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# Relationships of Teacher Beliefs and Qualifications to Classroom Quality in Head Start

Gary Resnick, Ph.D. and Nicholas Zill, Ph.D.

Westat

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# Research Questions

- How do program characteristics and teacher qualifications and beliefs relate to classroom quality in Head Start? (addressed in this presentation)
- How do classroom quality measures relate to children's developmental gains in Head Start? (addressed in companion presentation)



# Overall Model of Program, Classroom and Child-Level Factors Predicting to Classroom Quality and Children's Gains

## Head Start Program

### Program-Level Factors

- Characteristics of Families served by Program
- Primary Curriculum used in majority of classrooms
- Teacher Salaries

## Child

### Family Backgrounds

- Education, Income, Welfare Status
- Family Structure
- Child Characteristics
- Parent Cognitive Abilities
- Home Educational Activities

## Classroom

### Teacher Factors

- Experience and Training (education, years teaching)
- Beliefs around Developmentally Appropriate Practices (DAP)
- Demographics (age, ethnicity)

### Classroom Quality

- ECERS Mean
- ECERS Language
- Child-Adult Ratio
- Teacher Individualizing
- Teacher Sensitivity

### Fall-Spring Gains

- Receptive Vocabulary
- Letter-Word Identification
- Early Writing
- Early Math



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# Background and Rationale

- To assess the influence of program-level factors as a way of explaining effects of teacher backgrounds, experience and beliefs on classroom quality.
- Characteristics of families served by the Head Start programs indicate the challenges faced by these programs and the resources available to meet these challenges, in terms of teacher experience and beliefs, that affect classroom quality
- Similarly, programs that provide for a common primary curriculum across classrooms and that pay their teachers well have sufficient resources available to positively influence classroom quality, through the quality of teachers hired, their experience and beliefs
- Analysis: Two-Level Models using SAS PROC MIXED (Singer, 1998), to predict classroom process quality from classroom- and program-level factors



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# Background and Rationale

- Prior Study (Resnick and Zill, 2001):
  - The original relationship between teacher background and experience and classroom quality consistently disappeared when program-level characteristics were entered
  - Variations in quality seem to be strongly influenced by program-level factors, more than by the backgrounds or experience of classroom teachers
  - Programs located in communities that are resource-poor are limited in their ability to find well-trained and experienced teachers and to equip their classrooms with the learning materials and other tools necessary to enhance quality.



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# Background and Rationale

- Problem:

- Program-level predictors were limited to proxy indicators of families served by program but did not include factors that could directly influence classrooms, such as curricula, teacher beliefs or teacher salaries

- New Information in FACES 2000:

- Primary curriculum used in most classrooms within a Head Start program (High Scope, Creative, or other/none)
- Teacher Salaries (Average for Program) Reflecting Program Resources
- Teacher's Beliefs about Developmentally Appropriate Practices
- Teacher Salaries at the classroom level (deviation from program average)
- Teacher Individualizing Scale: Teacher tracks each child's progress and modifies curriculum for individual needs



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# Program-Level Predictors (Fall 2000 FACES)

- Characteristics of Families Served by Program
  - Percent parents with some college
  - Percent parents earning \$1500/month or more
  - Percent non-minority students in program
  - Percent language minority students in program
- Primary Curriculum Used in Majority of Classrooms
  - High Scope Curriculum
  - Creative Curriculum
- Program Resources
  - Average Annual Teacher Salary



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# Classroom-Level Predictors (Fall 2000 FACES)

- Teacher Background and Experience
  - Years of teaching experience (total years)
  - Teacher holding a BA or AA
  - Teacher ethnicity (African-American, Hispanic)
  - Teacher salary (as deviation from program avg.)
- Teacher Beliefs
  - Developmentally Appropriate Attitudes Scale (high score = positive attitudes and knowledge of DAP)





