

***Reading Development in the Early
Years: Instructional, Assessment,
and Educational Policies***

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***What do children learn about literacy
before kindergarten?***

- Oral language
- Vocabulary
- Word play
- Rhyming
- Environmental print recognition
- Write/recognize some letters and words

What literacy skills do children have in kindergarten (about 5-6 years old)?

- Alphabet knowledge
- Sound-symbol correspondence (phonics)
- Concepts about print
- Schemas for story book reading
- Recognize more words automatically
- Inventive (phonetic) spelling

Children Begin Grade 1 With Variable Reading Skills

- 1 million fewer words (Hart & Risley)
- 1000 hours less lap time (Teale)
- ELLs have different experiences, vocabularies, expectations, and more cognitive demands of bilingualism
- Some families teach children to read before first grade

The 5 Essential Skills

- Alphabet knowledge
- Phonemic awareness
 - Rhyming, segmenting, blending
- Oral reading fluency
 - Accuracy, rate, and intonation
- Vocabulary
- Comprehension

Essential or Only?

What's missing?

- Oral language
- Listening & Viewing
- Writing
- Metacognition
- Genre
- Functional uses of reading
- Connections to curricula
- Motivation

Alphabet Knowledge

- Letter names
 - Easily taught explicitly if not learned while engaging with print in authentic situations
 - Not related to future literacy
- Letter sounds
 - Phonics
 - Can be taught while making meaning & decoding text, but can also be taught by rote associations
- Alphabetic principle
 - Understands grapheme-phoneme relations AND how to manipulate letters and sounds in nonsense or real words

Assessing Letter Knowledge

- Use any text, book, or word wall
- Alphabet books are terrific
- Chart when children know 5, 10, 15, 20+ letters and sounds
- Should know entire alphabet in early first grade

Alphabet Knowledge

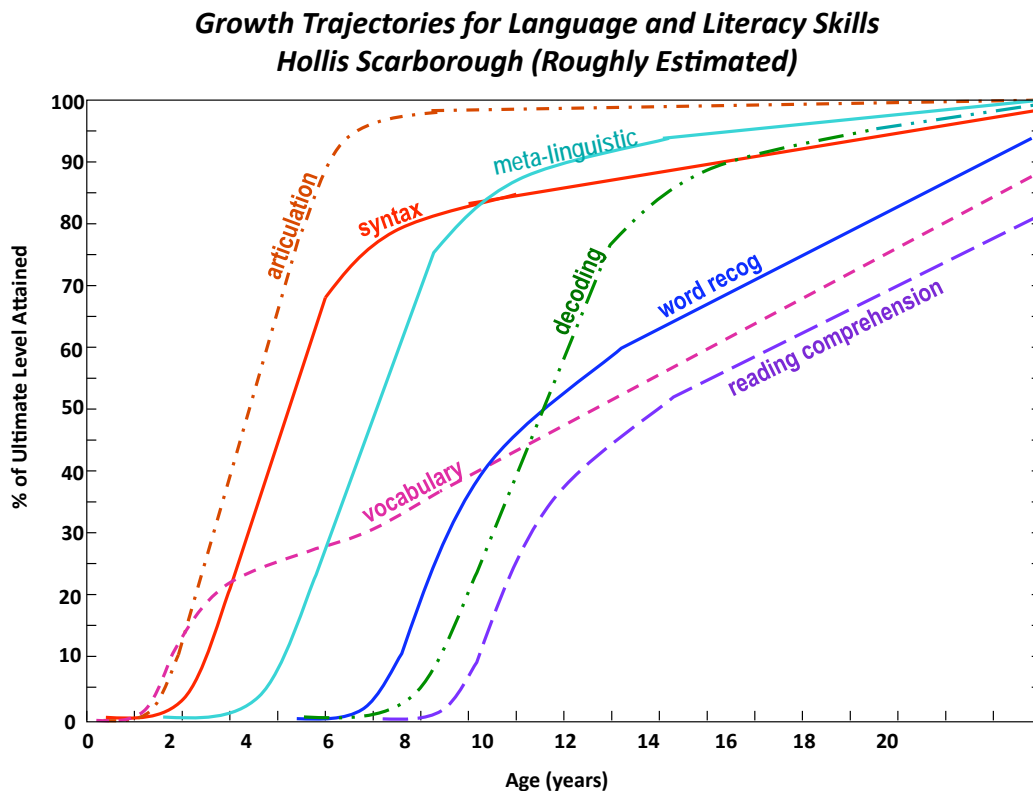
- Strong predictor at kindergarten of reading achievement in grades 1-3
- Why?
- Relative differences in rate of learning reflect different literacy experiences in pre-K and/or specific teaching
- But most children learn the alphabet names and sounds by first grade so
- No predictive power of alphabet knowledge after first grade

