WHO BENEFITS FROM HIGH QUALITY PRE-KINDERGARTEN? INVESTIGATING ETHNICITY/RACE DIFFERENCES IN THE RECAP 2002 SAMPLE

JANUARY 2004

GUILLERMO MONTES PH.D.
DEBRA S. HOFFMAN, M.A.

children's institute
Promoting social and emotional well-being

TABLE OF CONTENTS

EXECUTIVE SUMMARY

- Previous RECAP reports have established an inconsistent pattern of results regarding the association of minority ethnicity with change scores in the Child Observation Record (COR) and the Teacher-Child Rating Scale (TCRS). The purpose of this study is to resolve some of these differences by conducting a detailed analysis of the relationship between race/ethnicity and changes in the COR and TCRS subscales using the 2002 RECAP sample.

- Black and Latino students had lower gains in cognitive, social, task orientation and behavior control than comparable white and Asian-American peers. The difference was small (d=0.14).

- The inclusion of Asian-American students in a minority classification including Black and Latino students concealed the COR results, but had no impact on results using the T-CRS.

INTRODUCTION

What is the purpose of this study?

Previous RECAP reports have established an inconsistent pattern of results regarding the association of minority ethnicity with change scores in the Child Observation Record (COR) and the Teacher-Child Rating Scale (TCRS). The purpose of this study is to resolve some of these differences by conducting a detailed analysis of the relationship between race/ethnicity and changes in the COR and TCRS subscales using the 2002 RECAP sample.

Readers unfamiliar with RECAP are referred to the 2002 annual report (Montes et al., 2002) for complete information on the RECAP evaluation of Rochester area preschools.

What are possible reasons for the inconsistency of results regarding this issue in previous RECAP reports?

There are two reasons why an inconsistent pattern of results has been documented:

a) There is no relationship between the variables in the population. The reported significant associations are type I errors.

b) There is a relationship, but there is too much noise to consistently detect it. A review of previous analyses reveals two easily identifiable sources of noise: the grouping of heterogeneous ethnic groups under a single minority ethnicity category (particularly the inclusion of Asian-American students who are known to have a different pattern of academic achievement from Black and Hispanic students) and the use of the "above expectations" variable as an outcome that lost a great deal of information by treating all above or below expectations cases as informationally equivalent.

What are possible methodological solutions?

Type I errors cannot keep occurring on the same type of analysis year after year. With successive accumulations of cohorts, RECAP should detect a consistent pattern of non-significance if there is in fact no relationship.

If there is a relationship, it may be detected by using a continuous COR or TCRS variable as the dependent variable, rather than below/above expectations variable. Additionally, removing Asian-American students from the minority ethnicity variable may yield different analyses. Both approaches are attempted in this report.

SAMPLE

Children who met the following criterion were selected from the 2002 RECAP sample:

1) Born between December 2, 1997 and December 1, 1998 (and were therefore 4 years of age on December 1, 2002).

2) Complete report of ethnic status at pre- or post- data collection for each relevant measure.

Based on this criterion, 1,287 children were included in the COR analyses and 1,340 children were included in the T-CRS analyses.

MEASURES

The Child Observation Record (COR) was developed by High/Scope, which is one of the leading centers in the nation for developing and evaluating materials for young children. It is one of the most widely used developmentally appropriate assessment instruments for teachers serving students ages 2.5 to 6 years of age. Trained teachers systematically record their observations of children's functioning for 21 items. Children's acquisition of skills is measured on a five-point developmentally sequenced scale with each point representing a level of children's growth along the developmental continuum. The COR items form three empirically derived scales: academic, motor and social.

The Teacher-Child Rating Scale (T-CRS) consists of 32 items assessing different aspects of a child's socio-emotional adjustment. Items are grouped into four empirically derived scales assessing the following: 1) Task Orientation; 2) Behavior Control; 3) Assertiveness, and 4) Peer Social Skills. Each of these scales contains 8 items: four positive items and four negative items. All items are measured on a 5-point Likert scale according to how much the teacher agrees each item describes the child. Normative tables are provided for urban, suburban and rural; males and females. T-CRS's Alpha coefficients of internal consistency range from .87 to .98 with a median of .94. Studies correlating the T-CRS with the Walker-McConnell and Achenbach's scales suggest strong convergent and divergent concurrent validity.

