



# Improving Language and Literacy Development: How Research Can Drive System Wide Best Practice at the Program, Classroom & Child Levels

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## Agenda

- Who goes to Pre-K?
- What does research tell us about best practice in early education?
- How does policy and practice compare?
- Using research-based tools to implement a continuous improvement cycle

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### Preschool: National Overview 2007 of program participation

| <u>Age 4</u>                             | <u>Age 3</u>          |
|--|-----------------------|
| <b>74% in Centers</b>                    | <b>51% in Centers</b> |
| <b>22% State Pre-K</b>                   | <b>3% State Pre-K</b> |
| <b>11% Head Start</b>                    | <b>8% Head Start</b>  |
| <b>6% Special Ed.</b>                    | <b>4% Special Ed.</b> |
| <b>35% Private</b>                       | <b>36% Private</b>    |
| <small>(in 2009 25% state Pre-K)</small> |                       |

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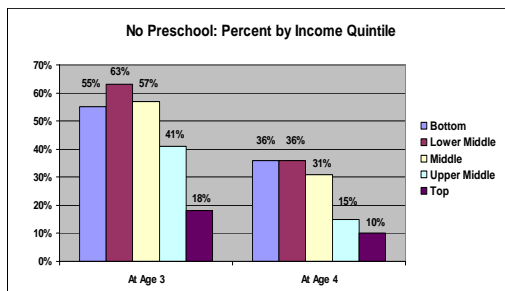
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### Benefits of Quality Early Education

#### Increased Educational Success and Adult Productivity

- Achievement test scores
- Special education and grade repetition
- High school graduation
- Behavior problems, delinquency, and crime
- Employment, earnings, and welfare dependency
- Smoking, drug use, depression

#### Decreased Costs to Government

- Schooling costs
- Social services costs
- Crime costs
- Health care costs (teen pregnancy and smoking)

Barnes, W. S. (2002) Early childhood education. In A. Molnar (Ed.) *School reform proposals: The research evidence* (pp. 126). Greenwich, CT: Information Age Publishers.

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### Meta-Analysis of US Research Since 1960

N= 123 Intervention Studies

#### Effects on Cognitive Abilities (higher quality studies)

.70 sd initial effect (.90 max)

.35 sd at ages 5-10 (.60 max)

.30 sd at age >10 (.45 max)

#### Effect on Social-Emotional & Behavior

.14 sd no change over time, larger in higher quality

#### Effect on Schooling (grade rep., spec. ed., grad.)

.15 sd no change over time

Cumilli et al. (2010) Meta-Analysis. *Teachers College Record*.

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### Significant Influences on Effect Size

N= 123 Studies of Early Childhood Education

|                         |          |
|-------------------------|----------|
| Time of Follow-Up       | Negative |
| Direct Instruction      | Positive |
| Individual/Small group  | Positive |
| Comprehensive Services  | Negative |
| Research Design Quality | Positive |

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## Who Needs High Quality Early Education?

Children in poverty—low skills at entry to K & high rates of school failure

Middle income children surprisingly high rates of problems as well

English Language Learners  
 Children with poorly educated parents  
 Others who are not necessarily poor

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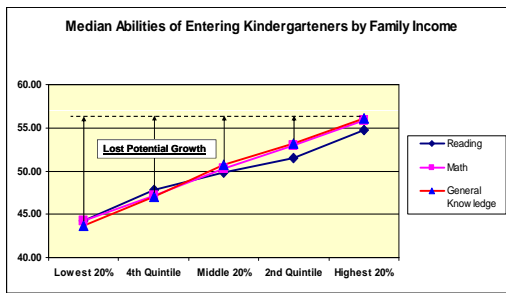
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## Cognitive Development Gap



Barnett, W. S. (2007). Original analysis of data from the US Department of Education, National Center for Educational Statistics, ECLS-K Base Year Data files and Electronic Codebook (2002).

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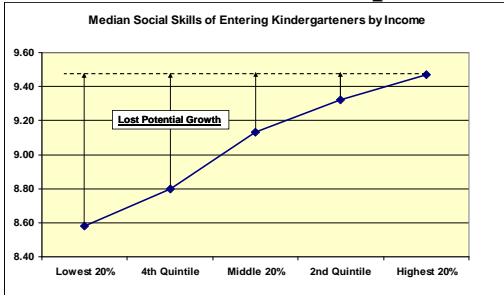
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## Social Skills Gap



Barnett, W. S. (2007). Original analysis of data from the US Department of Education, National Center for Educational Statistics, ECLS-K Base Year Data files and Electronic Codebook (2002).

