

Lyon presentation

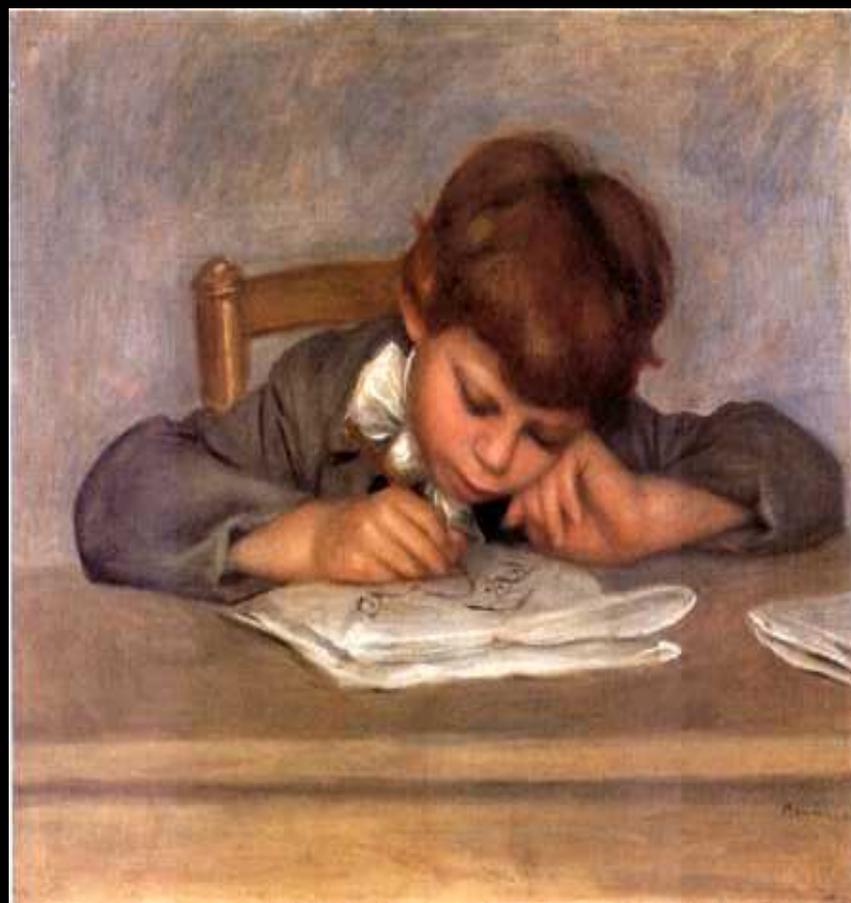
Part 2

Why Do Some Children Have Difficulty?

- Deficient Word Level Reading Skills
- Deficits in Fluency/Automaticity
- Limitations In Vocabulary
- Limitations in Background Knowledge
- Limited Reading Comprehension Strategy Use

Early Intervention is Clearly Effective

Prevention studies commonly show that 70-90% of at risk children (bottom 20%) in K- 2 can learn to read in average range

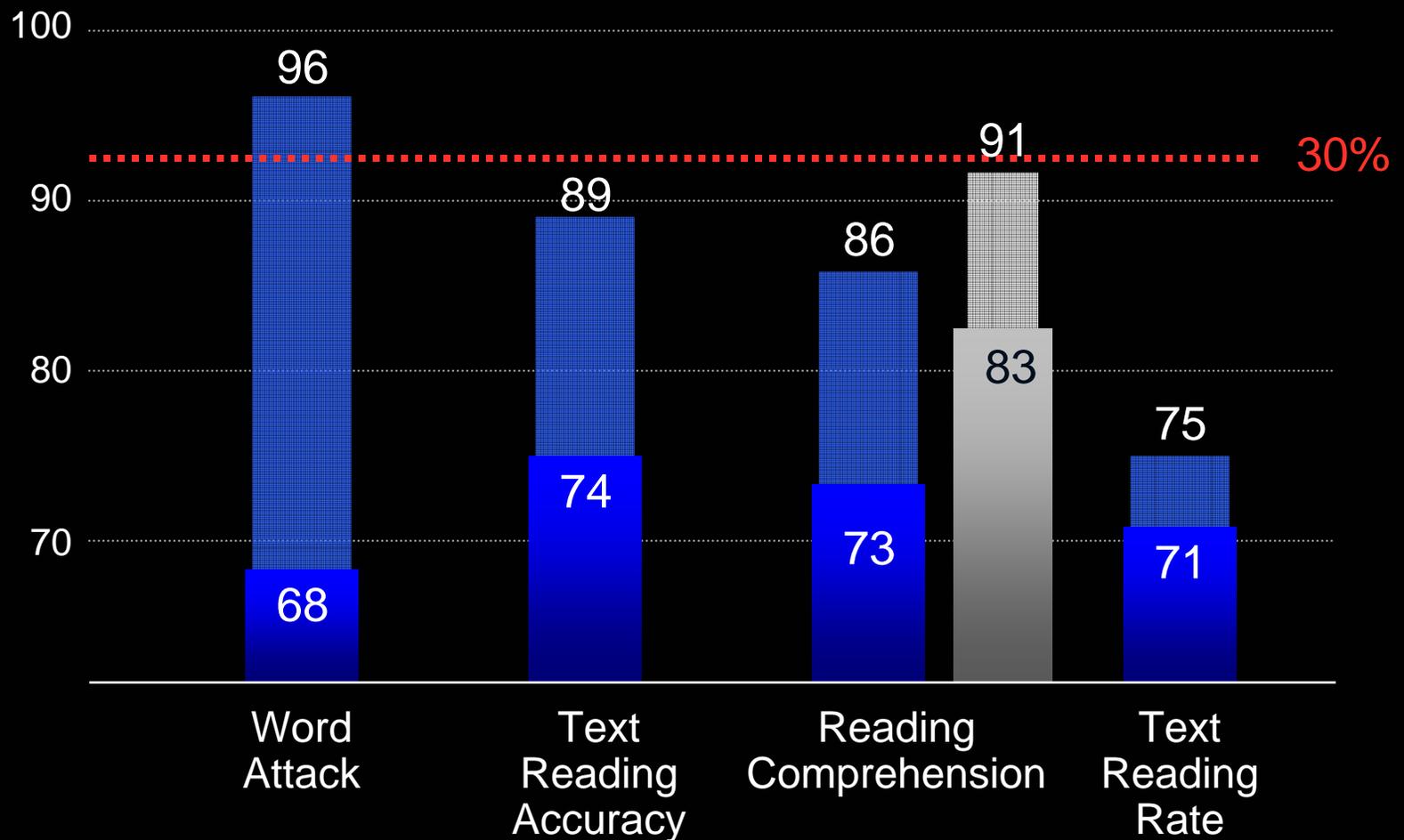


Early Intervention is Possible

- Risk characteristics present in Preschool, Kindergarten and G1
- Print awareness, Letter knowledge, letter-sound knowledge, phonological awareness, oral language development, vocabulary, background knowledge
- Assess all children and INTERVENE

Outcomes from 67.5 Hours of Intensive LiPS™ Intervention

Standard Score



Torgesen, 2003

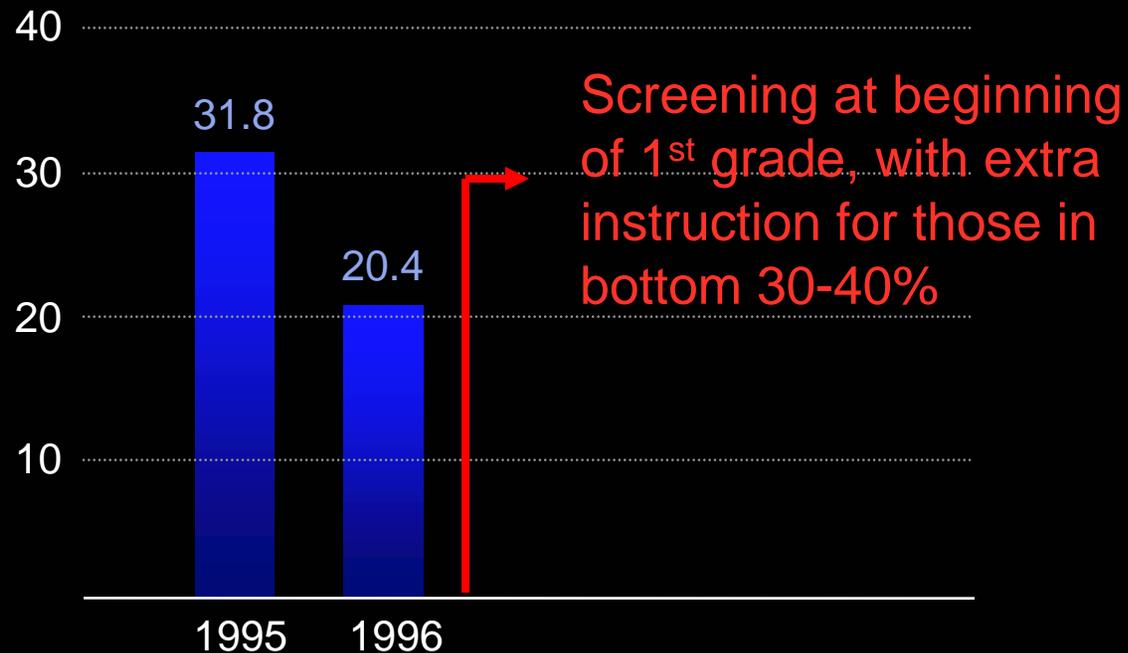
How Can We Prevent and Remediate Reading Failure?

Evidence from one school that we can do substantially better than ever before:

- Elements of Curriculum Change:
 - Movement to a comprehensive reading curriculum beginning in 1994-1995 school year (incomplete implementation) for K-2
 - Improved implementation in 1995-1996
- Implementation in Fall of 1996 of screening and more intensive small group instruction for at-risk students

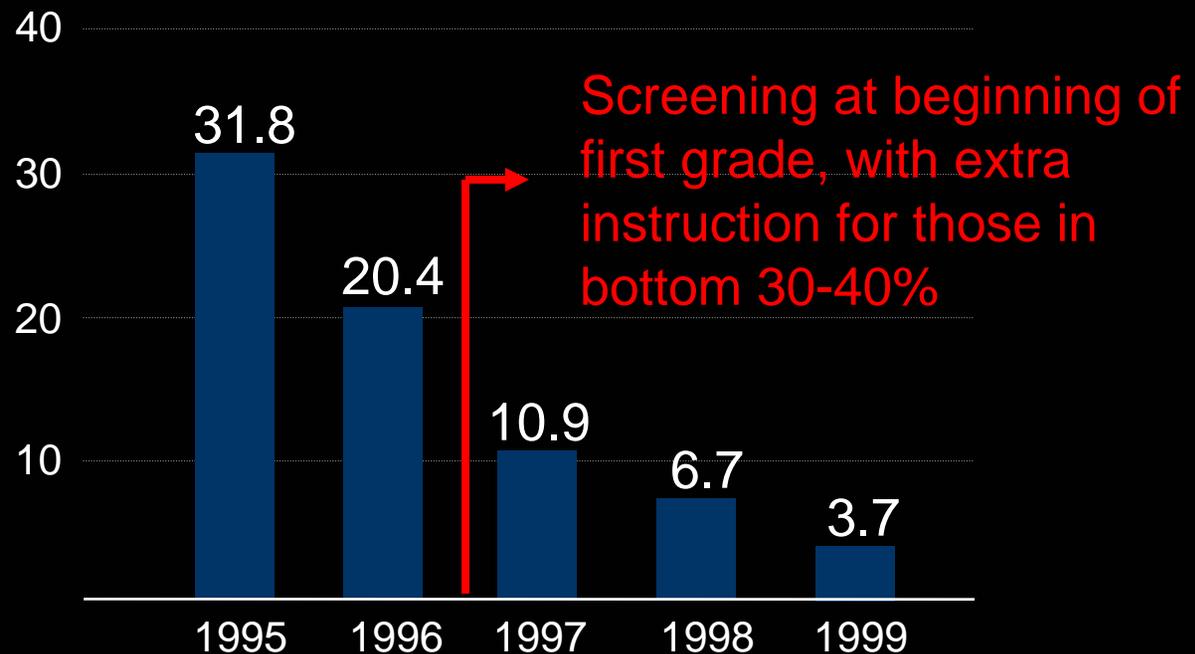
Hartsfield Elementary School Progress Over Five Years

Proportion falling
below the 25th
percentile in word
reading ability at the
end of 1st grade



Hartsfield Elementary Progress Over Five Years

Proportion falling below the 25th percentile in word reading ability at the end of first grade



Average Percentile for entire grade (n=105)

1995	48.9	55.2	61.4	73.5	81.7
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Proactive Intervention

- Explicit instruction in synthetic phonics, with emphasis on fluency.
- Integrates decoding, fluency, and comprehension strategies.
- 100% decodable text
- Carefully constructed scope and sequence designed to prevent possible confusions.
- Every activity taught to 100% mastery everyday.