Alphabet Knowledge

- So assessment of alphabet knowledge is informative mostly in K and for children who are very advanced or delayed in letter knowledge
- Thus, assess but don't obsess about measuring letter knowledge

Constrained vs Unconstrained Skills

- Paris, *RRQ* (2005)
- Some reading skills are learned completely by all readers and are (nearly) universal, such as letter knowledge
- Other skills, such as vocabulary and comprehension, develop across the lifespan and are NOT identical for all readers



Main Points

- Many skills related to reading develop rapidly between 3-7 years
- Difficulties with many language and literacy measures predict later reading problems
- Why?
- Fast start, rich language environment, joint book reading, etc. all provide positive start and beginning of Matthew effect and the lack of such interactions can be harmful

A Similar Constrained Skill

- Concepts About Print
 - Directionality, word boundaries, punctuation
- Made popular by Marie Clay in her Observation Survey
- Easy to use as a formative assessment from pre-K on
- Most fundamental concepts are learned through interactions with texts by grade 2-3

Assessing Concepts About Print

- Use an easy-to-read book, preferably with pictures and decodable text
- Sample items:
 - Show me a letter, a word, a punctuation mark
 - Show me where to start reading
 - When I reach the end of this line, point to the next word I should read

Phonemic Awareness

- Phonemic awareness of sounds in print is part of phonological development
- Closely connected to emergent writing and spelling skills as children discriminate phoneme-grapheme relations

Phonemic Awareness Assessments

- Identifying rhymes
- Producing rhymes
- Counting syllables
- Onset & rime
- Identifying initial, final, medial sounds
- Delete sounds (phoneme elision)
- Substitute sounds

Oral Reading Fluency

- Reading rate (wcpm)
- Accuracy (running records or miscue analyses)
- Intonation/prosody

Collected With

- Running records
- Informal Reading Inventories (IRIs)

Need to Collect Information

- From multiple passages & levels
- From multiple genres
- From multiple word lists
- From silent reading for children reading at grade 3/4 and above because
 - Comprehension and accuracy unrelated for many children
 - Silent reading allows look backs & strategies
 - Silent reading avoids social anxiety

Oral Reading Accuracy

- Typically assessed by miscue analyses or running records
- Children read text levels within their instructional range of difficulty
- Categories of accuracy usually are:
 - Independent: > 95% accuracy
 - Instructional: between 90% and 95% accuracy
 - Frustration: below 90% accuracy

Oral Reading Fluency Assessed with IRIs

Task: Read aloud short grade level passage

- Oral reading accuracy
 - Record number of substitutions, omissions, insertions while reading
- Oral reading rate
 - Record words read correctly per minute
- Oral reading prosody
 - Rate intonation on 4 point rubric

IRIs Are Diagnostic When Teachers

- Interpret patterns of oral reading miscues & self-corrections
- Identify difficulties answering specific questions or retelling information
- Use results for conferences with children (e.g., retrospective miscue analysis)
- Align reading materials and instruction with children's needs