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### School Failure and the Middle Class

Middle class children have fairly high rates of failure.  
Reducing these problems could generate large benefits.

| <u>Income</u> | <u>Retention (2004)</u> | <u>Dropout (2005)</u> |
|---------------|-------------------------|-----------------------|
| Lowest 20%    | 12%                     | 18%                   |
| 20-80%        | 8%                      | 9%                    |
| Highest 20%   | 4%                      | 2%                    |

Barnett, W. S. (in press). Benefits and costs of quality early childhood education. *The Children's Legal Rights Journal (CLRJ)*, Spring 2007. US Department of Commerce, Census Bureau, Current Population Survey, October 2004 and October 2005.

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### Why the Meta-analysis Results for Direct Instruction?

- What and how outcomes were assessed?  
But who can argue with greater achievement in high school and greater graduation rates?
- Comparison experiences were not educationally focused or were just too "open classroom"
- Later interventions post 1970 more nuanced?

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### Direct Instruction

Teacher-directed activities designed to teach information and develop skills.

Comes in different varieties.

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### Direct Instruction



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### Contrasting Direct Instruction

Sra. Blanco's class went on a field trip to the pet store down the street where, much to the children's fascination and the adults' dismay, the owner fed the snakes live mice. Back at the classroom some children are looking at the page in Amazing Snakes on boa constrictors. They ask Sra. Blanco what the snake is called.

She tells them and then says: "Constrictor, that's an interesting word. Constrict means to squeeze or tighten. Does your mommy or daddy ever say, 'You're squeezing me too tight,' when you give them a really big hug? When you squeeze too tight like that you are being a constrictor." She points out how the snake in the picture is squeezing its prey – "the animal it will eat."

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### Illustrations of Young Children's Language and Literacy Development: Evidence of Children's Construction of Language

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Andy knew the term “upside-down” so he invented the term “upside-up” for right-side up. When he saw a traffic light that was horizontal, he said, “Look Mommy, it’s side-side up.”

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As Charley sat in his grandmother’s lap, pulling her clip-on earring on and off, he said, “This is my responsibility.”

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- Child: “We goed to the park and rided on a rig-a-majig”
- Adult: “You we went to the park. Did you say you rode on the rig-a mijig for a long time?”
- Child: “ No, we roded for a short time. It was the bestest ride.”

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While a child was painting in the art area, he sang, "In and out, clouds and houses, up and down, fish around, left and right, pencils and markers, dots and dirt, pots and parts, spaceships and hayships, hay and kay."

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mamá *lluu*  
papá *llue*  
oso *ooooo*

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mamá R I O A      oso X R O I  
papá O A I R      sapo O I R A