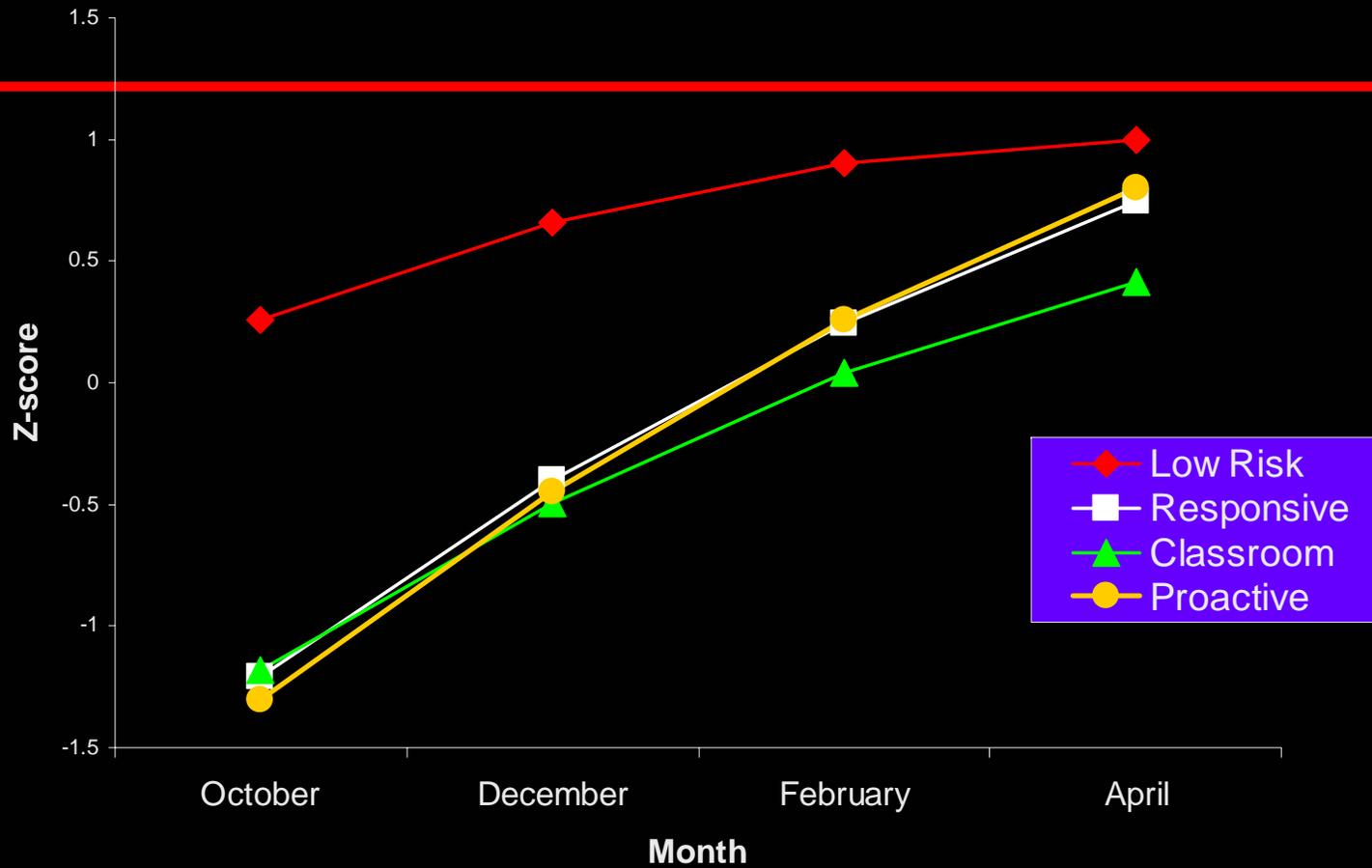


Responsive Intervention

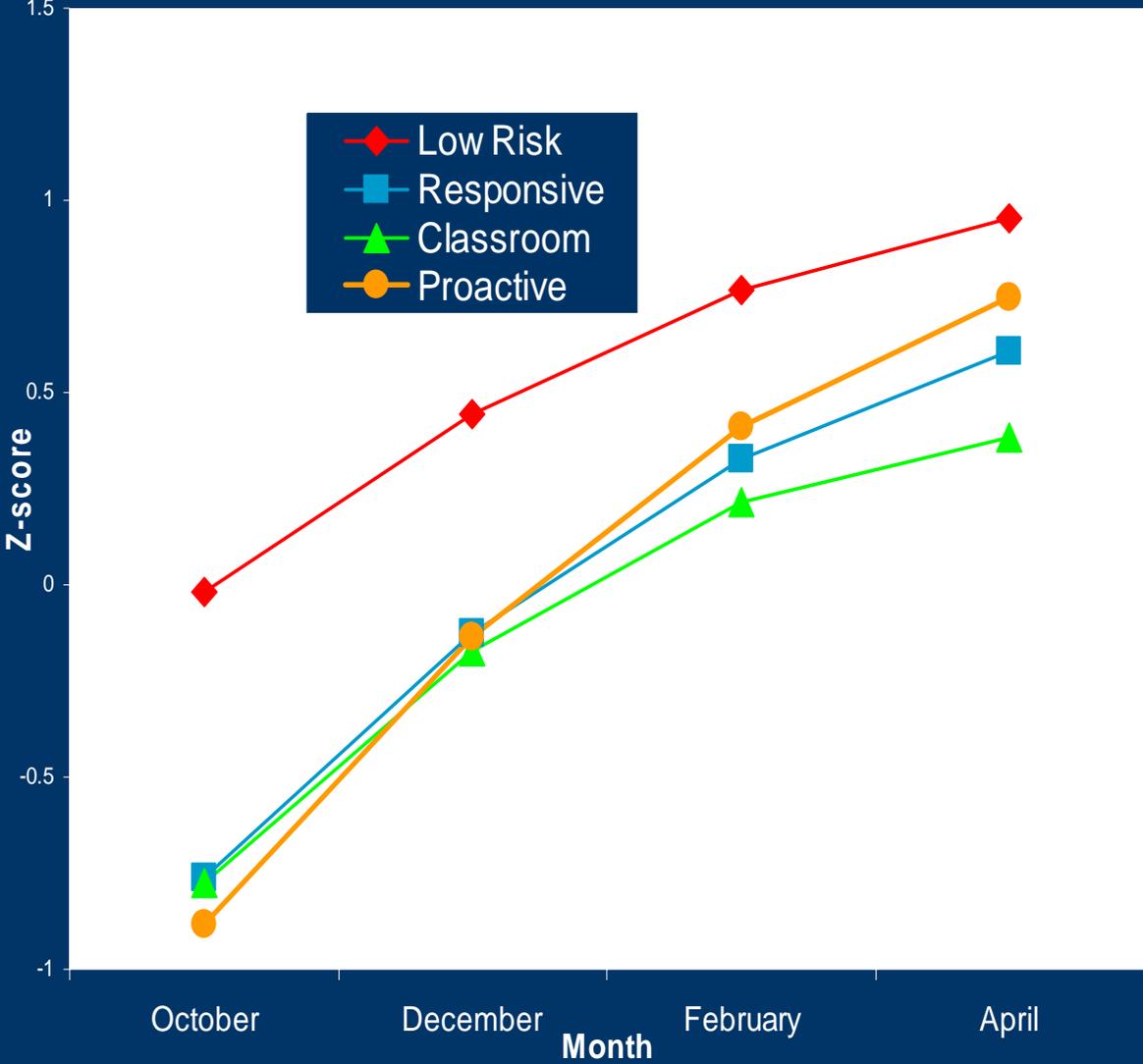
- Explicit instruction in synthetic phonics and in analogy phonics
- Teaches decoding, using the alphabetic principle, fluency, and comprehension strategies in the context of reading and writing
- No pre-determined scope and sequence
- Teachers respond to student needs as they are observed.
- Leveled text not phonetically decodable



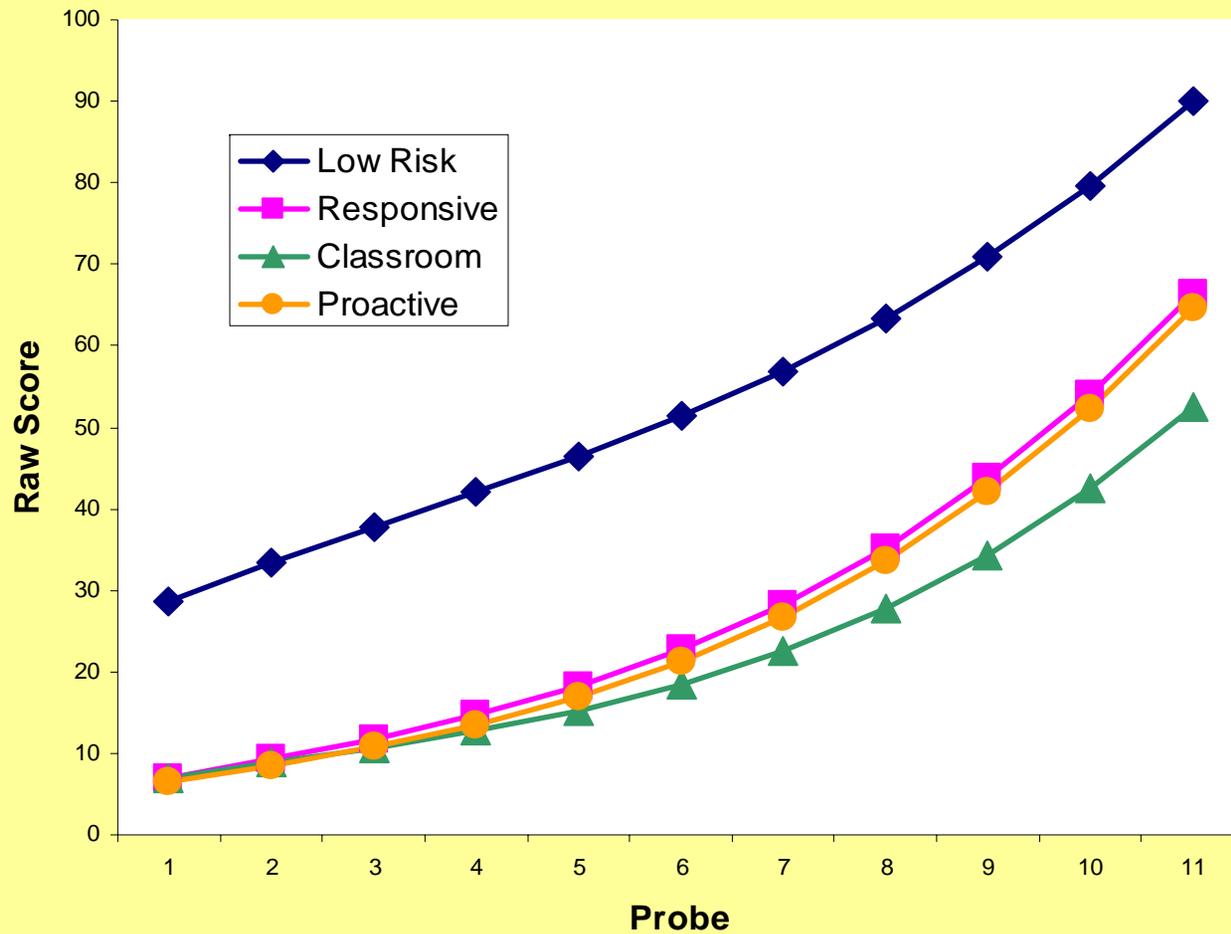
Predicted Growth in Word Reading by Group - Year 1 & 2



