

Early Literacy and Numeracy

I. Background Information

Measure/ Source:

- **Color Names and Counting**
- Original Family And Child Experiences Survey (FACES) measure modified from the Color Concepts and Number Concepts tasks in: Jana M. Mason and Janice Stewart (1989), *The CAP Early Childhood Diagnostic Instrument (prepublication edition)*, American Testronics.

Purpose of Measure:

As used in the Family and Child Experiences Survey (FACES): The Color Names and Counting was designed to assess knowledge of colors and counting ability.

Population Measure Developed With:

- 2479 children in the FACES sample between the ages of 3 and 5.
- The FACES sample was randomly drawn from a stratified probability sample of 43 Head Start programs selected to represent the universe of Head Start programs in the 50 states, excluding migrant programs and American Indian programs.

	African American		White		Hispanic		Other		Total	
	N	%	N	%	N	%	N	%	N	%
Male	343	13.8	471	19.0	363	14.6	65	2.6	1242	50.1
Female	383	15.4	415	16.7	371	14.9	68	2.7	1237	49.9
Total	726	29.3	886	35.7	734	29.6	133	5.4	2479	100

Key Constructs of Measure:

- **Color Naming.** This measure assesses the child’s ability to identify 10 colors by name. The child receives two points for each color named by the child and one point for each color that the assessor names and the child finds correctly. Scores range from zero to 20.
- **One-to-One Counting.** A rating on a five-point scale of how well the child counts 10 pictures of bears and arrives at the correct sum. Lower ratings are given for mistakes like skipping one or more bears, counting bears twice, saying numbers twice, not saying one number per bear, and losing place and starting over. Ratings ranging from 1 (“child could not count or did not try”) through 3 (“fairly well, child made one or two uncorrected mistakes”) to 5 (“perfectly, no mistakes”).

Norming of Measure (Criterion or Norm): Criterion

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II. Administration of Measure

Color Names and Counting (Con't.)

Who is the Respondent to the Measure?:

This individually administered test is designed to assess the early numeracy of children ages from 3- to 5-years old.

Who Administers Measure/ Training Required?:

Trained assessors.

Setting (e.g. 1 on1, group level, etc): 1 on 1

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III. Functioning of Measure

Color Names and Counting (Con't.)

Reliability with FACES data:

Internal Consistency (Cronbach's Alpha)

- Color Names: .94

Validity: For first cohort of FACES study (1997-1999), we conducted validity analyses for entire FACES battery, of which the Color Names and Counting scales were components. Two outcome variables were used in these analyses: ECLS-K Reading Scale and ECLS-K General Knowledge Scale.

Predictive Validity:

- Correlation between Color Names and Counting scores at end of Head Start year (spring 1998) and ECLS-K Reading scale scores at end of kindergarten year (spring 1999): Color Names - $r = .39$; Counting - $r = .40$
- Correlation between Color Names and Counting scores at end of Head Start year (spring 1998) and ECLS-K General Knowledge scale scores at end of kindergarten year (spring 1999): Color Names - $r = .38$; Counting - $r = .36$
- In multivariate regression analyses with the scale scores from entire FACES battery at the end of Head Start year predicting ECLS-K Reading scores at end of kindergarten year, Counting (beta = .12) tasks was a significant predictor in the model.

Sensitivity to Environmental Variation (specify if intervention):

- Over the course of the Head Start year, significant increases were observed in both Color Names scores (effect size = .59) and Counting rating (effect size = .49).
- In FACES, the Color Names and Counting tasks have been found to identify the differential school readiness skills of preschool children from low income families (Zill, Resnick, McKey, Clark, Connell, Swartz, O'Brien, & D'Elia, 1998; Zill, Resnick, Kim, McKey, Clark, Pai-Samant, Connell, Vaden-Kiernan, O'Brien, & D'Elia, 2001)

Concerns, Comments & Recommendations:

- In FACES, the Color Names and Counting tasks are part of a battery of tests used to assess school readiness in preschool children from low income families.
- Short test with reasonable validity and reliability.
- Children enjoy tasks and results are readily explainable to teachers and parents.
- Scores are given as raw scores.