

# **Oregon Kindergarten Assessment: A Theoretical and Empirical View**

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# Acknowledgements

- Funds for the easyCBM dataset used in this dissertation come from a federal grant awarded to the UO from the Institute of Education Sciences, U.S. Dept. of Education:
  - Reliability and Validity Evidence for Progress Measures in Reading (R324A100014 funded from June 2010 - June 2014)
  - Developing Middle School Mathematics Progress Monitoring Measures (R324A100026 funded from June 2010 - June 2014)
- The Oregon Department of Education for providing the 12-13/13-14 Oregon Kindergarten Assessment data
- Adviser: Dr. Gerald Tindal
- Dissertation Committee: Dr. Charles Martinez, Dr. Keith Zvoch, and Dr. Jane Squires

# Background

- Federal and state investment in early learning and K-12 systems alignment e.g., inclusive data/assessment



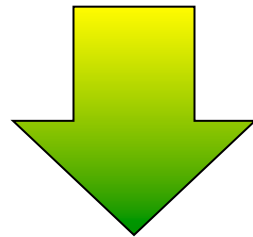
- Kindergarten entry assessments
  - Federally supported e.g., RttT, ELC, EAGs
  - 2010 (7 states); 2011 (25); 2012-present (43+)  
(Connors-Tadros, 2014)

# Background cont.

- Oregon Kindergarten Assessment (OKA)
  - Baseline learning-related behavioral and academic skills screening data
  - Inform decision-making
  - Identify achievement gaps
  - Single assessment (Oregon Department of Education, 2013)
- Piloted 12-13, Field Tested 13-14
- Our research targets these purposes

# Potential and Important Inquiry

- OKA a research-based gauge of interrelated entry skills (Tindal, Irvin, & Nese, Manuscript submitted for publication) though potential floor effects and hypersensitivity may impact utility (Catts, Petscher, Schatschneider, Bridges, & Mendoza, 2009; Francis, Shaywitz, Stuebing, Shaywitz, & Fletcher, 1996; Paris, 2005)



Construct Validity (interplay of early skills)  
Predictive Validity (end-of-year K achievement)

# Theoretical Basis (Sfard, 1998)

## ***Acquisition Metaphor (AM)***

- Individual, inward-focused development
- Self-identification and possession

## ***Participation Metaphor (PM)***

- Outward-focused bonds/ community
- Group-identification and sharing

“the individual/social dichotomy does not imply a controversy as to the definition of learning, but rather rests on differing visions of the mechanism of learning” (p. 7)

# Empirical Basis for the AM

Develop technically adequate measures to:

1. Screen for risk, gauge status, monitor change
2. Establish valid/parsimonious tests

**Early Literacy** (alphabetic and phonemic)

**Early Math** (numeracy and operations)

*Interrelated and predictive*

# Empirical Basis for the PM

Develop technically adequate measures to:

1. Identify key learning-related and social behaviors
2. Screen for risk, gauge status, monitor change

**Self-regulation** (listening, following directions)

**Social-emotional** (sharing, working cooperatively)

*Interrelated and predictive of achievement*



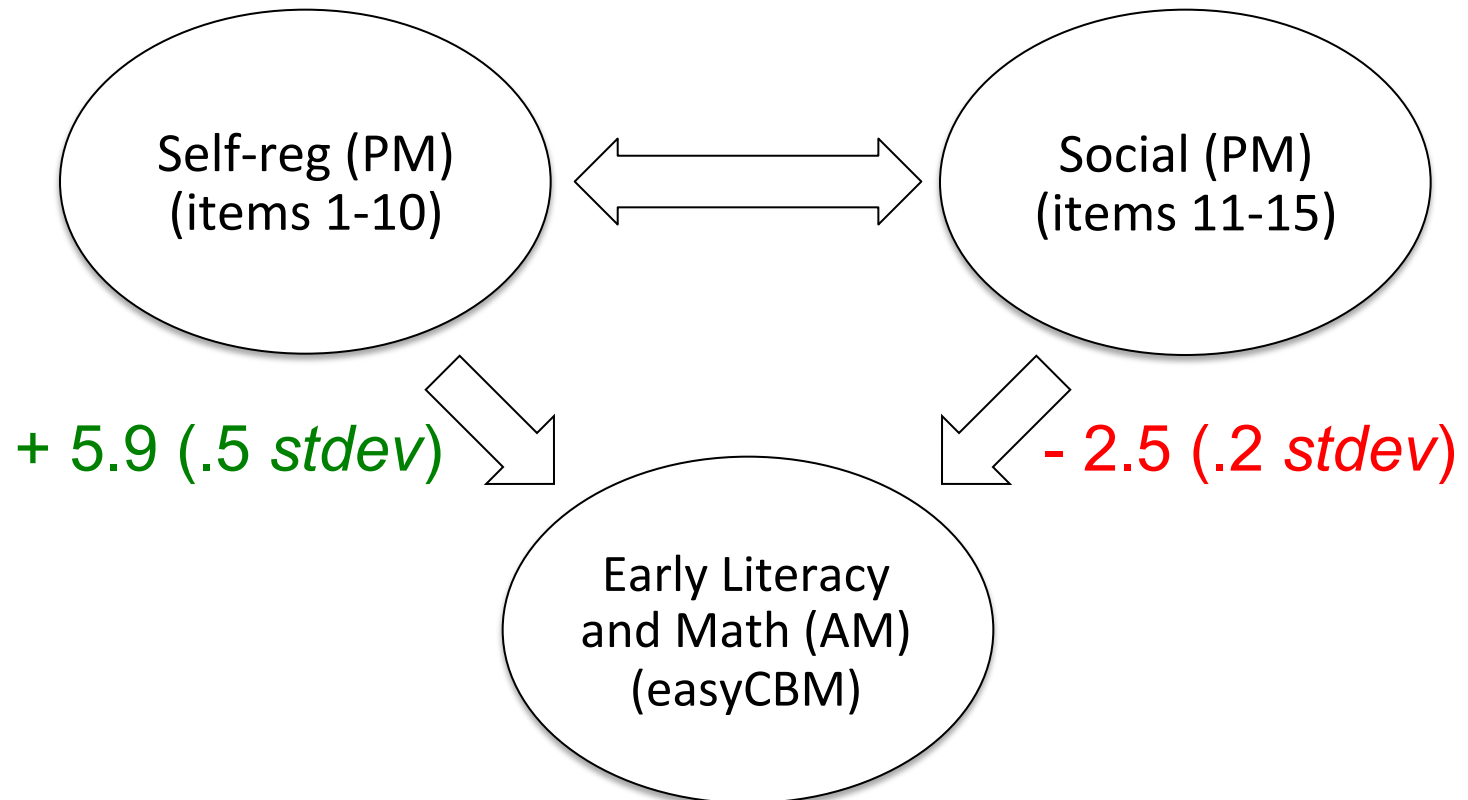
# Theoretical-Empirical Takeaways

- AM (early literacy/emergent reading and numeracy); PM (self-regulation/social-emotional)
- AM/PM skills are identifiable/measurable early in (pre)school and over time
- AM/PM (status and growth) are complexly intertwined and positively related over kindergarten and beyond

