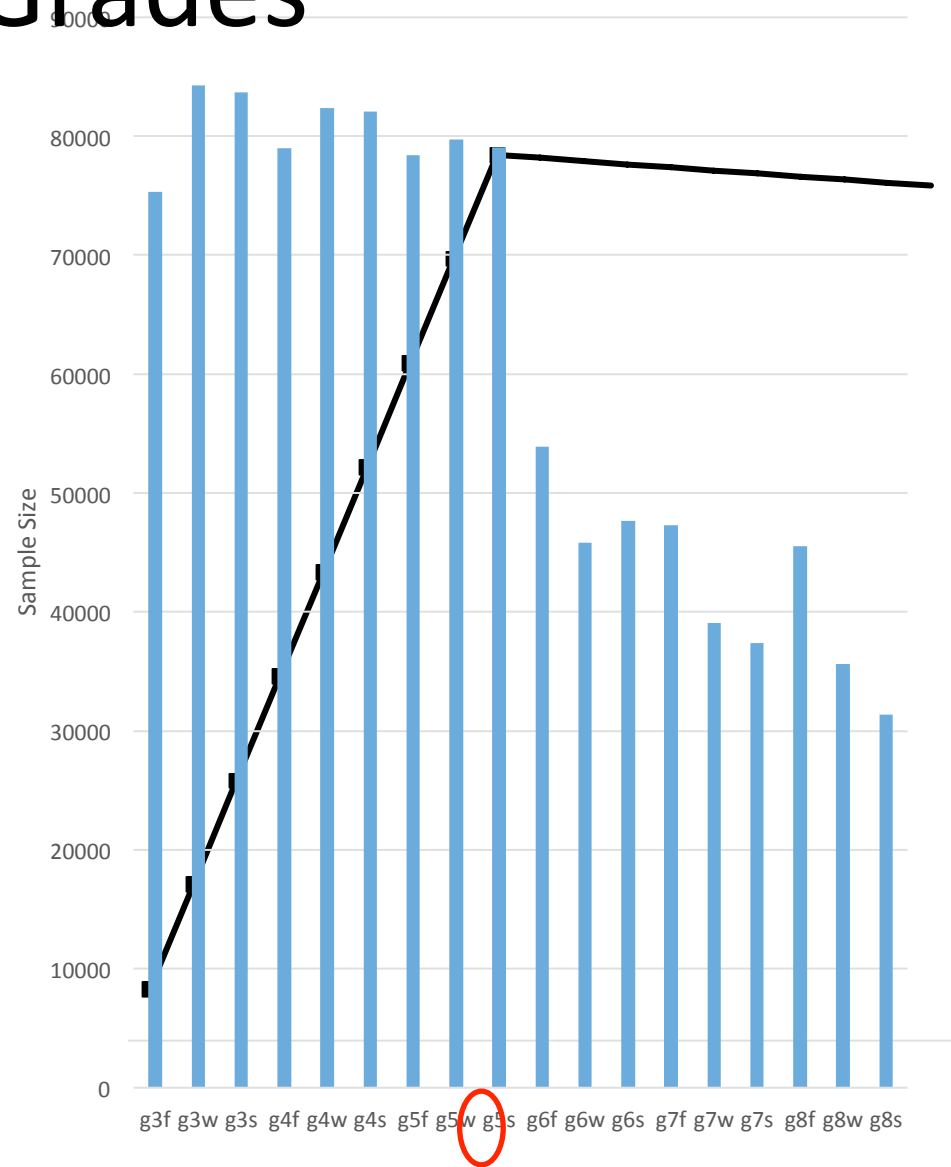
PRF ACROSS all Grades



PRF ACROSS all Grades



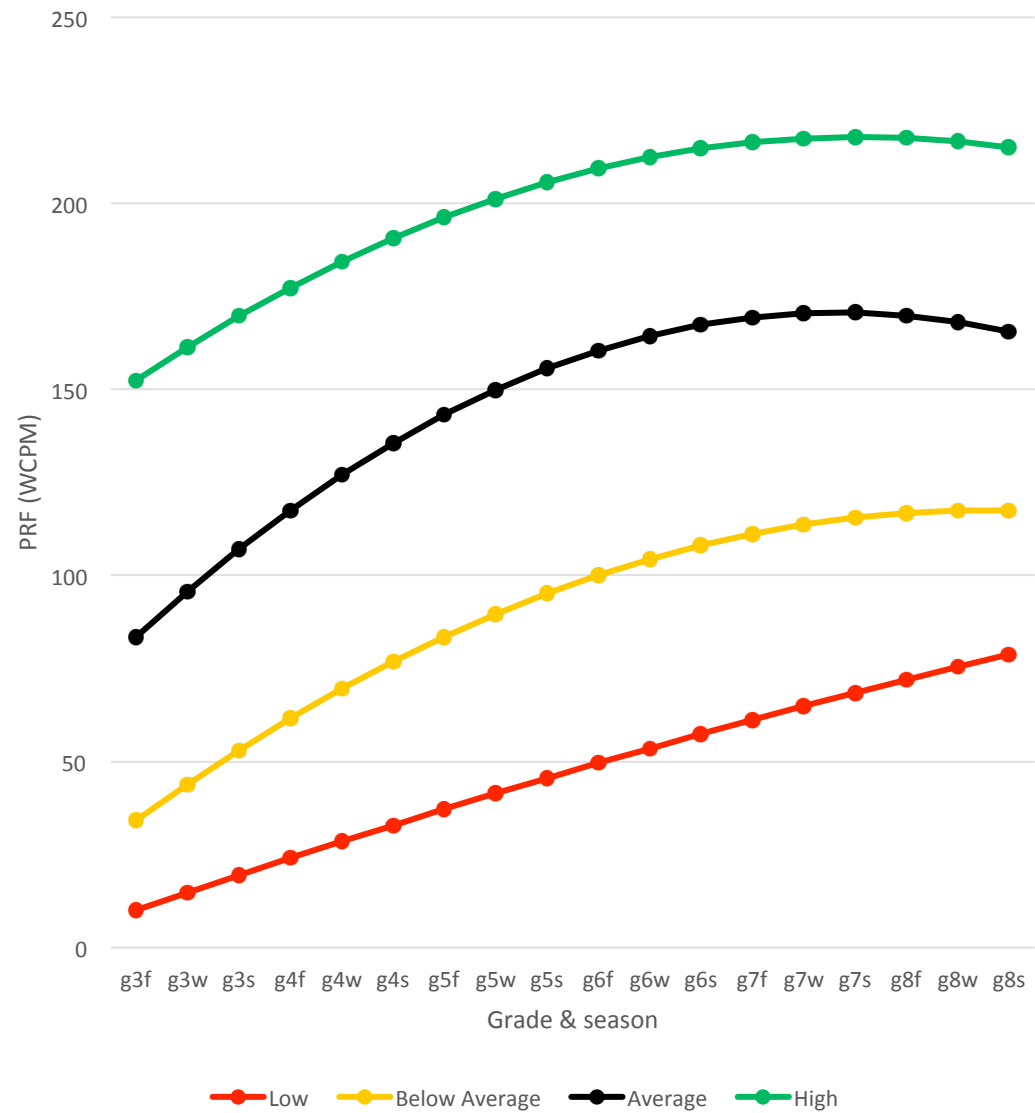
PRF ACROSS all Grades



PRF ACROSS all Grades

- Based on archived data.
- Limited findings.

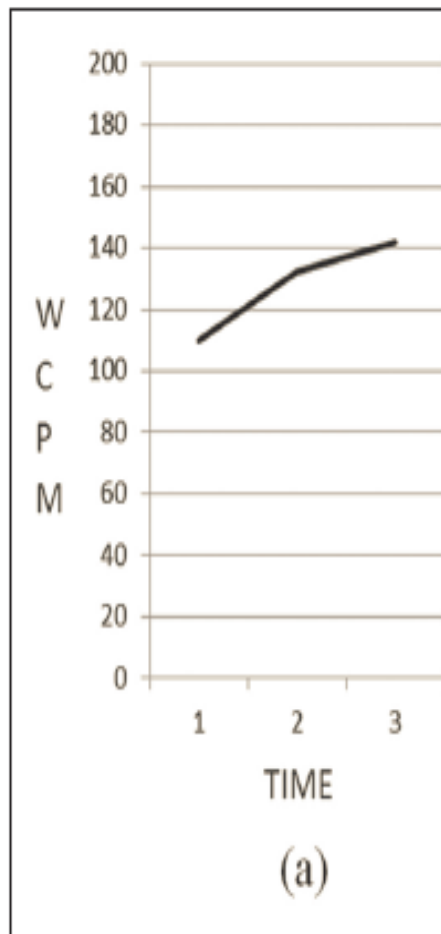
PRF ACROSS all Grades



PRF Within GRADE 4

- Modeling Nonlinear Growth With Three Data Points : Illustration With Benchmarking Data
 - Kamata, Nese, Patarapichayatham, Lai
 - *Assessment for Effective Intervention; **Article of the Year, 2013***
- The purpose of this article was to demonstrate ways to model nonlinear growth using three testing occasions: fall, winter, and spring passage reading fluency benchmark assessments.
- 2,100 Grade 4 students.
- Unobserved classes of students.

PRF Within GRADE 4



— Class 1
(average)

Class 1 represented the majority of the sample, or the “average” students, those demonstrating an average fall score (around the 46th percentile) and greater growth in the fall than spring which could be interpreted as average Grade 4 PRF trajectory.

Figure 3. Estimated growth patterns for 1-class PGM and 2-class and 3-class piecewise growth mixture models (PGMM).

PRF Within GRADE 4

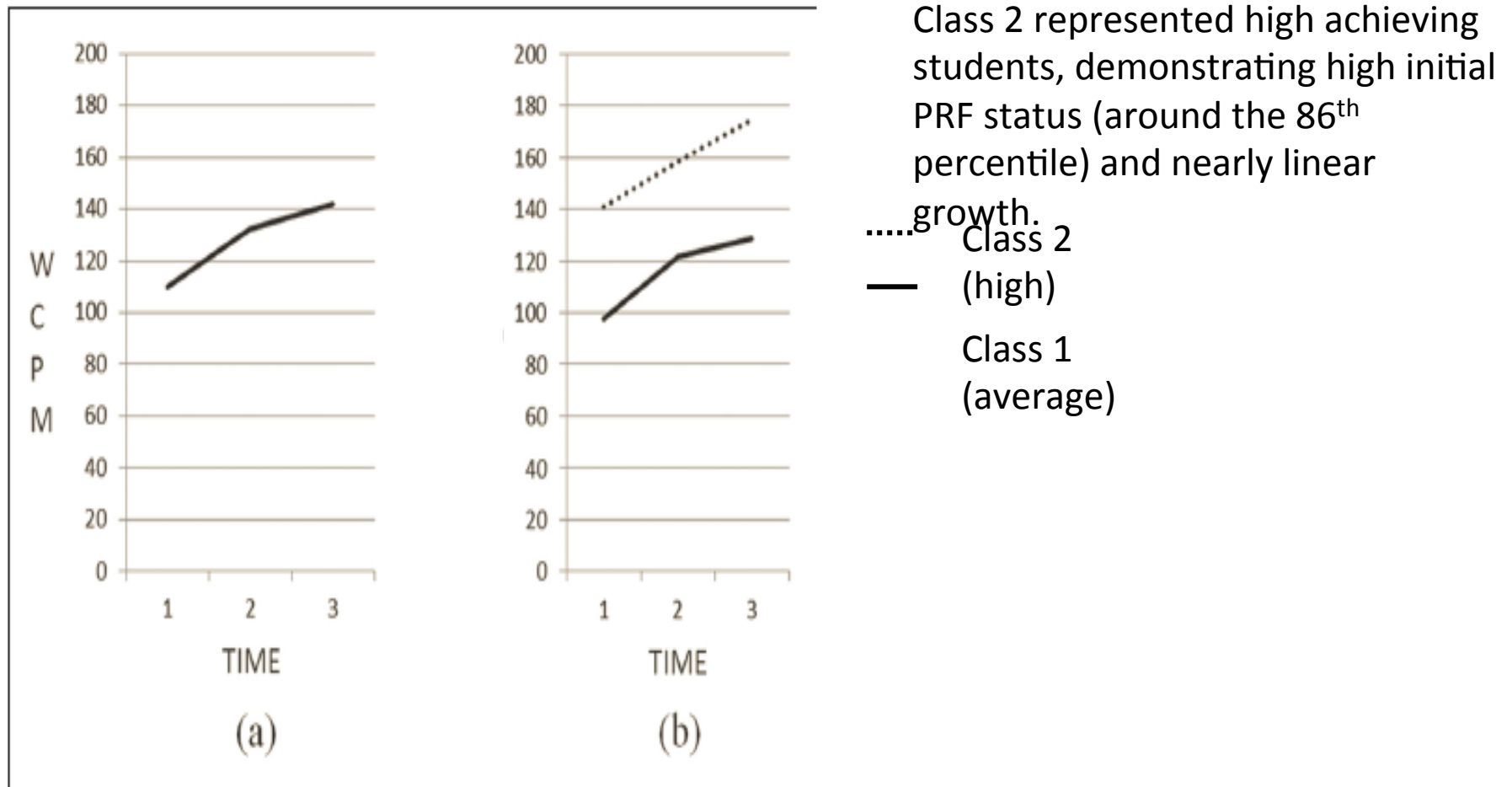


Figure 3. Estimated growth patterns for 1-class PGM and 2-class and 3-class piecewise growth mixture models (PGMM).

PRF Within G

Class 3 represented students at risk of poor learning outcomes, demonstrating a very low mean initial PRF status (around the 7th percentile), and a lower growth trajectory than the other classes.