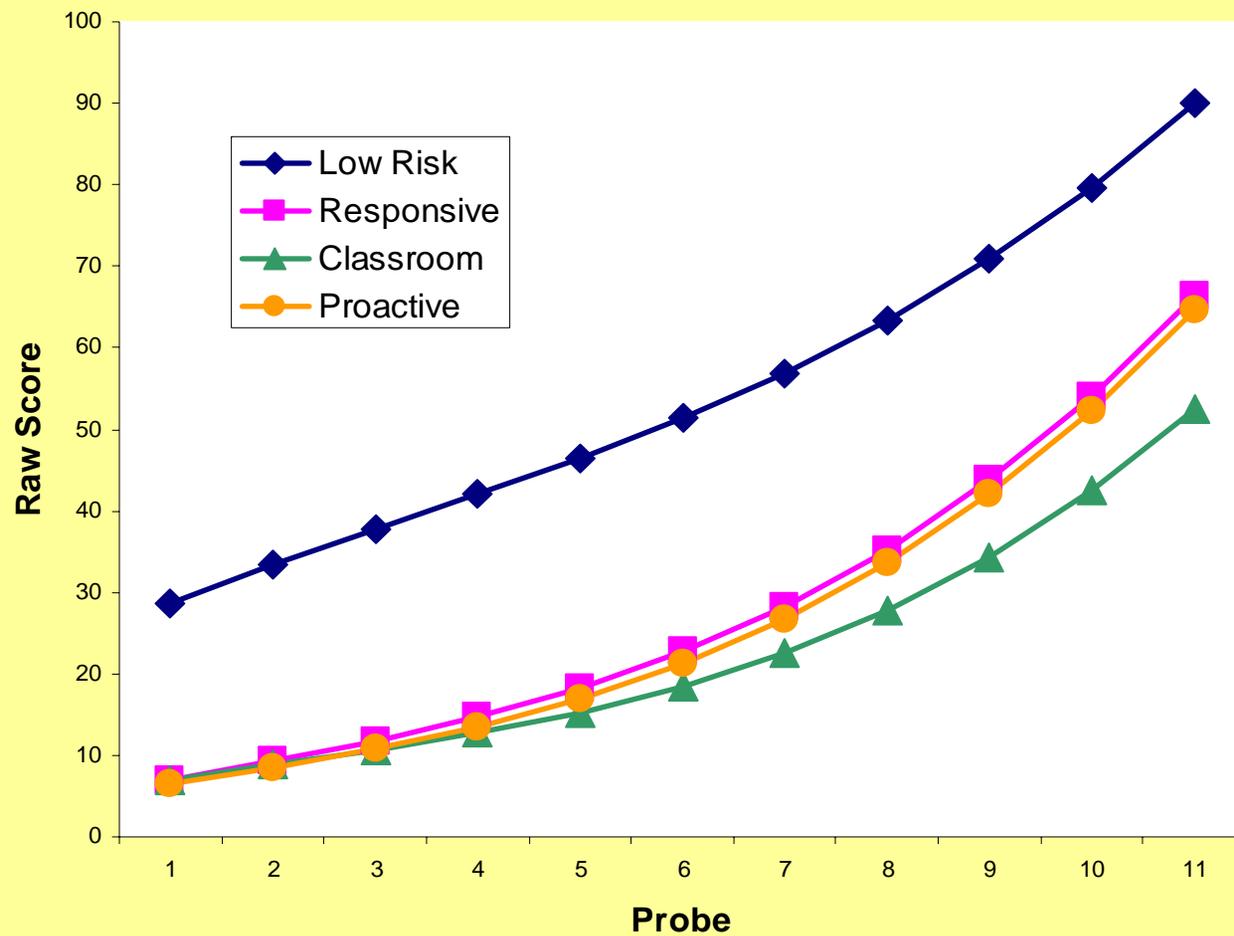
Predicted Growth in PA by Group - Year 1 & 2



