

# Measuring Change in the Practice of Literacy Teachers

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# A Developmental Observation System to Chart Change in Teacher Language and Literacy Practice (DLLT)

- Designed to link professional development and changes in teacher practice
- Represents a specific instantiation of teaching standards which emerges from a theory of student literacy development
- At the nexus of PD/coaching and changes in teacher practice
  - As an evaluation tool to link professional development, instructional practice and student learning gains
  - As a practical map of teacher development to use in the context of coaching

# Structure of the Observation System

## □ Six rubrics, one for each core instructional activity:

- interactive read aloud
- shared reading
- guided reading
- interactive writing
- writing workshop
- word study

*Each rubric contain ratings of the salient dimensions within each instructional activity*

## □ Two integrative rubrics:

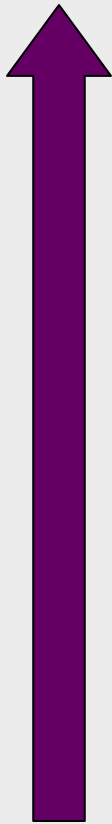
- Foundational aspects of teaching (including organization, student talk, classroom community)
- Teaching for strategies (including literal thinking, inferential and analytic thinking, word solving, fluency and phrasing)

# Example: Guided Reading Rubric has 5 separate components that are rated

- Text Selection
- Text Introduction
- During the Reading
- After Reading
- Word Work