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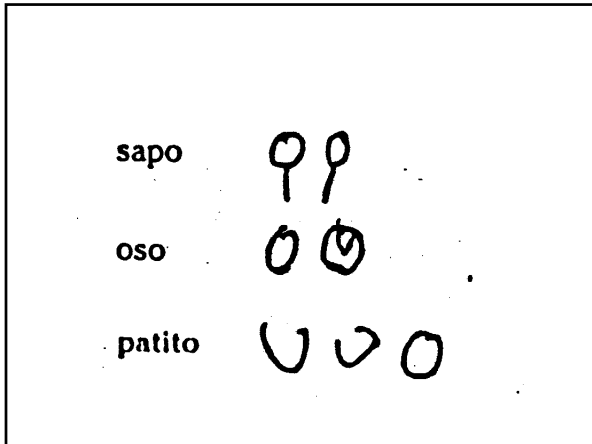
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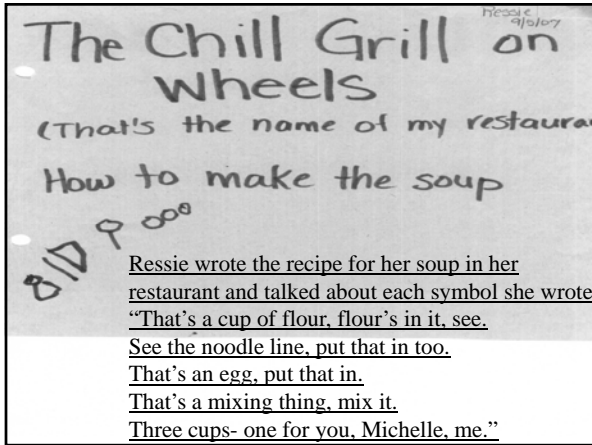
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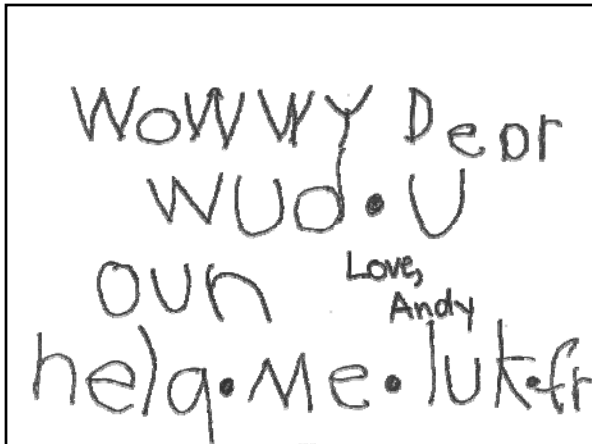
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**EARLY READING + WRITING =  
SCHOOL SUCCESS**

- Oral language is the base for literacy.
- Strong language skills in any language are predictive of literacy achievement.
- Children invent or construct their understanding of language and literacy.
- Teachers and parents can support this by providing interesting experiences with content and opportunities to explore how language and literacy work.

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**High Quality Preschool Programs  
Needed to Produce Benefits**

- Well-educated, adequately paid teachers
- Good curriculum and ongoing professional development as part of reflective practice
- Small classes and reasonable teacher-child ratios
- Strong supervision, monitoring, and review
- High standards and accountability

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**Current Preschool Programs**

- Child care: poorly educated, poorly paid teachers; may have no curriculum and little PD, ratios may be poor, little educational supervision, no accountability
- Head Start: teacher qualifications vary and pay is poor; curriculum and PD can be good, ratios reasonable, supervision variable
- State Pre-K: everything varies depending on the state and sometimes within state

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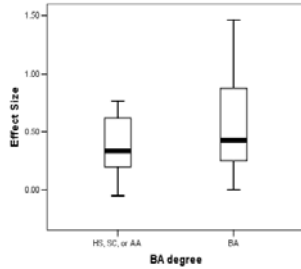
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**Why Teacher Education Matters**  
 (Meta-analysis by Pamela Kelley & Greg Camilli)




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**Effects of Pre-K Programs at Age 4**  
 (Effect sizes in standard deviation units)

|                 | <u>8 State Pre-Ks</u> |        |         | Perry     | Tulsa | Head        |
|-----------------|-----------------------|--------|---------|-----------|-------|-------------|
|                 | Avg                   | Lowest | Highest | Preschool | Pre-K | Start (adj) |
| PPVT            | .26                   | -.14   | .47     | .75       | NA    | .09 (.13)   |
| Print Awareness | .97                   | .70    | 1.23    | NA        | .99   | .25 (.34)   |
| Math            | .38                   | .16    | .54     | NA        | .36   | <. ? (.18)  |

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**Tulsa Public Schools and Head Start v. National Head Start**

|             | <u>TPS</u> | <u>THS</u> | <u>NHS (adj.)</u> |
|-------------|------------|------------|-------------------|
| Math        | .36        | .37        | <? (<.18)         |
| Letter-Word | .99        | .51        | .22 (.34)         |
| Spelling    | .74        | .33        | .16 (.22)         |

Effects in standard deviation units for comparison  
 NHS (adj.) = National Head Start effects (adjusted for crossovers).  
 TPS = Tulsa Public Schools  
 THS = Tulsa Head Start with public school teachers

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**Lasting NJ Pre-K Gains**

- Gains in language, literacy, math
- 2 years have twice the effect of 1
- Effects sustained through 2<sup>nd</sup> grade
- Grade repetition cut in half by 2<sup>nd</sup> grade