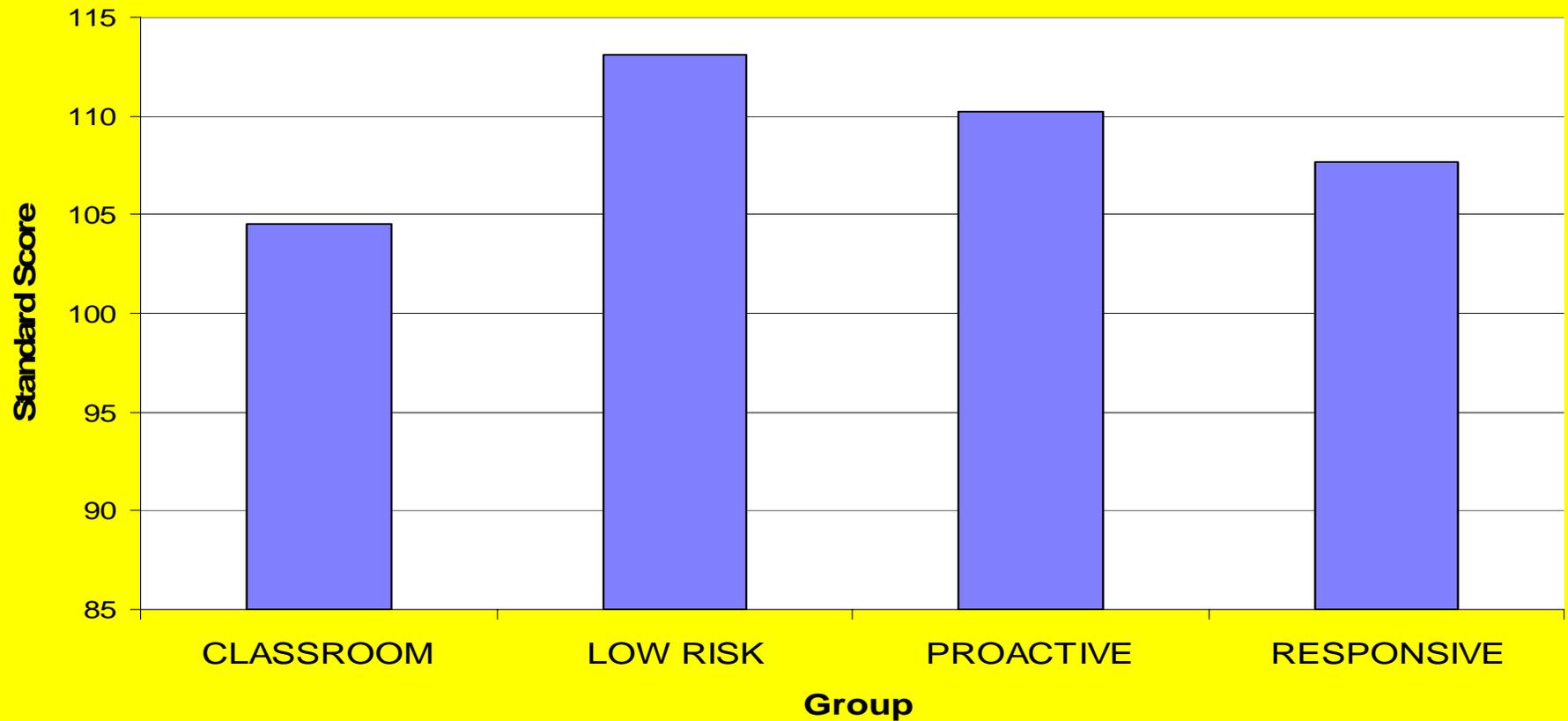
Predicted growth in CMERS by group



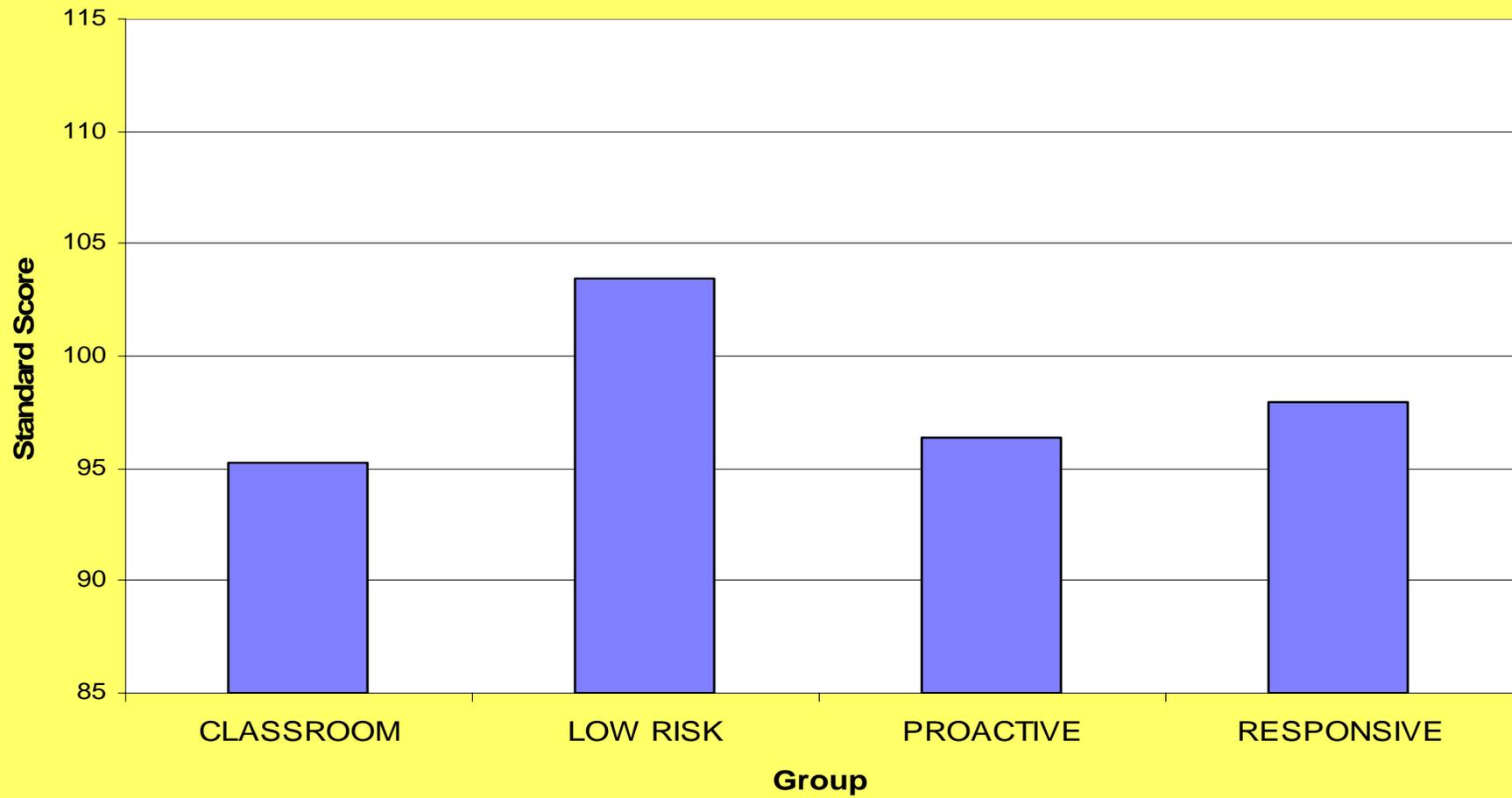
Predicted growth in CMERS by group



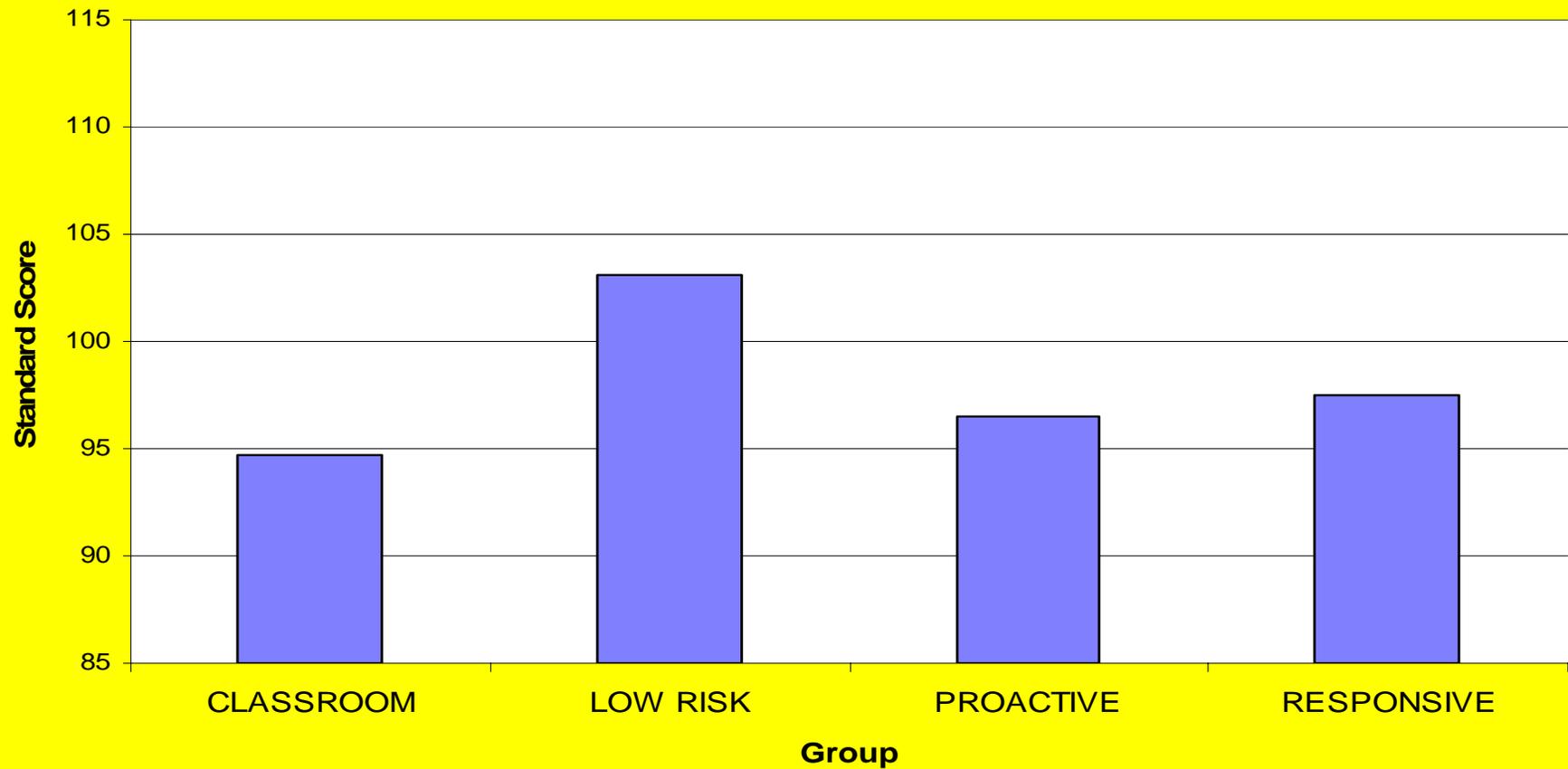
End of Year Standard Scores on WJ Basic Reading Skills by Group



End of Year Standard Scores on Reading Fluency by Group



End of Year Standard Scores on WJ Passage Comp. by Group



Evidence-Based Assessment and Instruction

Interventions are more effective when they:

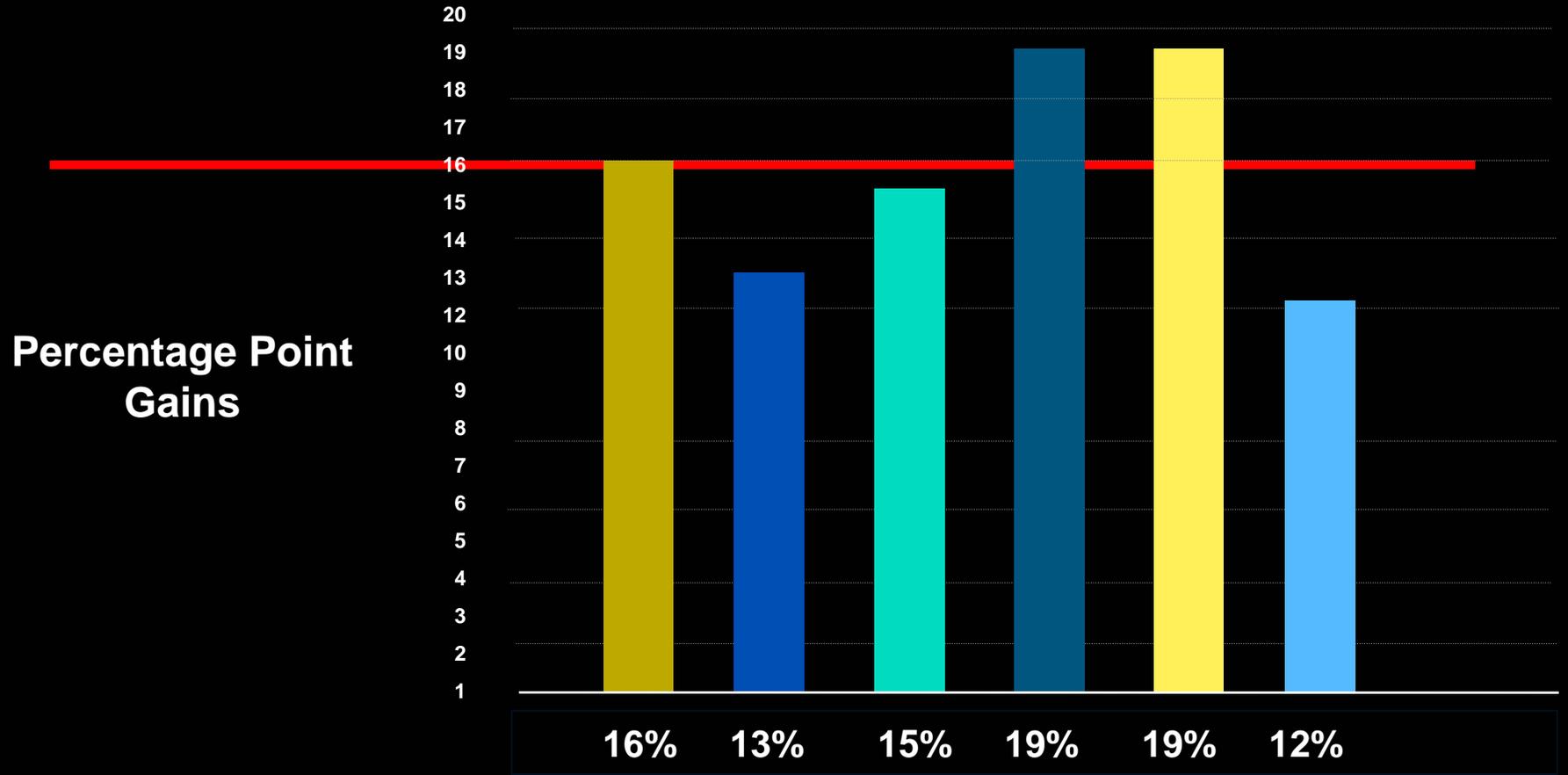
- Provide **systematic** and **explicit** instruction
- Provide a significant increase in **intensity** of instruction
- Provide ample opportunities for **guided practice** of new skills
- Provide systematic teaching of **appropriate learning strategies**
- Provide appropriate levels of **scaffolding** as students learn to apply new skills

How Effective Instructional Strategies Improve Student Achievement

Strategy	Number of Studies Examined	Effect Size	Percentile Gain
Individualization	630	0.14	16
Application	111	0.34	13
Computer-assisted instruction	566	0.31	15
Tutoring	125	0.50	19
Mastery learning	104	0.50	19
Instructional media	4421	0.30	12

Good & Brophy, 1986; Hattie, 1992 ;
Lyon, Fletcher, Fuchs, & Chhabra,
2005; Marzano, 2003;

What Science tells us about Effective Instruction



Individualization

Computerized Instruction

Mastery Learning

Application

Tutoring

Instructional Media

Characteristics Of Effective Schools

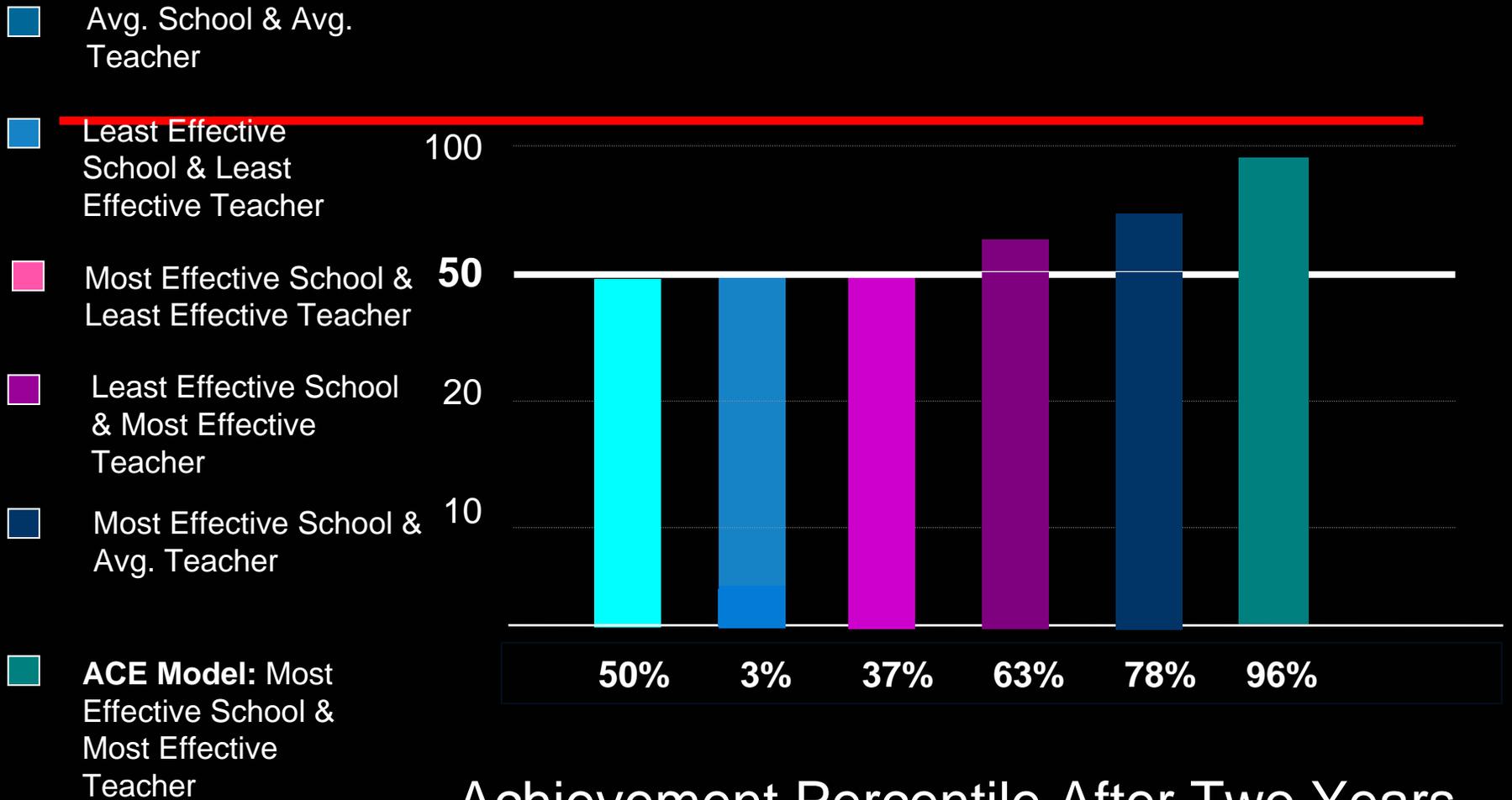
- Evidence-Based Curriculum
- Continuous Evaluation and Accountability
- Challenging Goals for Both Students and Teachers
- Opportunity to Learn and Sufficient Time for Instruction
- Parental Involvement
- Safe and Orderly Environment
- Collegiality and Collaboration

