Early Childhood Research Quarterly 37 (2016) 26–38

Contents lists available at ScienceDirect

Early Childhood Research Quarterly

Teacher-child racial/ethnic match within pre-kindergarten classrooms and children's early school adjustment

Jason T. Downer*, Priscilla Goble, Sonya S. Myers, Robert C. Pianta

Center for Advanced Study of Teaching and Learning, University of Virginia, United States

ARTICLE INFO

Article history:
Received 8 April 2015
Received in revised form 21 February 2016
Accepted 27 February 2016
Available online 20 July 2016

Keywords:
Teacher-child racial/ethnic match
Pre-kindergarten
Early school adjustment

ABSTRACT

Using a large, longitudinal data set that represents 701 state-funded pre-k classrooms and over 2,900 children enrolled in 11 states, the current study examined two hypotheses: (1) children would be perceived to be better adjusted at the beginning of pre-k when rated by a same-race teacher than by a different-race teacher, and (2) children would demonstrate greater gains during the pre-k year when in the classroom of a same-race teacher. Children rarely experienced a teacher with a different race/ethnicity from themselves, except in the case of African American or Latino children attending Caucasian teachers' classrooms. When examining the school readiness outcomes of African American or Latino children matched or mismatched racially/ethnically with their teacher, racial/ethnic match demonstrated significant associations with the direct assessment of academic skills for Latino children only. However, teachers' initial perceptions of children and teacher reported social and academic gains were significantly associated with racial/ethnic match for African American children.

1. Introduction

The racial/ethnic achievement gap, evident as early as kindergarten (Vanneman, Hamilton, Baldwin Anderson, & Rahman, 2009; Hemphill & Vanneman, 2011), continues to represent one of the most persistent challenges for the American educational system (Berends & Penaloza, 2008; Brooks-Gunn & Markman, 2005). Largely but not entirely conflated with socioeconomic status or poverty, this gap has on occasion been attributed in part to a potential cultural mismatch between the home and school environments for children of color (Rogoff, 2003; Van den Bergh, Denessen, Hornstra, Voeten, & Holland, 2010). More specifically, in early childhood education (ECE) settings, the prevalence of young children from racial, cultural, or ethnic backgrounds that are not Caucasian or middle-class often exceeds 75% of a classroom or program enrollment. Although it has been argued that one source of the achievement gap, or the educational system's impotency to close it, is a potential misalignment of belief systems and socialization practices between educators and the family backgrounds of young children of color (Gregory, Skiba, & Noguera, 2010), empirical evidence for this argument, particularly from large pre-k samples, is lacking (Ewing & Taylor, 2009; Howes & Shivers, 2006). Given the considerable efforts to close achievement gaps for young students, the increasing racial and ethnic diversity in early education, concerns that programs for young children are not adequately addressing educational needs of racially or ethnically diverse students, and indications of overrepresentation of these students in groups designated as somehow failing, the present study examines one factor that has been identified as a possible contributor to students' adjustment and success – racial or ethnic match with their teacher (Bates & Glick, 2013; Benner & Yan, 2014; Downey & Pribesh, 2004; Egalite, Kisida, & Winters, 2015; Howes et al., 2011; Jennings & DiPrete, 2010; McGrady, & Reynolds, 2013).

Using a large, longitudinal data set that represents 701 state-funded pre-k classrooms from 11 states in the early 2000's, the current study examines racial/ethnic match between teachers and young children in pre-k programs in relation to teachers' perceptions of child adjustment and directly-assessed school readiness outcomes in a series of stages. We first describe the extent to which African American and Latino pre-k children share race/ethnicity with their classroom teachers, computing rates of ethnic match for this large sample of preschoolers. In the current study, Caucasian is used to describe non-Hispanic White children and teachers, African American is used to describe non-Hispanic Black children and teachers, and Latino is used to describe Hispanic children and teachers of any race. The data used in the current study are now nearly 15 years old. In the past 15 years there is ample evidence that the

* Corresponding author at: PO Box 800784, Charlottesville, VA 22908-0784, United States.
E-mail address: jdowner@virginia.edu (J.T. Downer).

http://dx.doi.org/10.1016/j.ecresq.2016.02.007
0885-2006/

rates of Latino and African American children served in pre-k programs have in fact risen (Bates & Glick, 2013), while the workforce remains largely White (National Research Council, 2012). Thus, the extent to which African American and Latino pre-k children share race/ethnicity with their classroom teachers may in fact be conservative estimates of the level of mismatch in the pre-k sector today.