Oral Reading Fluency

- Speed (increases about 20-30 wpm from grade 1-6 so 150 wpm is average ORF by grade 6)

Fluency Benchmarks: Rate

50th percentile wcpm

| | <u>Fall</u> | <u>Spring</u> |
|---------|-------------|---------------|
| Grade 1 | | 53 |
| Grade 2 | 51 | 89 |
| Grade 3 | 71 | 107 |
| Grade 4 | 94 | 123 |
| Grade 5 | 110 | 139 |
| Grade 6 | 127 | 150 |

Hasbrouck & Tindall, *Reading Teacher* (2006)

BUT.....

- Saying the words accurately is not enough
- Decoding speed is NOT the main goal

They are indicators of developing fluency and automatic word recognition and are necessary for reading achievement but not sufficient

Problems with ORF

- Reading speed is most important for beginning readers who are learning to decode words automatically, < 60wpm.
- ***Dis***-fluency predicts problems for young readers.
- After reading rate > 100-150wpm, ORF is less useful as a predictor because some slow readers are good comprehenders and some fast readers are just word callers

Caution: Fluency Does Not Mean Good Comprehension

- Word callers - High accuracy, low comprehension
- Gap fillers - Low accuracy, high comprehension
- More of both kinds of readers after grade 3 so silent reading and comprehension assessments are needed

Why Accuracy Does Not Reflect Comprehension

- Oral reading makes children focus on “saying it right” not understanding
- Good word callers can have low comprehension
- Struggling decoders can fill in the gaps and have good comprehension
- Oral reading does not allow monitoring or looking back and ahead in text

Reading Rate Has Become a High Stakes Measure

DIBELS (Dynamic Indicators of Basic Early Literacy Skills)

Why?

- Quick, easy, efficient, repeated testing
- Used with any text
- Yields quantitative data
- Correlates highly with achievement data

A Deceptive Proxy Variable

- Fast reading is a proxy for automatic decoding and other skills
- Only a good predictor of comprehension for beginning readers
- Erroneous inference that helping children read faster improves reading comprehension

Problems With a Focus on Reading Rate

- One-minute samples are artificial tasks
- Rate is a narrow measure of reading
- Speed is the wrong purpose of reading
- Sends wrong message to children & parents
- Inappropriate implications for instruction

RTI is the New Magic Pedagogy

- Response To Intervention
- Three tiers of progressively intense intervention
- Tier 1: Core Classroom Instruction
- Tier 2: Supplemental Instruction
- Tier 3: Intensive Instruction for Remediation

However

- The critical gateway to more intense instruction is assessment
- And what determines if a child needs extra instruction at Tier 2 or 3?
- DIBELS and that is usually ORF
- So, reading speed has become a high stakes marker of reading achievement and a criterion for remediation and the focus of instruction
- What happened to comprehension?

Easy Trumps Good Assessment

- ORF is quick
- ORF is quantitative
- ORF shows progress for nearly everyone
- ORF is correlated with automatic decoding for beginning readers
- ORF has claimed to have validity
- ORF is used as a proxy for comprehension

Please

- Be cautious when approaching DIBELS
- Treat it like a 2 metre snake in the bush
- Just walk away from it