# Developmental Model of Teacher Practice Embedded within Each Rubric

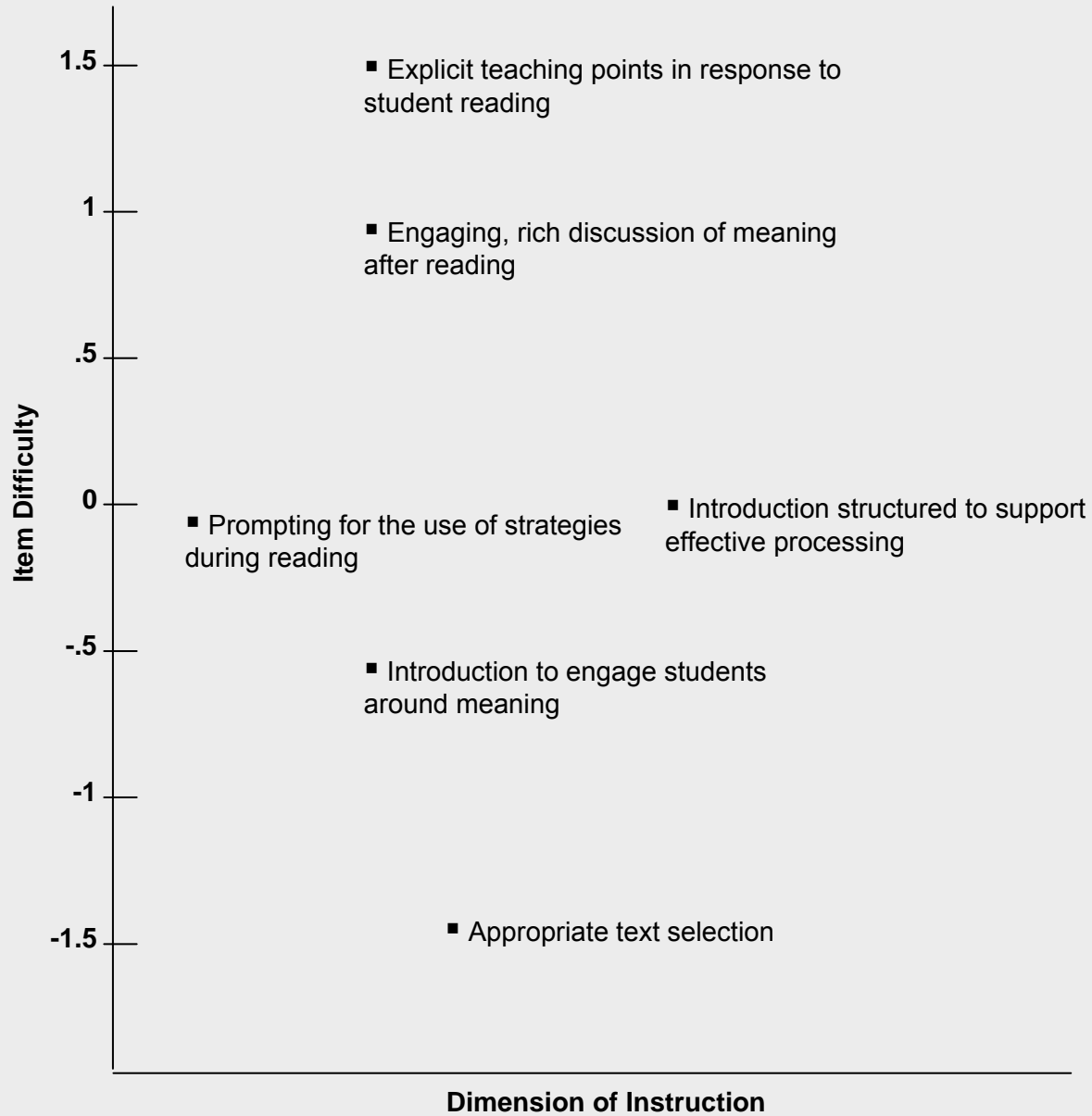
Expertise development



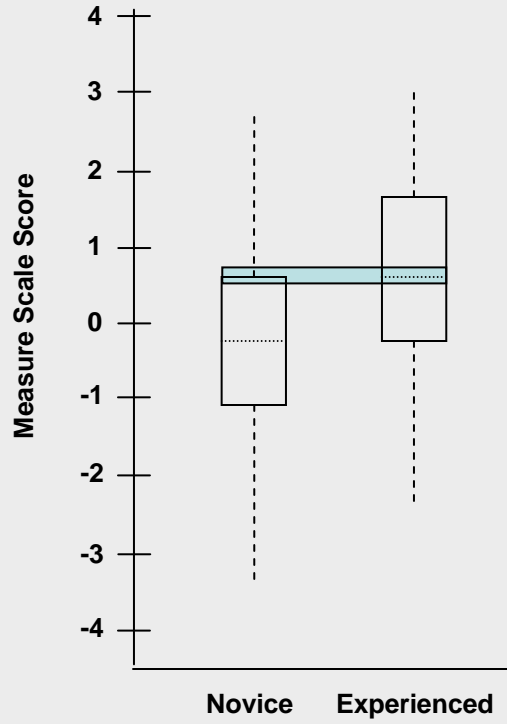
- Facilitation of student talk and sharing that creates opportunities to deepen their thinking and understanding
- Strategic selection of specific teaching points based on student reading and writing behaviors in the context of various activities
- A general explication and demonstration of principles underlying the reading and writing process as scaffolding for students
- Focus on the organizing routines and materials for the practice

# Psychometrics of Measuring Changes in Teacher Literacy and Language Practice

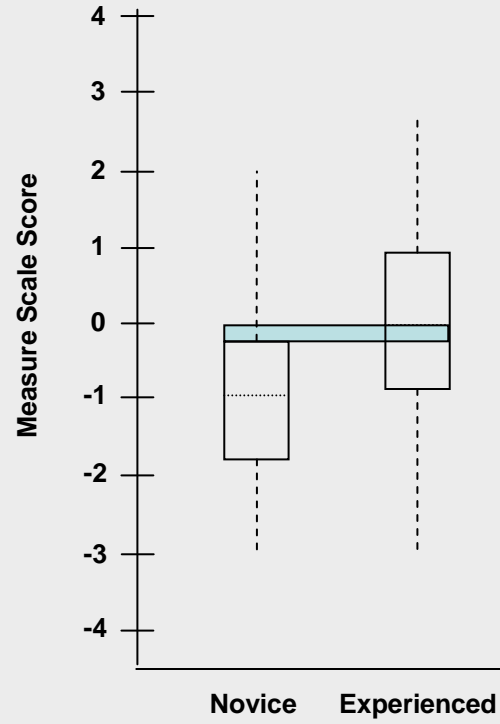
- Item Response Theory (IRT) – Rasch Model
  - A scaling of the dimensions of instruction from less to more frequently observed (item difficulty)
  - Consistency of this item map across teachers (“limited misfit”)
  - A conceptual progression of the items that is coherent and demonstrates increasing levels of sophistication