# Preliminary Evidence of Theoretical & Empirical Framework in the OKA

Tindal, Irvin and Nese (Manuscript submitted for publication)

\*\*OKA Pilot Data 12-13

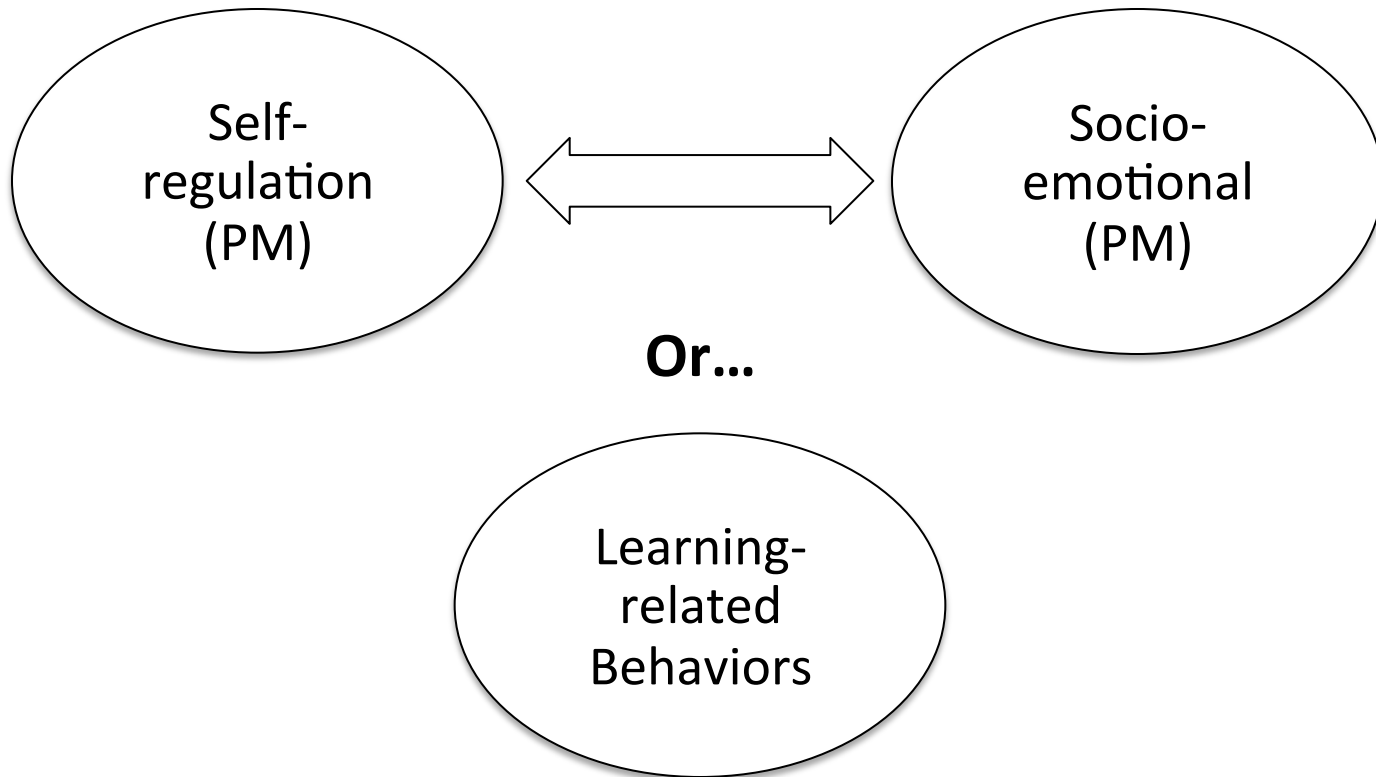


# Tindal et al. Takeaways

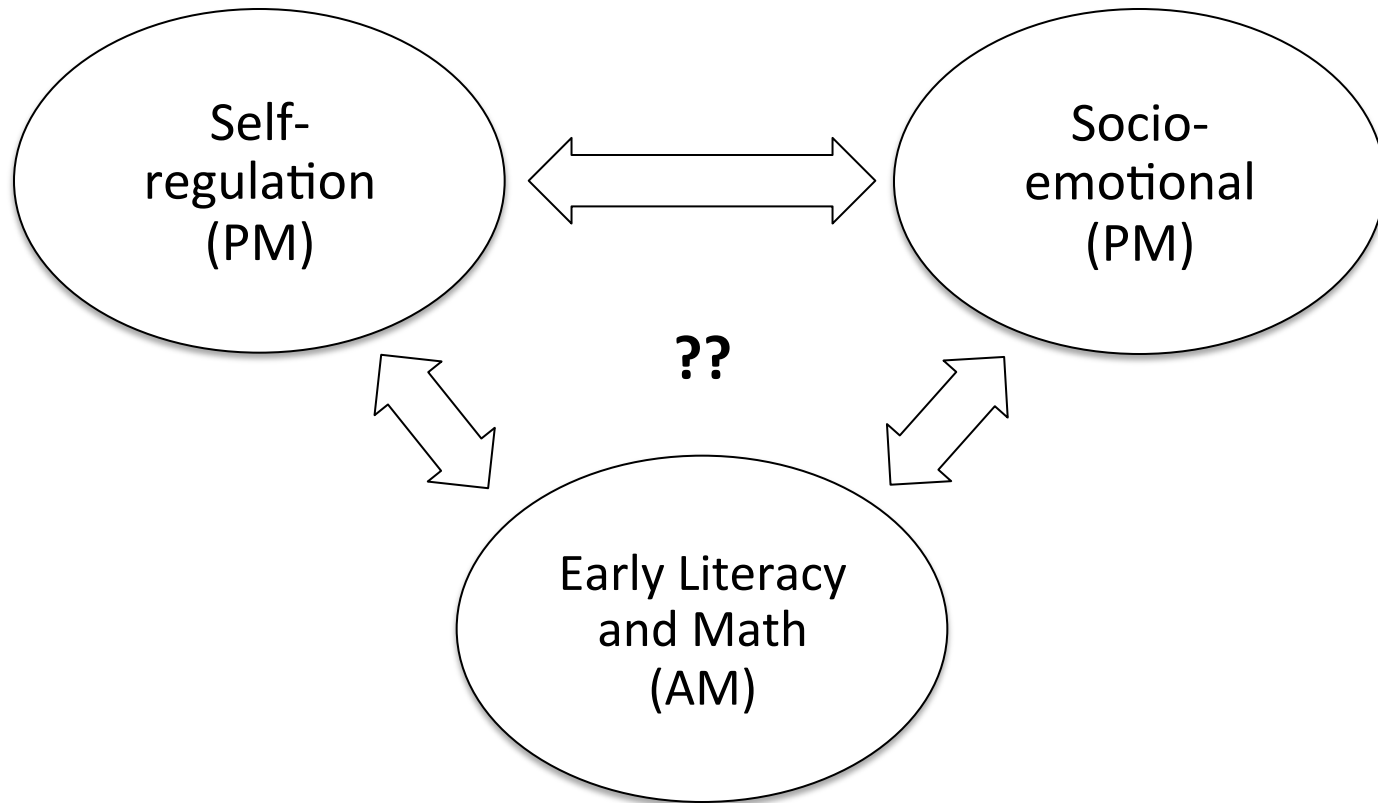
- Early literacy and math are often low (effective baseline) – supplement with learning-related behaviors to support students
- Self-regulation and social behaviors may not be distinct – behaviors that appear related to both
- The influence of learning behaviors on achievement skills is complex (+/-)