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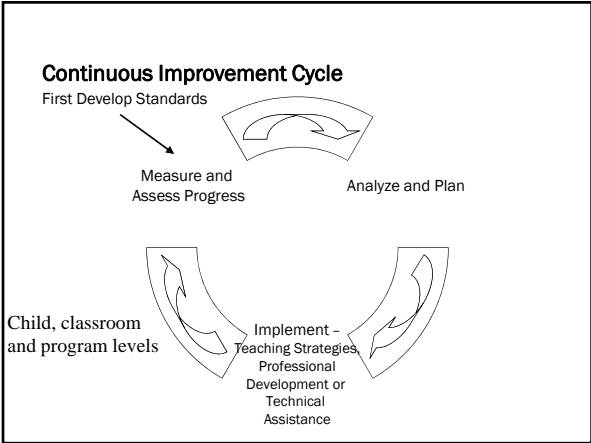
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**Learning to Look: Improving teaching and learning**

THE CHILD  
Performance-Based  
Portfolio Assessment

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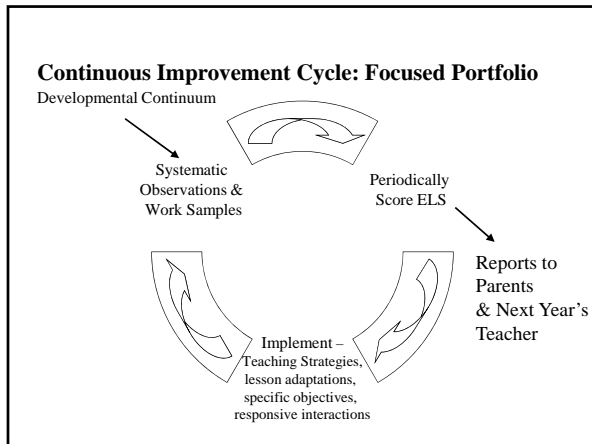
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### Why Use Observation-Based Performance Assessment?

- Standardized tests can be misused
- Children are not “reliable” – captures children’s skills and knowledge in real life over time
- Compares children to themselves, is comprehensive and focuses on strengths and interests
- Understandable to parents
- **Informs and improves teaching**

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| (10) Writing      | 1   | 2   | 3  | 4 | 5 |
|-------------------|---|---|--|---|---|
| <b>Composing</b>  | Verbally labels own drawing or gives dictation to adult to be written on a drawing or painting. | Uses symbols for a purpose and gives meaning to the writing | Uses written letters/words for a purpose and provides extensive discourse (e.g. story line, multi-step recipe, etc.) |   |   |
| <b>Production</b> | Draws or scribbles  | Makes forms that resemble letters; May write own name       | Strings conventional letters together (other than their name)  |   |   |

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### Zone of Proximal Development (ZPD)

- Development as more than a series of milestones or one score on a test of achievement
- Vygotsky saw it as a zone or a region.
- The skills that emerge next given appropriate assistance or support.
- There are skills that are outside of the ZPD

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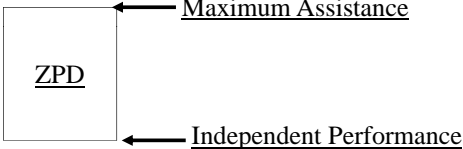
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### Zone of Proximal Development (ZPD)

The ZPD is defined by two levels:



A diagram showing a rectangular box labeled "ZPD". To the right of the box, two horizontal arrows point towards the box. The top arrow is labeled "Maximum Assistance" and the bottom arrow is labeled "Independent Performance".

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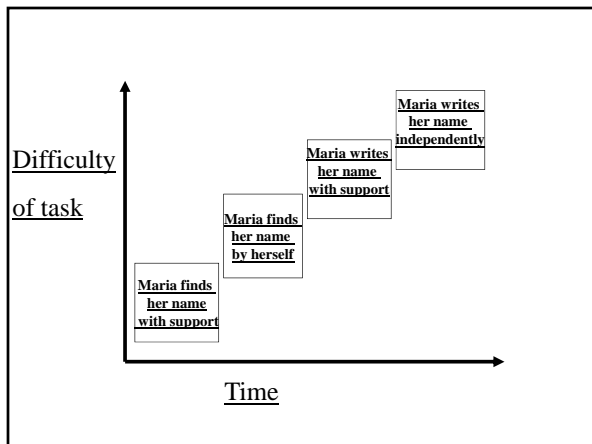
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Without observing and documenting  
it's difficult to know:

- where the child's ZPD is
- how to scaffold learning
- whether the scaffold is effective

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**Criteria for Selection**

- Meaningful to decision-makers, teachers, parents
- Focused, manageable instrument based on state standards
- Benchmarked for understanding and documenting the development of learning
- Research derived and validated

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**Can PBA Replace Standardized Assessments?**

Results of 3 studies:

- Inter-rater reliability is accomplished
- Teaching improves with implementation of the system
- Concurrent validity is moderate to good with comprehensive standardized instruments.