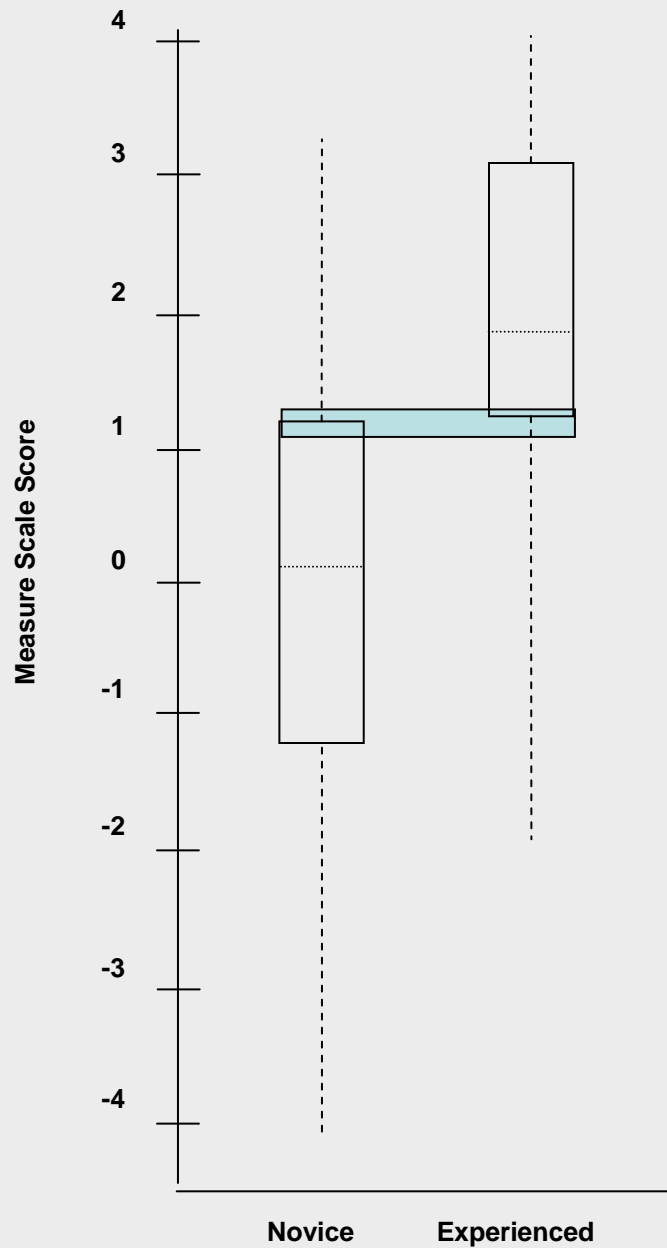
**Guided Reading**



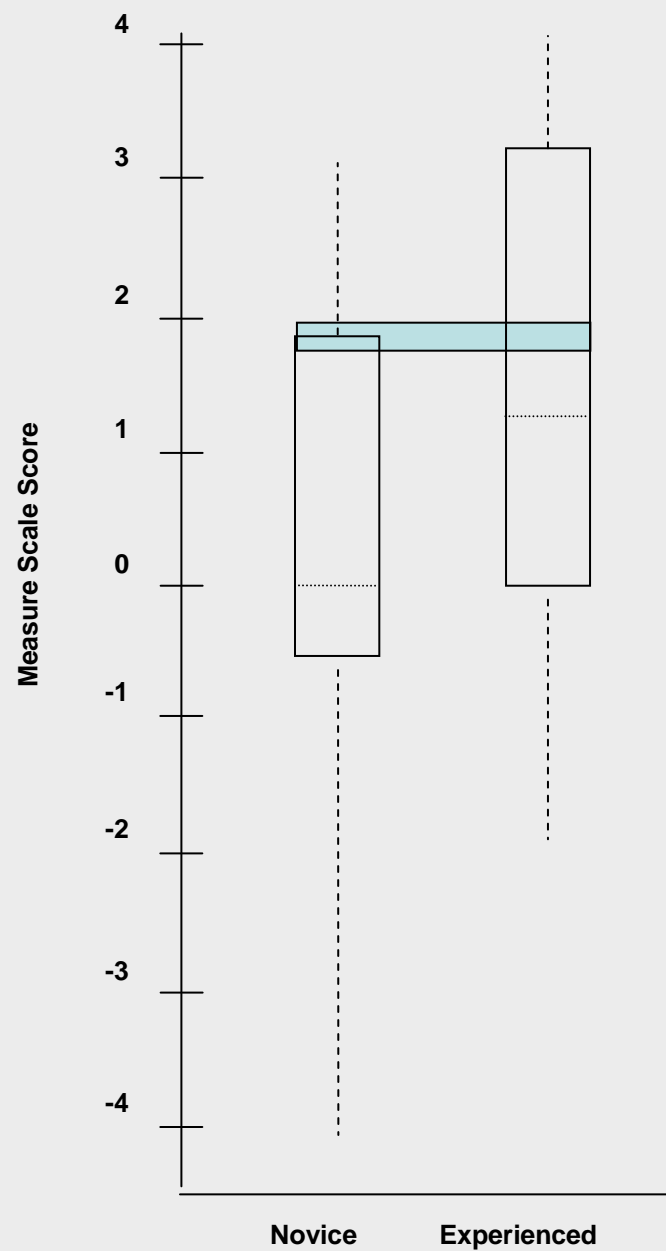
**Writing Workshop**



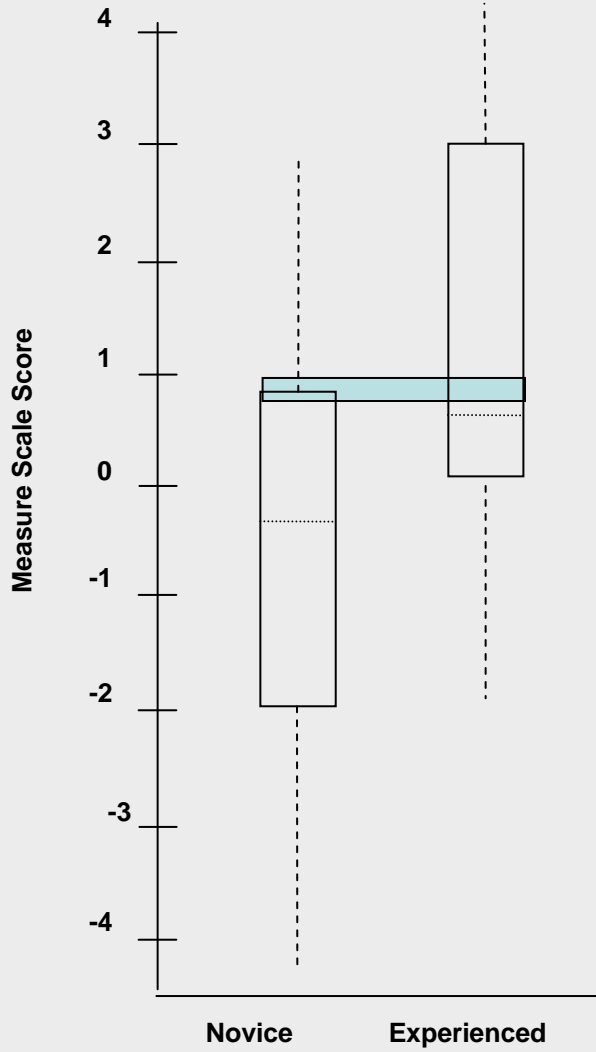
### Read Aloud



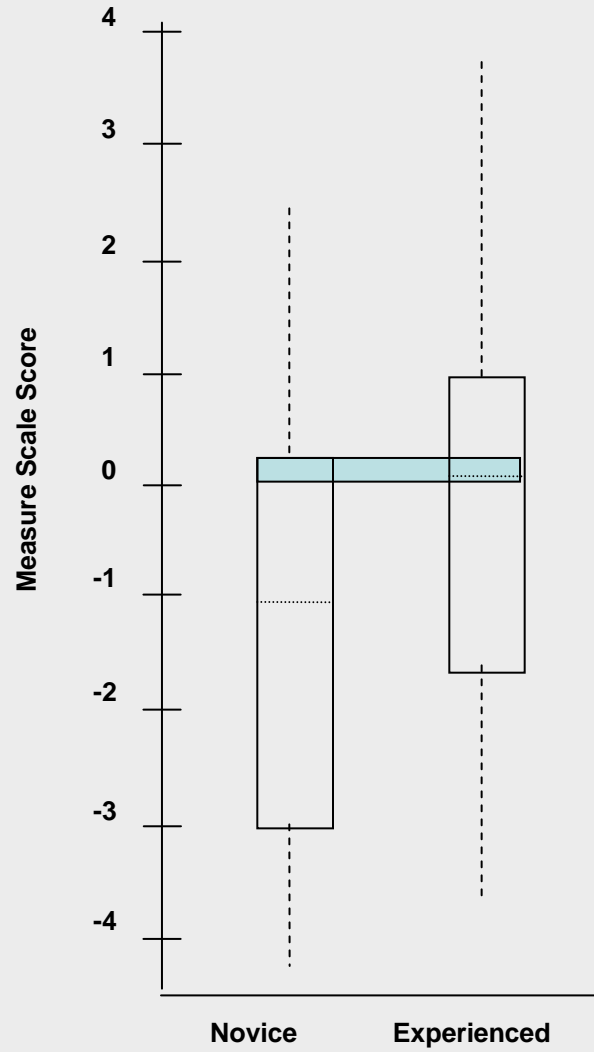