# Teacher Background and Experience

N=257		
<b>YEARS TEACHING HEAD START</b>		
	1-2 YRS	21.0%
	3-4 YRS	20.6%
	5-9 YRS	28.8%
	10+ YRS	29.6%
	Total	100.0%
<b>HIGHEST LEVEL OF EDUCATION ACHIEVED</b>		
	HIGH SCHOOL/GED	10.5%
	ATTENDED COLLEGE	31.5%
	ASSOCIATES	21.4%
	BA/UNDERGRADUATE DEGREE	27.2%
	GRADUATE DEGREE	9.3%
	Total	100.0%
<b>CDA CERTIFICATE/CREDENTIAL?</b>		
	NO	44.9%
	YES	55.1%
	Total	100.0%
<b>Teacher Ethnicity</b>		
	Black	30.7%
	Hispanic	16.7%
	Asian	1.6%
	White	49.4%
	Multiple Race/Other	1.6%
	Total	100.0%



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# Classroom Quality Measures

- Classroom Processes

- ECERS Mean Score

- ⇒ Mean = 4.84, SD = 0.87, N = 258, Alpha Coefficient (37 items) = .93

- Assessment Profile Individualizing Score (observational items)

- ⇒ Mean = 3.58, SD = 1.152, N = 260, Alpha Coefficient (5 items) = .62

- Classroom Structure

- Average Child-Adult Ratio

- ⇒ Mean = 5.4, SD = 2.1

- Teacher Sensitivity

- Caregiver Interaction Scale: 30 items rating teacher's sensitivity, responsiveness, detachment, harshness, encouragement of independence

- ⇒ Mean = 71.48, SD = 12.42, N = 256, Alpha Coefficient = .94



# Multi-Level Model of Program- and Classroom-Level Factors Predicting to Classroom Quality

## Head Start Program

### Head Start Program-Level Factors

- Characteristics of Families served by Program
- Primary Curriculum used in majority of classrooms
- Teacher Salaries

## Classroom

### Teacher Factors

- Experience and Training (education, years teaching)
- Beliefs around Developmentally Appropriate Practices (DAP)
- Demographics (age, ethnicity)

### Classroom Materials and Activities

### Classroom Language Environment

### Teacher-Child Interactions

### Classroom Quality

- ECERS Mean
- Child-Adult Ratio
- Teacher Individualizing
- Teacher Sensitivity



**Multi-Level Model of Teacher Background and Experience linked to Classroom Quality (ECERS Mean Score), Controlling for Program-Level Effects (N=265), Fall 2000**

<b>Independent Variables</b>	<i>Program+Class Effects</i>	
	Estimate	Signif <sup>1</sup>
<i>INTERCEPT = 4.8</i>		
Percent parents with some college or higher	0.55	
Percent parents earning \$1500/month or more	0.44	
Percent non-minority students	0.82	<b>0.01</b>
Percent language-minority students	1.04	<b>0.02</b>
High Scope Curriculum	0.30	
Creative Curriculum	0.33	
Average Annual Teacher Salary	0.10	
Teacher having BA or AA	-0.09	
Teacher DAP Beliefs	0.11	<b>0.00</b>
Years Teaching Experience	0.01	
African-American Teacher	-0.14	
Hispanic Teacher	-0.18	
Teacher Salary (deviation from pgm mean)	0.03	

1. Significance levels in bold indicate statistically significant effects.



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# Predicting Overall Quality (ECERS Mean Scores)

## Final Program+Classroom Model

- Controlling for program-level characteristics, teacher ethnicity is no longer significantly related to overall classroom quality
- Program factors including proportion of non-minority and language-minority families, combined with teachers holding DAP beliefs, accounted for 23% of the total variation in quality, and 47.8% of variation across programs



**Multi-Level Model of Teacher Background and Experience linked to Child-Adult Ratio, Controlling for Program-Level Effects (N=265), Fall 2000**

Independent Variables	Program+Class Effects	
	Estimate	Signif <sup>1</sup>
<i>INTERCEPT = 5.4</i>		
Percent parents with some college or higher	-2.57	
Percent parents earning \$1500/month or more	0.50	
Percent non-minority students	-0.87	
Percent language-minority students	-1.31	
High Scope Curriculum	-0.88	
Creative Curriculum	-0.56	
Average Annual Teacher Salary	-0.81	<b>0.01</b>
Teacher having BA or AA	-0.04	
Teacher DAP Beliefs	0.04	
Years Teaching Experience	0.00	
African-American Teacher	0.14	
Hispanic Teacher	0.21	
Teacher Salary (deviation from pgm mean)	0.04	