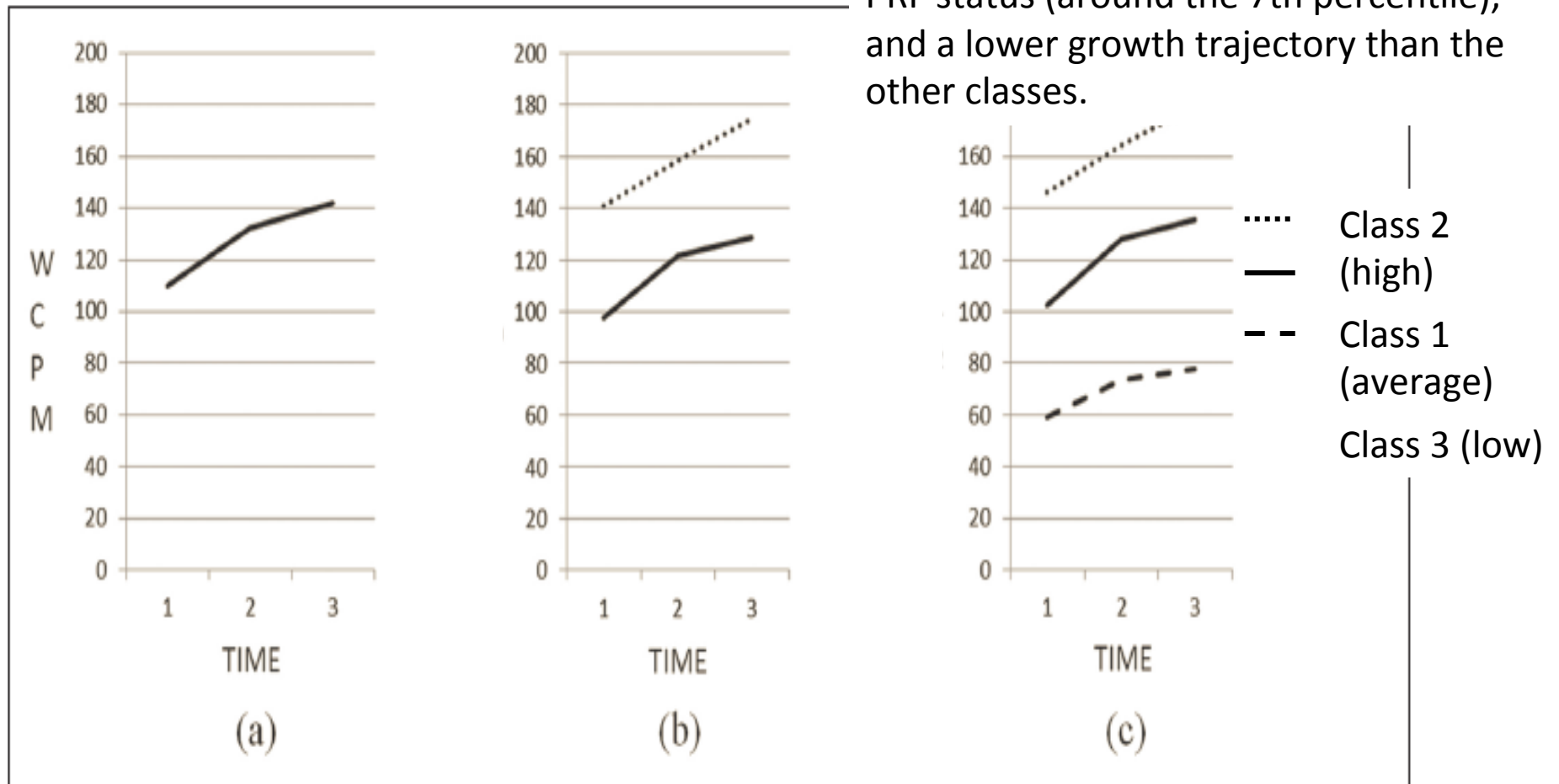


Figure 3. Estimated growth patterns for 1-class PGM and 2-class and 3-class piecewise growth mixture models (PGMM).

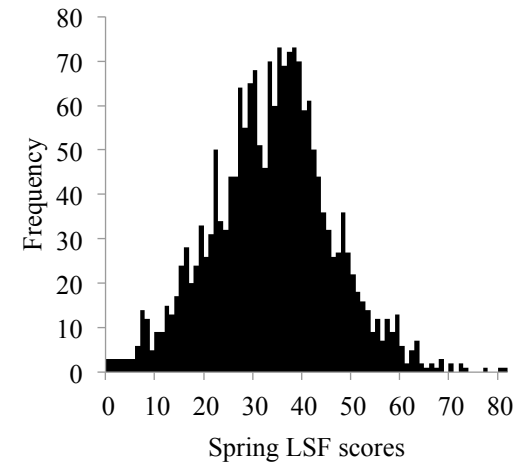
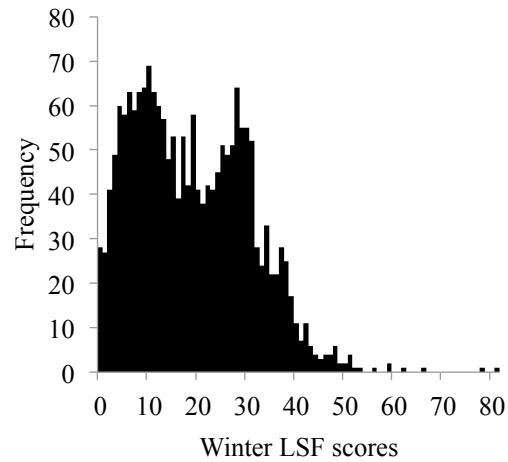
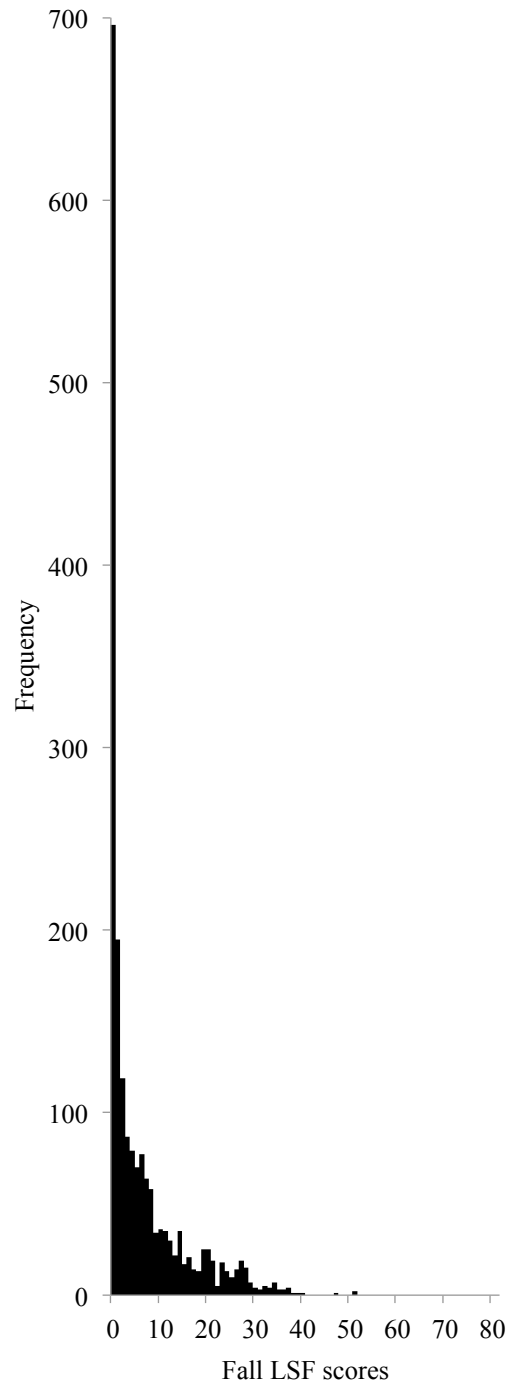
PRF Within GRADE 4

- These findings may have implications for local response to intervention (RTI) policies, including the generation of adequate expectations for growth using progress monitoring tools.

LSF Kindergarten Growth

- A Two-Step Growth Mixture Modeling Approach for Emergent and Developing Skills with Distributional Changes Over Time
 - Nese, Kamata
- Currently an increased interest by policy-makers, educators, and researchers in assessing kindergarten entry skills to understand:
 - proficiency upon entry,
 - risk,
 - disparities among student groups, and
 - growth over time.
- Extension of the unobserved classes approach to a specific issue in practice and data.

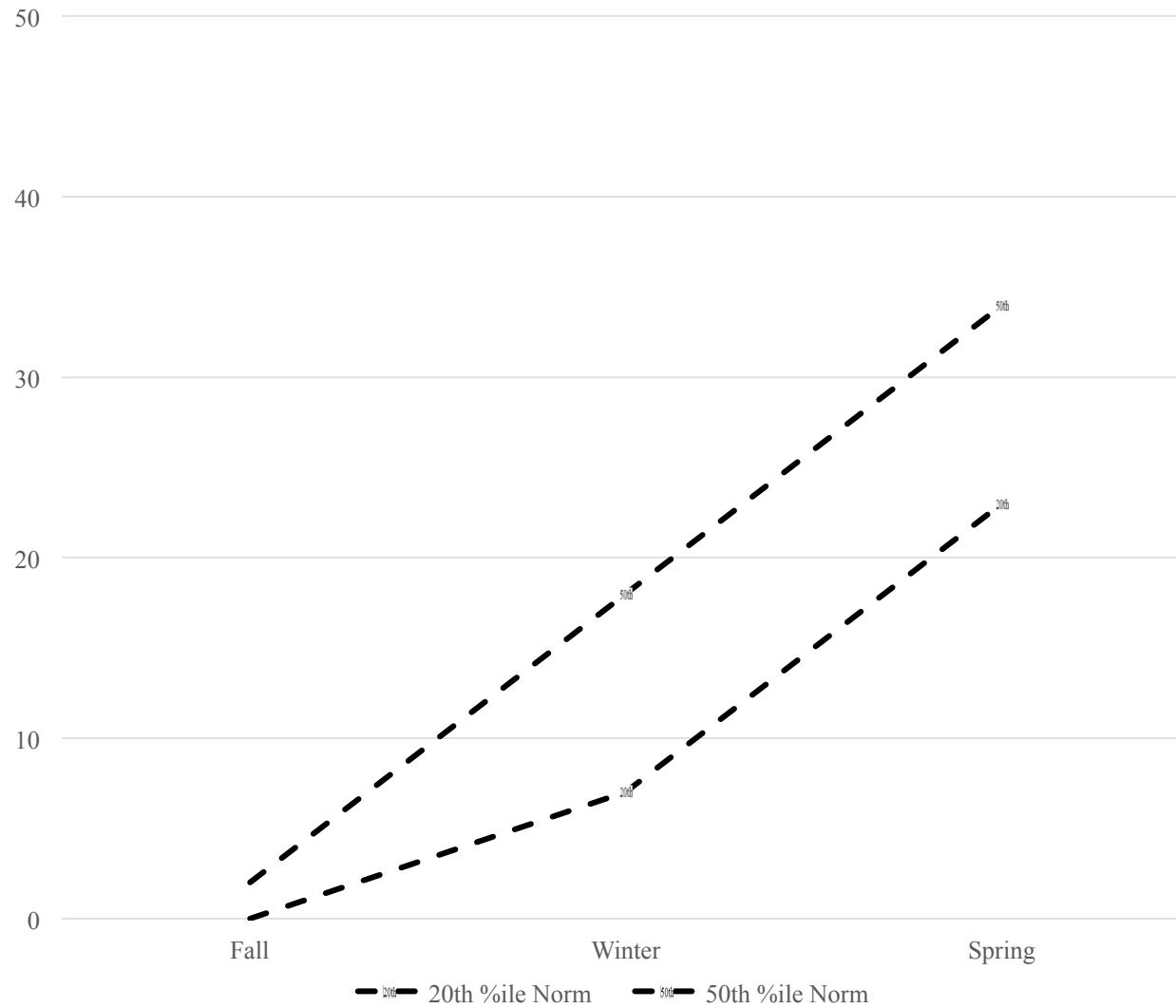
LSF Kindergarten Growth



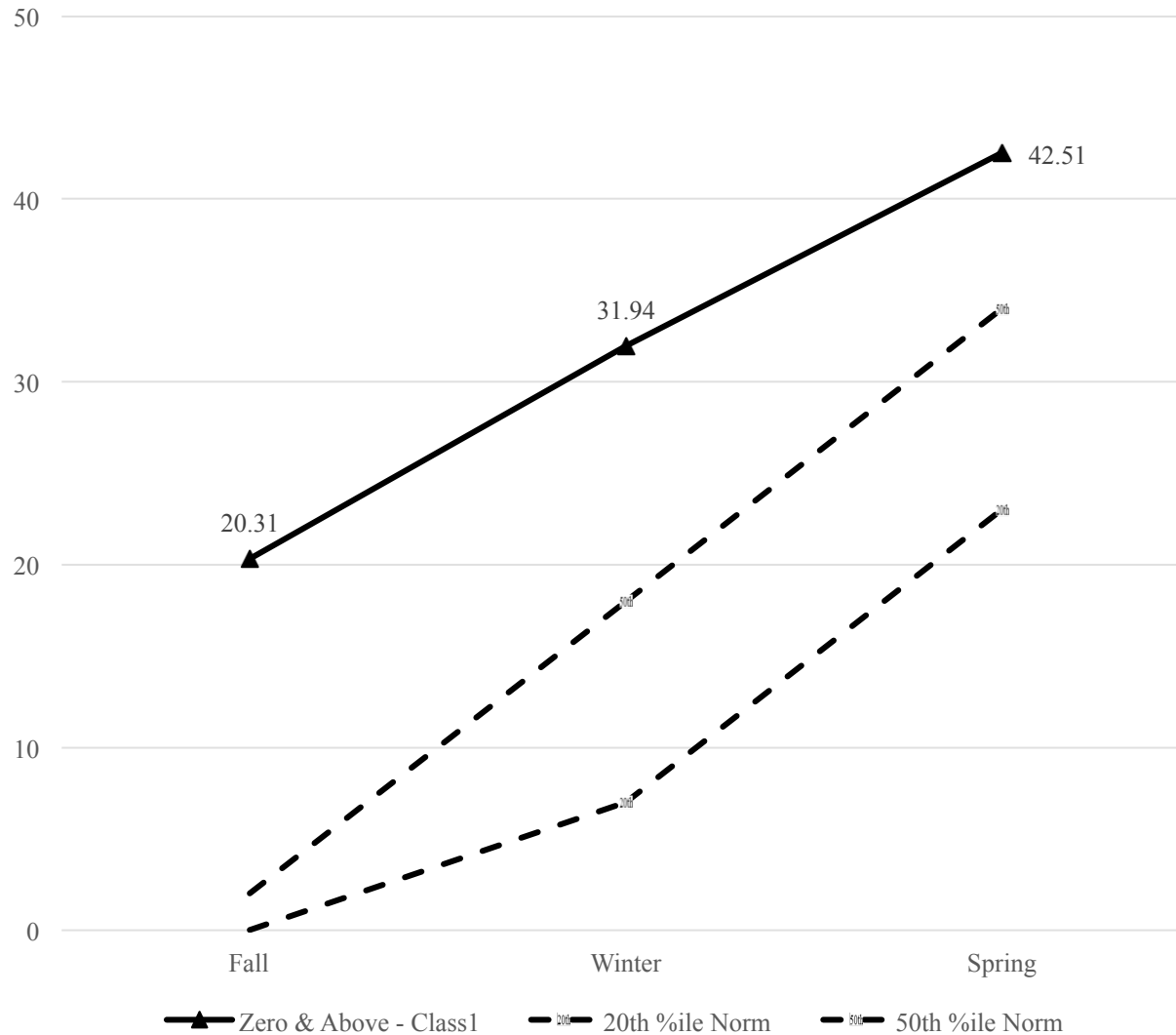
LSF Kindergarten Growth

- This trend is not interesting in itself.
- Rather, the great potential lies in the method of distinguishing between students whom begin at zero and make meaningful gains and students whom begin at zero and do not.
- The value lies in demarcating these groups before the skill disparity between them becomes readily evident.
- 6 classes discussed.