### Shared Reading



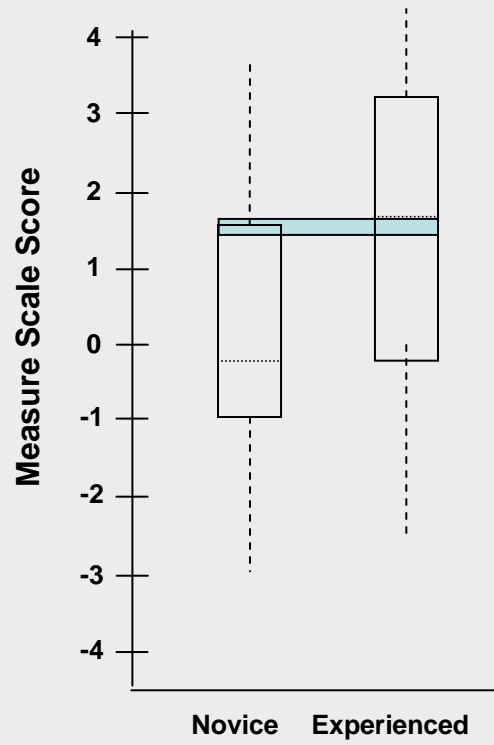
### Interactive Writing



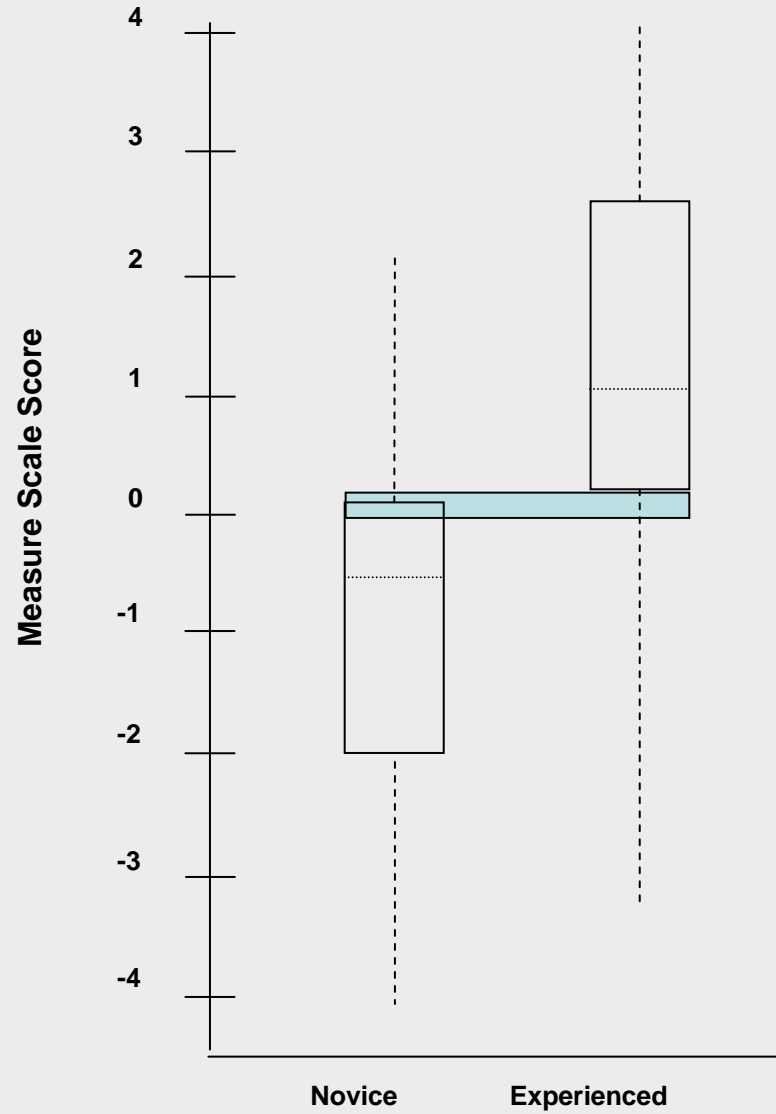
### Word Study



### Aspects of