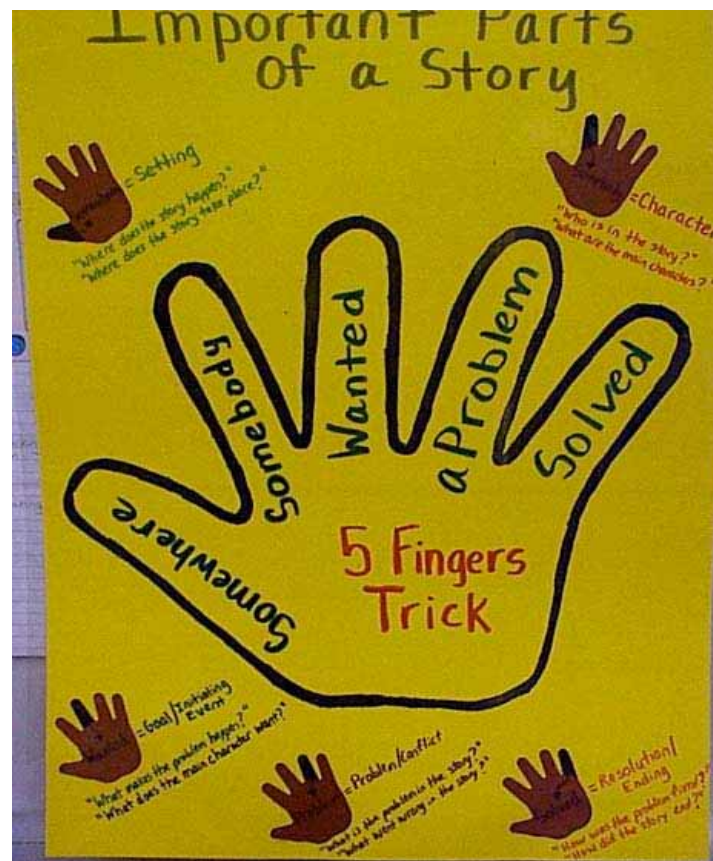
Some Suggestions for Teaching Comprehension

Help Students Understand Comprehension

- No single standard for everyone or every text
- We revise/improve understanding
- Kids mis-understand a great deal but
- Partial understandings are building blocks for better comprehension
- Students need to know that comprehension is built recursively through re-reading and re-writing

Suggestion #1: Start Early

- K and 1
- Use familiar stories and fables
- Use diverse genre
- Transition from listening to reading comprehension
- Ask “deeper” questions such as:
- Was Little Red Riding Hood naïve?
- Was Goldilocks a criminal?



Suggestion #2: Motivate Reading For Understanding

- High interest and familiarity with text
- Mastery goals (understanding) for reading
- Attributions to effort and strategies
- Feelings of control and self-efficacy
- **Comprehension accompanies engaged and motivated reading**

Engaged Reading

- Open-ended tasks
 - Inquiry-guided reading
- Active participation
 - Collaborative problem-solving

Examples of Motivated Activities

- Researching
 - Libraries & museums
 - People & the internet
- Problem-based learning
 - Driving questions
 - Culminating demonstrations of knowledge
- Collaborative projects
 - Group reports & artifacts
 - Creative expression, e.g., plays, songs, videos, web pages

Open-Ended Activities Promote Intrinsic Motivation

Turner & Paris (1995) *Reading Teacher*

- Construct personal meaning
- Choice
- Challenge
- Control
- Collaboration
- Consequences enhance self-efficacy

Suggestion #3: Teach Strategic Reading Explicitly

- Direct explanation
- Guided strategic reading
- Reciprocal teaching & peer coaching
- Collaborative learning
- Combinations of above that include participation in metacognitive conversations

Liang & Dole
Reading Teacher, May 2006

5 Comprehension Instructional Frameworks

- Scaffolded Reading Experience (SRE)
- Questioning the Author (QtA)
- Collaborative Strategic Reading (CSR)
- Peer-Assisted Learning Strategies (PALS)
- Concept-Oriented Reading Instruction (CORI)

- What about constrained reading skills?