Characteristics of Effective Teachers

TEACHERS ARE EXPERTS IN:

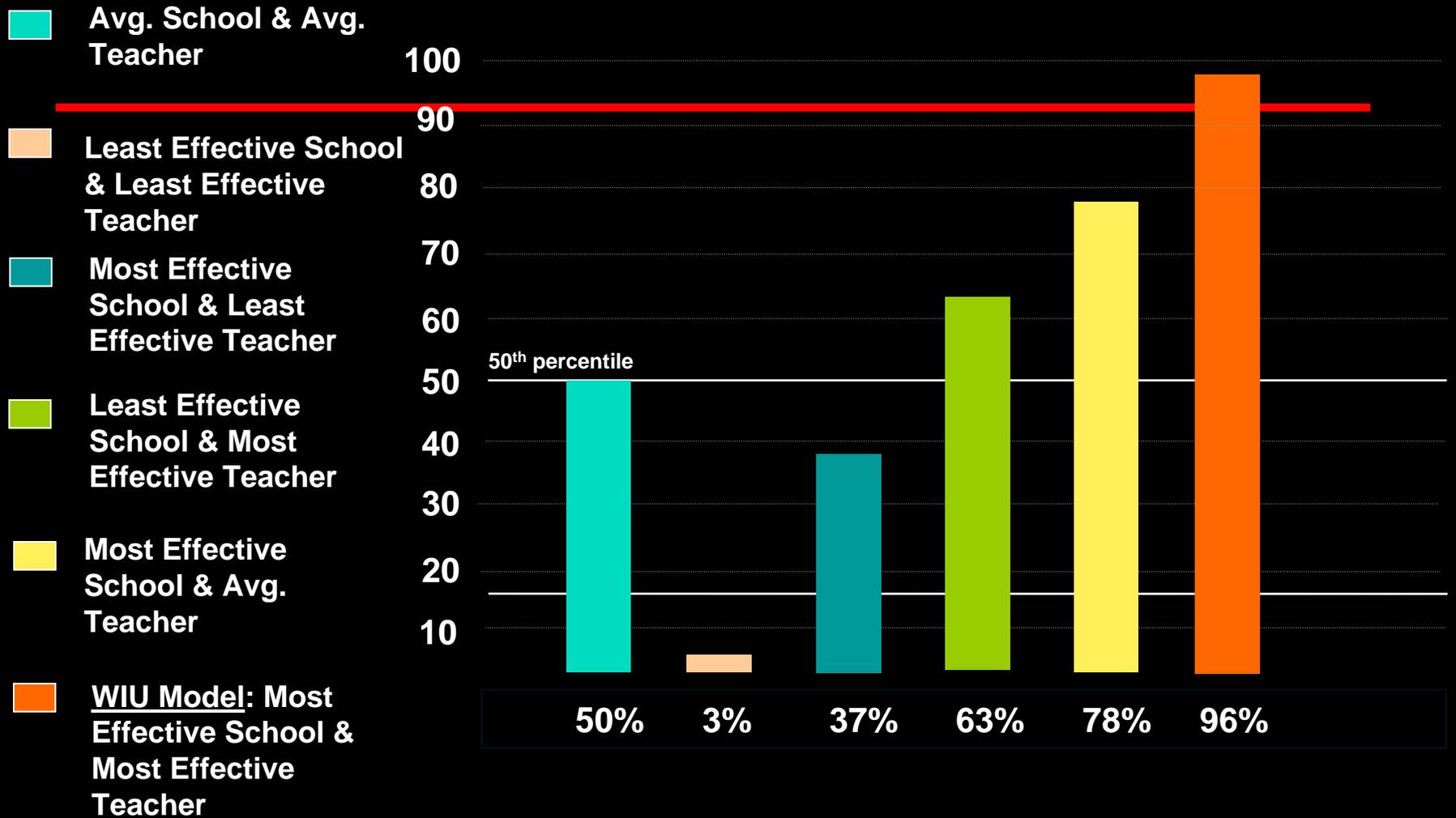
- **Content Knowledge**
- **Planning and Setting Goals**
- **Scientifically-Based Curriculum Design and Instruction**
- **Formative and Summative Assessment**
- **Customizing Instruction for Individual Students**
- **Classroom Management and Organization**
- **Motivating and Engaging Students**

Effects of Student Achievement of School and Teacher Effectiveness with Student Entering School at 50th Percentile



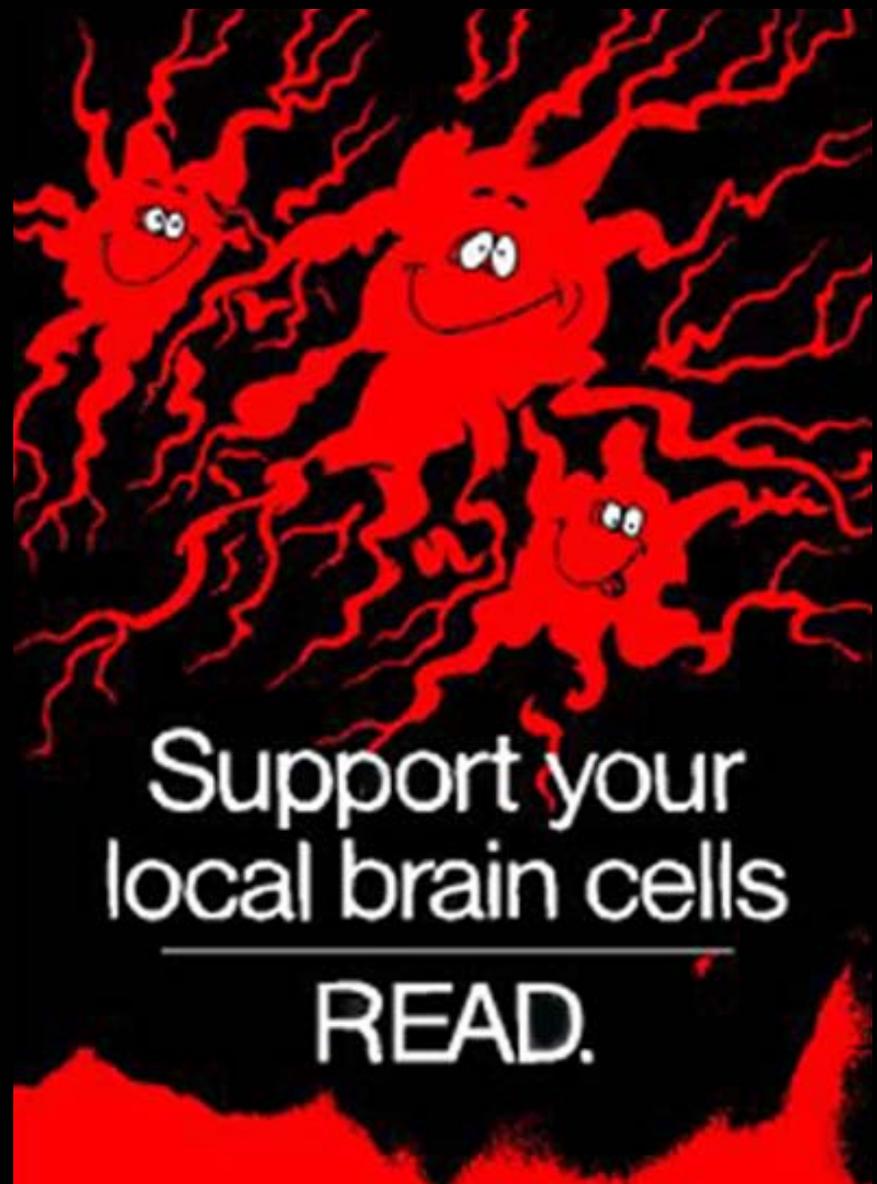
Achievement Percentile After Two Years

Why Effective Leaders and Teachers are Essential

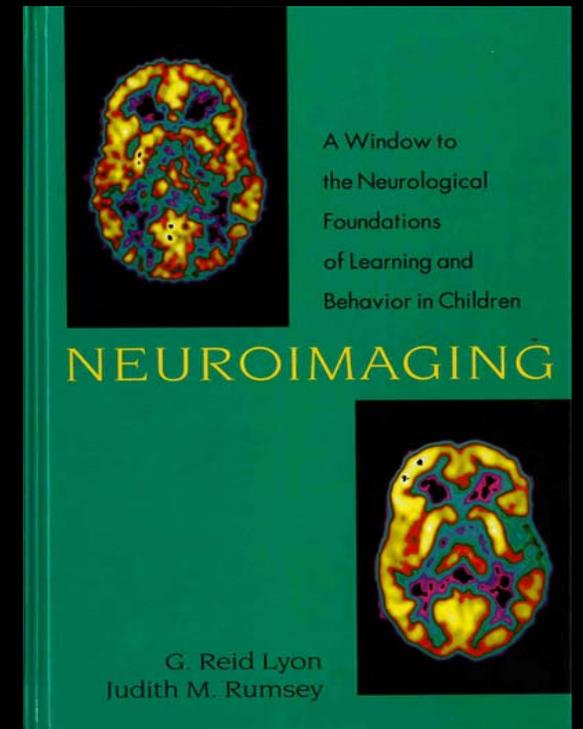
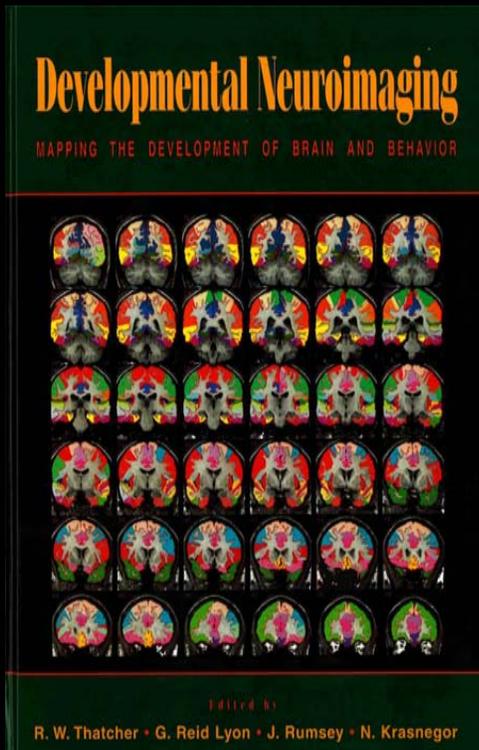