1. Significance levels in bold indicate statistically significant effects.



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# Predicting Child-Adult Ratio

## Final Program+Classroom Model

- Controlling for program-level characteristics, average annual teacher salary remained a significant predictor of child-adult ratio, with higher average salaries related to lower ratios, hence higher quality
- Programs' average teacher salaries accounted for 5% of the total variance but 28% of the variation *across programs* in child-adult ratios



**Multi-Level Model of Teacher Background and Experience linked to Teacher Sensitivity (Caregiver Interaction Scale), Controlling for Program-Level Effects (N=265), Fall 2000**

Independent Variables	Program+Class Effects	
	Estimate	Signif <sup>1</sup>
<i>INTERCEPT = 70.96</i>		
Percent parents with some college or higher	10.59	
Percent parents earning \$1500/month or more	2.83	
Percent non-minority students	3.24	
Percent language-minority students	-1.98	
High Scope Curriculum	5.33	0.10
Creative Curriculum	6.41	<b>0.02</b>
Average Annual Teacher Salary	1.62	
Teacher having BA or AA	-1.09	
Teacher DAP Beliefs	1.55	<b>0.00</b>
Years Teaching Experience	0.17	<b>0.05</b>
African-American Teacher	-1.75	
Hispanic Teacher	-3.91	
Teacher Salary (deviation from pgm mean)	1.09	

1. Significance levels in bold indicate statistically significant effects.





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# Predicting Teacher Sensitivity

## Program+Classroom Model

- Programs with high proportions of non-minority students and that use a specific curriculum - such as Creative Curriculum and to a lesser extent High/Scope Curriculum - in most of their classrooms, with teachers holding DAP beliefs and having more years of teaching experience, accounted for 20% of the total variance and 60% of variation across programs in teacher sensitivity



**Multi-Level Model of Teacher Background and Experience linked to Teacher Individualizing, Controlling for Program-Level Effects (N=265), Fall 2000**

Independent Variables	<i>Program+Class Effects</i>	
	Estimate	Signif <sup>1</sup>
<i>INTERCEPT = 3.5</i>		
Percent parents with some college or higher	0.52	
Percent parents earning \$1500/month or more	3.82	<b>0.01</b>
Percent non-minority students	0.14	
Percent language-minority students	0.22	
High Scope Curriculum	-0.40	
Creative Curriculum	-0.38	
Average Annual Teacher Salary	-0.34	0.10
Teacher having BA or AA	0.10	
Teacher DAP Beliefs	0.04	
Years Teaching Experience	0.01	
African-American Teacher	0.06	
Hispanic Teacher	0.04	
Teacher Salary (deviation from pgm mean)	0.15	