# Current Research

1. How are students' entry skills (i.e., self-regulation, social-emotional and early academic) related in the OKA?

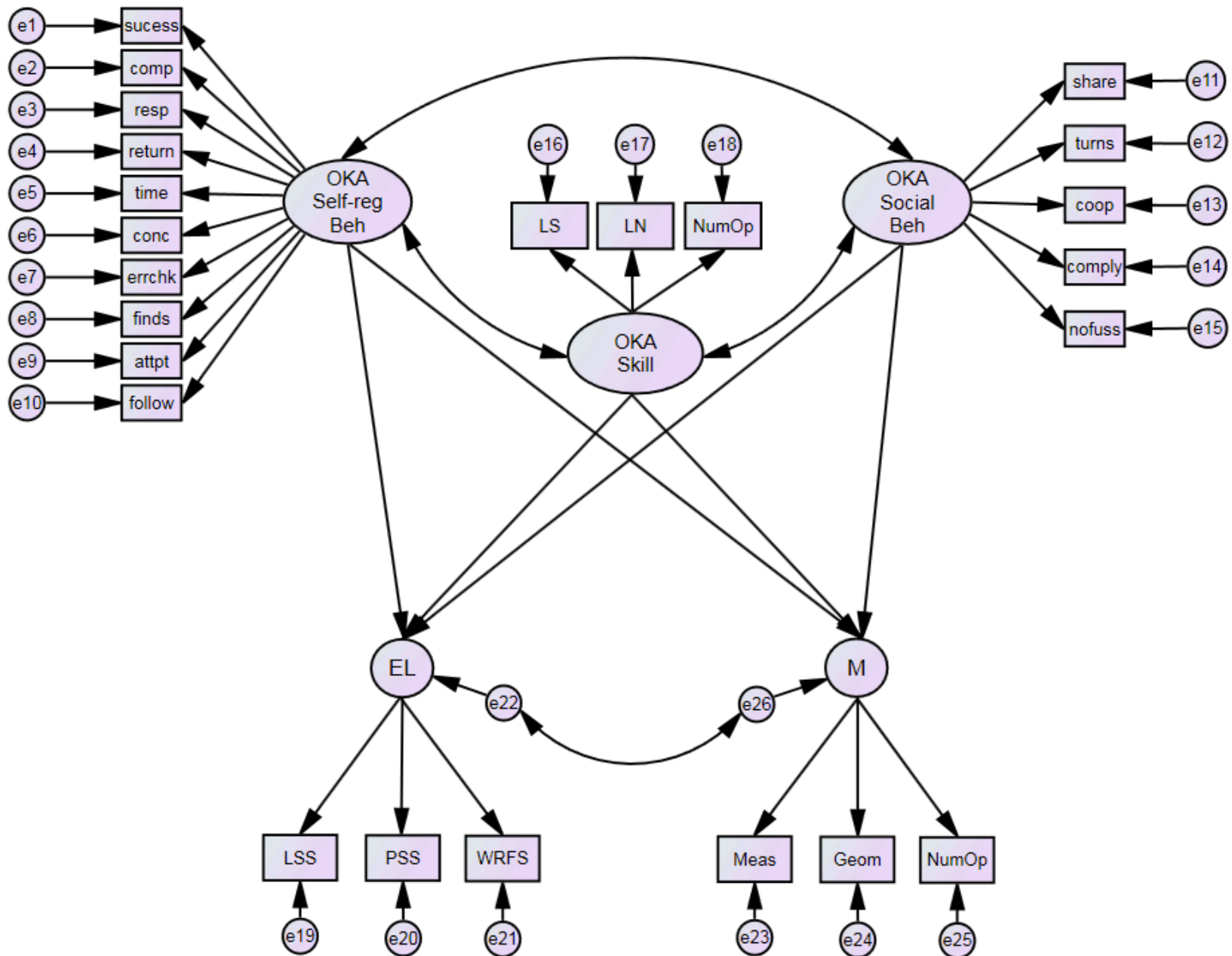


# Current Research cont.



# Current Research cont.

2. What are the effects of kindergartners' entry skills on end-of-year early literacy/reading and mathematics? (i.e., letter sounding, phoneme segmenting, word reading and mathematics spring scores)
3. ...when controlling for key student-level demographic factors? (i.e., race/ethnicity, gender, SPED status and ELL status)