My Claims About CS

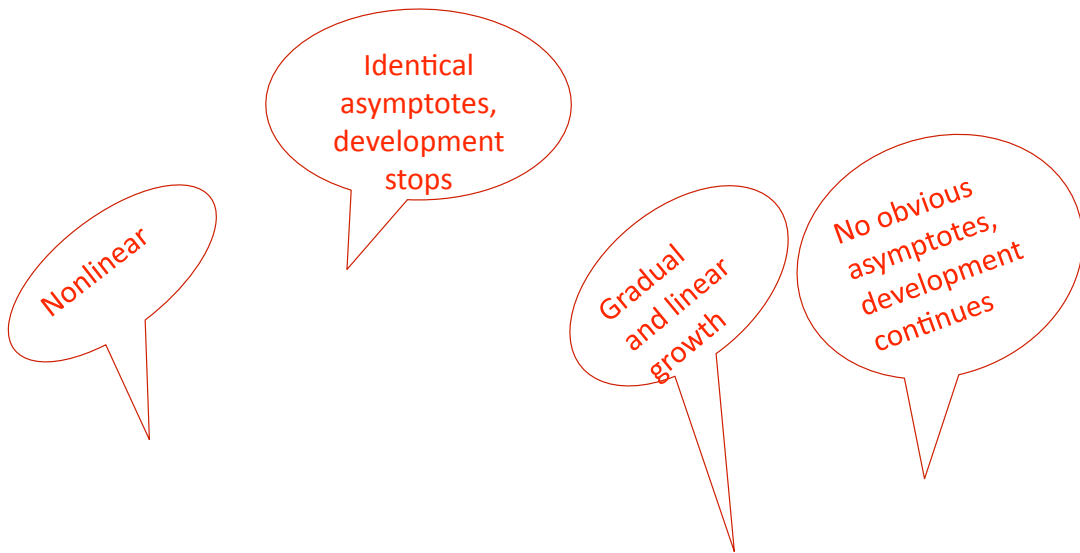
1. Skill distinctions are necessary to advance theory, research, and practice
2. CS vs US highlights some crucial skill differences
3. Neglect of distinctions has led to:
 1. Exaggerated research claims
 2. Excessive focus on easily measured skills
 3. Short-sighted instructional aims

Constrained Skills

- Can be taught directly to children and new language users
- Can be assessed quantitatively because they are discrete and the domains are specified
- Are learned to the same levels of mastery by nearly everyone
- Enable unconstrained skills (e.g., comprehension, vocabulary) to develop in complexity

3 Fundamental Types of Constraints on the Development of Reading Skills and Knowledge

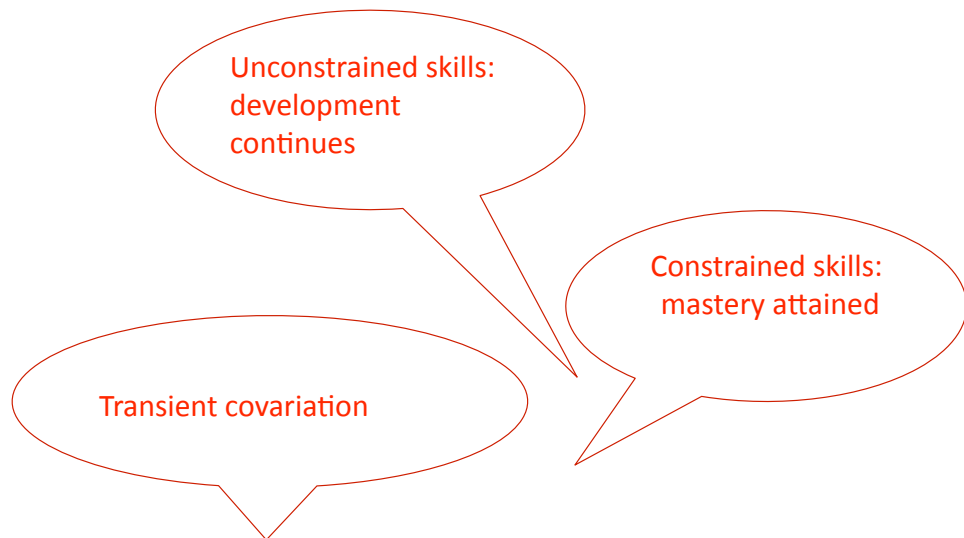
1. Nonlinear, discontinuous growth
2. Identical performance asymptotes for all readers
3. Temporary co-dependencies with other skills during acquisition of constrained skills that end as asymptotes are reached