1. Significance levels in bold indicate statistically significant effects.



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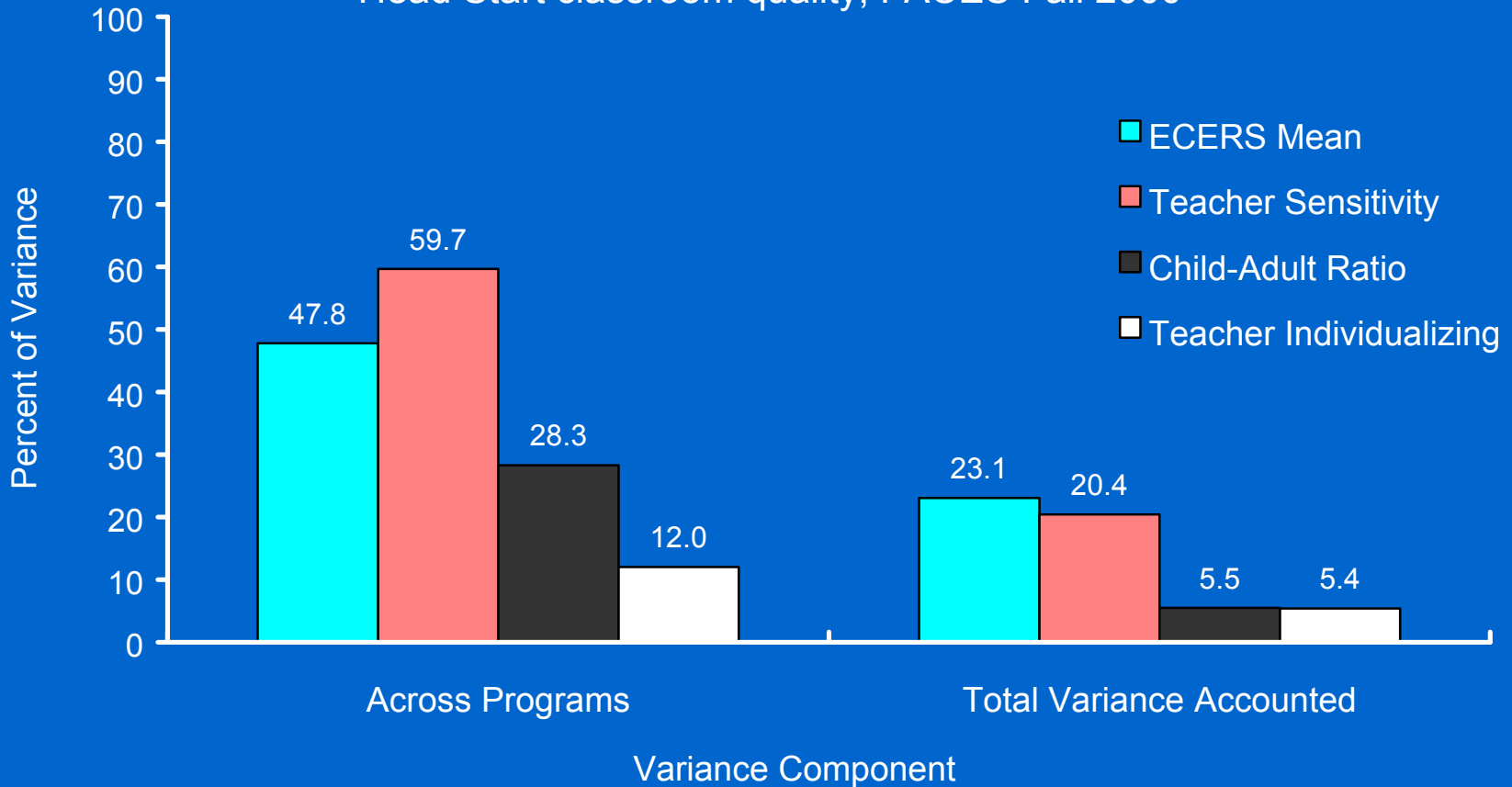
# Predicting Teacher Individualizing

## Program+Classroom Model

- Controlling for program-level characteristics, the proportion of higher income families remained a significant predictor of teacher individualizing while higher average teacher salaries became weakly related as well
- Programs with more higher income families, and with somewhat higher average teacher salaries, accounted for 5% of the total variation and 12% of the variation in across programs in individualizing scores



Summarizing the role of teacher beliefs and experience, curriculum, and program characteristics for explaining variation in Head Start classroom quality, FACES Fall 2000\*



\*Combined program+class models



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# Summary of Results

- Overall, the results suggest that variations in the quality of Head Start programs may be explained by characteristics of the families and children they serve, by resources available to them, by curriculum used in the program, and by teacher beliefs
- The relationship between program-level factors and classroom quality is explained by teacher's beliefs about DAP and their years of experience, rather than by teacher's levels of education; BA or AA teacher qualifications were not related to classroom quality after controlling for teacher experience and DAP beliefs and program factors
- Teacher's beliefs about DAP appear related to the program's use of a specific curriculum in the majority of classrooms, and appears to have the strongest effect on teacher sensitivity
- Child-adult ratio is primarily related to the average teacher salaries paid by the program; programs who can afford higher salaries have classrooms with lower child-adult ratios, hence higher quality