# Future Considerations & Questions

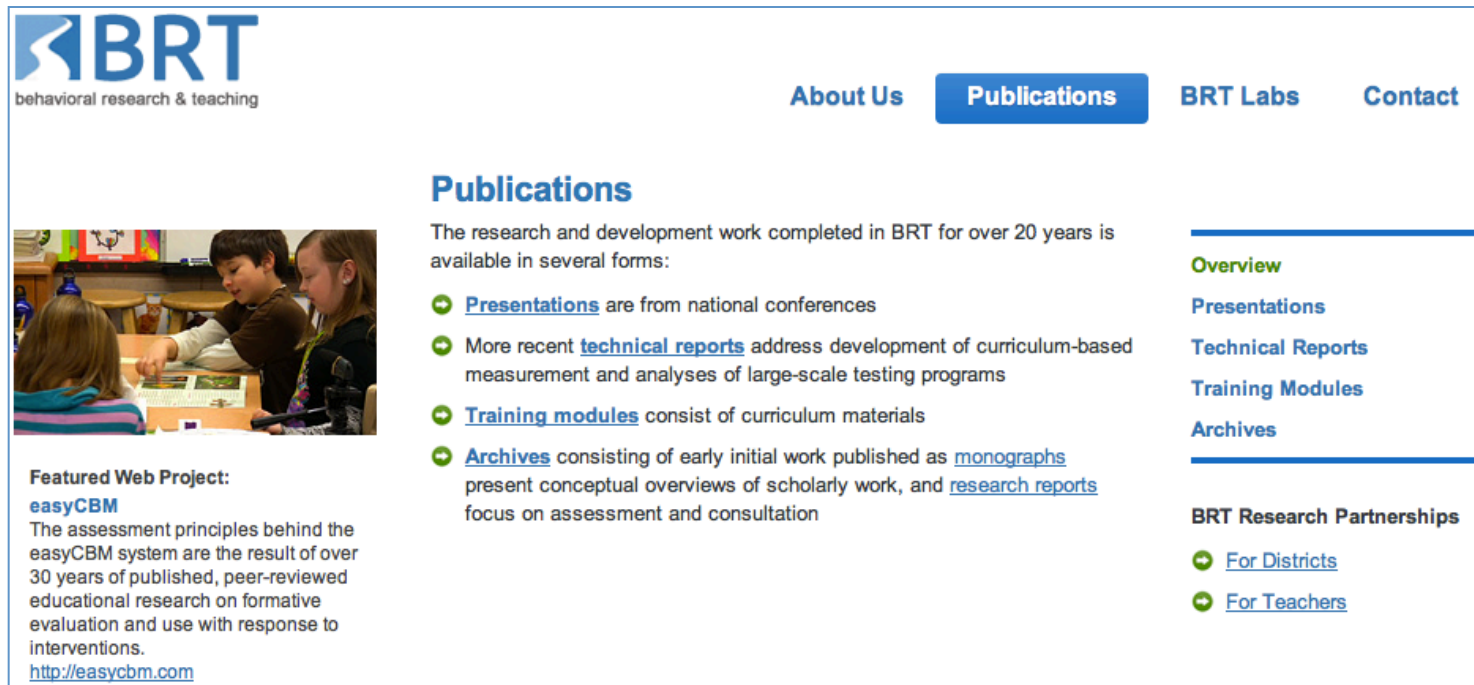
- Given the complexity of measuring learning-related behaviors—characterizing their interplay *and* influence on early achievement, does the OKA “snapshot view” need expanded and measured over time to (better) inform instructional decision-making?...to incorporate other key skills?...to predict growth?...to identify risk?
- Do learning-related behaviors change (grow) over time—with some petering out, becoming more crucial, or different behaviors arising?



# For More Information

<http://www.brtprojects.org>

<http://easyCBM.com>



The screenshot shows the BRT website's 'Publications' page. The header includes the BRT logo (behavioral research & teaching) and navigation links for 'About Us', 'Publications' (highlighted), 'BRT Labs', and 'Contact'. The main content area features a 'Publications' section with a list of publication types: Presentations, technical reports, Training modules, and Archives. A 'Featured Web Project' section highlights 'easyCBM' with a description and a link to its website. A right-hand sidebar contains a table of contents with links for Overview, Presentations, Technical Reports, Training Modules, Archives, and BRT Research Partnerships (For Districts, For Teachers).

**BRT**  
behavioral research & teaching

About Us **Publications** BRT Labs Contact

## 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>

**Overview**  
**Presentations**  
**Technical Reports**  
**Training Modules**  
**Archives**

**BRT Research Partnerships**

- [For Districts](#)
- [For Teachers](#)

# References

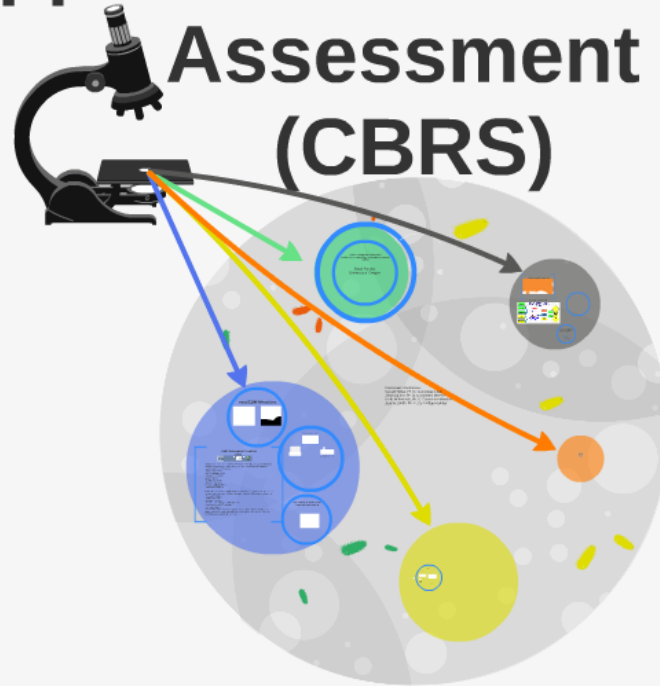
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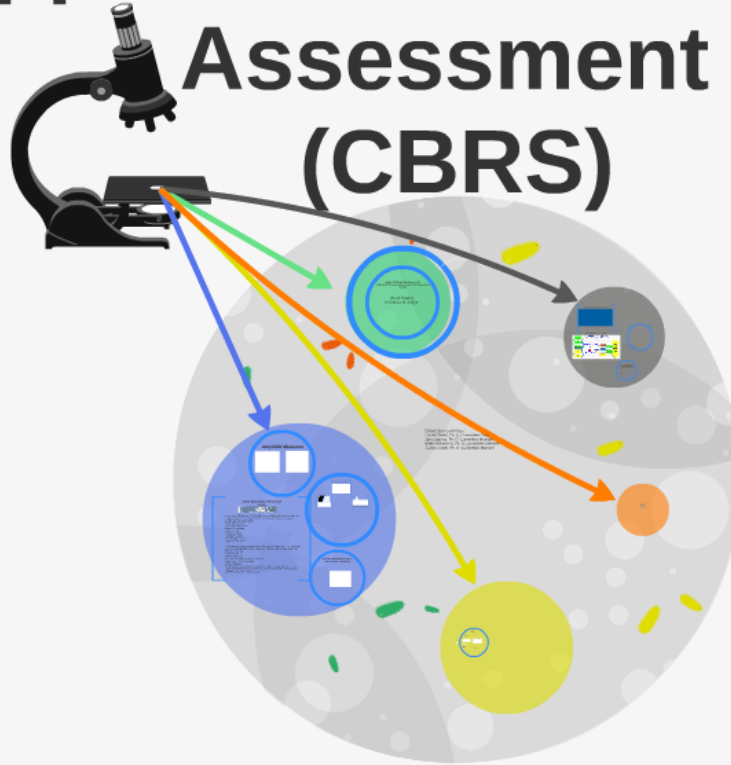
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Thank you.  
Questions and comments are  
welcome.