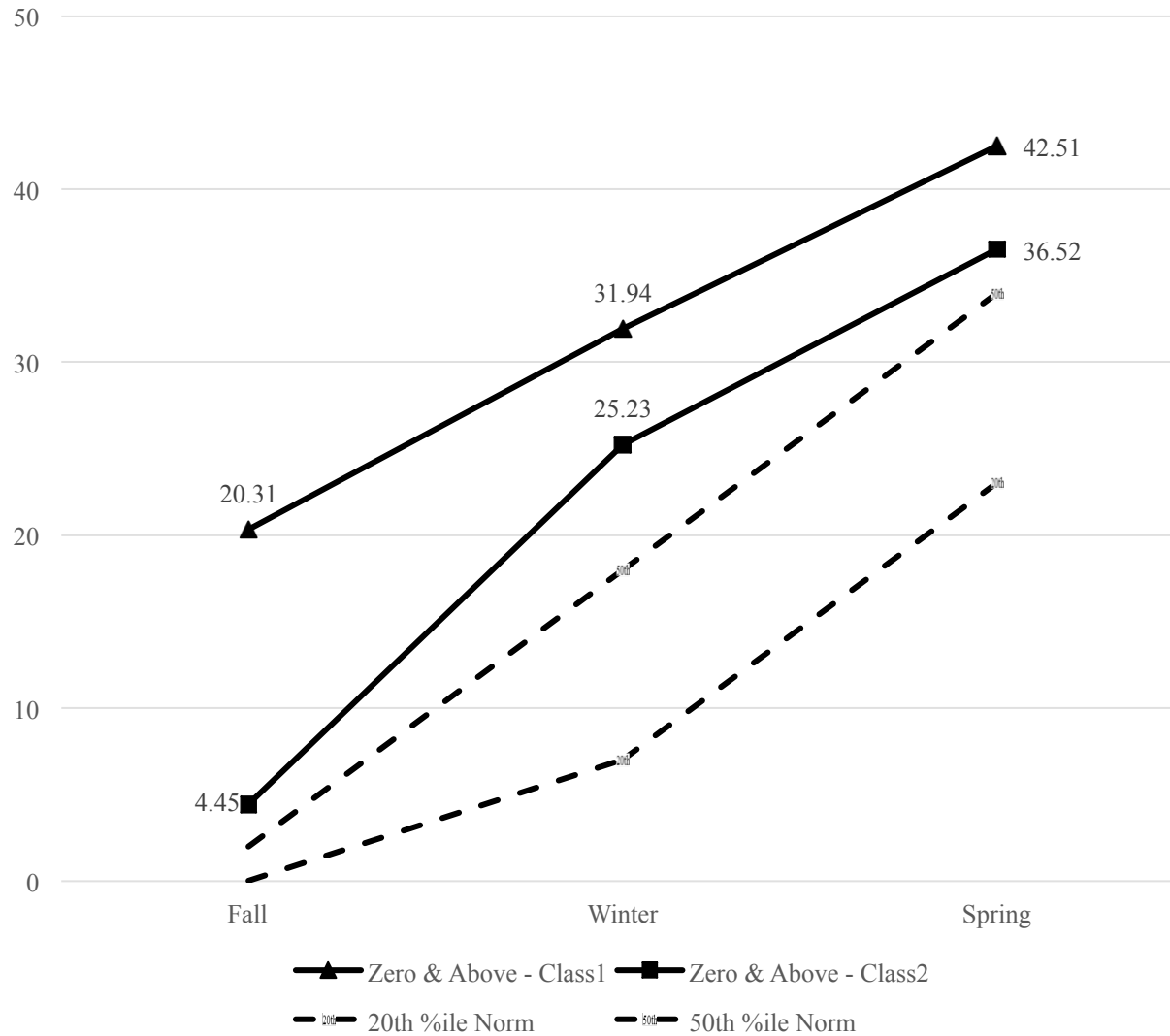
LSF Kindergarten Growth



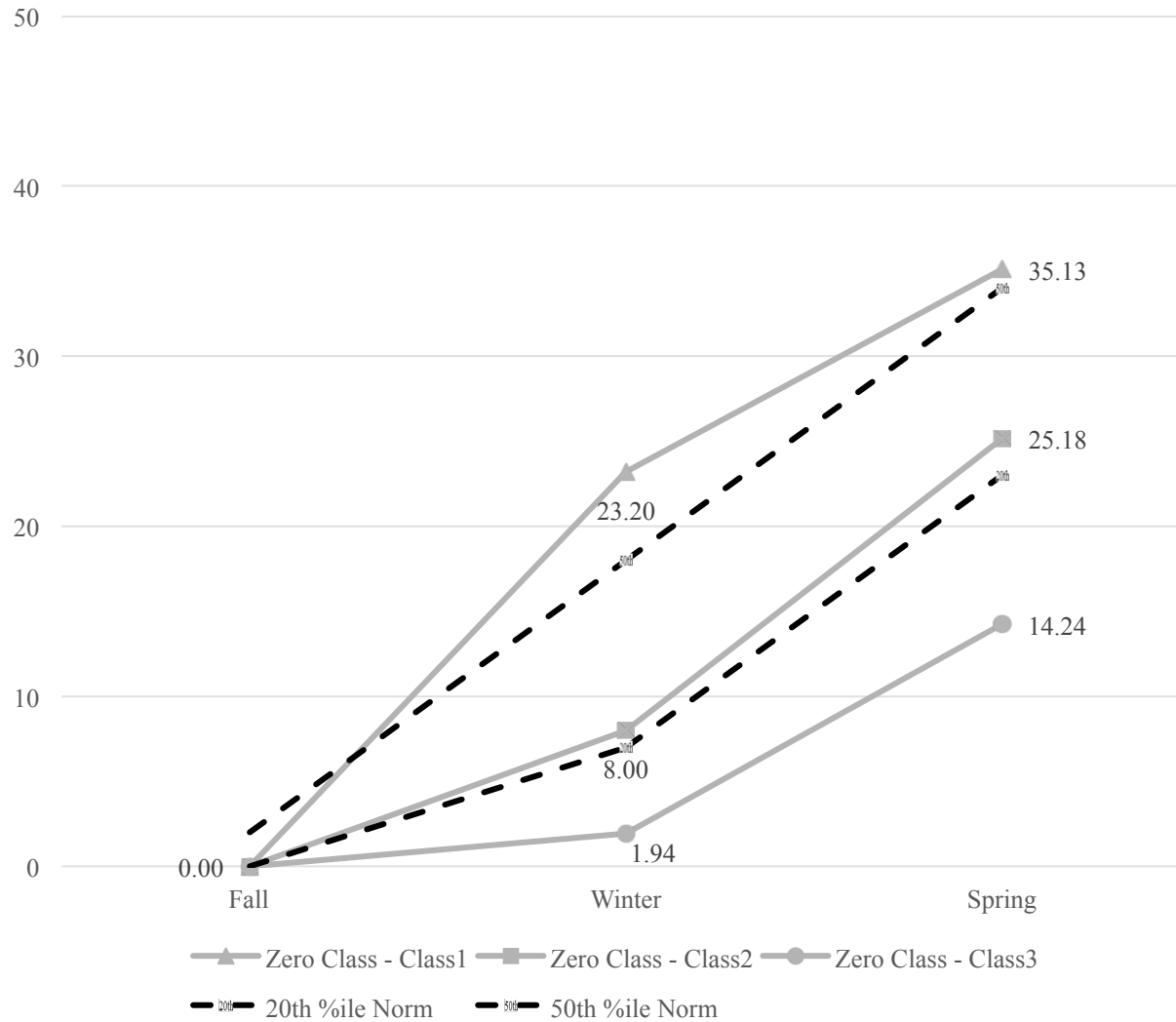
LSF Kindergarten Growth



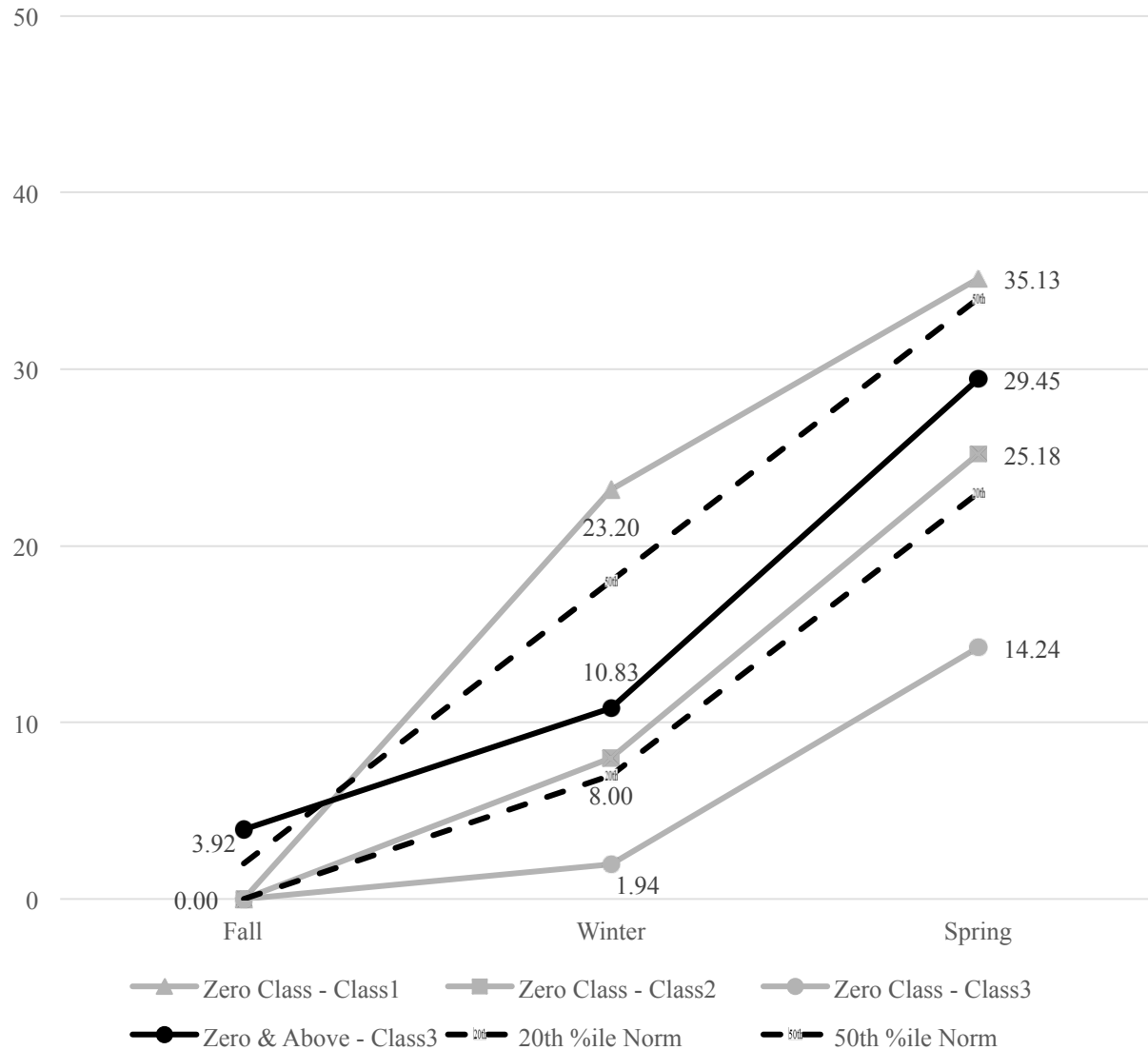
LSF Kindergarten Growth



LSF Kindergarten Growth



LSF Kindergarten Growth



LSF Kindergarten Growth

- Statistical and practical problems we address.
- Identification of these students for intervention.

easyCBM Beginning Reading & Interventions

Leilani Sáez

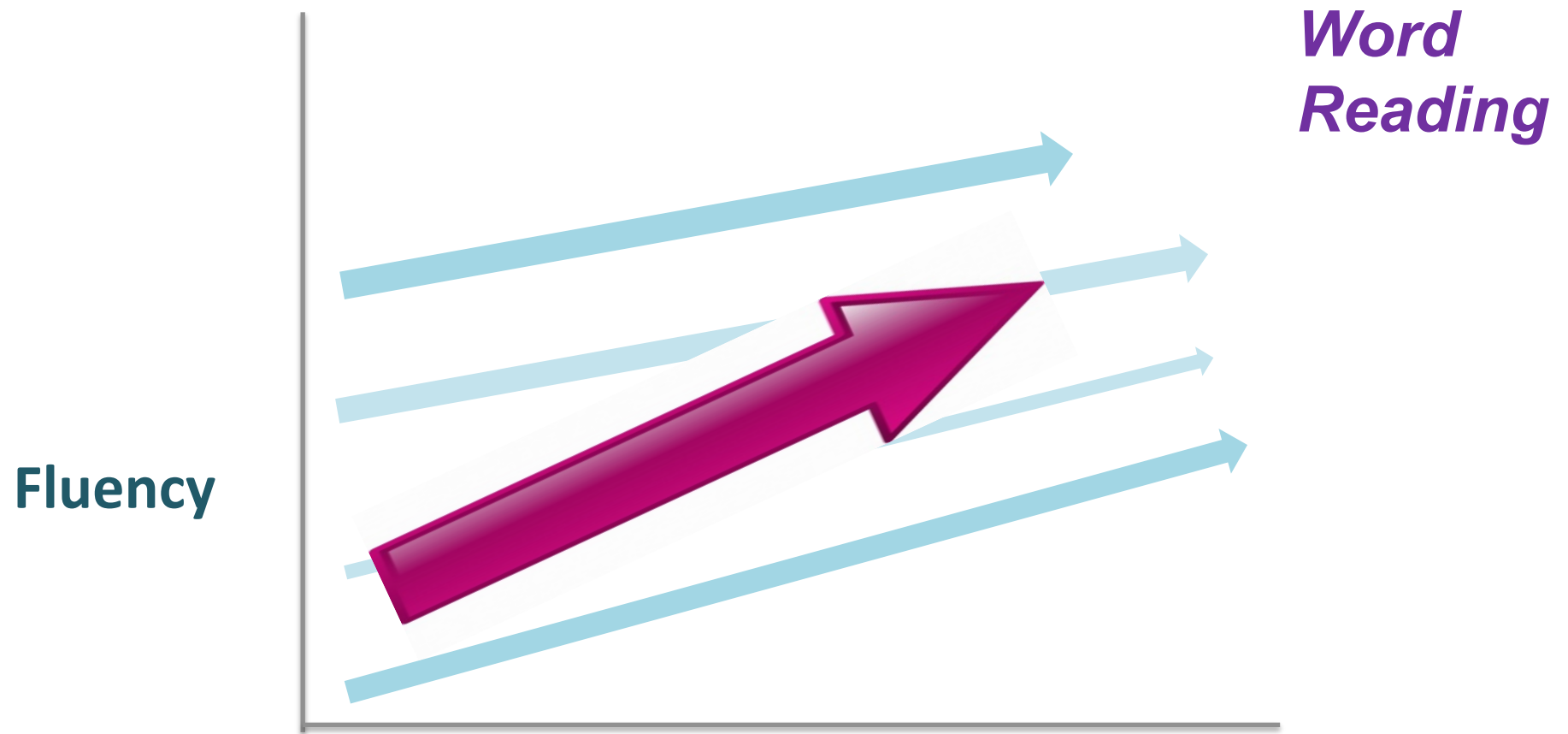
Behavioral Research and Teaching

College of Education – UO

BRT easyCBMResearch

- Study 1: Kindergarten Growth Modeling
- Study 2: K-2 Beginning Reading Relations
- Study 3: Teacher Intervention Reporting