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## Learning to Look: Improving teaching and learning THE CLASSROOM

### The Reflective Coaching Cycle

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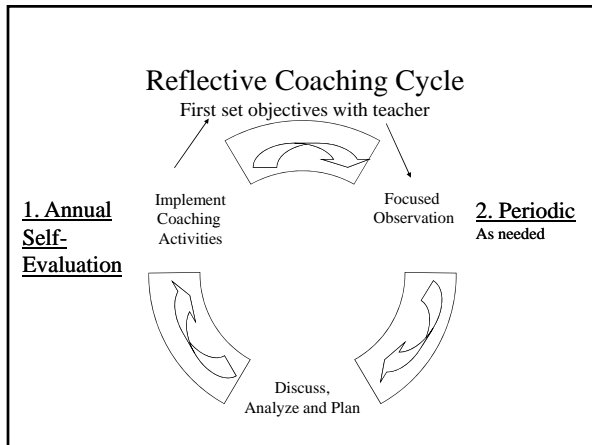
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| Language/Literacy Domains | Oral language: Speaking and listening | Reading: Literature | Reading: Informational Texts | Reading: Foundational Skills | Writing | Language: Conventions & vocabulary |
|---------------------------|---------------------------------------|---------------------|------------------------------|------------------------------|---------|------------------------------------|
| Transitions               |                                       |                     |                              |                              |         |                                    |
| Meals/snack               |                                       |                     |                              |                              |         |                                    |
| Free Play/centers         |                                       |                     |                              |                              |         |                                    |
| Small Group               |                                       |                     |                              |                              |         |                                    |
| Large Group               |                                       |                     |                              |                              |         |                                    |
| Outside                   |                                       |                     |                              |                              |         |                                    |

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|  |       |
| <b>1. Teacher promotes listening with understanding to environmental sounds, directions and conversations:</b><br>a) Gives progressively more complex directions.<br>b) Plays listening games in which children identify common objects through sounds they make (e.g. a phone ringing, a truck passing by or blowing its horn, animal sounds, musical instruments, voices of peers in room, etc.)<br>c) Provides a variety of listening activities including stories, songs, rhymes, chants and individual conversations. | Notes |

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**Learning to Look: Improving teaching and learning**  
  
The Program

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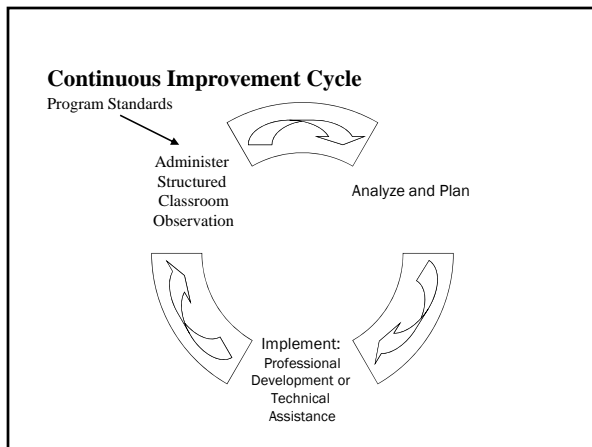
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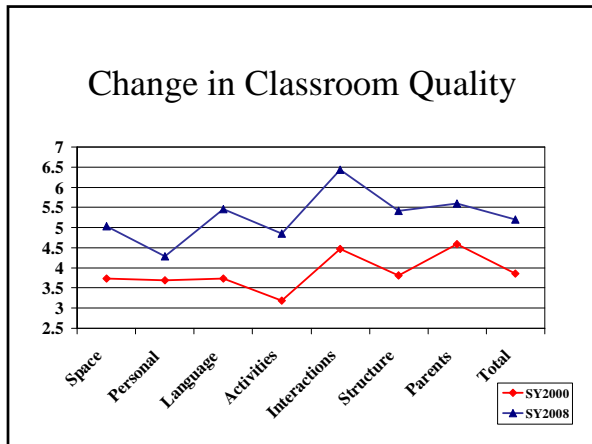
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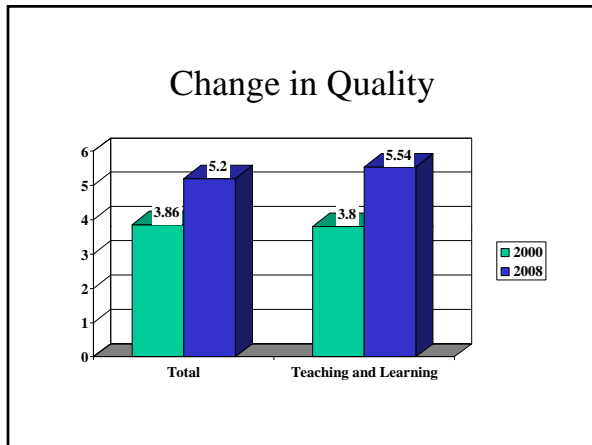
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**Observing Essential  
Literacy Practices: The  
Supports for Early Literacy  
Assessment**  
(SELA; Smith, Davidson, Weisenfeld)