# Approaches to Learning Assessment (CBRS)



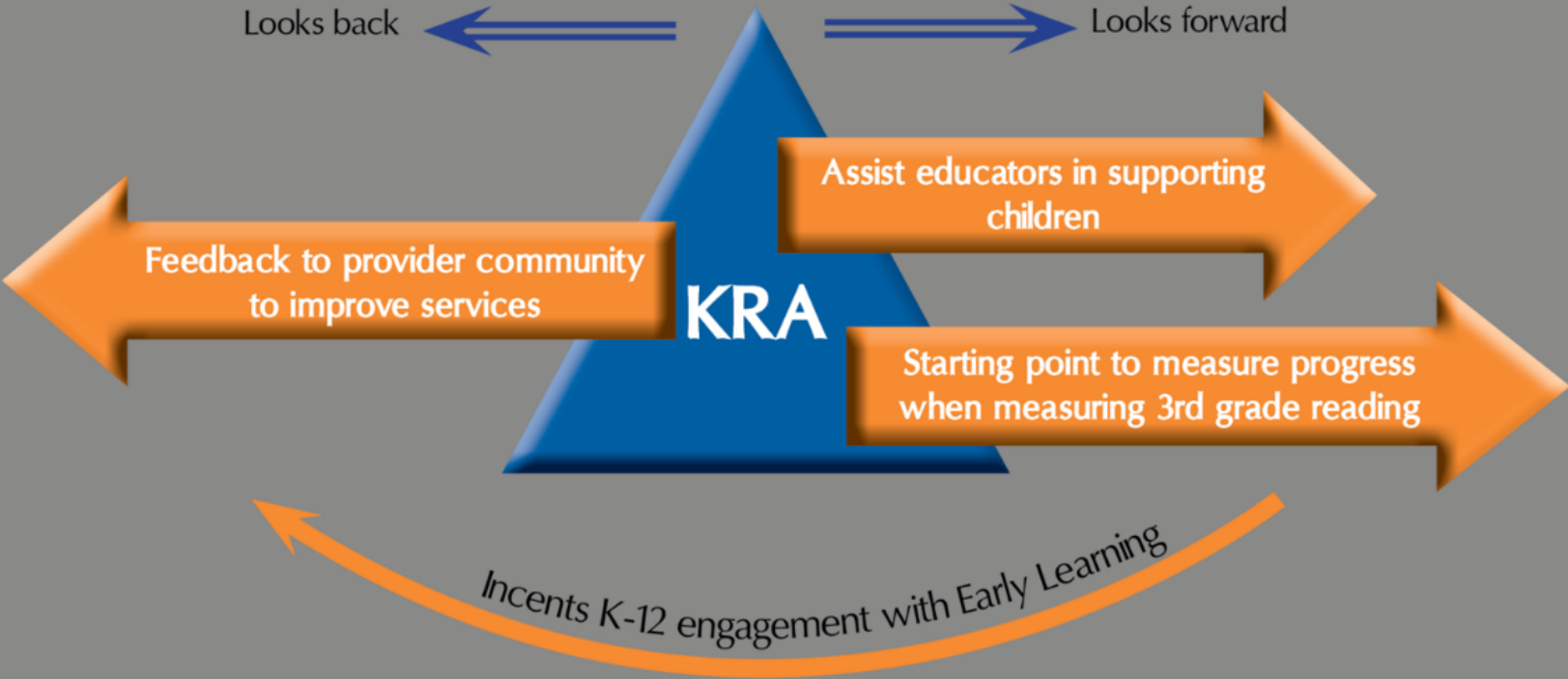
# Approaches to Learning Assessment (CBRS)



**Oregon Kindergarten Assessment:  
Analysis of the Approaches to Learning Assessment  
(CBRS)**

**Brock Rowley  
University of Oregon**

# Oregon Kindergarten Assessment





# **Learning to Read: A Review of Research on Growth in Reading Skills**

**Gerald Tindal, P. Shawn Irvin, Joseph F. T. Nese**  
**University of Oregon**

## Conclusion:

Our results indicated that readiness may be more social-behavioral than academic, and this hypothesis merits exploration in future empirical research. The model we posited provided a significant model of literacy with both social and task oriented behaviors being important in literacy. Nevertheless, this readiness is only determined at one point in time and as we found, it is the change over time that is so significant. As legislature focuses on Kindergarten readiness for all students, the onus is on researchers to help guide this focus, better define readiness, and meet the policy demands to prepare students, teachers, and school systems.

Screening instruments (*\*i.e., the CBRS*) should not be used for purposes other than a dichotomous sorting into two categories: child is in need of further evaluation, child appears to be typically developing and does not need further evaluation (Yovanoff & Squires, 2006). The CBRS currently has no suggested categories or cut score for determining typically developing students from those who may need further evaluation.

*\*Italics portion added for emphasis.*

1. What is an appropriate cut score on the Approaches to Learning Assessment (CBRS) using the CBCL as the criterion measure, to separate the CBRS into two dichotomous categories: "Student is typically developing", or "Student may be in need of further assessment?"

2. Based on the CBRS cut point, how well can we predict "point in time" risk in the Fall, Winter, and Spring on easyCBM measures? (ROC)

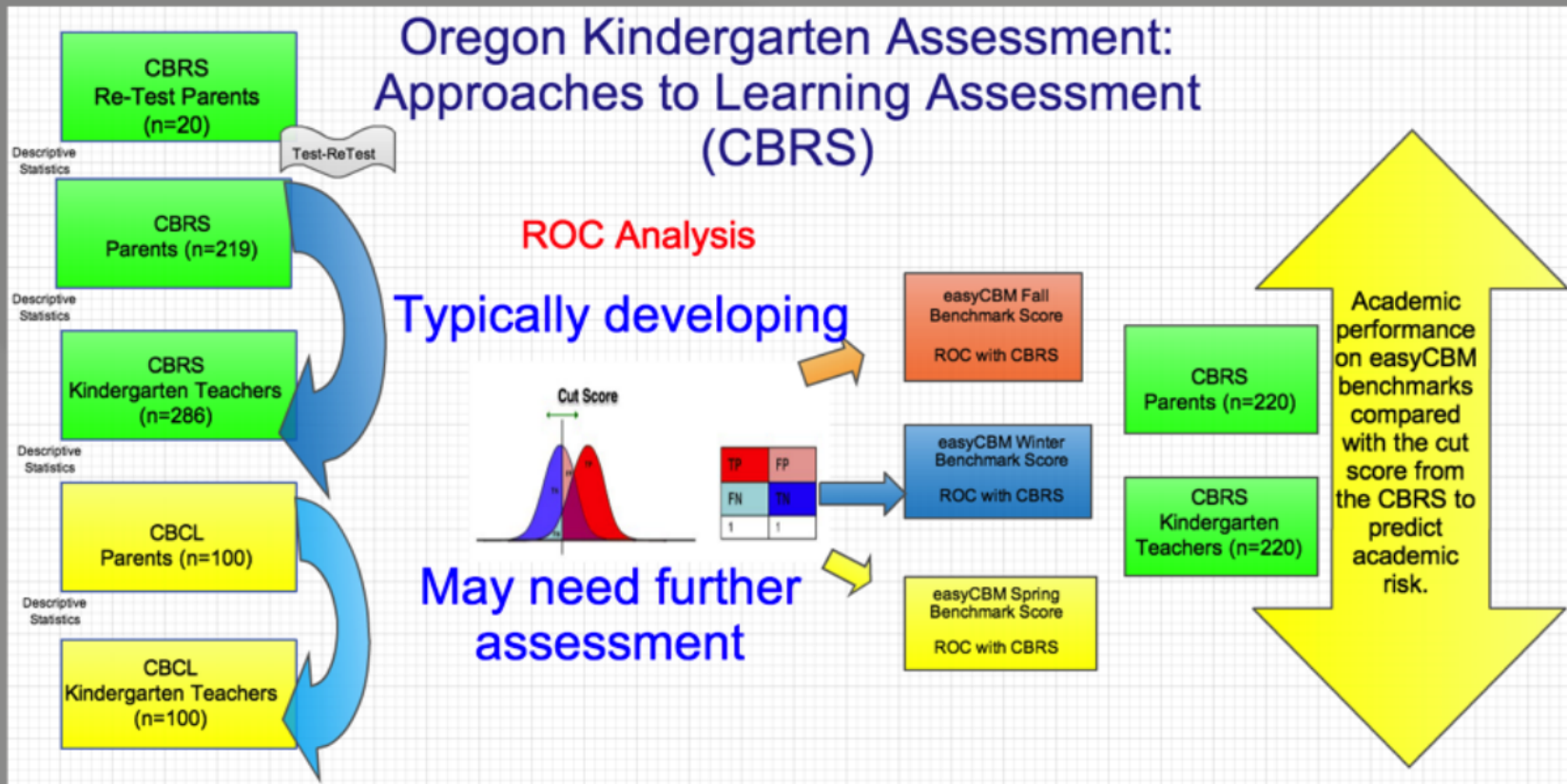
3. Based on the CBRS cut point (Fall CBRS) how well can we predict risk (based on easyCBM academic measures) in the spring of the next year?