Study 1: Kindergarten Growth Modeling

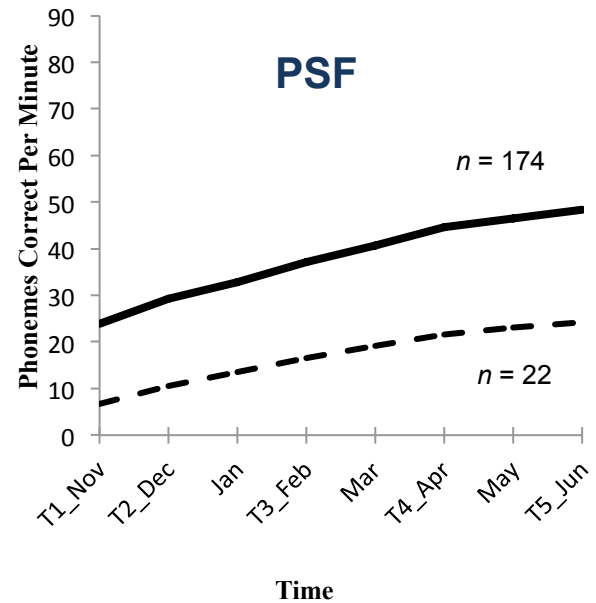
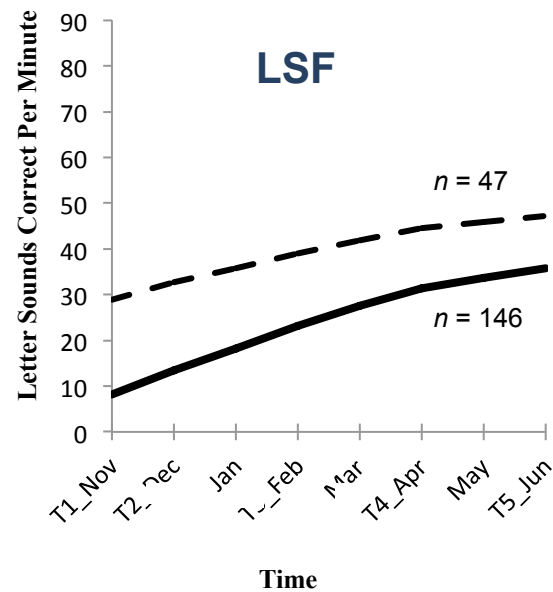
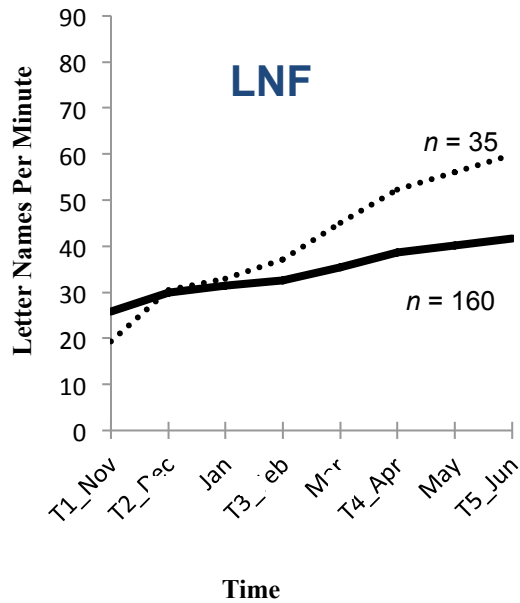


(Sáez, Lai, Alonzo , & Tindal 2014)

Study 1: Kindergarten Growth Modeling Methods

- Repeatedly administered alternate forms of easyCBM kindergarten LNF, LSF, PSF, and WRF measures across 5 time points (Nov, Dec, Feb, April, and June during the 2012-2013 school year)
- We tested 201 unselected children attending half-day kindergarten across three schools within a local school district

Study 1: Kindergarten Growth Modeling Results



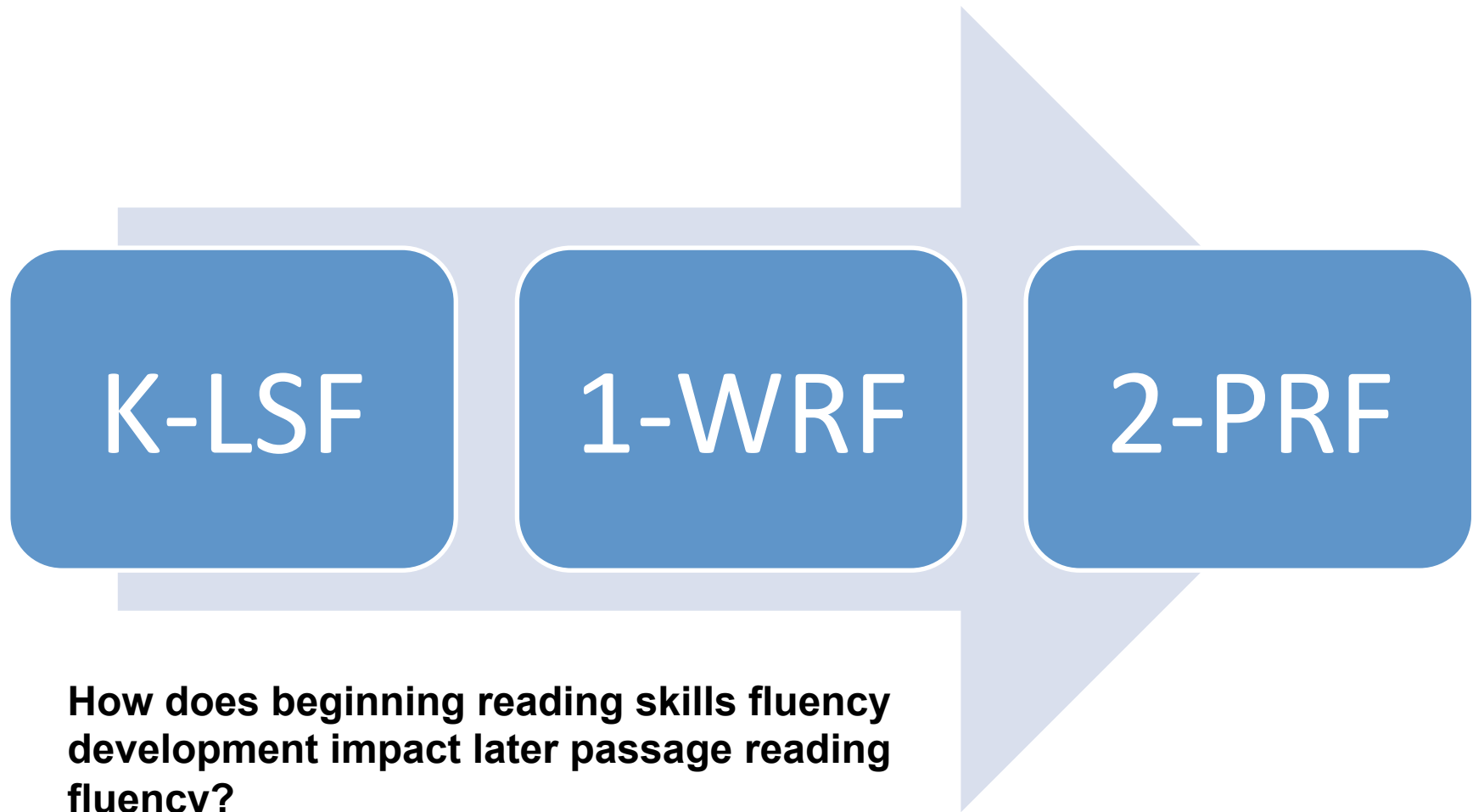
Study 1: Kindergarten Growth Modeling Results

<u>Fluency Skill</u>	<u>Significant Predictors</u>	<u>Latent Class</u>	<u>Word Reading Fluency Percentile</u>		
			<u>25th</u>	<u>50th</u>	<u>75th</u>
Letter Names	Initial Status	Normative	0.299	0.284	0.418
		Accelerated	0.417	0.288	0.295
Letter Sounds	Initial Status & Growth	Normative	0.410	0.277	0.313
		Above Average	0.040	0.151	0.810
Phoneme Segmenting	Initial Status	Normative	0.318	0.300	0.383
		Below Average	0.680	0.235	0.084

Study 1: Take Home Messages

- Two distinct growth patterns were evident (normative & exceptional) in each kinder beginning reading fluency skill examined
- Only for LSF did both intercept *and* slope reliably predict kindergarten June WRF performance
- Very high probability of strong June WRF for *above-average LSF* group (81% likelihood of reading at 75th percentile); High probability of weak June WRF for *below average PSF* group (68% likelihood of reading at 25th percentile)

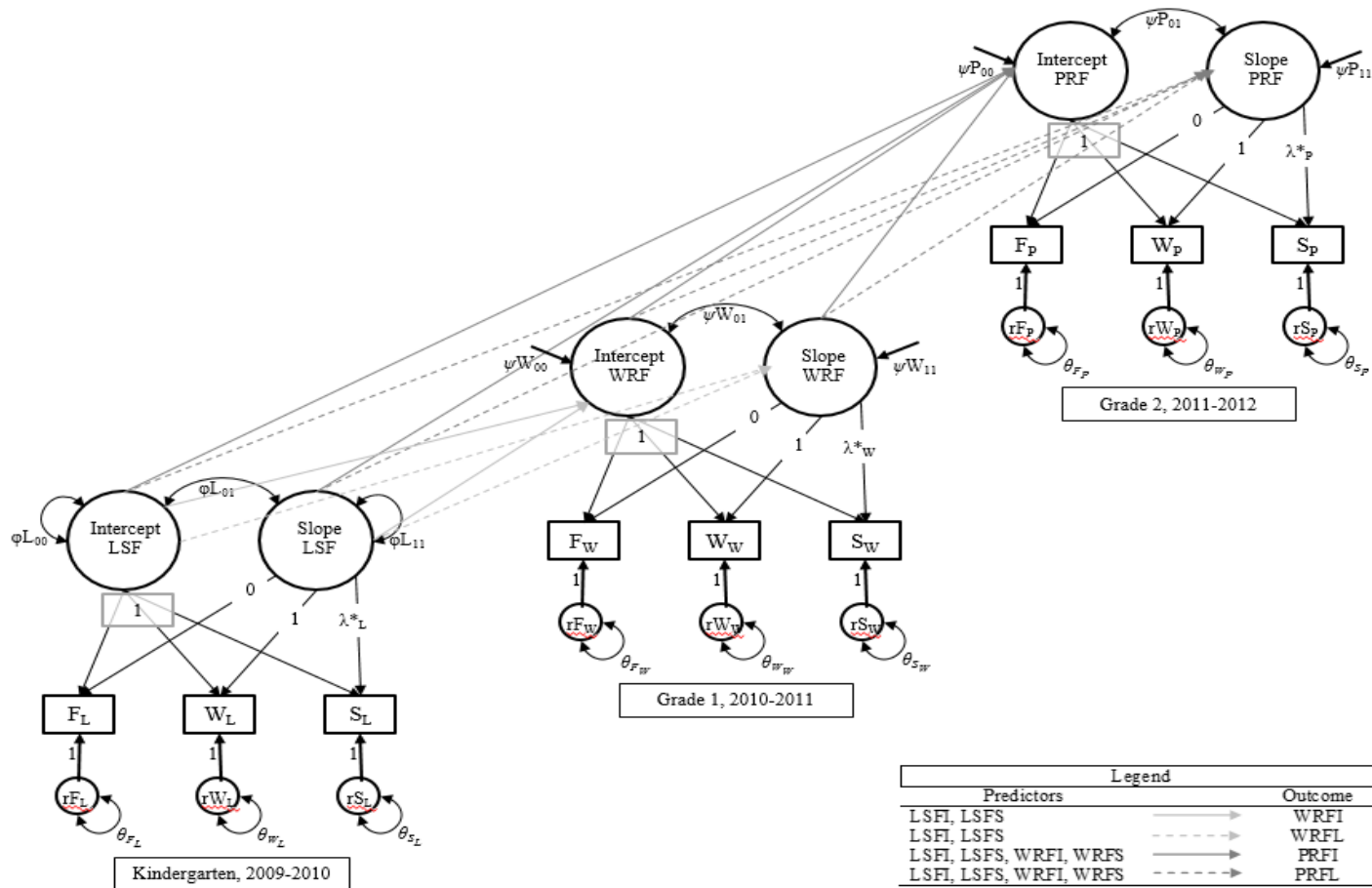
Study 2: K-2 Fluency Relations



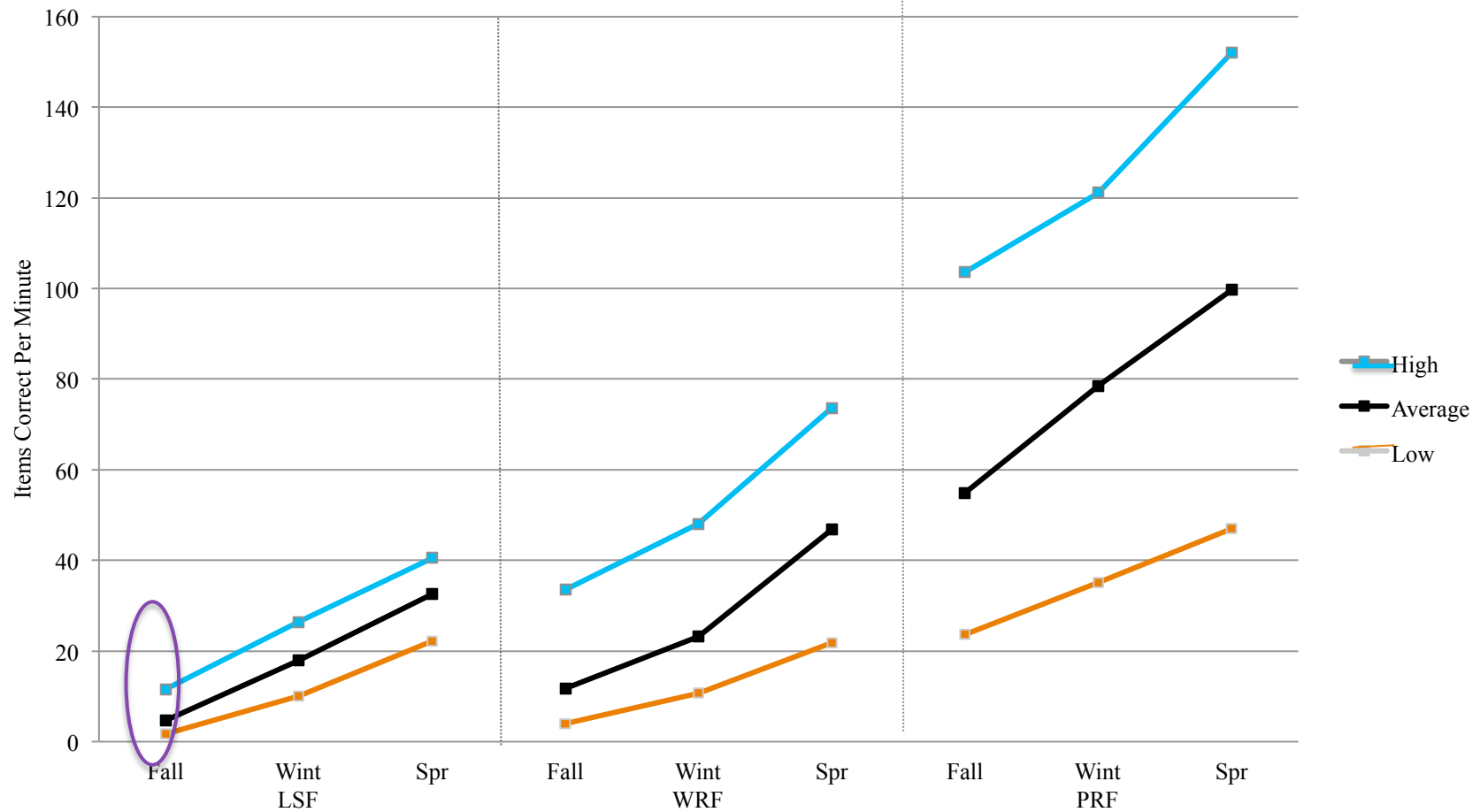
Study 2: Fluency Relations Method

- Used extant data from 2,302 students from 15 districts in the Pacific Northwest during the 2009-2012 school years
- Divided sample into three fluency groups based on Grade 2 PRF:
 - High* ($n = 573$ performing $> 75^{\text{th}}$ percentile)
 - Average* ($n = 1148$ performing $< 75^{\text{th}} > 26^{\text{th}}$ percentile)
 - Low* ($n = 581$ performing $< 26^{\text{th}}$ percentile)
- We retrospectively modeled easyCBM fluency relations (intercepts/entry performance and growth) over time using K-LSF, 1-WRF, and 2-PRF