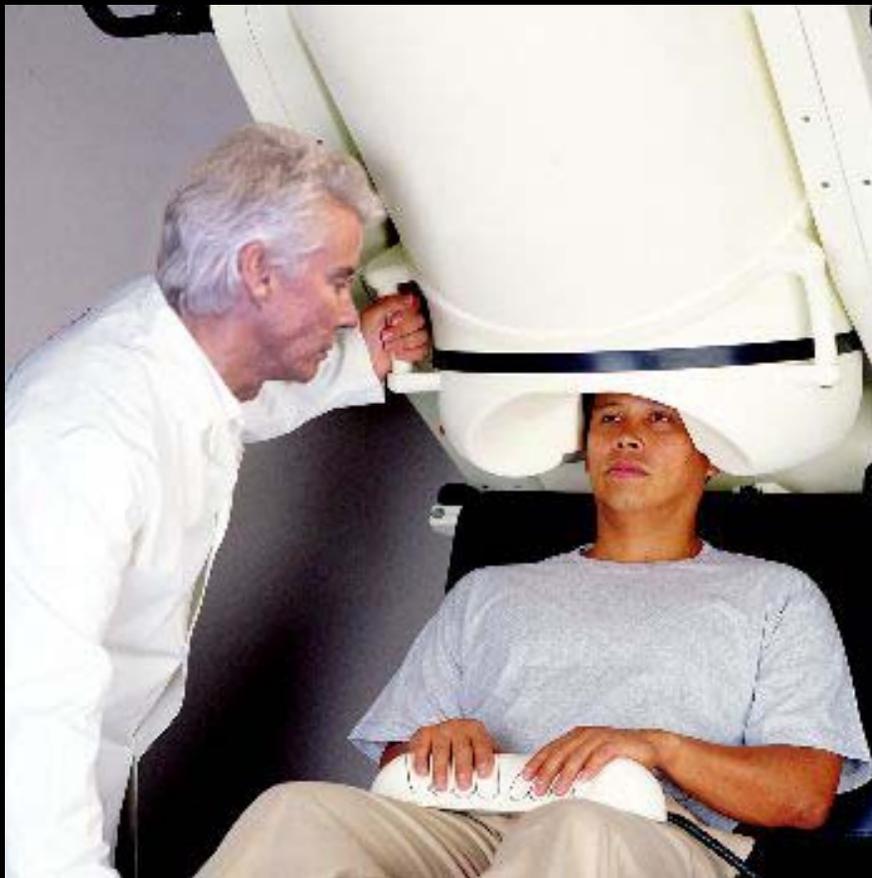
Glass et al.; Marzano, 2003a

Reading stimulates general
cognitive growth —
particularly verbal skills



Using Neuroscience to Guide Teaching and Learning



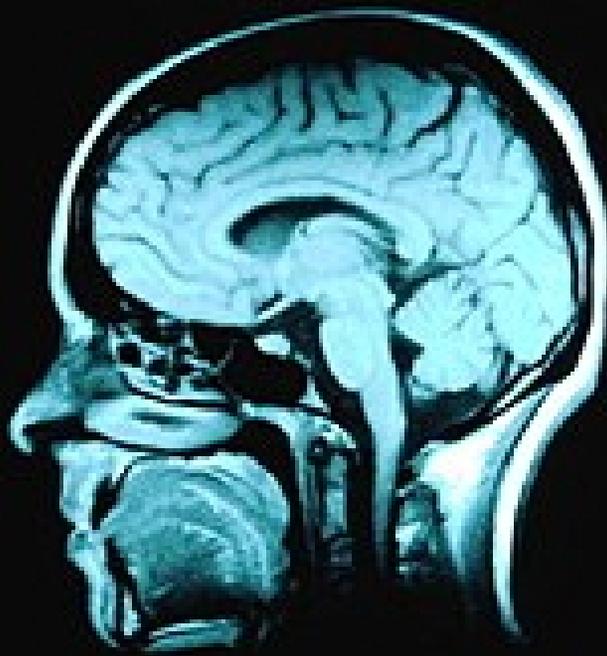


U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
National Institutes of Health

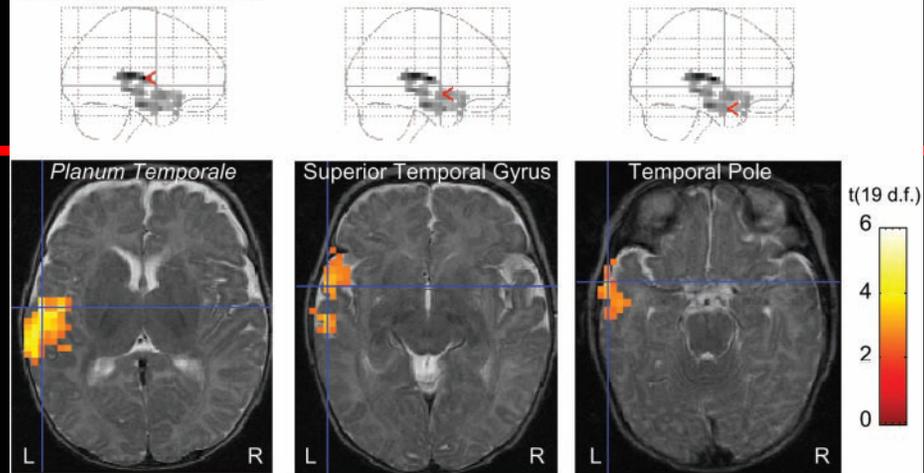


“Equity and access to quality education and expert teacher-scientists not only creates new visions and opportunities for students but produces a problem solving brain at the same time.”

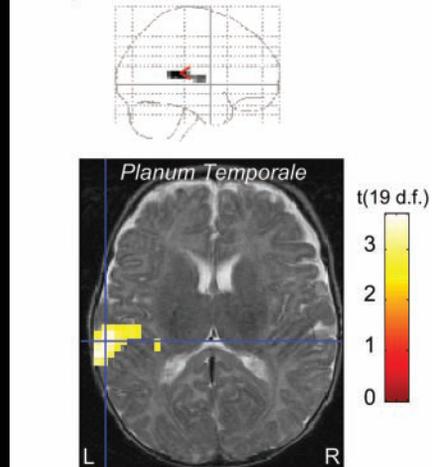
— Dr. G. Reid Lyon, NIH



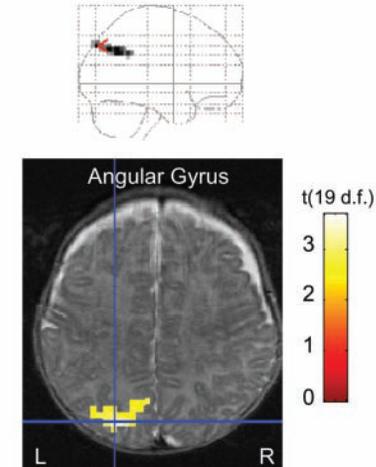
A: Activations to sound



B: Asymmetries in activations



C: Forward > Backward



Meanwhile, Back in the Brain

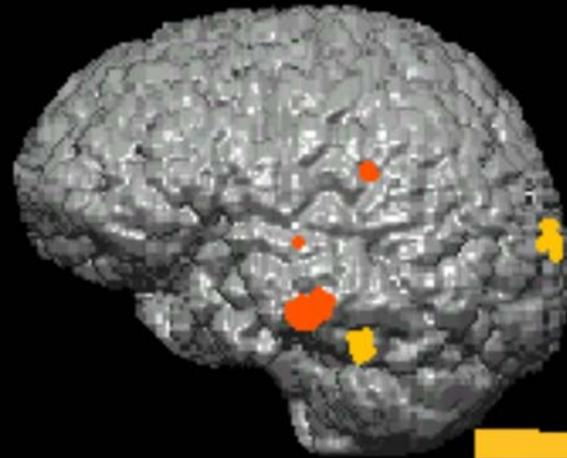


Why Do Some Children Have Difficulties Learning to Read?

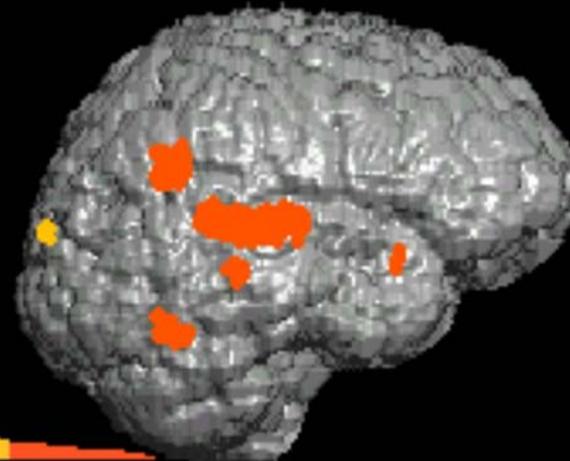
Kindergarten

S#1:
At risk

Left Hemisphere



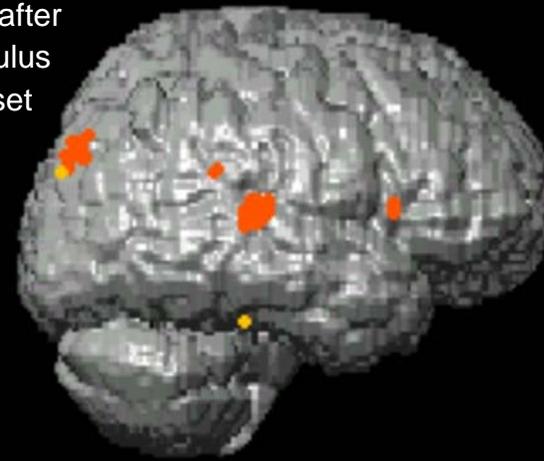
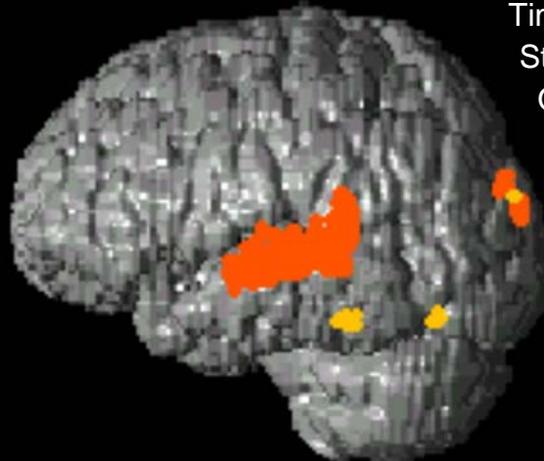
Right Hemisphere