4. What is the change (delta) over time (winter to spring) by student

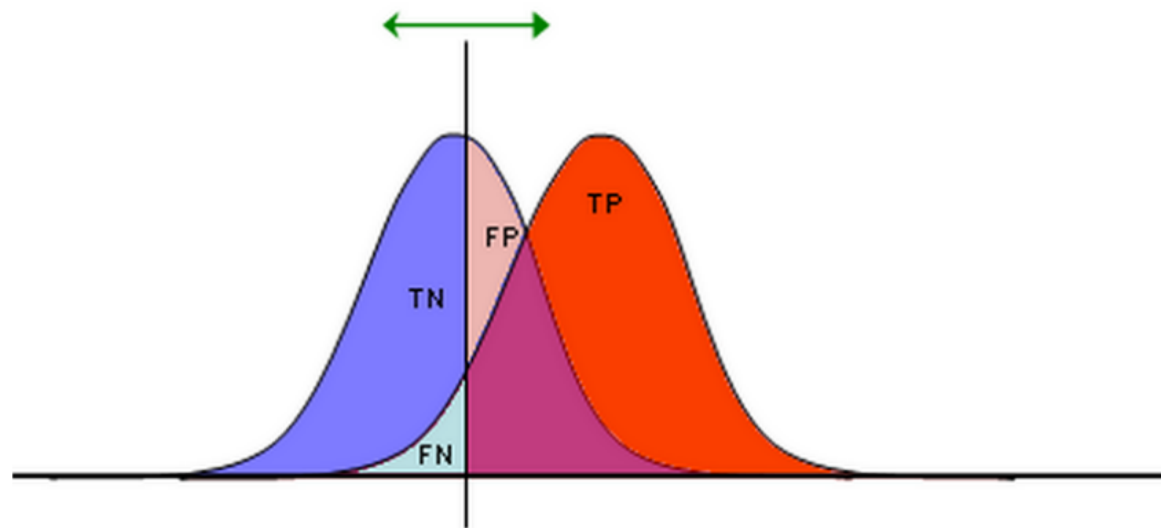


Prezi

# Overview of research study



## Cut Score



TP	FP
FN	TN
1	1

- Increased Academic Nature of Early Childhood and Kindergarten
- Importance of self-regulation skills (Task Behavior).
- Importance of social-emotional skills.
- Interplay between self-regulation and social-emotional with academics.
- Possible bias of respondents.
- Outcomes Associated with Behavioral Assessment

1. What is an appropriate cut score on the Approaches to Learning Assessment (CBRS) using the CBCL as the criterion measure, to separate the CBRS into two dichotomous categories; 'Student is typically developing', or 'Student may be in need of further assessment'?
2. Based on the CBRS cut point, how well can we predict 'point in time' academic risk in the Fall, Winter, and Spring on easyCBM measures? (ROC analysis)
3. Based on the established cut point (Fall CBRS) how well can we predict academic risk (based on easyCBM academic measures) in the spring of the kindergarten year?
4. What is the change (delta) over time (kindergarten year) in student behavioral performance on the CBRS from Fall to Spring?

## Approaches to Learning

The scale has 17 items. Teachers and parents responds to each item by circling numbers on a 1-5 scale, based on observation of individual students during the students first five years of life (parents) regular classroom routines (teachers) and activities.

- 1-The child **never** exhibits the behavior described by the item.
- 2-The child **rarely** exhibits the behavior described by the item.
- 3-The child **sometimes** exhibits the behavior described by the item.
- 4-The child **frequently** or usually exhibits the behavior described by the item.
- 5-The child **always** exhibits the behavior described by the item.

## Child Behavioral Rating Scale AKA: Approaches to Learning

1. Observes rules & follows directions without requiring repeated reminders.
2. Completes learning tasks involving 2 or more steps (e.g., cutting & pasting) in organized way.
3. Completes tasks successfully.
4. Attempts new, challenging tasks.
5. Concentrates when working on a task; is not easily distracted by surrounding activities.
6. Responds to instructions & then begins an appropriate task without being reminded.
7. Takes time to do his/her best on a task.
8. Finds & organizes materials & works in an appropriate place when activities are initiated.
9. Sees own errors in a task & corrects them.
10. Returns to unfinished tasks after interruption.