Study 2: Structural Equation Model



Study 2: Fluency Relations Results



Study 2 Take Home Message

- Kindergarten LSF has an important developmental role in how reading unfolds-early support could help mitigate a lagging start
- Struggling readers have different beginning reading skill developmental trajectories that need to be better understood
- Where you begin and how you grow (for the most part) will impact subsequent fluency *

Study 3: Intervention Reporting

easyCBM.com - Teacher Managing Reports
<http://www.easycbm.com/teachers/auth/reporting.php>
 Logged in: kulmer
 6/13/2008 - 9:58:20 am

easyCBM

Home Students Create CBMs Assign CBMs Data Entry **Reporting** Account

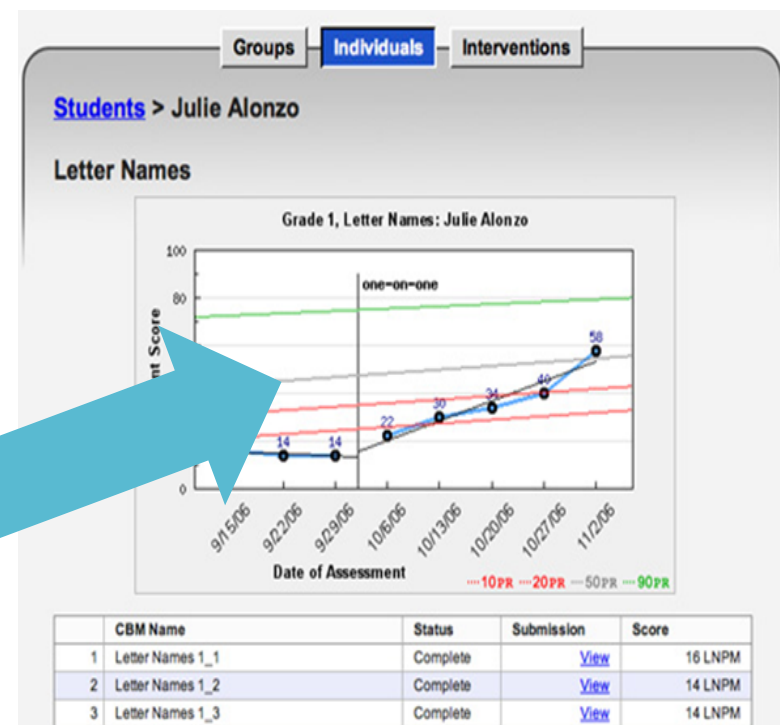
Reporting and Analysis

To view a **Group** report, click on the name of the group, and all of their active CBMs will appear below. Select a CBM name to see a summary and list of student scores. Then click "View" to see any student's actual submission. Select the **Individuals** subsection for easy one-click access to system wide data by student. Intervention lines for graphs can be set up in the Interventions subsection.

Groups Individuals **Interventions**

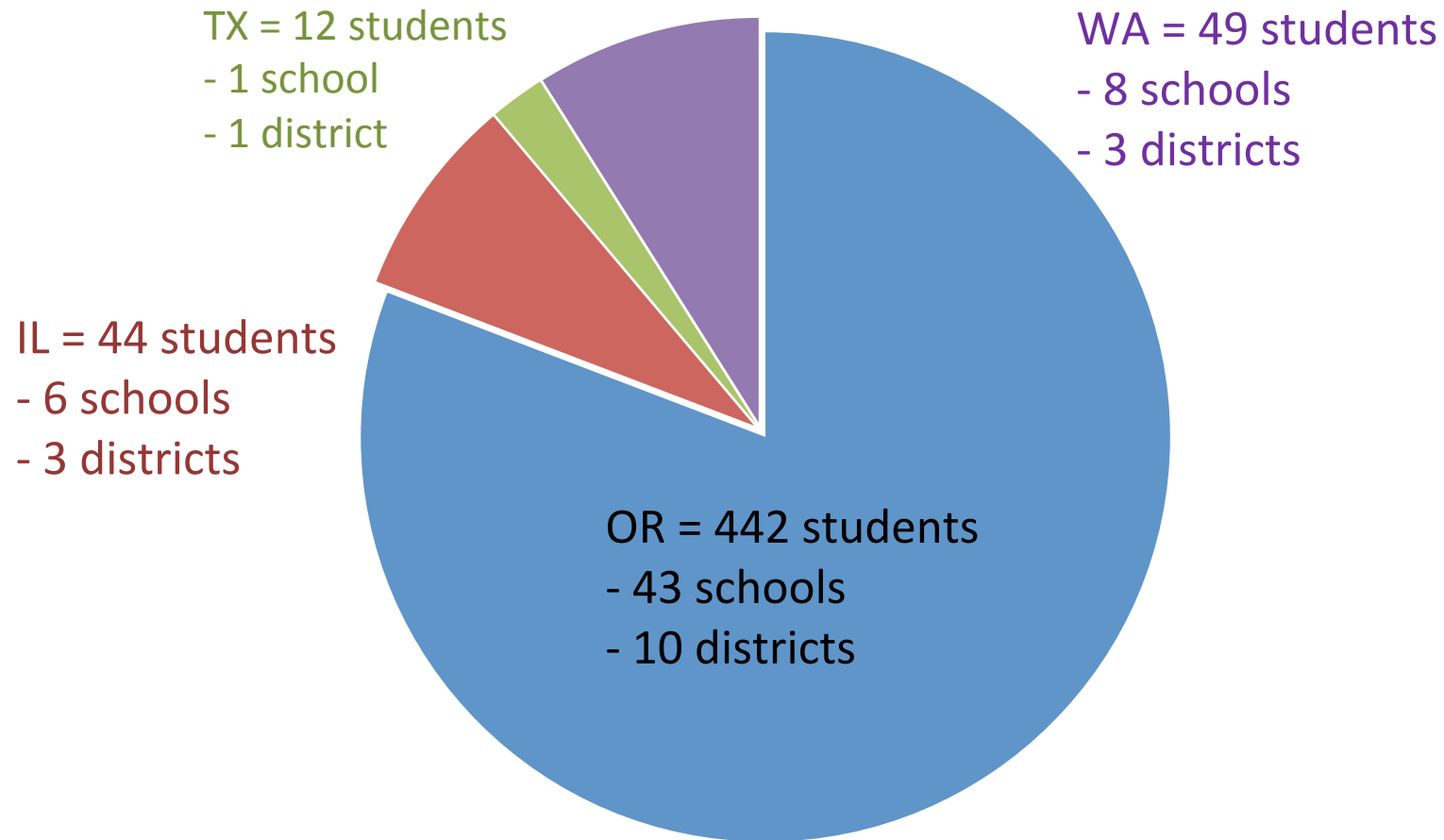
Educational Program Log

Student	Label	Date	Description
Billy Horton	one-on-one	2/17/08	Paired Billy with an adult minutes a day, three times per week

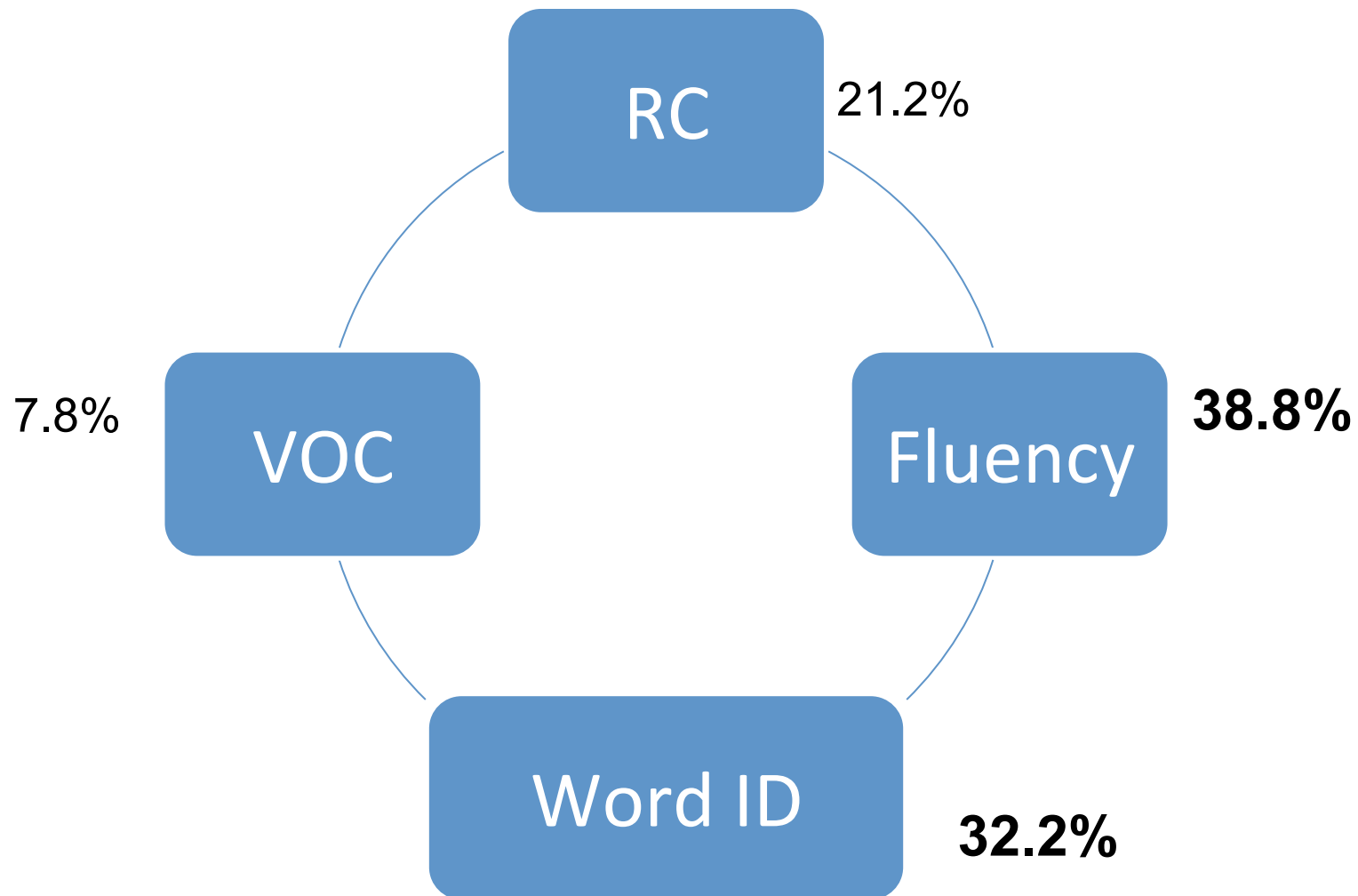


(Sáez, 2012)

Study 3: Intervention Reporting Sample



Study 3: 4th Grade Intervention Skill Emphasis



Study 3: Reported Intervention Frequency

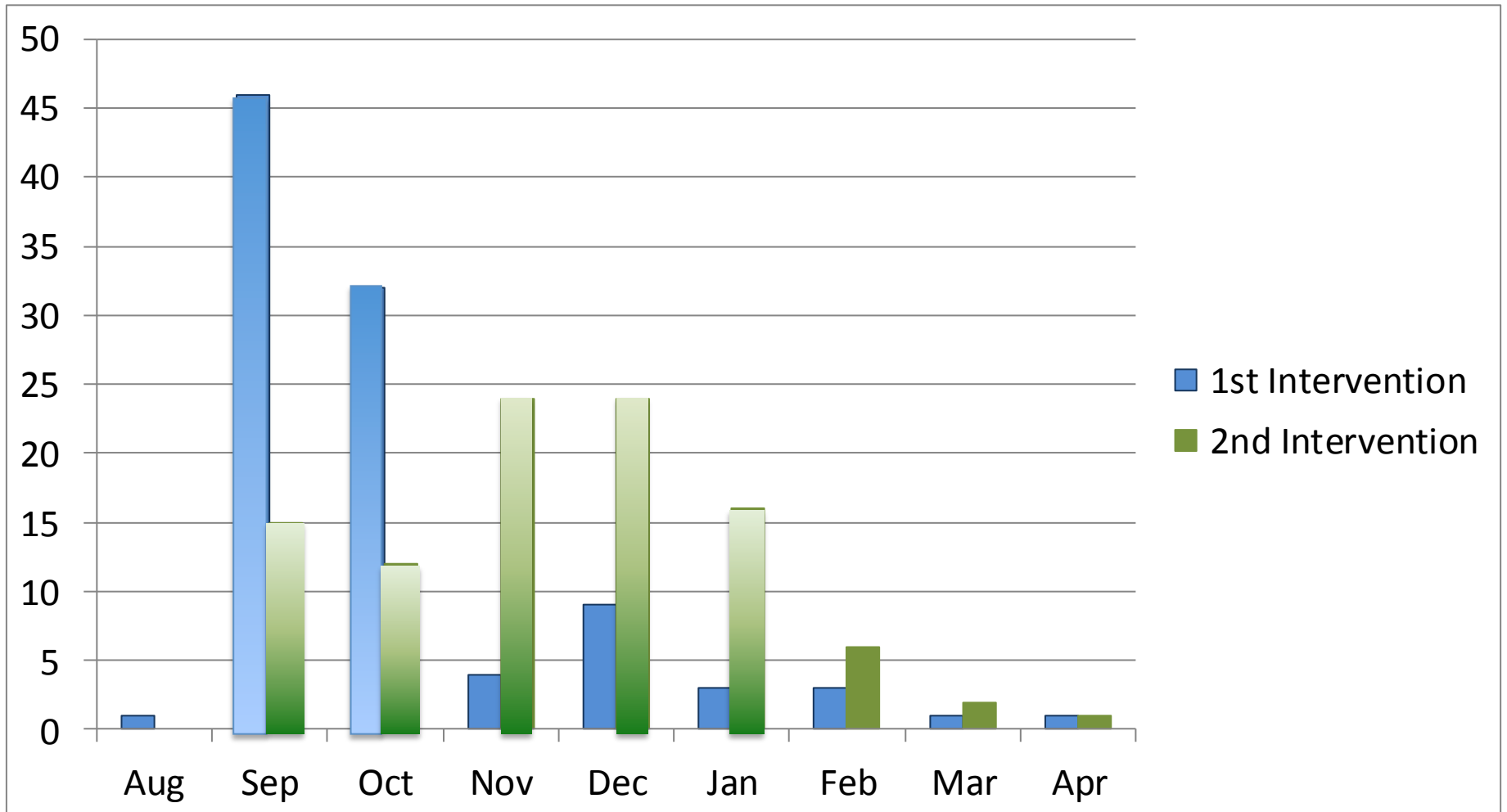
Total Number of Reported Reading Interventions Implemented Across School Year	Student <i>N</i>
1	355 (64.9%)
2	138 (25.2%)
3	25 (4.6%)
4 or more	29 (5.3%)

Study 3: Reported Intensity of 1st Intervention

Number of Days Per Week	Percent of Students
5	23.4%
4	51.1%
3	9.7%
2	15.5%
1	1.1%

Number of Minutes Per Day	Percent of Students
More than 60	4.4%
60	13.9%
30-59	59.3%
Less than 30	21.9%

Study 3: Percent of Reported Interventions Occurring Across the School Year



Study 3: Reported Instructional Changes Between 1st and 2nd Interventions

Intervention Change	Percent of Total Intervention Changes
Instructional Program/Curricula	50.0%
Intensity (duration and/or frequency)	18.7%
Tier or Teacher	6.1%
Group Size	6.1%
Addition of Progress Monitoring	1.3%

Study 3 Take Home Message

- Limited evidence of reading intervention change across the school year in 4th grade (2010-2011)
- 1st intervention most likely to be intensive and focused on building word identification & fluency
- Interventions were implemented within first 5 months of schooling
- Most frequent changes to the 1st intervention were curricular/program based (not time or group size)

For More Information

<http://www.brtprojects.org>

<http://easyCBM.com>



The image is a screenshot of the BRT (Behavioral Research and Teaching) website. The header features the BRT logo on the left, which consists of a stylized blue 'B' followed by the letters 'BRT' in a bold, sans-serif font. To the right of the logo is a vertical image showing several water droplets falling onto a blue surface, creating concentric ripples. Below the logo and image is a navigation bar with a light blue background. It contains several links: 'Funding Sources', 'Publications', 'Web Projects', 'About Us', 'Directions and Contact', and 'Login'. Below this navigation bar is a darker blue bar with three links: 'Goal Setting and Instruction', 'Teacher Decision-Making', and 'Student Learning Assessments'. The main content area has a white background and is titled 'PUBLICATIONS' in bold blue text. Below this title, there are five lines of text, each preceded by a blue dash: 'Presentations – Conferences presentations and papers', 'Monographs – Concept papers presenting ideas for reform of educational practices.', 'Research Reports – Primary studies conducted prior to 2000.', 'Technical Reports – Primary studies conducted following 2000.', and 'Training Modules – Professional development and curriculum materials.'. At the bottom of the page, there is a footer with the text '© Copyright University of Oregon Behavioral Research and Teaching, 2008 | Privacy Policy'.