Teaching



# Teaching for Strategies



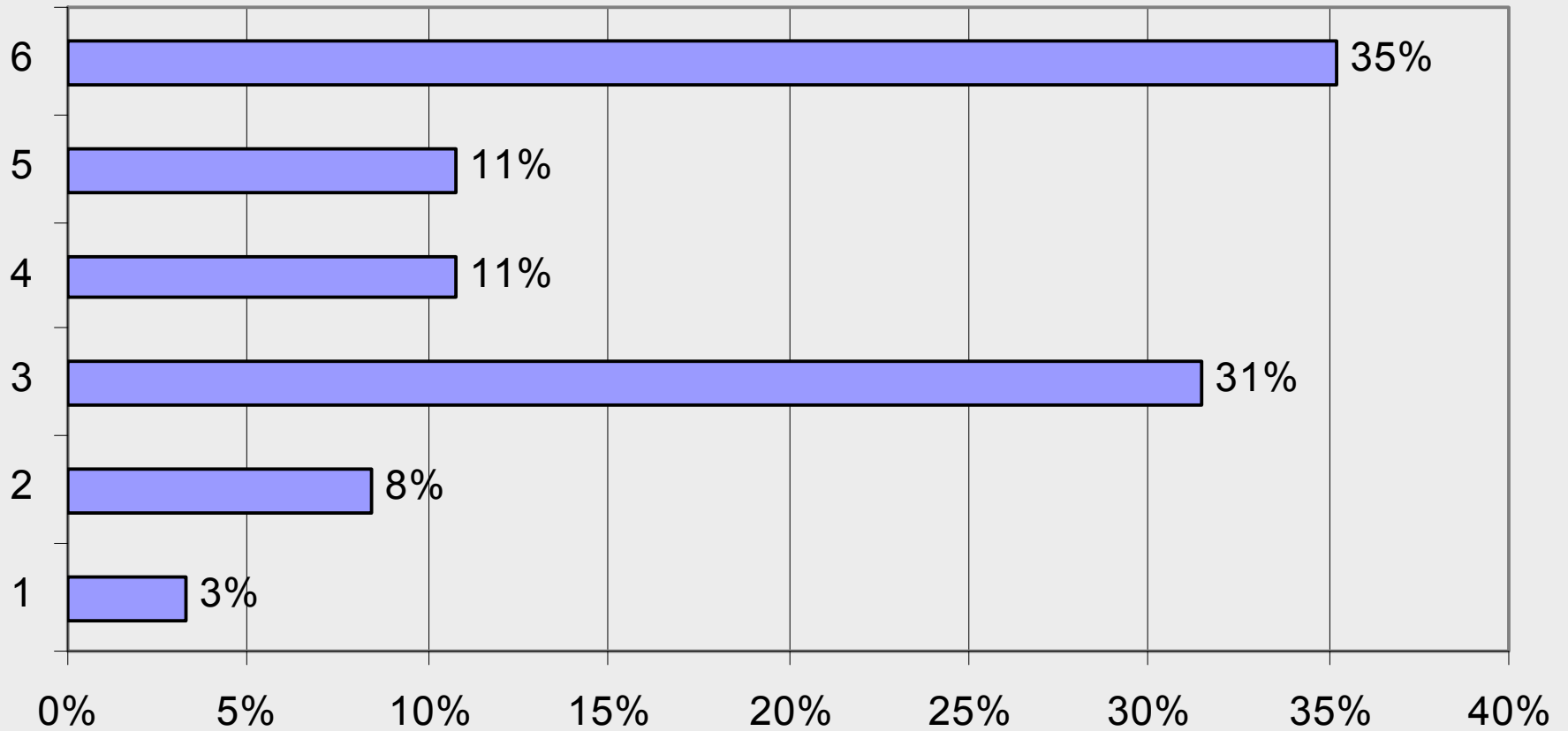
# Why is this Significant?

- The underlying analytic framework that guides our research is also a clinical framework for practice improvement.
- To advance such practice improvement requires a “common language” embedded in “common tools” as a key to promoting individual learning and managing these processes at scale.