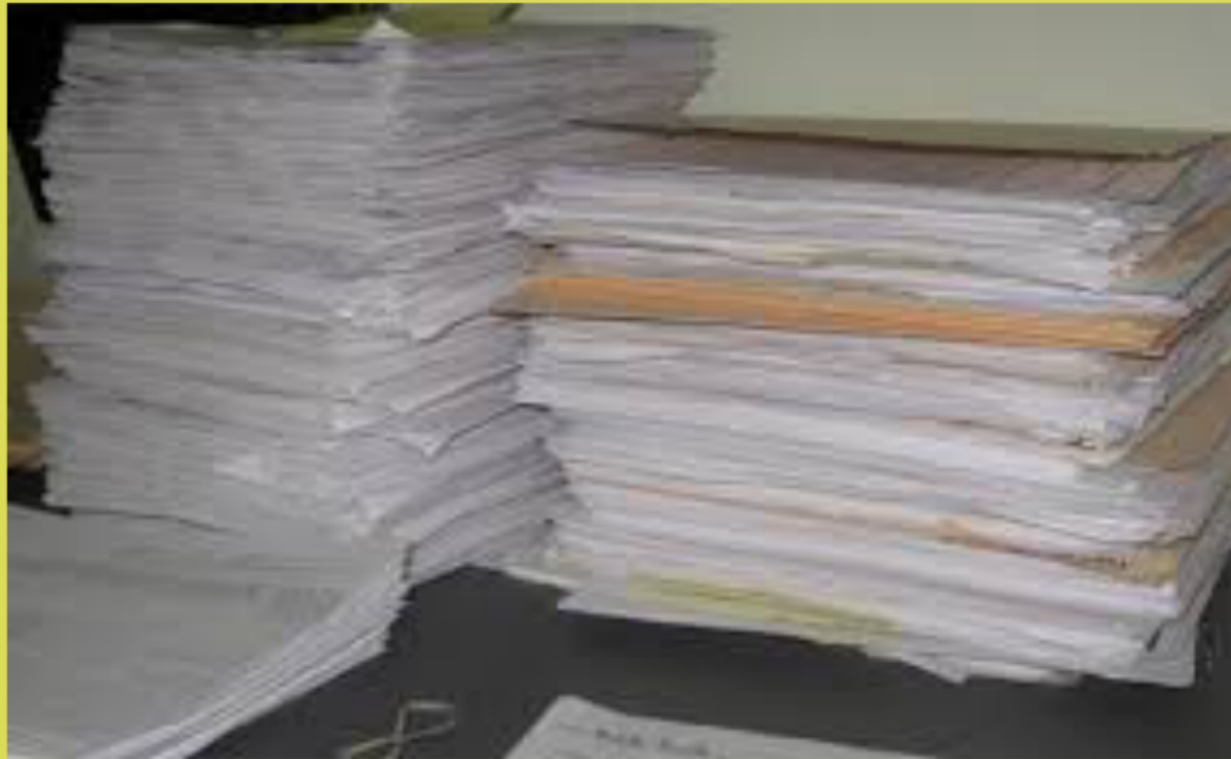


Child Behavioral Rating Scale  
AKA: Approaches to Learning

11. Willing to share toys or other things with other children when playing; does not fight or argue with playmates in disputes over property.
12. Cooperative with playmates when participating in a group play activity, willing to give & take in the group, to listen to or help others.
13. Takes turns in a game situation with toys, materials, & other things without being told to do so.
14. Complies with adult directives, giving little or no verbal or physical resistance, even with tasks that he/she dislikes.
15. Does not fuss when he/she has to wait briefly to get attention from teacher or other adult; child may be asked once to wait by the teacher or adult.

Child Behavioral Rating Scale  
(CBRS)

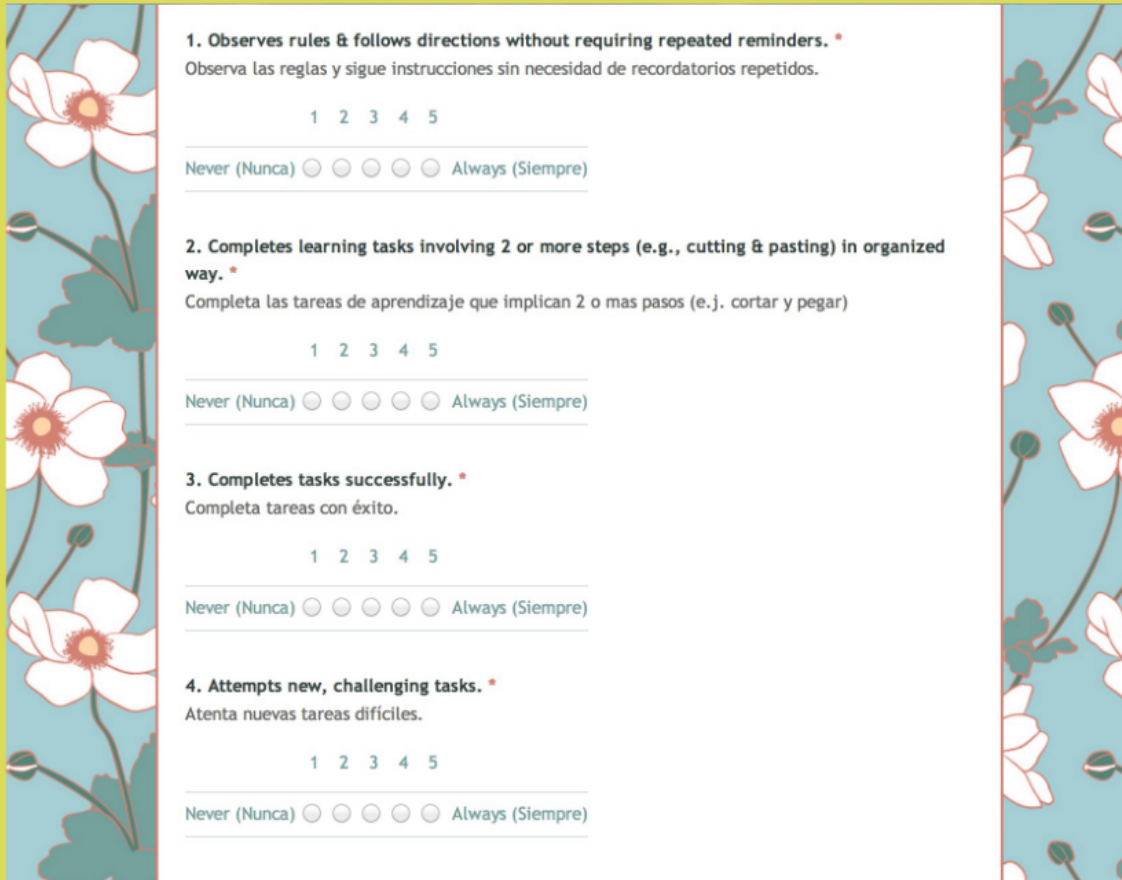
16. Expresses hostility to other children verbally (teasing, threats, taunts, name calling, "I don't like you," etc.).
17. Expresses hostility to other children physically (hitting, pinching, kicking, pushing, biting).