Next, we conduct a series of analyses that focus on *two groups of children of color,* African American and Latino (separately for English proficient and non-English proficient). Within each of those groups, we contrast outcomes for children taught by same-race/ethnicity teachers with those taught by teachers of different (Caucasian) backgrounds, after controlling for the children's socioeconomic status. In this framework of within-ethnic group contrasts, we examine two potential explanations for the achievement gap: (1) an African American or Latino child will be perceived to be better adjusted (have more social skills, greater language/literacy skills, and fewer problem behaviors) at the beginning of pre-k when rated by a same-race teacher than by a different-race teacher, and, (2) an African American or Latino child will demonstrate more gains in social, language, literacy, and math skills during the pre-k year when in the classroom of a same-race teacher rather than a different-race teacher. Finally, we consider children's gender and poverty status, two factors consistently linked with teacher perceptions and academic and social adjustment (e.g., Graves, Blake, & Kim, 2012; Rothstein, 2008), as moderators of the relations between racial/ethnic match, teacher perceptions, and child gains.

The two questions posed above, as targets for analysis, pertain to two themes that have surfaced in discussions of educational program effects for diverse groups of children: the extent to which teachers may not accurately interpret the social behavior of ethnically mismatched children (which we examine with analyses of teacher perceptions in the fall of the school year) and the possibility that the ethnic match between teachers and children enables a more effective learning environment in the classroom that translates into better-developed skills for children in a match. Empirical results pertaining to these questions, from a large sample of young children and their teachers, have implications for the design and implementation of effective early education programs for diverse groups of children.

1.1. Why is the ethnicity of pre-k teachers and children important?

The growth of racial/ethnic minorities as the majority population is occurring rapidly in the U.S.; in 2011 the U.S. Census Bureau reported that the country had reached a historic tipping point with Latino, Asian, and mixed-race births constituting a majority of births (U.S. Census Bureau, 2012). The proportion of children who are Caucasian, non-Hispanic is projected to fall steadily in the future, dropping below 50% by 2019 (Federal Interagency Forum on Child and Family Statistics, 2013). The corresponding rise of the new American majority does not reflect the emergence of a single numerically dominant group, but instead a mosaic of diverse racial/ethnic groups from around the world (see Hernandez, Denton, & Macartney, 2008, for details). In 2012, 24% of all U.S. children were Hispanic, 14% were African American, non-Hispanic, 5% were Asian, non-Hispanic, and 5% were of other non-White and non-Hispanic races (Federal Interagency Forum on Child and Family Statistics, 2013). By 2050, the projections indicate that among all U.S. children, the proportions will be 36% Hispanic, 36% White, non-Hispanic, and 28% African American, Asian, and Native American, and Hawaiian or other Pacific Islander. And, the number of immigrant families in the U.S. has grown over the years. As of 2010, one in every four children in the U.S. had at least one foreign-born parent (Grieco et al., 2012). A parallel and related demographic trend is the rise in linguistic diversity. Among the foreign-born population from Latin America, families primarily reported speaking Spanish at home. In fact, English was only reported as the primary language spoken at home for a small percentage of families from South America (15%), Central America (7%), and Mexico (3%; Grieco et al., 2012).