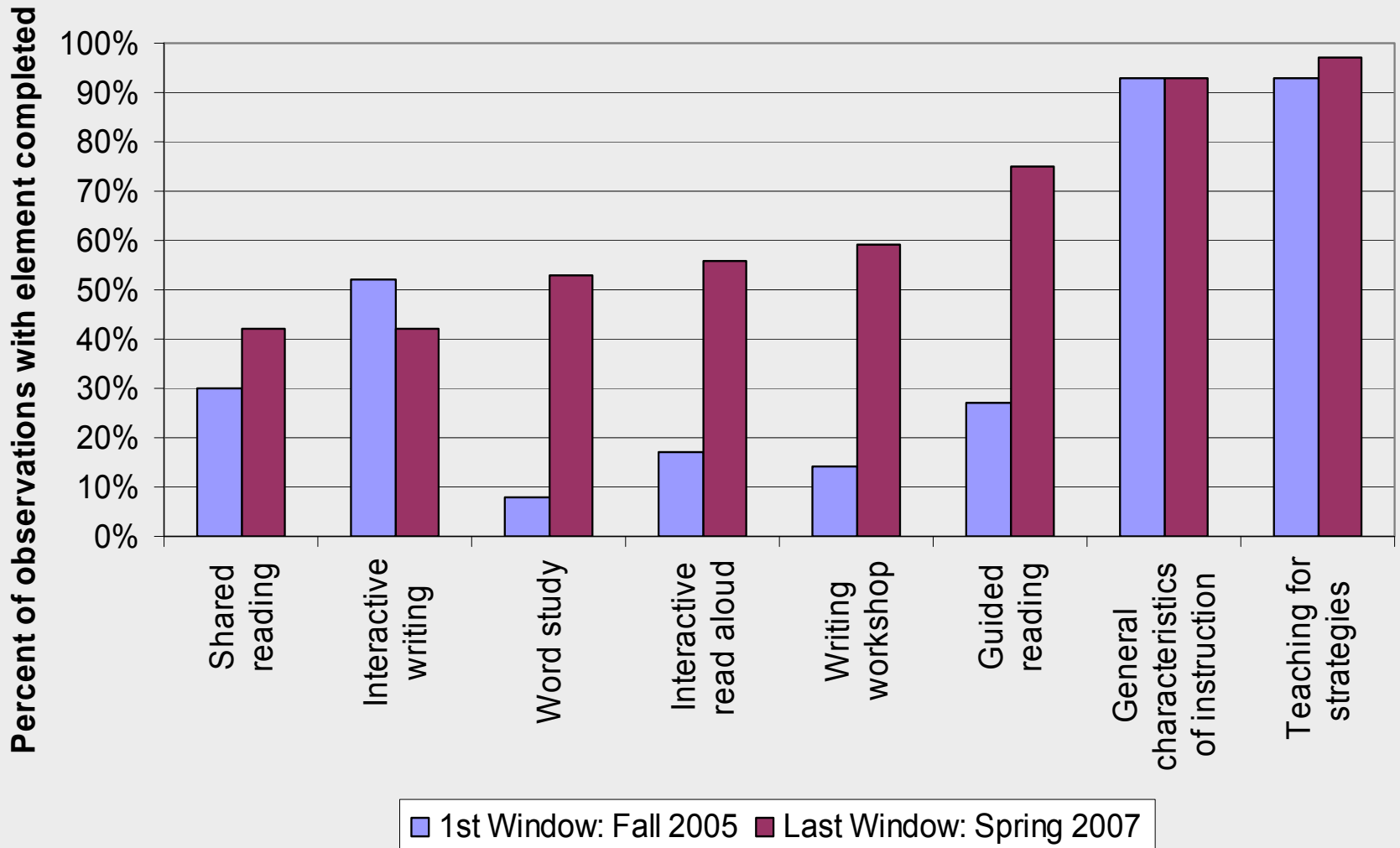
# Use of the DLLT

- Coaches as data collectors
- Rubrics are only completed after teachers are exposed to Literacy Collaborative professional development
- Data collection:
  - 18 Schools
  - 210 Teachers
  - 895 Observations
  - 3 years of data collection (2 completed)

# Number of Rubrics Completed on Each Teacher



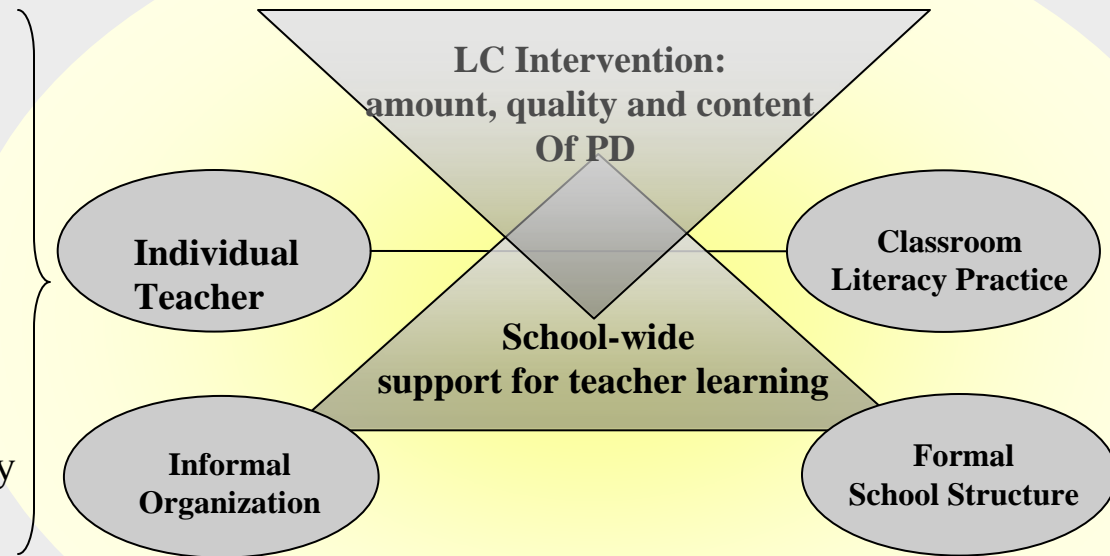
# Data Collection Patterns



# Theory of Change in Teachers' Classroom Practice

## Background

- **Willingness to engage instructional innovation**
  - Experiment with new practices in their classroom
- **Expertise**
  - Prior experiences in comprehensive literacy teaching (ZPD)



- \* **Work relations among teachers**
- \* **Influence of informal leaders**
- \* **professional norms**

- \* **principal leadership**
- \* **coach quality/role relationship**
- \* **resource allocations (time)**
- \* **school size**

# Teacher-Level Variables (considered so far)

- Prior use of reform literacy practices
  - A high score on this measure indicates that a teacher has adopted some key procedural and decision-making aspects of reform literacy practices. (4 survey items, person reliability: 0.54).
  
- Prior use of traditional literacy practices
  - A high score on this measure indicates the teacher regularly engages in traditional literacy practices. (5 survey items, person reliability 0.60).
  