	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74
10/08/2013	3	4	4	4	4	4	4	3	4	4	4	3	3	4	3	4
10/08/2013	4	5	4	4	4	4	4	4	5	4	4	4	4	3	4	4
10/08/2013	3	3	3	3	3	3	3	3	3	2	3	3	3	3	3	3
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10/08/2013	5	4	4	4	4	5	4	5	3	5	5	5	5	5	5	5
10/08/2013	3	2	2	2	2	2	4	3	1	3	4	4	4	4	4	5
10/10/2013	4	3	3	3	3	3	4	3	3	4	3	3	3	3	3	3
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10/08/2013	2	3	3	3	2	3	2	3	2	2	2	2	2	2	3	2
10/08/2013	5	4	4	3	4	5	4	4	3	4	5	5	5	5	5	5
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10/08/2013	2	2	3	3	1	3	2	3	2	2	4	4	4	4	3	1
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10/10/2013	4	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4
10/08/2013	3	3	3	2	3	4	3	3	2	3	4	4	4	4	4	4



## Parent/Teacher view of Google Form



**1. Observes rules & follows directions without requiring repeated reminders. \***  
Observa las reglas y sigue instrucciones sin necesidad de recordatorios repetidos.

1 2 3 4 5

Never (Nunca)      Always (Siempre)

**2. Completes learning tasks involving 2 or more steps (e.g., cutting & pasting) in organized way. \***  
Completa las tareas de aprendizaje que implican 2 o mas pasos (e.j. cortar y pegar)

1 2 3 4 5

Never (Nunca)      Always (Siempre)

**3. Completes tasks successfully. \***  
Completa tareas con éxito.

1 2 3 4 5

Never (Nunca)      Always (Siempre)

**4. Attempts new, challenging tasks. \***  
Atenta nuevas tareas difíciles.

1 2 3 4 5

Never (Nunca)      Always (Siempre)

# Child Behavioral Checklist CBCL



**ASEBA**®   
Achenbach System of Empirically Based Assessment

School-Age (CBCL/6-18, TRF & YSR) Scales Empirically Based Syndromes Scales scored from the CBCL/6-18, TRF are based on factor analyses coordinated across the forms.

- Anxious/Depressed
- Withdrawn/Depressed
- Somatic Complaints
- Social Problem
- Thought Problems
- Attention Problems
- Rule-Breaking Behavior
- Aggressive Behavior

DSM-oriented scales comprise items identified by experts from many cultures as very consistent with DSM-5 categories. The six DSM-oriented scales are:

- Affective Problems
- Anxiety Problems
- Somatic Problems
- Attention Deficit/Hyperactivity Problems
- Oppositional Defiant Problems
- Conduct Problem

The DSM-oriented scales are scored from all three forms. Inattention and Hyperactivity-Impulsivity subscales are also scored from the TRF Attention Deficit/Hyperactivity Problems scale.

## Oregon Kindergarten Assessment Early Learning Hub Report Overview February 2014

### Setting Performance Targets:

Hubs are required to set a performance target for each domain of the Kindergarten Assessment for the total population of kindergarten students in the Hub's service area. Hubs should also identify gaps that exist among sub-groups of students, as well as disparities between schools, school districts, and geographic areas based on zip code within the Hub's service area, and are encouraged to set specific targets for closing these gaps.



## Kindergarten Readiness Assessment

	A	B	C	D	E	F	G	H	I	J	K
1	Free/Reduced Lunch Rate	Economically Disadvantaged	Students with Disabilities	English Language Learners	Minority Population	School	Approaches to Learning	Early Math	Letter Names	Letter Sounds	
2	68.9%	70%	19%	11%	31%	Central Point Elementary	3.4	7.7	15.9	3.9	
3	82.9%	75%	19%	*	13%	Patrick Elementary	3.6	8.8	18.8	5.3	
4	42.1%	45%	12%	*	14%	Richardson Elementary	3.7	8.7	22.8	8.0	
5	79.2%	74%	15%	9%	23%	Sams Valley Elementary	3.9	7.2	17.1	5.0	
6	79%	74%	19%	18%	35%	Jewett Elementary	3.5	8.5	20.6	7.2	

### SPECIFIC MEASUREMENT: Approaches to Learning

Baseline: <b>3.5</b> In Fall 2013, 2,968 kindergarteners in the SOELS Region received the OKA—Approaches to Learning assessment.	Year One: <b>Increase the average approaches to learning score by XX.</b>	Year Two: <b>Increase the average approaches to learning score by XX.</b>	Year Five: <b>Increase the average approaches to learning score by XX.</b>
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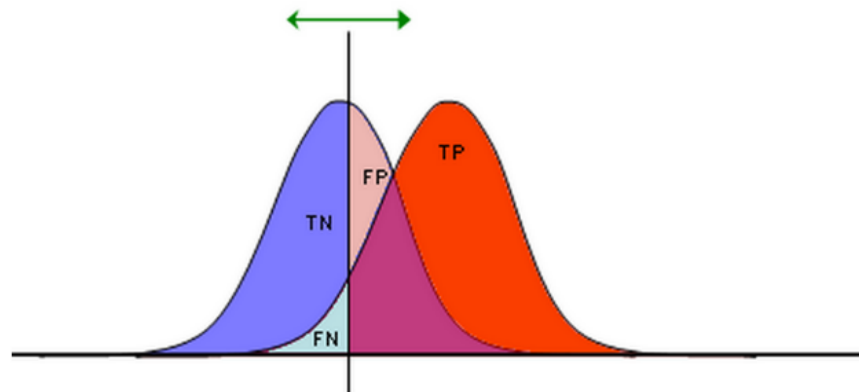


# Research District Result from the State

		<b>Approaches to Learning</b>			
		<i>Self Regulation</i>	<i>Interpersonal Skills</i>	<i>Total</i>	
<i>SubGroup Type</i>	<i>SubGroup</i>	<i>Average Rating (1 - 5)</i>	<i>Average Rating (1 - 5)</i>	<i>Average Rating (1 - 5)</i>	<i>N</i>
Total Population	Total Population	3.5	3.9	3.6	41,333
Total Population	Total Population	3.5	3.7	3.6	379
Ethnicity-Race	Asian	*	*	*	*
Ethnicity-Race	African American	*	*	*	*
Ethnicity-Race	Hispanic	3.5	3.7	3.6	54
Ethnicity-Race	American Indian/Alaskan Native	*	*	*	*
Ethnicity-Race	Multi-Ethnic	4.0	4.1	4.0	18
Ethnicity-Race	Pacific Islander	*	*	*	*
Ethnicity-Race	White	3.5	3.7	3.6	299
Gender	Female	3.7	3.9	3.8	186
Gender	Male	3.3	3.5	3.4	193



### Cut Score



TP	FP
FN	TN
1	1

Screening instruments should not be used for purposes other than a dichotomous sorting into two categories: child is in need of further assessment, child appears to be typically developing and does not need further assessment (Yovanoff & Squires, 2006).

Our results indicated that readiness may be more social-behavioral than academic, and this hypothesis merits exploration in future empirical research. Nevertheless, this readiness is only determined at one point in time and as we found, it is the change over time that is so significant (Tindal, Irvin, & Nese, 2013).