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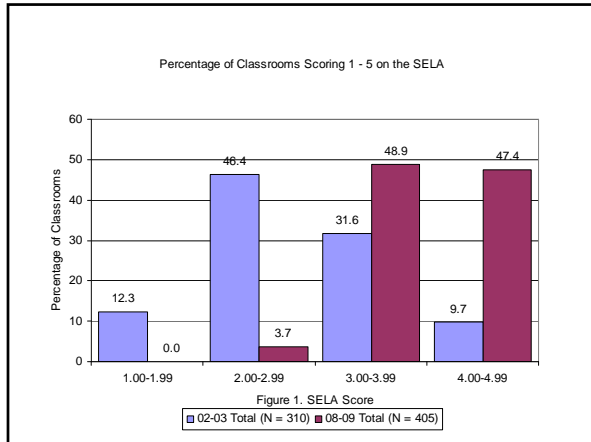
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| 1. Using print in the environment <b>for a purpose</b> | 4.38 |
| 2. Creating inviting places to look at books           | 4.51 |
| 3. Inviting interest in a wide variety of books        | 4.24 |
| 4. Writing materials are available & easy to use       | 4.61 |
| 5. Literacy items in the pretend area                  | 3.85 |
| 6. Teachers encourage and extend oral language         | 4.19 |
| 7. Using language that introduces new words...         | 3.75 |
| 8. Organizing activities that promote oral lang...     | 4.02 |
| 9. Sharing books to build lang., knowledge ...         | 4.44 |

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| 10. Calling attention to the functions and features of print | 3.59        |
| 11. Drawing attention to the sounds in words                 | 2.72        |
| 12. Helping children recognize letters                       | 3.39        |
| 13. Promoting interest in writing                            | 3.77        |
| 14. Promoting early lit. through comm. w/ parents            | 3.91        |
| 15. Special activities and supports to involve parents       | 3.29        |
| 16. Promoting maintenance & dev. of native lang.             | 3.67        |
| <b>Total SELA score</b>                                      | <b>3.90</b> |

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## Continuous Improvement Cycle

Improves teaching and learning through systematic data collection, analysis and implementation at the child, classroom and program level.

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| Language/<br>Literacy<br>Domains | Oral<br>language:<br>Speaking<br>and<br>listening | Reading:<br>Literature | Reading:<br>Informational<br>Texts | Reading:<br>Foundational<br>Skills | Writing | Language:<br>Conventions<br>& vocabulary |
|----------------------------------|---|------------------------|------------------------------------|------------------------------------|---------|--|
| Transitions                      |   |                        |                                    |                                    |         |  |
| Meals/snack                      |   |                        |                                    |                                    |         |  |
| Free Play/<br>centers            |   |                        |                                    |                                    |         |  |
| Small Group                      |   |                        |                                    |                                    |         |  |
| Large Group                      |   |                        |                                    |                                    |         |  |
| Outside                          |   |                        |                                    |                                    |         |  |

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