- Teacher orientation toward innovation
  - A high score on this measure indicates that this teacher is strongly inclined to *independently* engage with innovations and to spread news of them to others (7 survey items, person reliability 0.79).

# School-Level Variables

- Measure of school-wide coaching exposure  
(an alternative measure of LC coverage)
  - Average logs per coachable teacher
    - Mean = 3.5 logs per teacher per semester
    - School means range from 1.1 to 8.7

# A 4-level HLM Analysis

- Outcome: Ratings of teachers' practice on one omnibus measure
- Level 1: Measurement Model (weighting measures by their precision)
- Level 2: Repeated observations over time within teachers
- Level 3: Teachers nested within schools (how teacher background characteristics effect status at end of year 2, *analyses of change over time still to come*)
- Level 4: Schools (how *characteristics of school context* and coaching activity effect status)

# 4-level HLM Analysis Model

Level-1 (measurement model)

$$(\text{WEIGHTED\_MEASURE}) = \pi_1(\text{WEIGHT})$$

Level-2 Model (observations nested within individuals)

$$\pi_1 = \beta_{10} + \beta_{11} * (\text{TIME}) + \beta_{12} * (\text{SPR06}) + r_1$$

Level-3 Model (individuals nested within schools)

$$\beta_{10} = \gamma_{100} + \gamma_{101}(\text{REFORM}) + \gamma_{102}(\text{TRADITIONAL}) + \gamma_{103}(\text{INNOVATION}) + u_{10}$$

$$\beta_{11} = \gamma_{110}$$

$$\beta_{12} = \gamma_{120}$$

Level-4 Model (schools)

$$\gamma_{100} = \delta_{1000} + \delta_{1001}(\text{AVG\_COACHING}) + \delta_{1002}(\text{SCHOOL1}) + v_{100}$$

$$\gamma_{101} = \delta_{1010}$$

$$\gamma_{102} = \delta_{1020}$$

$$\gamma_{103} = \delta_{1030}$$

$$\gamma_{110} = \delta_{1100} + \delta_{1101}(\text{SCHOOL1}) + v_{110}$$

$$\gamma_{120} = \delta_{1200} + \delta_{1201}(\text{SCHOOL1}) + v_{120}$$

Measurement artifacts

# Preliminary Results

	1	2	3	4	5
Time	0.1607*** (0.0414)	0.1627*** (0.0417)	0.1639*** (0.0418)	0.1616*** (0.0416)	0.1627*** (0.0416)
Average coaching logs per school	-	0.1333** (0.0546)	0.1200** (0.0559)	0.1262** (0.0517)	0.1186** (0.0531)
Traditional literacy practices	-	-	-0.1642** (0.0795)	-	-0.1167 (0.0800)
Reform literacy practices	-	-	0.1782** (0.0771)	-	0.1243 (0.0780)
Orientation toward innovation	-	-	-	0.2792*** (0.0763)	0.2243*** (0.0797)

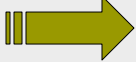
\*p<.1, \*\*p<.05, \*\*\*p<.01

- Variance explained in the end of year 2 status by our final model:
  - Teacher level: 8.4%
  - School level: 35.3%

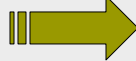
# Relationship Between Predictors and Year 2 End Status

## Teacher-level predictors


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1 SD ↑ in innovation  .23 SD ↑ in outcome

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1 SD ↑ in reform literacy practices  .14 SD ↑ in outcome

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1 SD ↑ in traditional literacy practices  .12 SD ↓ in outcome

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1 SD ↑ in reform literacy practices and innovation & 1 SD ↓ in traditional literacy practices  .48 SD ↑ in outcome

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## School-level predictor

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1 SD ↑ in average coaching logs  .44 SD ↑ in outcome

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# Interpretations and Caveats

- Preliminary analysis shows that teachers' previous experience with reform literacy practices and their orientation toward innovation are related to stronger literacy practices at end of year 2.
  
- But unclear how to interpret this as of now. We need to examine teachers' changes in their practice
  - Possible LC effects still emerging, and PD selection mechanisms complex and appear to vary across sites.
  
- Challenges include:
  - Unable to assess development of teacher practice at this time due to data collection pattern
  - Difficult to parse out individual school effects so far as there appears to be some between-school bias in the trends data due to the coaches also being the raters.
  
- Final year of data collection is critical for these analyses.

# Analyses Ahead

- Investigating teachers' changes in practice
  - Teacher background
  - School context
  - Depth of LC activities
  
- Understanding LC coaching patterns (who is coached and why?)
  
- Sort out reliability of LC scores to understand between school differences
  
- Examine individual elements of the rubric as our outcome
  
- Moving down to the classroom level
  - Using a full value-added model to understand how changes in teacher practice affect changes in student achievement