Minority status is a dichotomous variable, defined by minority (African-American, Hispanic, Native American, and Asian) or non-minority (Caucasian) status.
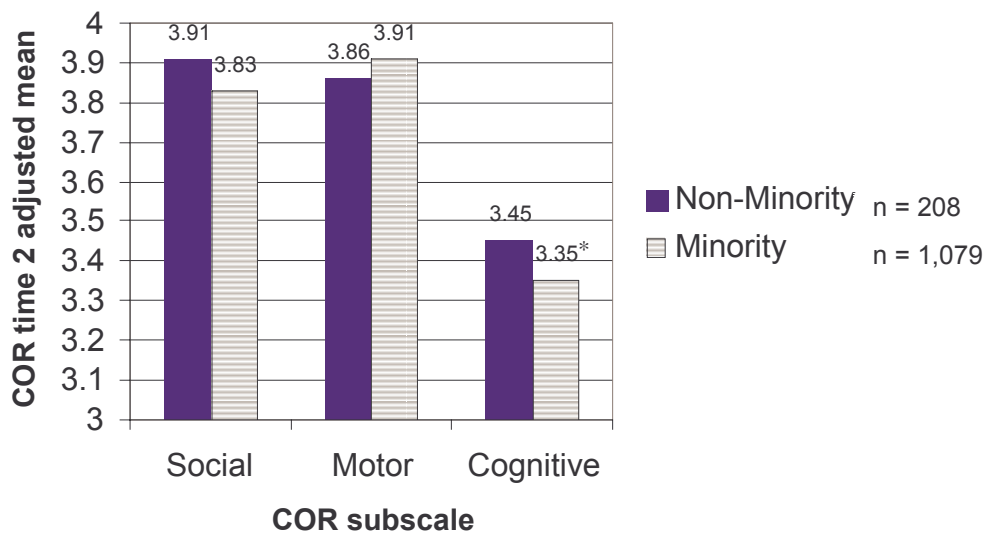
RESULTS

What are the results of COR analyses?

A one-way multiple analysis of covariance (MANCOVA) was performed to test whether minority status influenced the degree of benefit of enrollment in Pre-Kindergarten. In order to observe degree of improvement, COR post-scores were the dependent variable, with pre-scores as a covariate. This procedure statistically controls for variations in children's initial scores in order to isolate the effect due solely to change over time. Gender was also included as a covariate.

Minority status was significantly related to benefit from Pre-Kindergarten as measured by the COR, controlling for gender and COR pre-scores, Wilk's lambda = .984, $F_{(3, 1279)} = 6.79$, $p < .001$. Children with ethnic minority status improved less than those with non-minority status in cognitive skill, $F_{(1, 1279)} = 4.92$, $p < .05$. While only marginally significant, minority children also showed less improvement in social skills, $F_{(1, 1279)} = 3.25$, $p < .10$. There was no significant difference between minority and non-minority children in motor skill development, $F_{(1, 1279)} = 1.29$, n.s. See Figure 1 below.

Figure 1. Effect of minority status on benefit of Pre-Kindergarten as measured by COR

Note: *$p < .05$. Marginal means adjusted for time 1 COR and gender covariate.

What are the results of COR analyses if only Black and Hispanic students are included in the minority ethnicity classification?

Part of the inconsistency in previous analyses may be caused by the inclusion of Asian-American children in the minority group. Asian-American children are generally considered not at risk in terms of academic achievement. When Asian children (n= 23) were removed from the minority group and included as non-minorities, the results were as follows. Minority status did have a

significant effect on Pre-Kindergarten improvements (Wilk's lambda = .986, F (3, 1279) = 6.03, p < .001). Children with ethnic minority status improved less than those with non-minority status on both the cognitive skill (F (1, 1279) = 6.66, p < .05) and social skill (F (1, 1279) = 4.21, p < .05) subscales of the COR. There were no significant differences in motor skill improvement (F (1, 1279) = .258, n.s.).