BRT

Funding Sources Publications Web Projects About Us Directions and Contact Login

Goal Setting and Instruction Teacher Decision-Making Student Learning Assessments

PUBLICATIONS

Presentations – Conferences presentations and papers

Monographs – Concept papers presenting ideas for reform of educational practices.

Research Reports – Primary studies conducted prior to 2000.

Technical Reports – Primary studies conducted following 2000.

Training Modules – Professional development and curriculum materials.

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Using easyCBM Within A Multi Tier System of Support



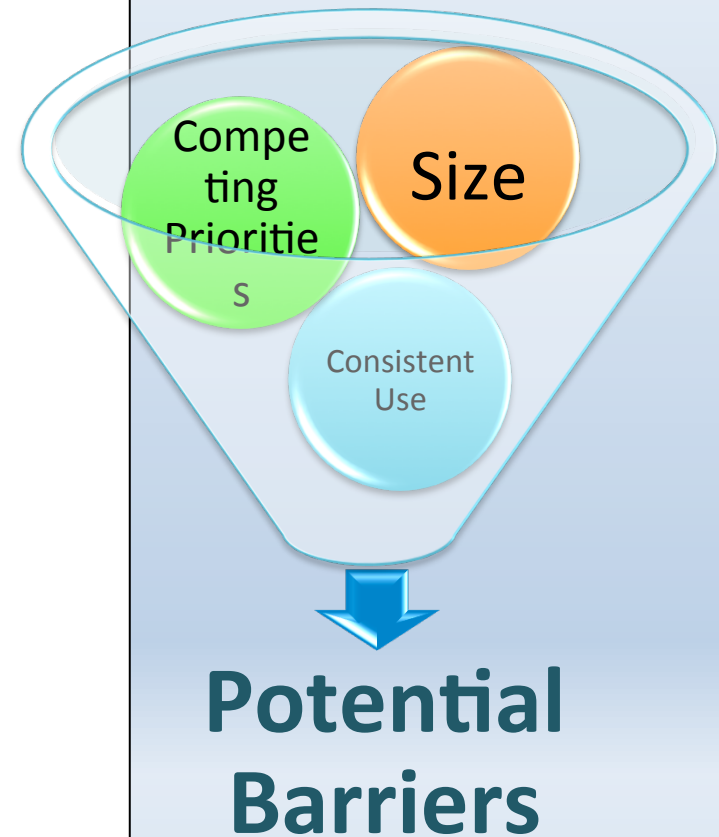
MTSS-RtI Services
Hillsborough County Public Schools

Hillsborough County Public Schools

Total students	206,841
Total certified teachers	15,162
Total full-time staff	25,170
Number of schools	250

Enrollment, by race/ethnicity

White:	40%
Hispanic:	29%
Black:	21%
Asian:	3%
Students eligible for free	57%



Implementing easyCBM in

K-5

Hillsborough County Public
Schools

**Summer
Reading
Program**
(Six Weeks)

**Select
Schools**

Students
receiving Tier
2/3
intervention

**Available to All
Schools**

Students
receiving Tier
2/3
intervention

**Required
For All
Schools**

Students
receiving
Tier 2/3
intervention

Pilot
Summer
Program

June-July
2011

Pilot
Full Academic
Year

August 2011
to
July 2012

District-Wide
Implementation
27,000 students
monitored

August 2012
to
July 2014

District-Wide
Implementation
24,408 of
67,500
K-5 students
monitored
August 2014
to
Present

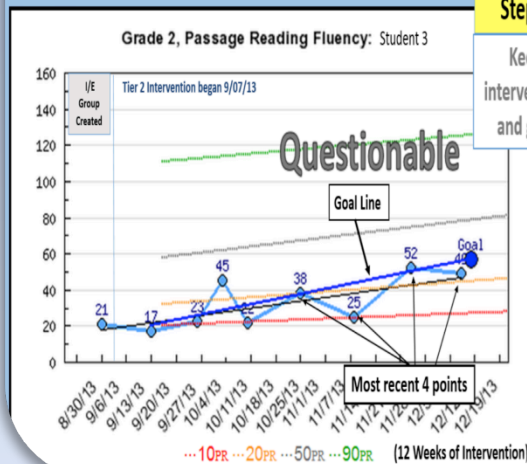
EasyCBM

District Required Assessment Program for Goal Setting and Ongoing Progress Monitoring

Response to Intervention: Decision Making with the Four-Point Method

PLC Next
Steps?

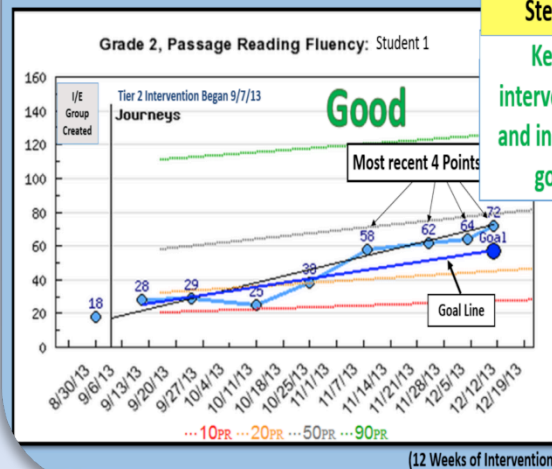
Keep
intervention
and goal



Response to Intervention: Decision Making with the Four-Point Method

PLC Next
Steps?

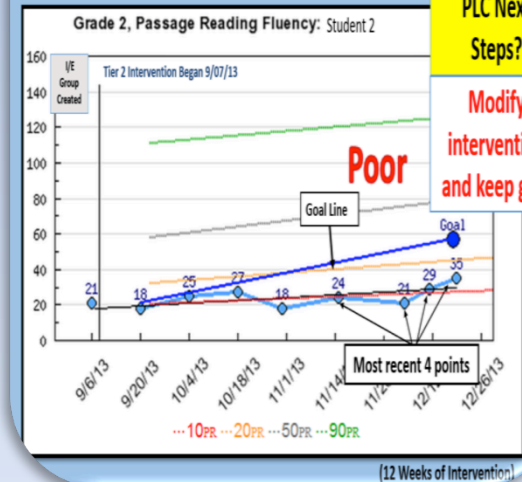
Keep
intervention
and increase
goal



Response to Intervention: Decision Making with the Four-Point Method

PLC Next
Steps?

Modify
intervention
and keep goal



MTSS-Rtl Intervention Delivery Model

Revised

Fall 2014

Rtl framework with a Blended Approach

- Standard Protocol Approach at Tier 2
- 4 Step Problem Solving Process at Tier 3

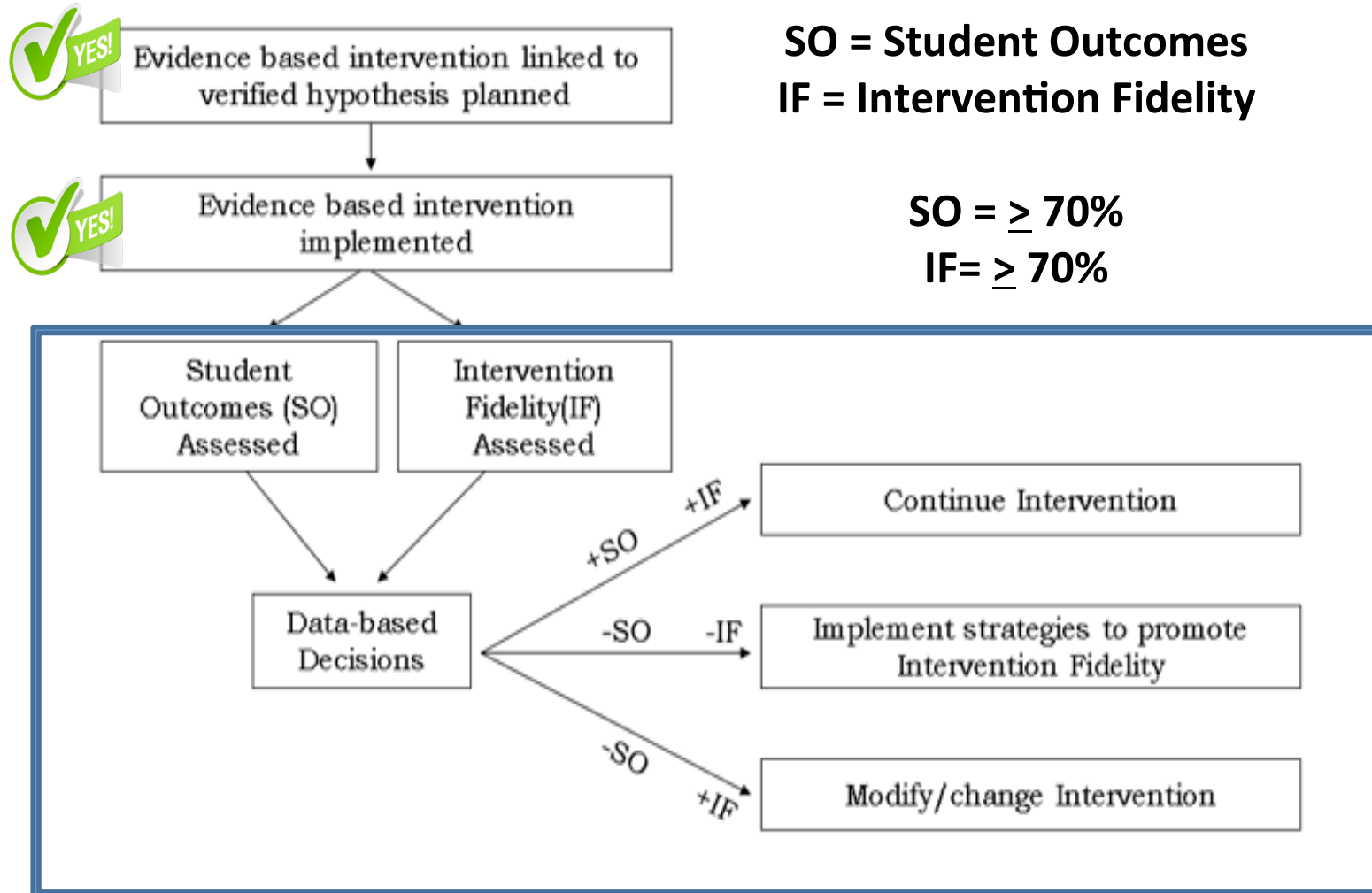
**easyCBM required for monitoring and evaluating
student progress across continuum of Tier 2 and 3
intervention delivery**

- SMART Goals set across 30 weeks of instructional delivery
- Six week checkpoints embedded for evaluating progress monitoring data
- Good, Questionable, Poor Response utilizing a 4-Point Method

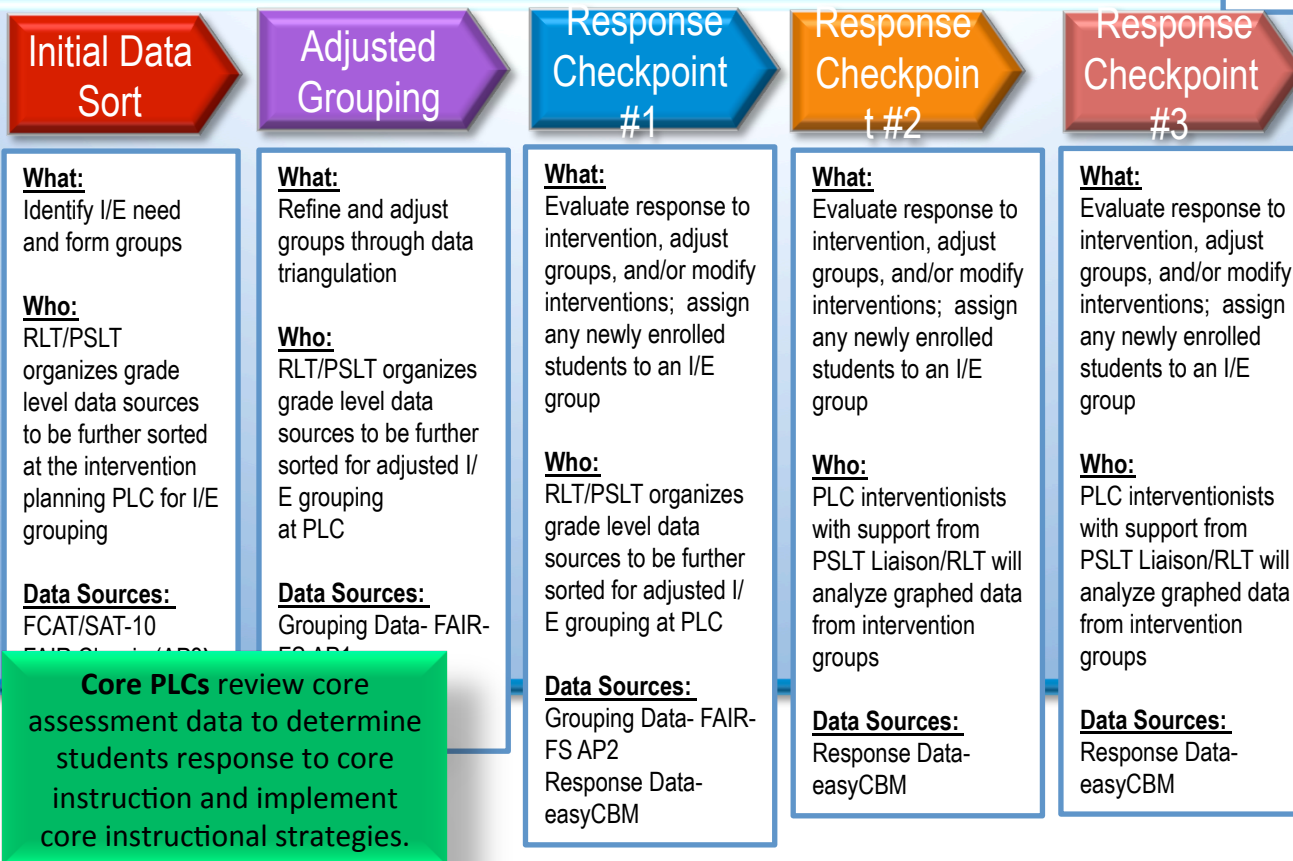
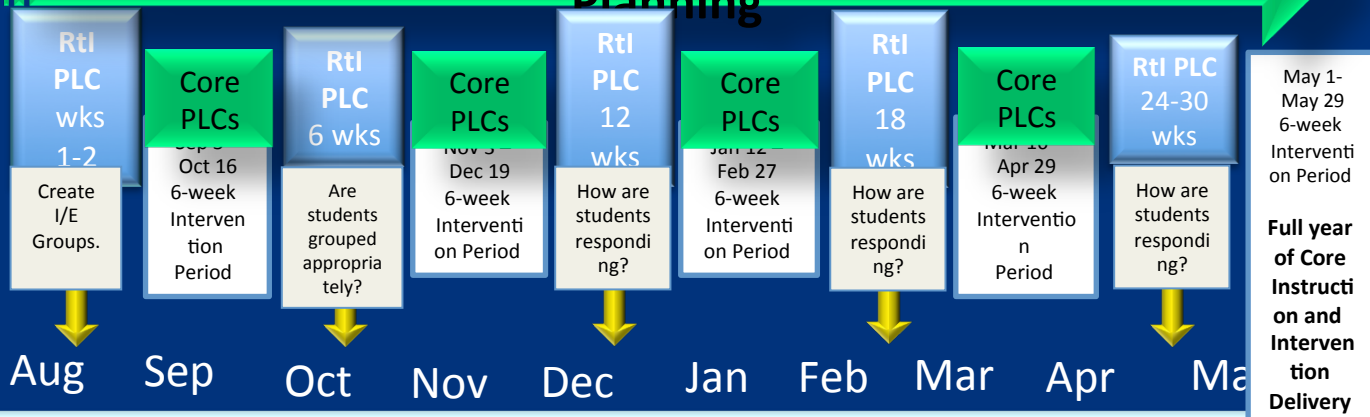
MTSS-Rtl Live District Webinars

