

# RTI Meets Multicultural Issues in Special Education

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# Ethnicity of U. S. Population

	Percentage
Native Americans	1%
African-Americans	12.8%
Asian-American/Pacific Islander	4.3%
Latino(a)/Hispanic-American	14.4%
White/Caucasian	66.9%

U.S. Census Bureau (2005)

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- Our schools are the first major institutions to experience non-white majorities.
  - By 2012, students of color are projected to account for 24% of the total school population; 92% of special education teachers will be white females.
  - There are six states and the District of Columbia where white students are the minority: CA, TX, MI, HI, NM, & FL

# Latino Students

- Today's Latino population will grow to 47 million by 2010
- 39 out of 100 Latino children live in poverty
- 37% of Latinos will not finish high school
- Since Latino groups tend to concentrate in particular metropolitan areas, some children attend schools with 90% minority enrollment
- **Latinos tend to be overrepresented in remedial programs, particularly for students with LD and underrepresented in programs for gifted and talented students**

# African American Students

- 20.1% of total school enrollment
- Continue to be **overrepresented** in all programs in Special Education
- One out of three live in poverty
- 90% of the increase is in households headed by an African American woman
- Twice as likely to die in infancy
- 35% of all African American 13 year olds are proficient in reading at the intermediate level
- Drop out rate is about 34%
- 11% of all African American adults over the age of 25 complete college

# Asian/Pacific Islander & Native American Students

- API: Fastest growing population group in the US
- By 1994-95 more than 1.6 million Asians/Pacific Islanders were enrolled in schools
- **API: Underrepresented in special education and overrepresented in programs for gifted and talented programs**
- API: Highest rates for completing college of the minority groups
- Native American (including Native Alaskans) are overrepresented in LD programs and underrepresented in programs for gifted and talented students

# Culturally Responsive Pedagogy

- IDEA 2004 addresses issues related to **disproportionality and over-identification** of culturally and linguistically diverse students in special education programs. Mandates call for “activities to improve services for professionals and others involved in providing services to children with disabilities...to ensure **appropriate placements and services** for all students, and to reduce disproportionality...**for CLD and ELL...**”

# Purpose

- The purpose of this meta analysis was to focus on research-based reading instructional practices used in early intervention, special education, and RTI models in general education and to evaluate whether these practices are effective for culturally and linguistically diverse students with learning disabilities.
- Only one research study included in this meta analysis disaggregated data by subgroups (by ethnicity or language).

# Questions

- What proportion of the sample groups were culturally and linguistically diverse and/or receiving special education services?
- What was the range of effect sizes by research design?
  - What is the relationship between mean effect size and the proportion of culturally and linguistically diverse students?
- What were the weighted mean effect sizes for each standardized reading measure?

# Search Process

1. Electronic Databases
2. Ancestral Search (references from related meta-analysis, literature synthesis)
3. Table of Contents from peer-review special education journals
4. Recommendations from experts in the field

# Eligibility Criteria

- Articles acceptable for the meta analysis had to include **all three** of the following:
  - (1) an intervention and dependent measure related to reading: phonics, decoding, the alphabetic principle, phonological/phonemic awareness (not fluency, vocabulary, or comprehension);

# Eligibility Criteria

(2) the presence of students with learning disabilities, dyslexia, reading disabilities, reading difficulty (at-risk); and

# Eligibility Criteria

(3) the inclusion of English Language Learners (ELL) and/or students representing culturally diverse backgrounds

# Search Terms: Cluster 1

## (1) Reading (or):

- Phonics
- Phonemes
- Phoneme Awareness
- Phonemic Awareness
- Decoding
- Alphabetic Principle
- Letter Sounds
- Sounding Out
- Spelling

# Search Terms: Cluster 2

## **(2) Disability (or):**

- Specific learning disability
- Learning disability
- Dyslexia
- Reading disability
- Reading difficulty
- Attention Deficit Hyperactivity Disorder
- Attention Deficit Disorder

# Search Terms: Cluster 3

## **(3) Diversity (or):**

- English language learner
- English learner
- Limited English proficiency
- Non-native speaker
- Linguistically diverse
- Culturally diverse
- Multicultural
- Minority
- Students of color