Constrained skills

Unconstrained skills

Note: Simulated data are used here for illustration



Covariation between constrained & unconstrained skills

We Need Theories That

- Focus on
 - Differences among skills
 - Differences among growth trajectories
 - Differences in co-dependencies
- Characterize
 - Discontinuities
 - Mastery & proficiency
 - Bootstrapping contingencies

Implications for Research: Need to Consider Impact of CS on

1. Interpretation of data
2. Appropriate statistical analyses
3. Research design

Implications for Data Analyses of Constrained Skills

- Mastered skills develop in non-linear trajectories and reach asymptotic levels for everyone so cannot be treated as randomly distributed variables across ages
- Skewed data should be expected with age so correlational and parametric data analyses are inappropriate

Constrained Skills

Are enabling skills that change with learning and development to mastery, so they are not

- stable
- enduring
- individual differences.

Why is that a problem?

- Because **generalization claims** are made across samples and ages that are not accurate.

Example

- When researchers ignore CS, they
- Report correlations that are not tied to age or samples:
- Exp: *Preventing Reading Difficulties*

TABLE 4-1 Prediction of Reading Difficulties at School Entry

| Factors Identified in the Child | Number of Samples | Strength of Relationship |
|---------------------------------------|-------------------|---|
| Language | | |
| Verbal memory for stories/sentences | 11 | Median $r = .49$ mean $r = .45$ ($SD = .14$) |
| Lexical skills | | |
| 1. Receptive vocabulary | 20 | Median $r = .33$ mean $r = .36$ ($SD = .17$) |
| 2. Confrontation naming | 5 | Median $r = .49$ mean $r = .45$ ($SD = .07$) |
| 3. Rapid serial naming | 14 | Median $r = .40$ mean $r = .38$ ($SD = .09$) |
| Receptive language, syntax/morphology | 9 | Median $r = .38$ mean $r = .37$ ($SD = na$) |
| Expressive language | 11 | Median $r = .37$ mean $r = .32$ ($SD = .16$) |
| Overall language | 4 | Median $r = .47$ mean $r = .46$ ($SD = .15$) |
| Phonological awareness | 27 | Median $r = .42$ mean $r = .46$ ($SD = .13$) |
| Early Literacy-Related Skills | | |
| Reading "readiness" | 21 | Median $r = .56$ mean $r = .57$ ($SD = .12$) |
| Letter identification | 24 | Median $r = .53$ mean $r = .52$ ($SD = .14$) |
| Concepts of print | 7 | Median $r = .49$ mean $r = .46$ ($SD = .20$) |

More Examples

- When researchers ignore CS, they
- Make erroneous claims about the enduring importance of CS
- Exp: Share, Jorm, Maclean, and Matthews (1984)
 - 2 year longitudinal study of children in K-1
 - Measures of ability included: Letter Naming, Name Writing, Name Reading, Letter Copying, Discrimination of Letters & Numbers, Pseudoword learning, Phoneme Segmentation
 - Created aggregated score and correlated it with 39 independent variables

Results

- Best two predictors of aggregated reading achievement were Letter Naming and Phoneme Segmentation
- Third best predictor was identifying which finger behind your back was being touched by an adult
- “It is a finding of major significance that three of the four best predictors all relate to the alphabetic code of English script. This adds further weight to the growing body of evidence ... that acquisition of the alphabetic code is vital to successful reading acquisition” (p.1313).