The grouping of Asian-American children with white children, leaving Black and Hispanic students in the minority category, replicated the lack of differences in motor skills, and the lower scores for minority students in the cognitive/academic area. The non-significant lower scores in social skills became a significant difference once Asian-American children are removed from the minority ethnicity category, suggesting that the inclusion of Asian-American children in a heterogeneous category prevents the identification of significant results.

What are the results of the T-CRS analyses?

A one-way multiple analysis of covariance (MANCOVA) was conducted to determine the effect of minority status on improvement in Pre-Kindergarten. Post-scores on the TCRS were the dependent variable, with TCRS pre-scores and gender as covariates.

Minority status was significantly related to improvement over time, as measured by the TCRS, Wilk's Lambda = .986, F (4, 1330) = 4.66, p < .01. Non-minorities showed greater gains in task orientation (F (1, 1330) = 5.57, p < .05) and behavior control (F (1, 1330) = 6.36, p < .05). Minority children also displayed greater changes in assertive social skills, F (1, 1330) = 3.12, though this result was only marginally significant, p < .10. There were no significant differences between minority and non-minority children in degree of improvement in peer sociability, F (1, 1330) = .039, n.s. See Figure 2.

Figure 2. Effect of minority status on benefit of Pre-Kindergarten as measured by T-CRS
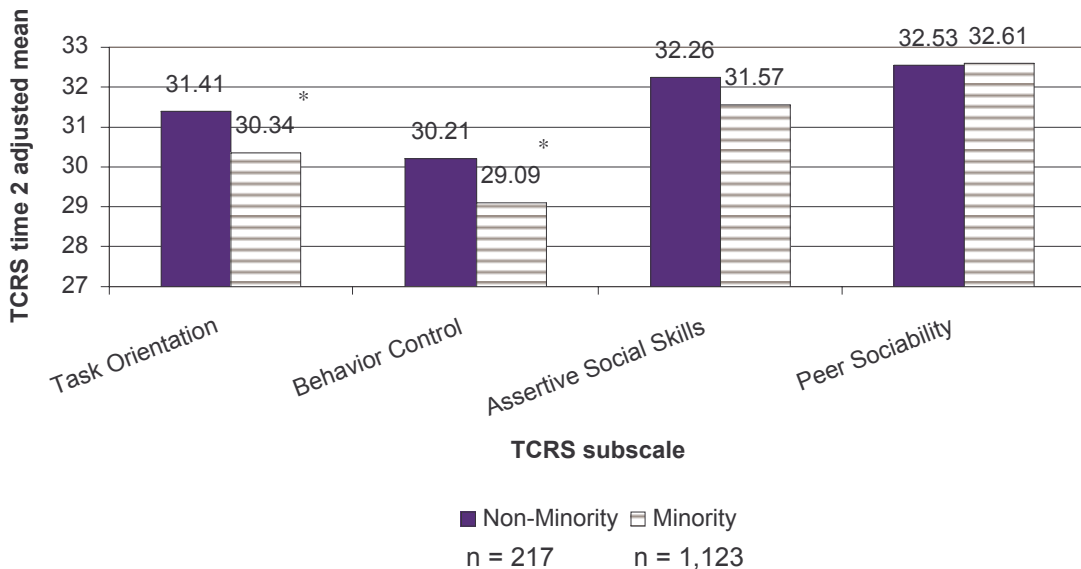
Note: *p < .05. Marginal means adjusted for time 1 T-CRS and gender covariates.

What are the results of the T-CRS analyses if only Black and Hispanic students are included in the minority ethnicity classification?

The removal of Asian-Americans from the minority category did not substantially change the results of the analyses.

DISCUSSION

These analyses found significant relationships in which minority students had lower gains in cognitive, social, task orientation and behavior control than comparable white peers. The size of these differences is small (d=0.14). The inclusion of Asian-American students in the minority group did obscure the COR social skills effects by introducing heterogeneity in the minority classification, but had no discernable impact on analyses on the T-CRS.

REFERENCES

Montes, G., Hightower, A. D., Brugger, L., Moustafa, E., Greenberg, S. & MacGowan, A. III (2002). Rochester Early Childhood Assessment Partnership 2001-02 Annual Report. Children's Institute Technical Report T02-020.