Addressed use of easyCBM for Data Triangulation
and Applying decision rules

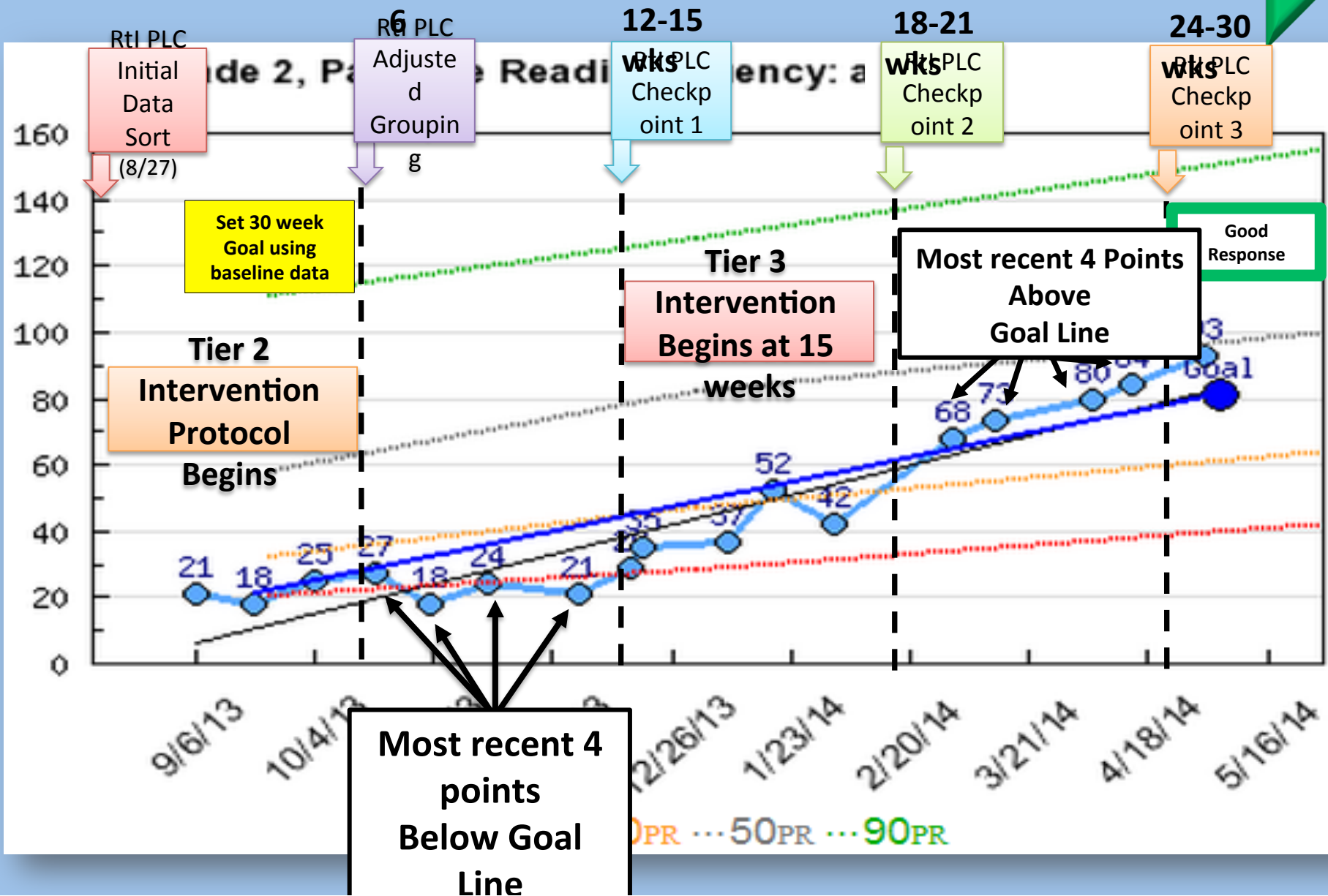
Guided Steps for Improving Intervention Fidelity and Student Outcomes



Continuous Core Assessments and Instructional Planning

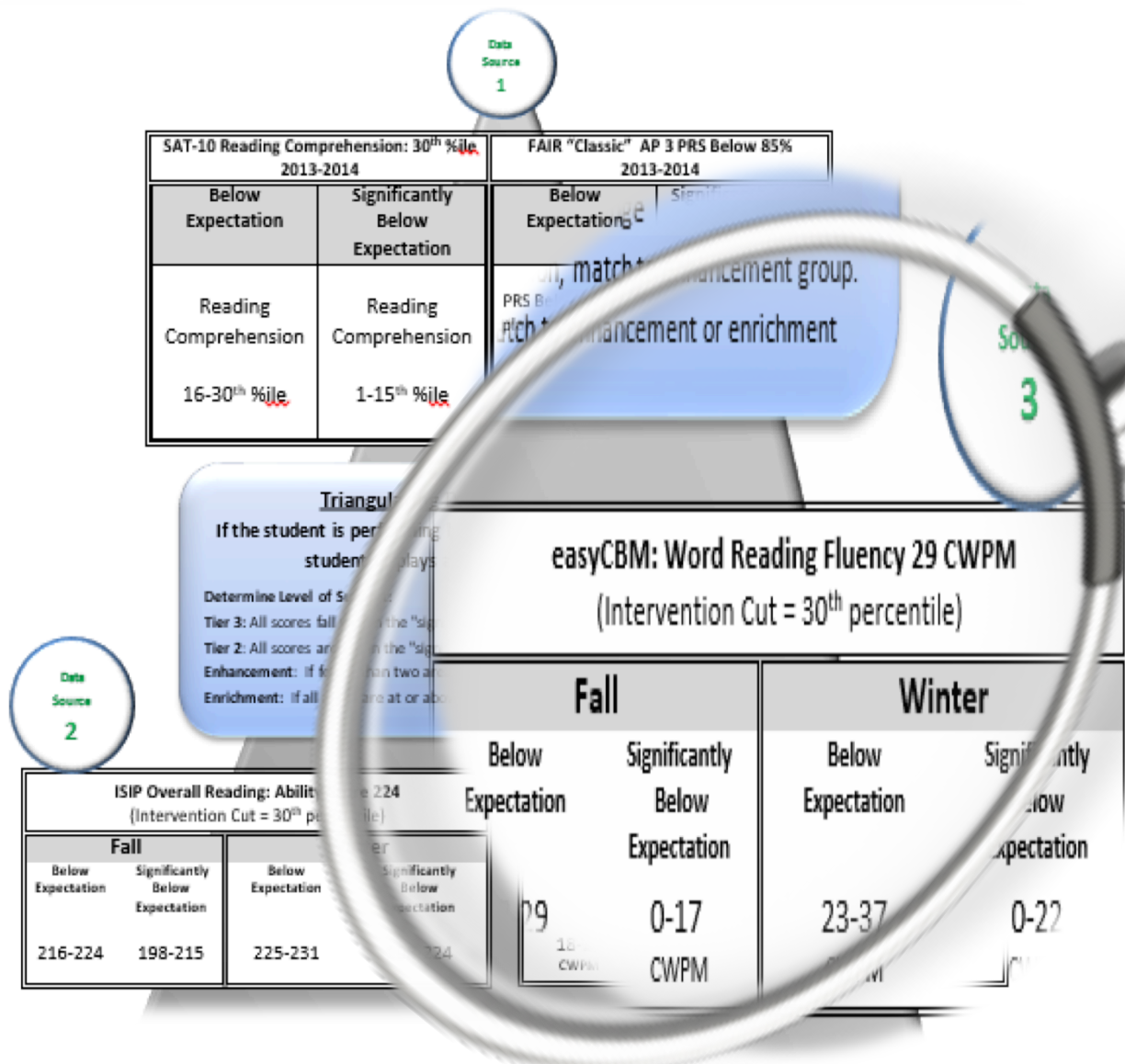


30 week Continuum of Intervention Delivery and Data-Based Decision Making within a Blended Model





Triangulating Data to Improve Data-Based Decision Making



Establishing Standardized Procedures for Goal Setting

Begin
Here

Administer
and Score
Measure

Find the diamond
that corresponds with
student's score on
the first measure.

Follow the arrow to
determine next steps
for that student.

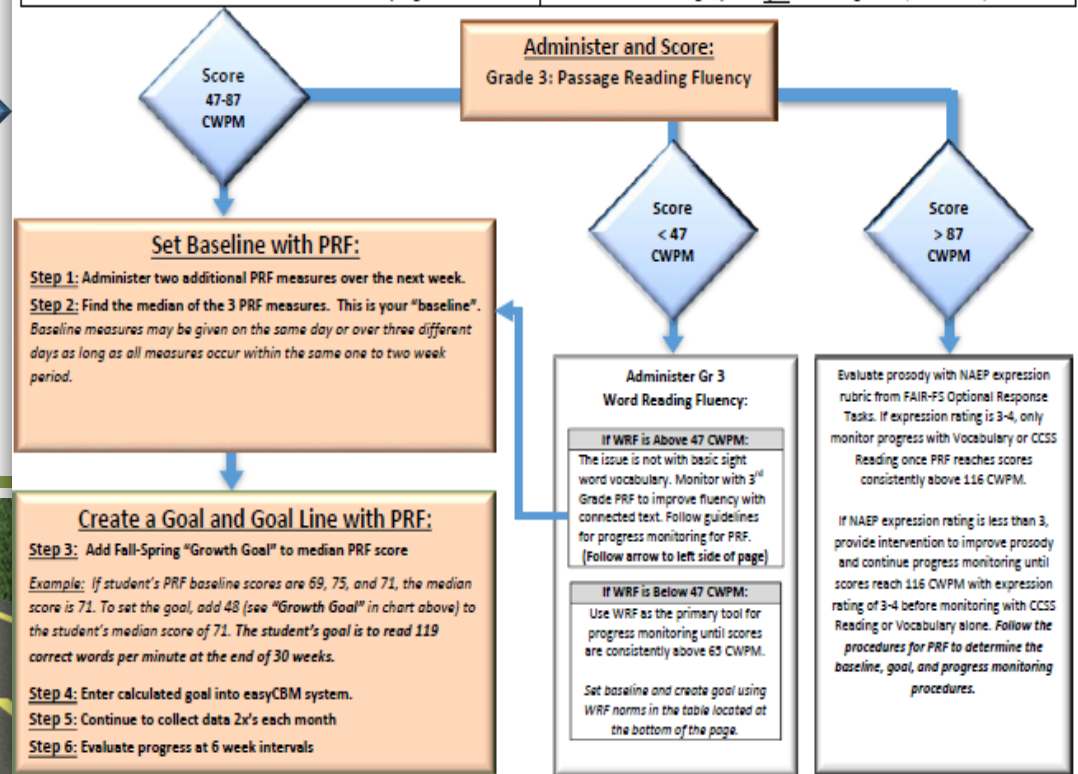
Grade 3

2014-2015

This document will help you select the appropriate progress monitoring measure for setting student goals and evaluating response to intervention. All 3rd grade students receiving interventions in reading will be initially assessed with easyCBM Passage Reading Fluency (PRF).