More Examples

- When researchers ignore CS, they
- Make comparisons across programs, schools, and children based on transient statistical relations
- Exp. Bond & Dykstra, First grade studies

More Examples

- When researchers ignore CS, they
- Regard the temporary differences due to learning specific CS as evidence of enduring developmental benefits
- Exp. Foorman et al. (1998)
 - Direct Code instruction accelerated word learning for children who were at floor levels but had no impact on comprehension and a negative influence on motivation
 - "... it may well be possible to prevent reading failure for large numbers of children if beginning reading instruction explicitly teaches the alphabetic principle" (p. 52).

Examples of Test Validity

- When researchers ignore CS, they
- Use Pearson correlations to establish validity such as concurrent and predictive validity
- May try to provide norms for CS but they are inappropriate

Effect Sizes

- When researchers ignore CS, they
- Estimate effects sizes using variances
- That they assume to be equal across samples and time, but they are not
- Exp. Controversy over effects sizes of Phonics
Instruction in the NRP report ignores unstable variances in distributions of CS data

Can't We Just Make the Data from CS More Normal?

- With different measures
- With transformations
- With aggregated scores
- By increasing task difficulty

Maybe

- But data transformations to achieve normal distributions violate the nonlinear development of the underlying theoretical construct

Erceg-Hurn & Mirosevich *American Psychologist* (October, 2008)

“The use of transformations is problematic for several reasons, including (a) transformations often fail to restore normality and homoscedasticity, (b) they do not deal with outliers, (c) they can reduce power, (d) they sometimes rearrange the order of means... (e) they make the interpretation of results difficult... “(p. 594).

Data Massage Violates Construct Validity

- Tricks to manufacture normal distributions are inappropriate:
 - Sample selection
 - Transformations of data
 - Aggregated scores & factors
 - Increased task difficulty of mastered skills with speed demands, e.g., Rapid letter naming

Choosing appropriate statistical tools to analyze constrained skills

- Erceg-Hurn & Mirosevich (2008) said:
 - “Classic parametric tests, effect sizes, and confidence intervals around effects size statistics are not robust to violations of their assumptions...” (p.600).
 - They suggest “modern robust methods”, such as statistics on rank ordered data, are better.

Implications for Research Design

- Cannot treat all skills equally in multivariate designs
- Cannot assume equal variances & residuals along logistic growth curves
- Selective sampling of mid-mastery Ss is a problem
- Longitudinal designs are needed with multi-level modeling
- Careful use of statistics with CS

***What are the implications of CS
for policies and practices?***

Policy Implications

- American state tests are variable but usually focus on discrete skills and short-term learning assessed against curricular or normative benchmarks.
- New Zealand has created “Learning Progressions” as developmental descriptions of acquiring and using literacy. They note implications for assessment and instruction of constrained skills
- Best Start considers CS and development also

Policies Should

- Distinguish among various kinds of literacy skills and knowledge
- Provide a developmental, formative approach to assessment rather than a comparative, summative approach
- Establish high-level goals of applying literacy skills, strategies, and knowledge for learning beyond rapid word reading

Instructional Prescriptions

- Follow from assessments
 - CS assessments frequent in K-3 & RTI
 - So prescriptive instruction is often CS

*Alan Farstrup said in Reading Today
(Oct-Nov, 2008)*

“More than ever, teaching to tests that are cheaply administered but narrowly defined is neither appropriate or productive.”

(He was commenting on RTI and DIBELS.)

Ironies & Tragedies

- Pedagogical policies emphasize constrained skills in beginning reading assessment and instruction instead of comprehension & language when they
 - Are not mutually exclusive
 - Not developmentally sequential
- Perhaps the problem will only be evident when teachers and parents complain that children in grades 3-5 are fast word callers with poor comprehension and little motivation to read

Reading Triage

- Assessments of constrained skills are like medical triage because
- They assess minimal requirements to decode print to speech.
- If your height, weight, blood pressure, reflexes, and breathing are OK, then the doctor will examine you for health risks.

Same with CS

- If you know the sounds of letters, know how to rhyme words, can break apart words by syllables and phonemes, and can identify words fluently,
- Then you are ready for a teacher to help you learn to read.