# Search Process: Clusters 1, 2, & 3

## Electronic Databases

### Set Limitations:

- 1997 – 2007
- English
- Human

### Results:

- ERIC: 36
- PsycINFO: 34
- Education Full Text: 2
- MEDline (PubMed): 5
- Dissertation Abstracts International (DAI) (Dissertation Abstracts Online): 141

**Total: 218**

# Search Process: Clusters 1, 2, & 3

## Peer-Reviewed Journals

### Table of Contents 1997-2007

- Exceptional Children: 7
- Learning Disability Research and Practice: 20
- Learning Disability Quarterly: 5
- Journal of Learning Disabilities: 16
- Journal of Special Education: 8

**Total: 56**

# Search Process: Title Search Ancestral Search & Experts

## Meta-Analysis & Research Synthesis

- National Reading Panel (2000)
- Swanson & Hoskyn (1999)
- Swanson & Sachse-Lee (2000)
- Vaughn, Levy, Coleman, & Bos (2002)

**Total: 16**

● **Expert Recommendations: Total 8**

● **Grand Total: 298** (including possible duplicates)

# Further Review of Articles

- **Initial review (abstract and skim): 23 articles, 7 dissertations**
- **Upon close review 7 studies were deleted** from the study because absence of data to compute effect size, the absence of demographic data about the sample, or the absence of diversity in the sample group.
- **Final Data Set: 16 studies**

# Coding Variables

1. Type/year of publication
2. Article retrieval
3. Research design (and assignment to conditions)
4. Sample Demographics:
  - Gender
  - Learning disability
  - Special Education services

# Coding Variables

## 4. Sample demographics (cont):

- Ethnicity
- Grade(s)
- Mean age
- SES Level (free/reduced lunch)
- Language (English Learner-Spanish, English Learner-other, Native Speaker)

# Coding Variables

## 5. Achievement/IQ Level:

- IQ scores (mean, full, verbal)
- Reading Level
  - Below grade level
  - Percentile rank
  - “At-risk”

## 6. Who conducted the intervention/ treatment

# Coding Variables

## 7. Description of Treatment

- Length (measured in weeks)
- Frequency (days per week)
- Duration (minutes)
- Location (e.g., pull out, classroom)
- Grouping (e.g., 1-1, small group)

# Coding Variables

## 8. Instructional Components

- Phonics/Decoding (letter-sound correspondence)
- Vowel, consonant sounds
- Syllable types
- Letter names/sounds
- Rhyming
- Phonemic awareness

# Coding Variables

## 8. Instructional Components (cont).

- Blending
- Segmenting
- Initial sounds
- Medial sounds
- Ending sounds
- Manipulating phonemes
- Substituting phonemes
- Deleting phonemes

## 9. Type of intervention (single, combination, commercial)

# Coding Variables

## 10. Reading Outcomes (measures)

- Woodcock Johnson-III (Word Attack, Letter ID)
- Woodcock Johnson Reading Mastery Test (Word Attack, Word/Letter ID)
- DIBELS subtests
- CTOPP subtests
- TOWRE subtests
- Other non-standardized assessments (e.g., spelling list, word list, phoneme segmentation)

# Data Analysis

- Descriptive statistics: means (standard deviation), frequency count
- Individual effect size for each comparison (experimental group-comparison group or post-pretest score)
- Standardized mean difference using the pooled standard deviation (total effect sizes computed=131)

# Data Analysis

- Computed weighted (for sample size) mean effect size for each standardized measure
- Coded proportions of low (30%), medium (31-60%), and high (>60%) proportion of students from culturally and linguistically diverse (CLD) backgrounds
- Computed eta squared ( $\eta^2$ ) to show the relationship between proportion of CLD students and mean effect size for each standardized measure

# Retrieval Data

● ERIC:	6.3%
● Education Full Text	6.3%
● Expert from field	25%
● Reference list	12.5%
● Table of Contents	50%

# Results: Descriptive Data

## ● **Research Design**

- True experimental: 37.5%
- Quasi-experimental: 18.8%
- Single subject (multiple baseline): 6%
- One group repeated measures: 31.3%

# Demographic Data: Experimental Group Mean Percentages

- **Gender:**

- Male 54%
- Female 46%

- **Socioeconomic Status:**

- Free/Reduced lunch 54%

# Demographic Data: Experimental Group Mean Percentages

## ● **Ethnicity:**

- African American: 37%
- Caucasian: 45%
- Latino/Hispanic: 59%
- Asian/Pacific Islander: 2%
- Other or mixed groups: 45%