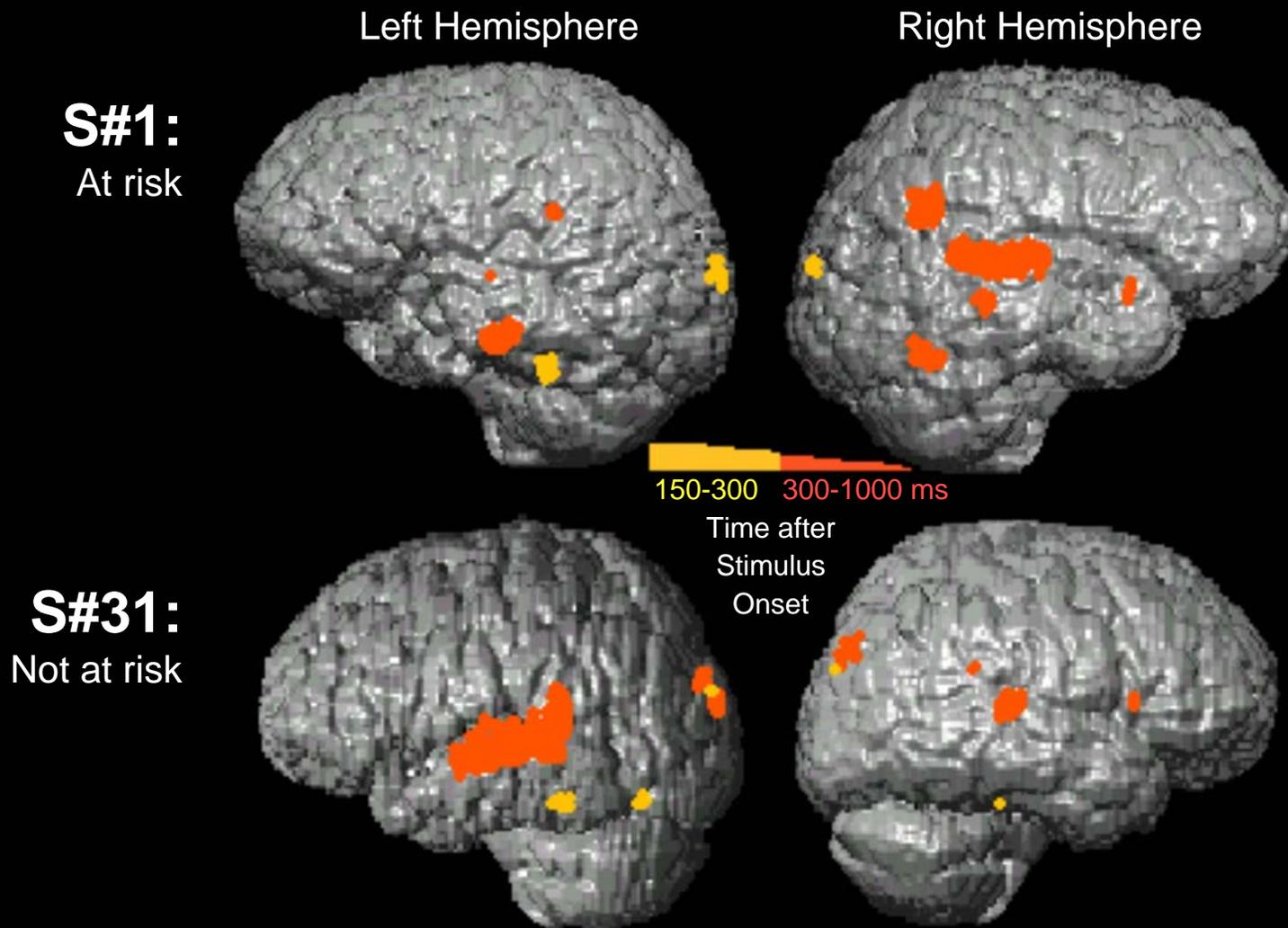
150-300 300-1000 ms

Time after
Stimulus
Onset

S#31:
Not at risk

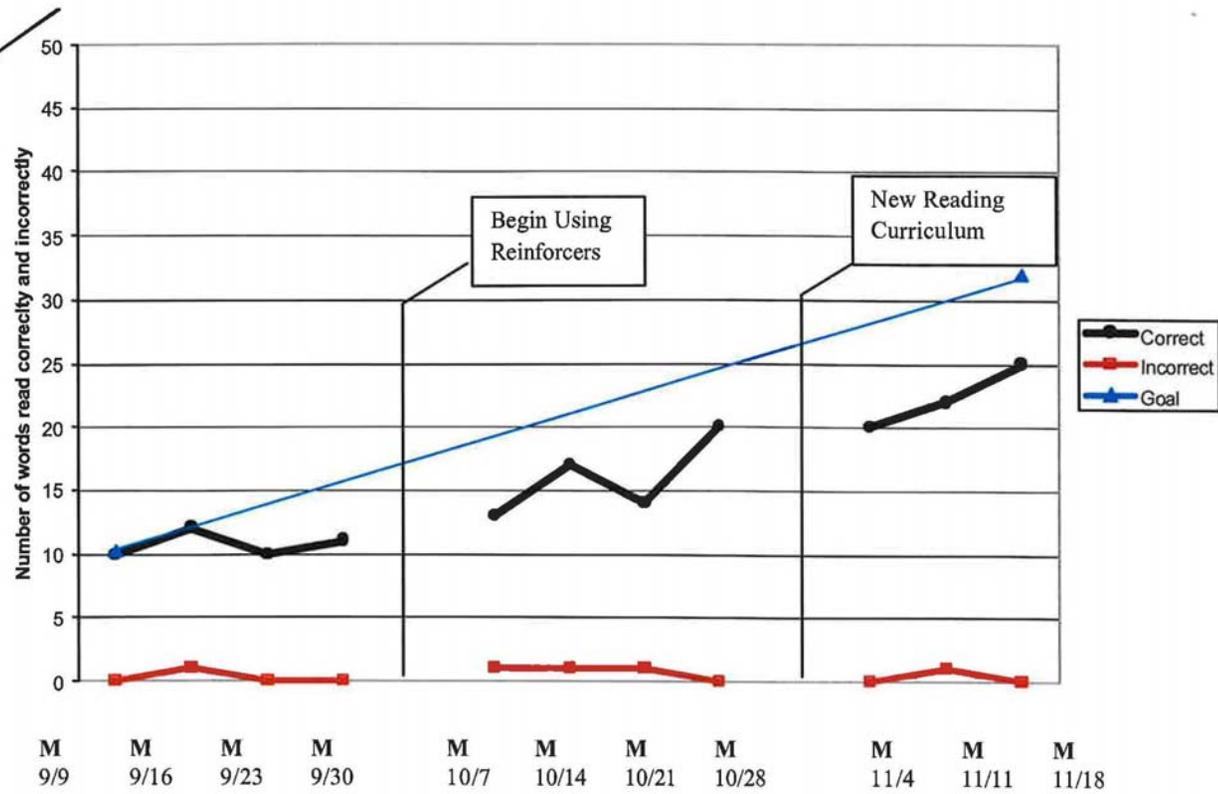


Kindergarten

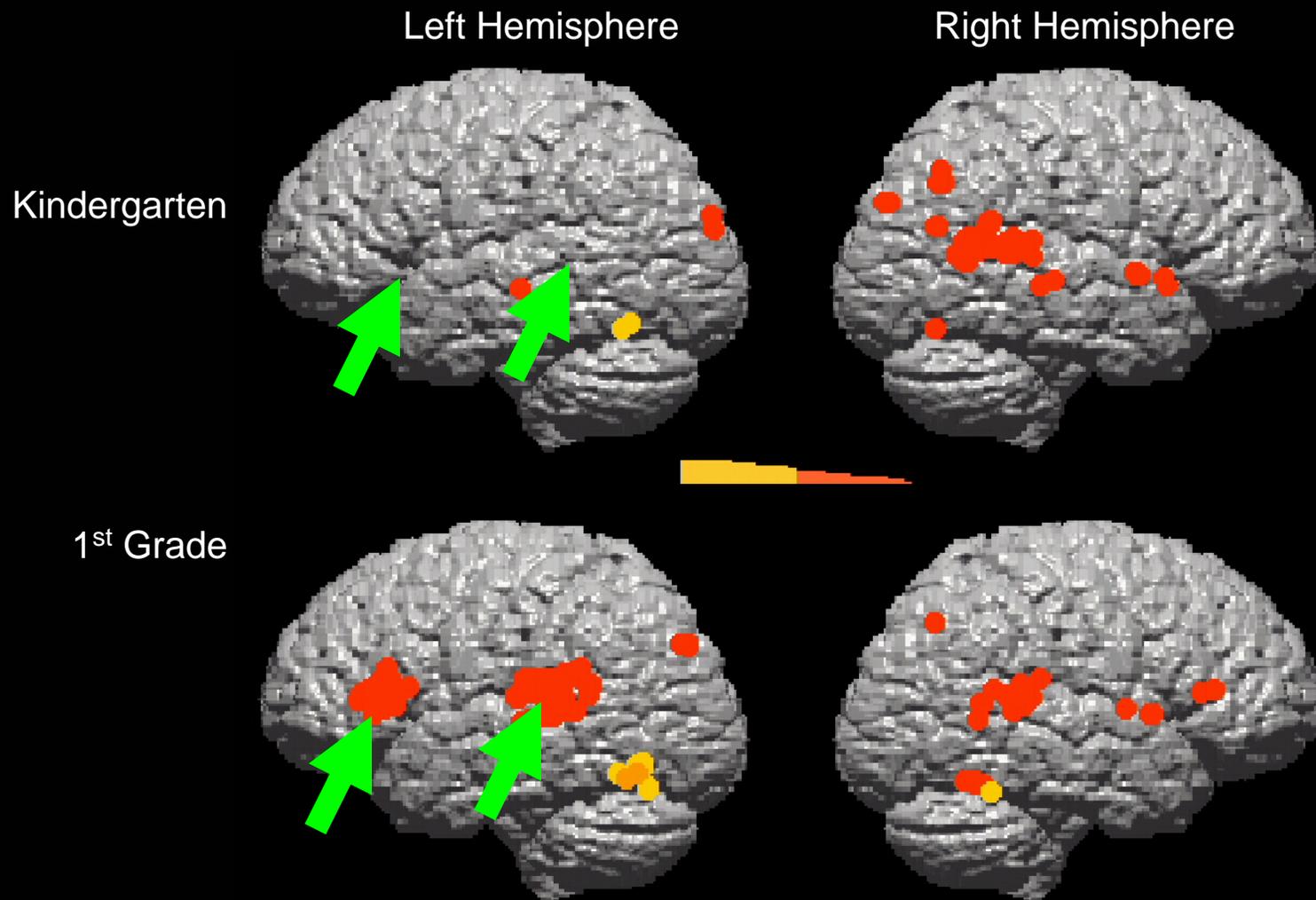


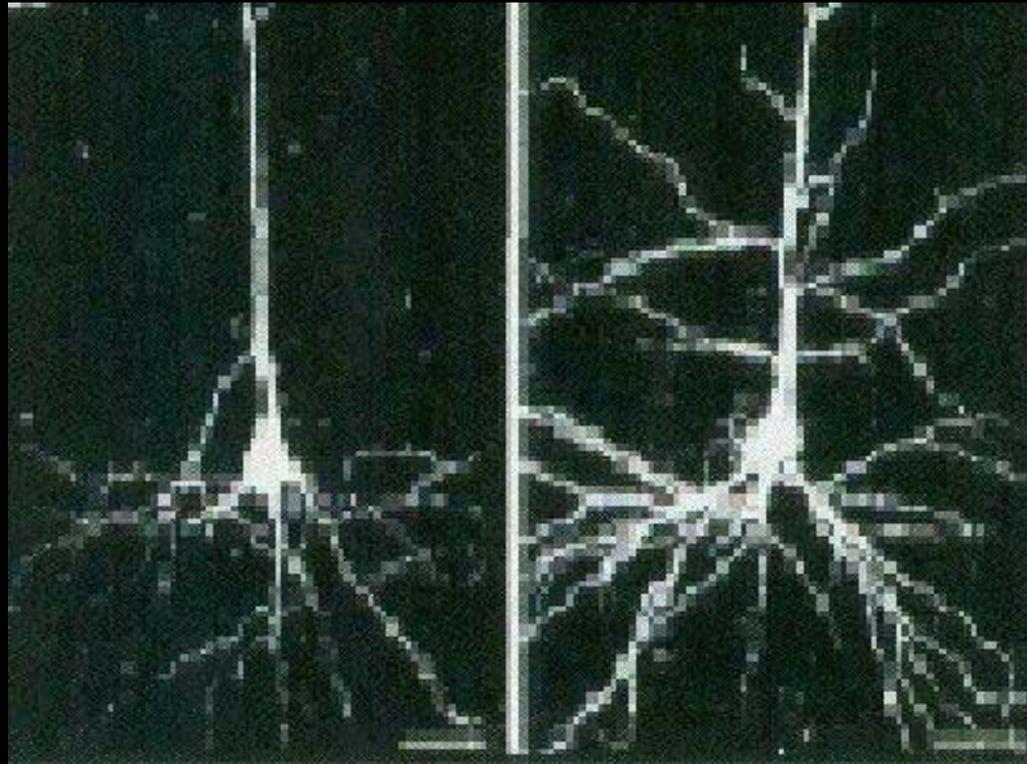
Students Name:

Subject Area: Reading



At Risk Reader





Strategies To Increase The Use of Scientific Evidence To Guide Educational Policies And Practices

- Development of Consensus Reading Research Reports: NRC/PRD (1998)
- Development of Evidence-Based Synthesis of Reading Intervention Research: NRP and the Current National Literacy Panel (2000)
- Extension and Continuation of Evidence-Based Research Syntheses to Address Early Childhood Literacy Development, Biliteracy, and Adolescent Literacy (2003)
- Development of Federal Legislation to Ensure the Use

Strategies To Increase The Use of Scientific Evidence To Guide Educational Policies And Practices

- Explicitly Base Federal Educational/Reading Legislation on Converging Evidence:
- Reading Excellence Act (1998)
- No Child Left Behind/Reading First (2001)
- NRC Report on Scientific Research in Education (2002)
- Education Sciences Reform Act/The Institute OF Educational Sciences (2002)

Strategies To Increase The Use of Scientific Evidence To Guide Educational Policies And Practices

- The Establishment of The What Works Clearing House (2002)
- The Coalition for Evidence-Based Policy (2002)
- The Federal Partnership for Reading (2001)
- The National Center for Reading First Technical Assistance (2004)
- The Establishment of The Review Of Teacher Preparation (2004)

Progress and Promise Does Not Mean Its Easy: Why does Resistance Persist?