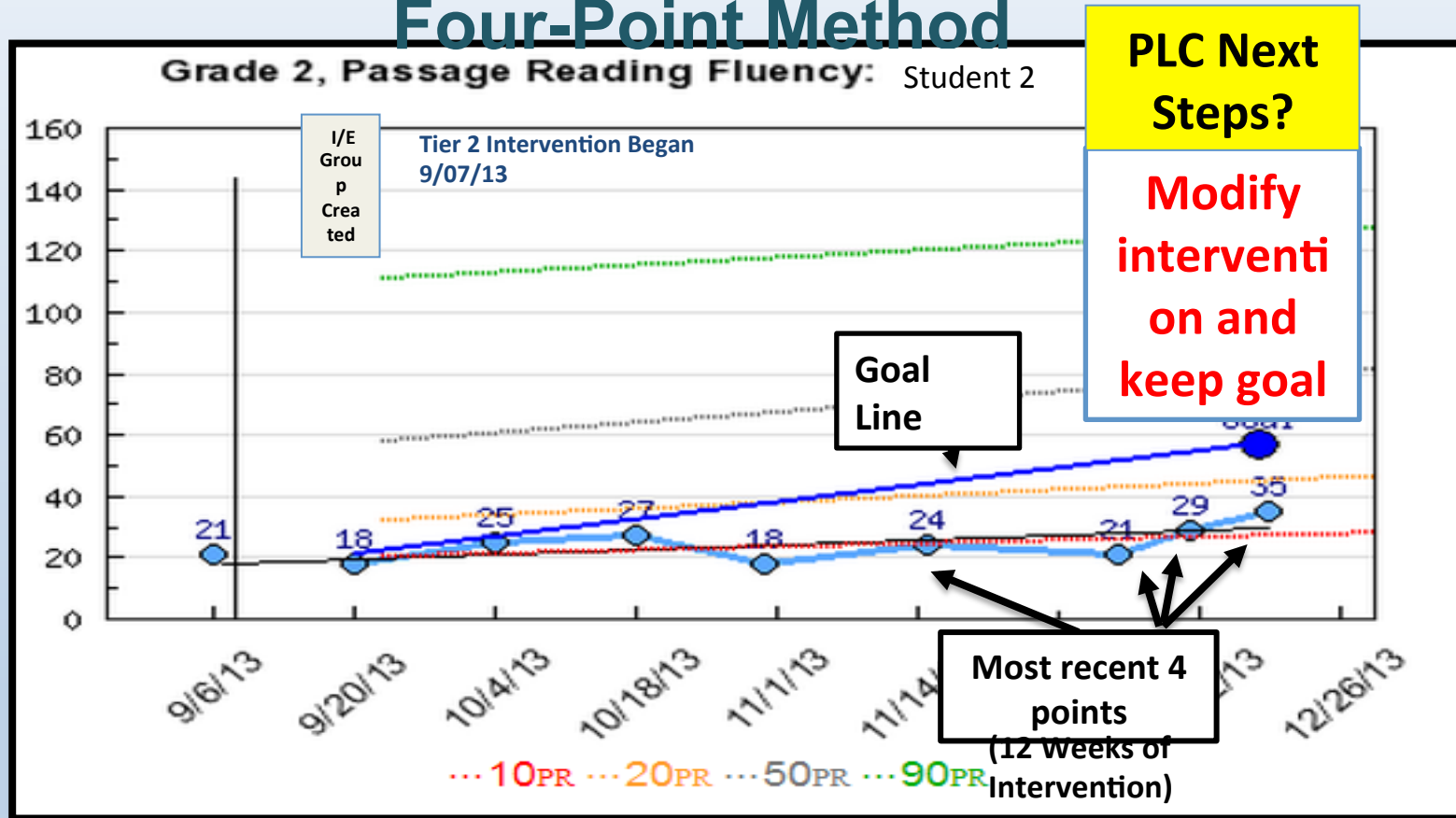
3rd Grade: Passage Reading Fluency

Fall to Spring (September to June)				Winter to Spring (January-June)			
Is Measure Appropriate? (raw score range)	Growth Goal (30 weeks)	Goal Should Not Exceed:	Rate of Improvement (weekly estimate)	Is Measure Appropriate? (raw score range)	Growth Goal (15 weeks)	Goal Should Not Exceed:	Rate of Improvement (weekly estimate)
47-87 CWPM	48 CWPM	116-144 CWPM	1.6 CWPM	72-117 CWPM	24 CWPM	116-144 CWPM	1.6 CWPM
All students matched to intervention by the closing of FAIR-FS API will need to have a 30 week Fall to Spring Goal				Winter to Spring goal setting is only appropriate for students who are not matched to an intervention group until after 2nd Grading Period (Jan. 16, 2015)			



Utilizing easyCBM to Apply Decision Rules

Four-Point Method

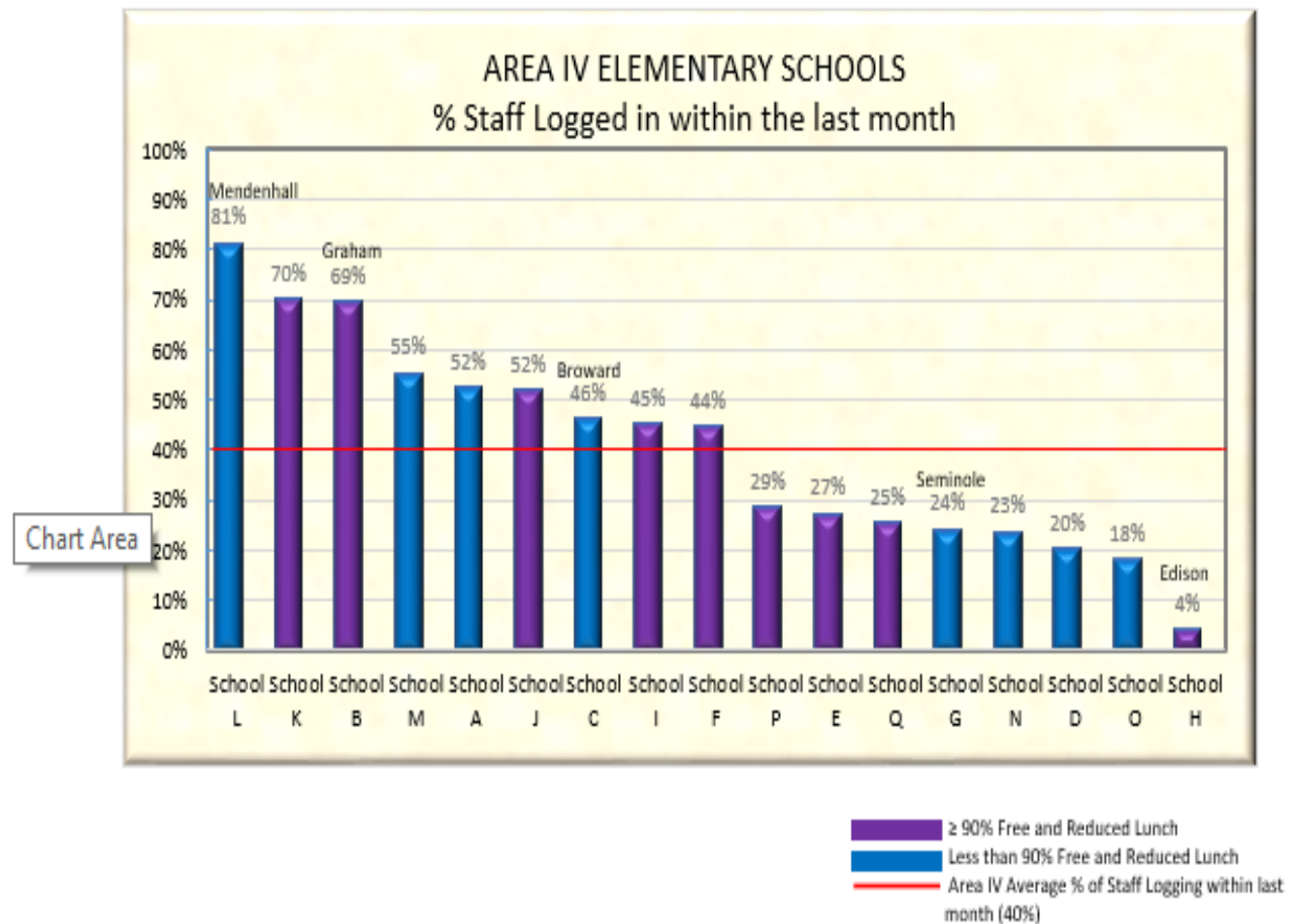


Go
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Questiona
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Poo
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Next Steps: Building Capacity for



Next Steps:

Building Capacity for Evaluating Response to Intervention

- Provide mini-professional development modules posted within the easyCBM icon of our district's internal site
- Implement easyCBM Train-the-Train model Reading Coaches, School Psychologists, and Child Study Team Chairs focused on goal setting and evaluating response to intervention
- Continue to improve data literacy and buy-in



easyCBM in the Shelton School District

easyCBM User Forum

Eugene, Oregon

October 7, 2014



Shelton School District

- Shelton School District serves approximately 4000 students in grades P-12.
- Slightly over 65% of our students qualify for free or reduced lunch
- We have two tribes within our boundaries – Squaxin Island and Skokomish
- In the last decade, our Hispanic/ELL population has more than doubled
- About 17% of our students qualify for special education services
- We are culturally diverse!

Achievement Gaps

- We have traditionally had large achievement gaps between our more affluent white students and:
 - Low income students (across ethnic groups)
 - Second language learners
 - Students with disabilities
- In 2008-09, Shelton was designated a district “in improvement” – Step 1 AYP – along with all schools
- We needed to make a change that would make a difference for our kids – we needed to teach them to read!

RTI for Reading

- We began restructuring our K-12 reading program to include a system of tiered interventions.
- We trained building teams in the implementation of RTI
- We purchased research-based, proven effective intervention materials
- We selected a screening and progress monitoring system to form the foundation of the system -- easyCBM

Why easyCBM?

- Easy to administer – student and teacher-friendly
- Efficient data handling – import and export capability
- Contains both literacy and math content in one system, as well as a Spanish literacy component
- Has on-line option for secondary level
- Can be used at all levels (elementary, middle school, junior high, high school) – probes leveled at least to grade 8
- Generates a variety of useful reports for tracking individuals and groups
- Includes training and on-going technical support
- Affordable

We Started With Screening

- We set parameters in the system:
 - Intensive (High Risk): 0-20th percentile
 - Strategic (Some Risk): 21-40th percentile
 - Benchmark (Low Risk): 41-99th percentile
- We screened all students in grades K-8 fall, winter, and spring in reading (except dual language)
- For the first time ever we had evidence rather than a feeling!
- Unfortunately, our RTI Pyramid was distinctly top heavy with students needing intensive intervention – over 30% at every grade

Reading Placement Pathways

UPDATED 6-1-2014	Elementary School					
	Grade 3-5					
Screening	easyCBM, DIBELS, IDEL					
	↓		↓		↓	↓
Screening Criteria:	High Risk <20%	Some Risk 21-40%		Low Risk 41-90%	Advanced 91 - 99%	
	↓		↓		↓	↓
	High Risk	Some Risk (Core Program Plus)			Low Risk	Advanced
Diagnostic:	Administer program placement tests	Phonics for Reading Placement Test	Read Naturally Placement Test	DRA		
Focus:	Coordinated instruction across all 5 areas of reading	Phonics	Fluency	Comprehension	Student maintains grade level expectations related to core program	
Intervene:	Reading Mastery	Phonics for		Comprehension	Harcourt Trophies/ CAFÉ Menus/	Harcourt Trophies/ CAFÉ Menus/

RTI for Math

- We began restructuring our K-12 math program to include a system of tiered interventions.
- We trained building teams in the implementation of RTI
- We purchased research-based, proven effective intervention materials
- Because we had chosen wisely we already had a screening and progress monitoring system ready to go!

Math Placement Pathways

Updated 6/1/2014	Middle School			
	Grade 6-7			
Screening	easyCBM			
	↓	↓	↓	↓
Screening Criteria:	High Risk <20%	Some Risk 21-40%	Low Risk 41 - 90%	Advanced 91 - 99%
	↓	↓	↓	↓
	High Risk	Some Risk (Core Program Plus)	Low Risk	Advanced
Diagnostic:	Administer program placement tests	Administer Math Navigator Screener; Program Assessments/Class Progress		
Focus:	Coordinated instruction across all areas of math	Correct misconceptions and fill in gaps in learning	Student maintains grade level expectations related to core program	
Intervene:	Connecting Math Concepts	Place in appropriate Math Navigator module according to results of screener/placement tests;	CMP II; Making Sense of Problem Solving;	CMP II; Making Sense of Problem Solving;

Experimenting...

- Have used reading screening and progress monitoring measures for K-8 consistently for the past four years
- Have used the NCTM screening and progress monitoring math measures for grades 6-8 consistently for the past three years, elementary grades some of the time
- Have used easyCBM in conjunction with State Math Benchmark Assessments, as a way to triangulate our data around math
- We now enter the easyCBM screening scores and risk factors into our district data warehouse – Homeroom – so we always have multiple measures when making important instructional decisions
- Some variability in use of progress monitoring measures

Data Analysis Protocol

OSPI MATHEMATICS BENCHMARK ASSESSMENTS		[Data Analysis & Decision Making Worksheet – Grade Level]
Strengths Which Performance Expectation (PE) had the greatest number of students who met the standard?		
Performance Expectation(s):		
What practices with curriculum and pacing, instruction, and/or assessment caused students to meet standard on this PE?		
Challenges (How does this data analysis match or contradict your easyCBM screening analysis? Is this PE part of the “hardest” item for students at the screening benchmark? Was it one of the 45 – 65% items? Which Performance Expectation had the greatest number of students who did not meet the standard?		
Performance Expectation:		
Distractor Rationale Report (Are these data confirmed by your easyCBM analysis? If yes, how?) <i>What are the common misconceptions or errors indicated by the Exam Distractor Rationale Report?</i>		
Triangulating Data (Again connect to the benchmark screening protocol) <i>What other formative data or student work provides information about student performance related to the PE?</i>		
Content-Centered Problem <i>What is the problem of conceptual understanding or skill that underlies student performance?</i>		
Curriculum & Pacing <i>How did the instructional materials address the PE?</i> <i>Did the curriculum meet the content and the cognitive demand of the PE?</i> <i>Was ample instructional time allotted to the PE?</i>		

Homeroom

Assessments: Assessment Set View

Student Group: All 7th Grade students attending Skagit Middle School during 2013 / 2014

Assessment Set: Math

	MSP Math Gr 7	Student Growth Percentile- MSP Math Grd 7	easyCBM Math Risk Factor Gr7 - Fall	easyCBM Math Risk Factor Gr7 - Winter	easyCBM Math Risk Factor Gr7 - Spring	2013-2014 MBA1 Gr7
Annalise *	368	1	—	3	2	—
Anthony T. *	363	48	2	1	2	4
Asst. Superintendent *	404	89	2	2	3	4
Befor/After *	—	—	2	1	—	6
Cheree *	451	49	3	3	3	15
Douglas *	265	1	1	—	1	5
Herminia *	446	56	—	3	3	—
J. Chris *	—	—	2	—	—	4
Jannelle *	387	57	1	1	1	9

Reporting Progress

- School Board Goals:
 - All students who have attended Shelton School District for at least two years will read at grade level by the end of third grade
 - Shelton School District math scores will improve every year at every grade level
- We use easyCBM (along with other assessments) to give our school board a snapshot of achievement in reading and math over the course of the year
- This year, we will use easyCBM reading and Common Core math measures in all grades K-8 for our board reports

Reading Summary

Shelton School District Reading Universal Screening Summary 2010-2011

Fall 2010	K	1	2	3	4	5
Advanced %	1%	2%	1%	1%	2%	0%
Benchmark %	39%	48%	41%	30%	41%	39%
Strategic %	22%	20%	27%	39%	26%	26%
Intensive %	38%	30%	31%	30%	31%	35%

Winter 2011	K	1	2	3	4	5
Advanced %	1%	3%	2%	2%	1%	0%
Benchmark %	57%	52%	51%	36%	35%	34%
Strategic %	20%	22%	20%	30%	33%	32%
Intensive %	22%	23%	27%	32%	31%	34%

Spring 2011	K	1	2	3	4	5
Advanced %	3%	2%	0%	0%	0%	0%
Benchmark %	65%	46%	48%	43%	43%	40%
Strategic %	18%	29%	23%	27%	28.5%	27%
Intensive %	14%	23%	29%	30%	28.5%	33%

Seeing Patterns

- Students in the Shelton School District do not have well developed language/vocabulary skills overall
- Our reading achievement is improving in grades K-2 and 6-8, but at grades 3-5 not so much
- We are reducing the percentage of students at high risk, but not increasing the percentage of students at low risk
- easyCBM scores are highly correlated to our state assessments in grades 3-8 (Measurements of Student Progress)!
- Students above 50th percentile on easyCBM = high likelihood of success on state assessments in both reading and math
- Students above 90th percentile = good candidates for referral and testing for Hi Cap program
- By end of a year of full day kindergarten, we have a real RTI pyramid!

Research Partners

- We have participated in a number of research projects:
 - Piloted elementary CCSS math items
 - Piloted middle school math RTI/interventions
 - Translated the CCSS math items into Spanish!
 - We are anxious to work with the new intervention interface and the progress monitoring recommendations!
 - We are still hoping for 3rd grade Spanish reading measures and high school level reading and math screeners...

Questions?