Demographic trends toward greater racial/ethnic and linguistic diversity are especially noteworthy due to their consistent link with family income. Thus, income becomes a key factor when considering the impact of ethnicity and race on school readiness. In particular, young racial/ethnic minority children are two to four times more likely than Caucasians to be officially poor. Hernandez et al. (2008) presented poverty rate estimates that were adjusted for inflation and actual cost of living, which tends to increase estimates of poverty considerably. For example, the readjusted rate suggests that about 31% of young U.S.-born Caucasian children are impoverished, whereas the rates for most U.S.-born racial/ethnic minority groups and high poverty immigrant groups are in the range of 48%–82% (see Hernandez, Denton, & Macartney, 2007). And, the majority of language minority children in the nationally representative Early Childhood Longitudinal Study of Kindergarten (ECLS-K) were in the two lowest quintiles for household SES (52%); 80% of the Spanish speakers who were judged to be the least fluent in English were in the lowest two SES quintiles (Espinosa, Laffey, & Whittaker, 2006).

Overlaid on this monumental shift in the ethnic and economic makeup of young children and their families is the relatively static and skewed ethnic make-up of the early education workforce. Information from the U.S. Bureau of Labor Statistics suggests that the early childhood education teacher workforce is composed of a substantial majority of Caucasian females (75–80%; National Research Council, 2012), though the proportion is somewhat lower in Head Start programs (45% Caucasian, 99% female; Hulsey et al., 2011). A recent report by The Institute of Medicine (IOM) and The National Research Council (NRC) also highlights that the early education workforce is stratified by position along these dimensions of race/ethnicity and language, with lead teachers and directors more likely to be monolingual English speakers and Caucasian (IOM & NRC, 2015). Within most early education programs, many if not most African American and Latino children are taught by Caucasian teachers and it is these very children, often poor, who enter kindergarten behind their same-aged peers (Jacobson Chernoff, Flanagan, McPhee, & Park, 2007; Johnson et al., 2003). The extent of this race/ethnic mismatch in preschool, particularly for poor children being served by publicly-funded programs, is considerable and has been suggested as a possible explanation for achievement and developmental gaps reported (Downey & Pribesh, 2004).

The present study was designed to make a modest contribution to understanding the extent of ethnic mismatch in publicly funded early education and its association with children's learning. More specifically, we examine two facets of this issue, whether mismatch is associated with (a) teacher perceptions of children's adjustment, under the hypothesis that teachers' views of children's behavior can be informed by ethnicity, and (b) children's learning gains in pre-k, under the assumption that children may learn more in an ethnically synchronous relationship with their teacher.

1.2. Teacher-child ethnic similarity and teachers' reports of child adjustment and skills

There is some evidence that teacher-child racial-ethnic match is linked to teachers' differential perceptions of the social and academic behaviors of children in their classrooms. Almost thirty years ago, Alexander, Entwisle and Thompson (1987) posited that teachers from backgrounds that differ from those of their students are more likely to place amplified importance on "misleading

cues" (style of dress, language use) and perceive these as fundamental weaknesses than those teachers for which these cues are familiar. More recently, researchers have demonstrated considerable differences in teachers' expectations and interpretations of student behavior as a function of racial or ethnic match, specifically the tendency of White teachers to misinterpret behaviors of African American and Latino students, particularly in samples of elementary, middle- and high-school students (Bates & Glick, 2013; Downey & Pribesh, 2004; Gregory, Skiba, & Noguera, 2010). Using the nationally representative ECLS-K class of 1998–99, Bates and Glick (2013) found that African American students received more favorable (i.e., lower) subjective evaluations of externalizing behaviors from African American teachers than African American students who did not have African American teachers. Alternatively, racial/ethnic minority teachers are more likely than Caucasian teachers to hold higher expectations and be more optimistic about academic futures for children from their own racial or ethnic group (Murray, Murray, & Waas, 2008; Saft & Pianta, 2001; Tenenbaum & Ruck, 2007). Pigott and Cowen (2000), drawing from a large sample of elementary students in an analysis of teachers' reports of ethnically diverse students, concluded that the race or ethnicity of teacher and child were of considerable importance to teachers' judgments about children's social behavior and adjustment. These discrepancies may explain in part why Caucasian teachers more often rate minority students as demonstrating high levels of problem behavior, more frequently recommend minority students for special education/grade retention, and interact with these students with the intent of behavioral control and discipline (Achilles, Mclaughlin, & Croninger, 2007; Skiba et al., 2011; Sullivan, Klingbeil, & Van Norman, 2013; Wiley, Bringham, Kauffman, & Bogan, 2013).