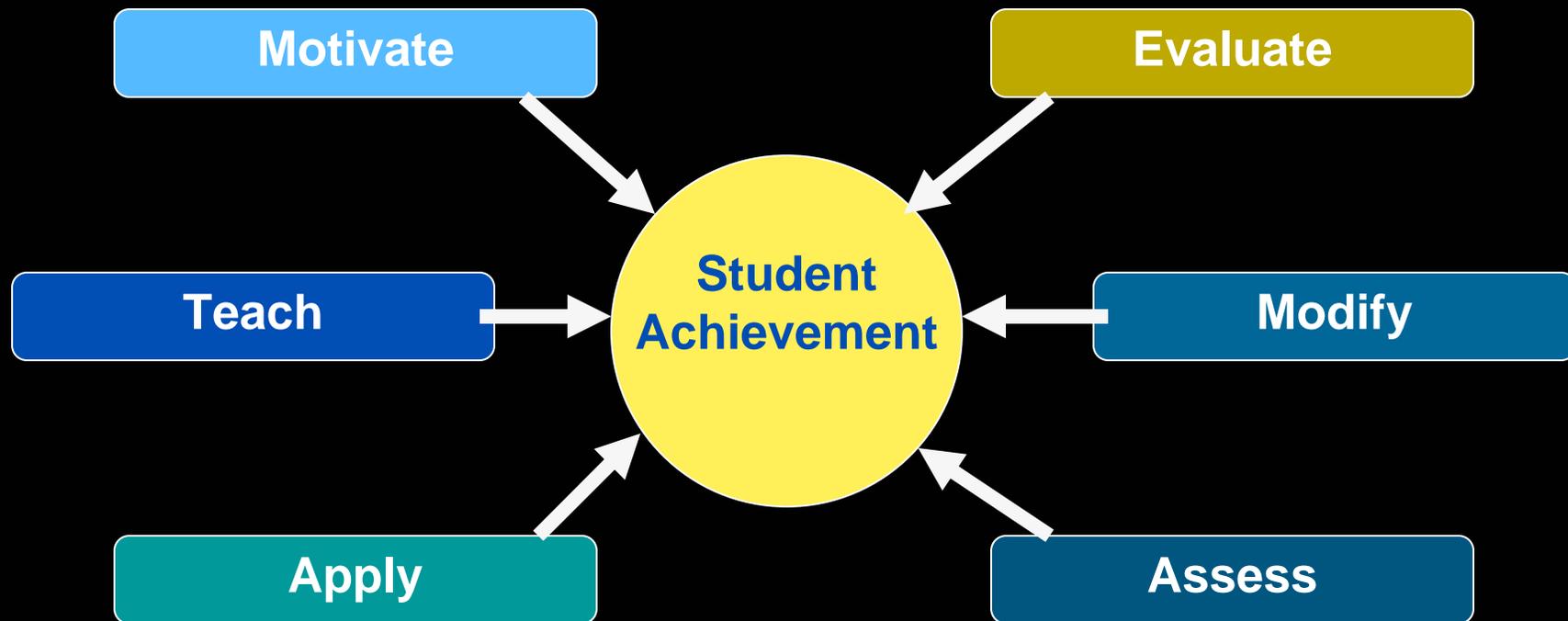
- A Lack of Understanding of Scientific Principles and Practices (“evidence is in the eye of the beholder”)
- An Anti-Scientific Culture Within the Traditional Reading Community
- Fragmentary Training in Research Design and Methods at Both Preservice and Graduate Levels
- A Tendency Among Policy-Makers to Base Policies and Initiatives on Beliefs and Anecdotes Rather Than Scientific Evidence

The Voice of Evidence in Reading Research

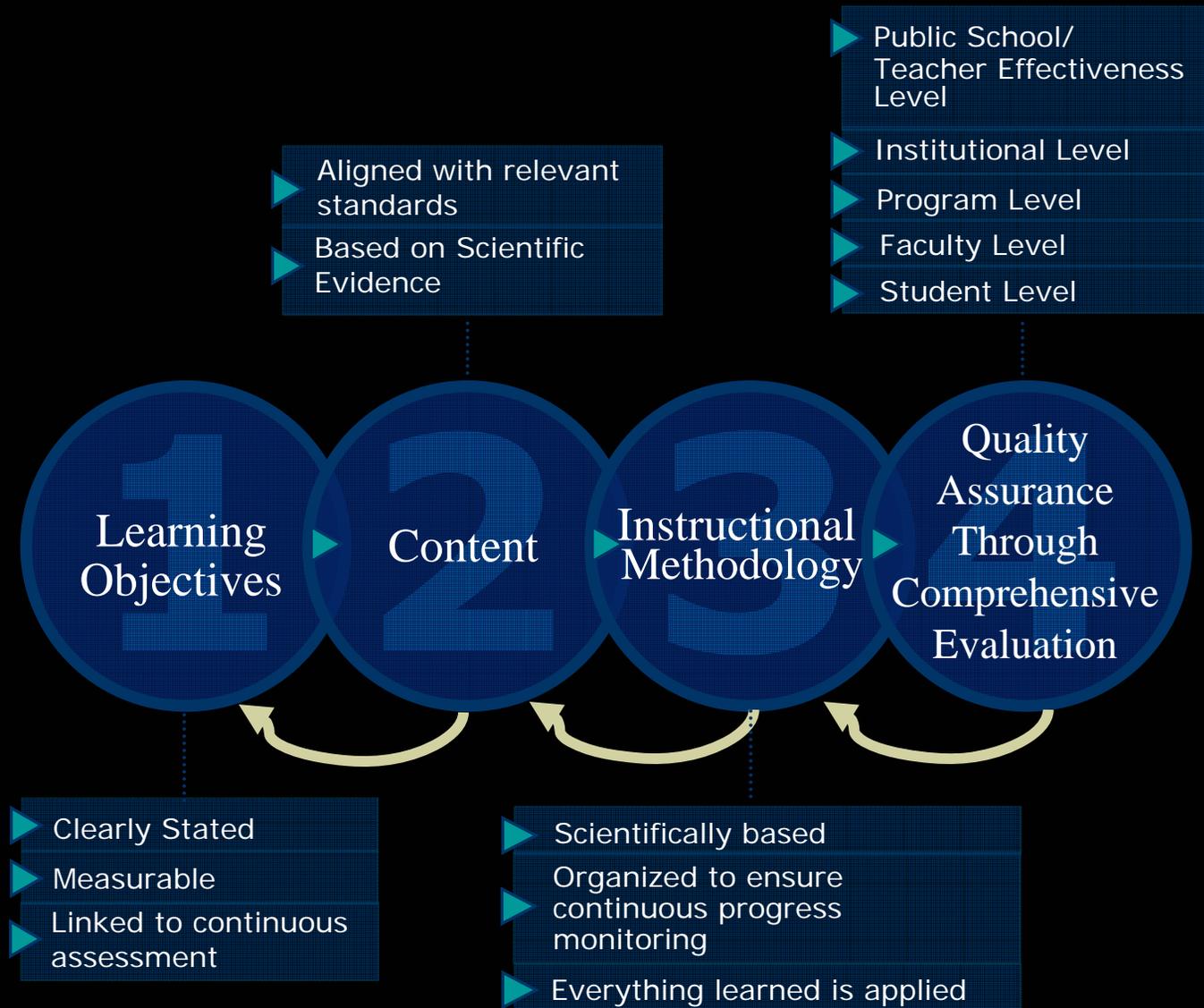


Peggy McCardle
Vinita Chhabra

Applying What We Know from Neuroscience to Improve Education and Student Learning



The ACE/EC CONTINUOUS ASSESSMENT MODEL: ENSURING STUDENT ACHIEVEMENT THROUGH RESEARCH AND EVALUATION



WIU Multi-Level, Outcomes-Based Assessment

A COMMITMENT TO CONTINUOUS IMPROVEMENT THROUGH
ONGOING EVALUATION AND ASSESSMENT

- ▶ Evaluation of instructional impact on students in classrooms
- ▶ Analysis of employment and retention of WIU teachers
- ▶ Performance on professional licensure examinations
- ▶ End of course evaluation of content knowledge and application
- ▶ Continuous assessment of ability to apply learning
- ▶ Continuous assessment of learning
- ▶ Initial self-assessment of competency in course objectives

STUDENT

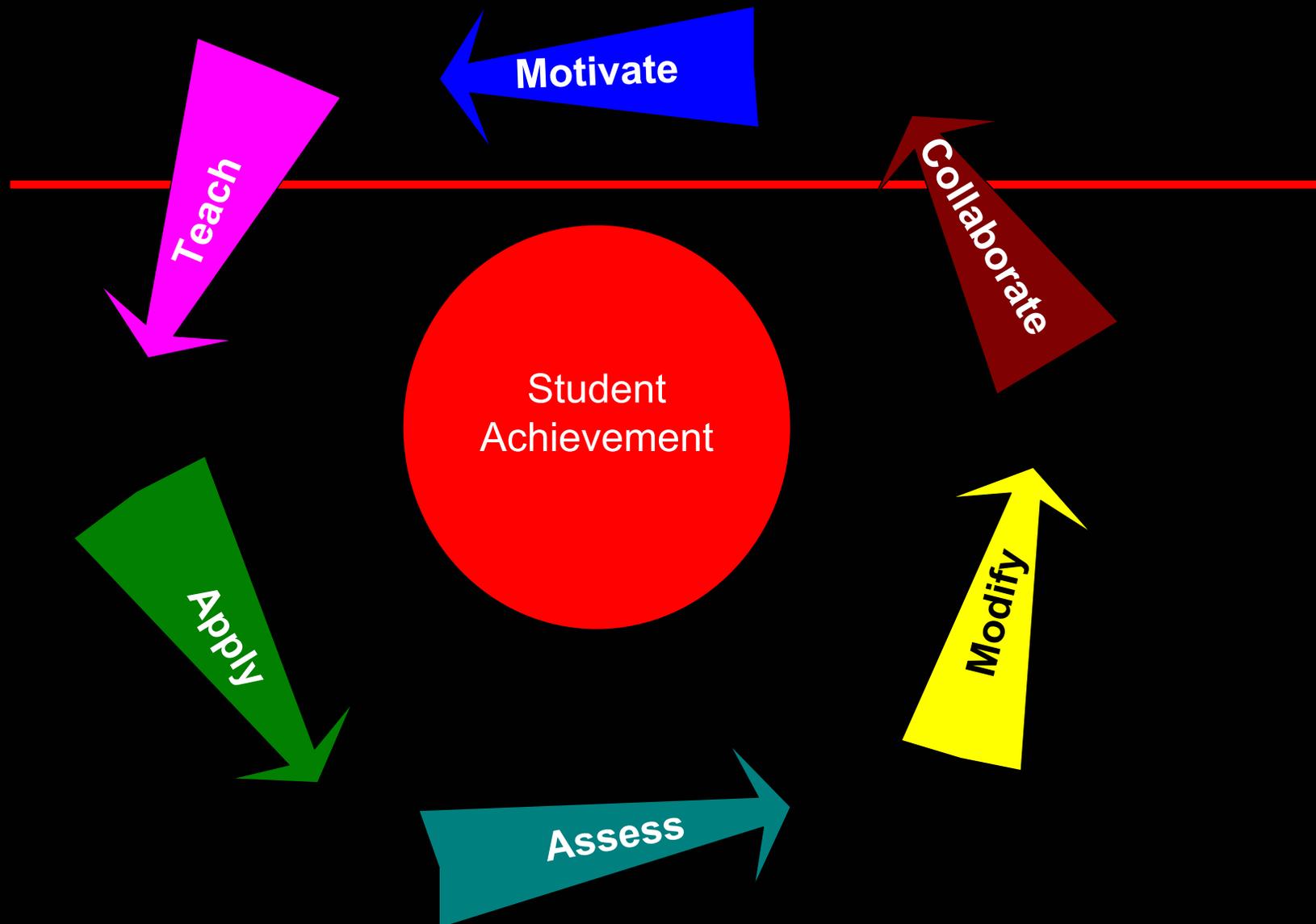
- ▶ Number of graduates meeting licensure requirements
- ▶ Post-Graduation student evaluations
- ▶ End of course student evaluation
- ▶ Self-evaluation
- ▶ Observations by colleagues
- ▶ Interim student evaluations

FACULTY

- ▶ Continuous assessment of graduate's impact on student learning in their classroom's
- ▶ Continuous assessment of student satisfaction
- ▶ Continuous assessment of student learning
- ▶ Continuous assessment of instructional quality
- ▶ Continuous assessment of course relevance

UNIVERSITY

ACE NON-NEGOTIABLES FOR IMPROVING STUDENT ACHIEVEMENT



Marzano et al, 2001; Walberg, 1999; Walberg & Waxman, 1983