## ● **Language:**

- English Learner (Spanish): 65%
- English Only: 52%

# Achievement Data: Experimental Group Mean Percentages

- **Learning Disability (LD):** 68%
- **Average Full Scale IQ score:** 88
- **Reading Level:**
  - Percentile Rank 30 or less: 3 studies
  - At Risk: 10 studies
  - Below Grade Level: 5 studies

# Treatment Data: Experimental Group Mean Percentages

## ● **Intervention Conducted By Whom:**

- Researcher/Researcher Asst: 13%
- Instructional Assistant: 25%
- Special Education Teacher: 6%
- Classroom Teacher: 19%
- Multiple Teachers: 25%
- Educational Therapist: 6%
- Peers (students): 6%

# Treatment Data: Experimental Group Mean Percentages

- **Intensity of Treatment:**

- # of Weeks: 27.98 (n=16)
- Days per week: 4.07 (n=14)
- Minutes per session: 40.36 (n=11)

- **Location of Treatment:**

- Pull out: 6%
- Special Day Class 17%
- General Educ. Class 67%
- Unknown Classroom: 17%
- Not stated 6%

# Treatment Data: Experimental Group Mean Percentages

## ● **Grouping Structure:**

- Individual (1-1): 37.5%
- Small Group (2-5): 37.5%
- Both: 12.5%
- Whole Group: 12.5%

# Treatment Data: Experimental Group Mean Percentages

## ● **Instructional Components:**

- Decoding: 87.5%
- Short vowels: 12.5%
- Long vowels: 18.8%
- Consonants: 12.5%
- Syllable Types: 18.8%
- Spelling: 31.3%
- Letter names: 50.0%
- Rhyming: 12.5%

# Treatment Data: Experimental Group Mean Percentages

## ● **Instructional Components (cont):**

- Phonemic awareness: 100%
- Blending 31.3%
- Segmenting 37.5%
- Initial sounds 12.5%
- Medial sounds 12.5%
- Ending sounds 6.3%
- Phoneme Manipulation 25.0%
- Substitution/deletion 12.5%

# Range of Mean Effect Sizes

- $d = .2$  (weak),  $.5$  (moderate),  $.8$  (strong) (Cohen, 1988)
- The mean effect sizes for all studies ranged from  $.16$  to  $2.48$

# Range of Mean Effect Sizes by Research Design

- True exp: .18 to 1.06
- Quasi-exp: .99 to 1.4
- One group: .7 to 2.48
- Multiple baseline: .16 to 1.05

# Relationship Between Effect Size and Proportion Data

- Eta ( $\eta$ ): A measure of association that ranges from 0 to 1, with 0 indicating no association between the two variables.
- $\eta^2$  ranges: .01 (small), .06 (medium), .14 (large) (Cohen, 1988)
- Proportion of CLD students:  $\eta^2 = .05$
- Proportion of instructional components:  $\eta^2 = .14$

# Weighted Mean Effect Sizes for Standardized Measures

- WJ-III Word Attack: 1.37
- WJ-III Word ID: .56
- WRMT Word Attack: .70
- WRMT Word ID: .69
- Average mean effect size: .83

# Implications

- There was a moderate relationship between the effect size of the intervention and the proportion of CLD students represented in the study (not a causal relationship).
- We still have more work to do in developing effective reading instruction for students with CLD with reading difficulties/LD.

# Conclusions

- Given that IDEA 2004 calls for the implementation of the RTI model while specifically addressing issues of **disproportionality and over-identification** of culturally and linguistically diverse students in special education programs, it is up to the field to **show evidence** that proposed interventions will result in **appropriate placements and services** for CLD and ELL students.

# Recommendation for Future Research

- Data analysis in future research must **disaggregate data by subgroups** (ethnicity or language) to show evidence that these practices are effective for culturally and linguistically diverse students with learning disabilities.

# References: 16 Studies Included in the Meta Analysis

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16. Vaughn, S., Linan-Thompson, S., & Hickman, P. (2003). Response to instruction as a means of identifying students with reading/learning disabilities. *Exceptional Children, 69*(4), 391-409

# References: 7 Studies That Were Deleted from Final Sample

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