Similarly, one of the primary concerns related to race in many early education settings is the degree to which African American boys are disproportionately disciplined (Gilliam, 2005), suggesting that teachers may view them as having elevated levels of disruptive behavior. Moreover, there is a general finding in the literature that boys show elevations in teacher-reported disruptive behavior (Graves, Blake, & Kim, 2012). With reference to the design of the current study, to the extent that an ethnic match would result in more accurate or synchronous perceptions of students' adjustment, one would expect shared ethnic/racial heritage to be associated with teachers' positive perceptions of children's classroom behaviors at the start of preschool, especially for boys, whereas racial/ethnic mismatch was expected to be linked with less favorable perceptions. Of note is that very little of this work on teacher perceptions has been done in large samples of pre-k children; the vast majority has been for samples of children in elementary school and upper grades.

1.3. Teacher-child ethnic similarity and children's learning gains

It has been suggested that racial and ethnic minority children may benefit from attending the class of a racially matched teacher, resulting in achievement gains and positive socio-emotional development that would not be present in a non-matched situation (Van den Bergh et al., 2010). As mentioned earlier, when teachers and students are racially similar, teachers not only have more accurate and positive beliefs related to children's adjustment, their shared cultural experiences may give rise to educational inputs better-suited to the child's learning needs. Such resources might include valuing the child's cultural assets; forming positive relationships with parents; providing classroom socialization practices aligned with those experienced at home; or communicating in the same language or with a similar discourse style (Nieto & Bode, 2008). For example, when African American and Latino students' cultural backgrounds and experiences are intentionally and positively reflected in teachers' and administrators' beliefs about student potential – beyond general affirmations of potential – there is an indication of increased student engagement and learning (Lucas, Henze, & Donato, 1990; Nieto, 2002). Additionally, teacher warmth, responsiveness, and sensitivity toward children, while highly varied across all early childhood professionals, is nonetheless more positive in nature when teacher and child share cultural or ethnic backgrounds (García Coll et al., 1996; Fisher, Jackson, & Villarruel, 1997). It has been suggested that teachers may provide extra attention to children who share their ethnic/racial heritage, particularly when they enter school with challenging behaviors (Howes, 2010; Howes, James, & Ritchie, 2003). Thus, there appears to be some support for evaluating the hypothesis that racial match could be an asset for children's education and in fact promote better student outcomes than a mismatch, albeit through a variety of possible mechanisms.

The possibility that ethnic match is an educational asset for children's achievement, above and beyond simply "good teaching," is suggested in several studies, but often not confirmed empirically and existing empirical findings relating racial/ethnic match to children's achievement and social gains are scarce and mixed. In some studies of this issue, results suggest that positive teacher behaviors or attitudes tend to benefit all children (Burchinal & Cryer, 2003; Howes et al., 2011; Jennings & DiPrete, 2010). For example, in one re-analysis of several large datasets, regardless of racial/ethnic heritage all children benefited from sensitive caregiving in early care settings (Burchinal & Cryer, 2003). On the other hand, some studies suggest that teacher shared-heritage was favorably related to student outcomes (Bates & Glick, 2013; Downey & Pribesh, 2004; Egalite, Kisida, & Winters, 2015; Howes, 2010). Illustratively, in a large sample of third through tenth graders, Egalite et al. (2015) found significant positive effects of shared-heritage on reading and math achievement gains, particularly for low-performing students. It is notable that no studies of ethnic match/mismatch effects in preschoolers have examined academic achievement outcomes for the children.

In the United States, family income or poverty plays a large role in the racial/ethnic achievement gap (Rothstein, 2008). A full review of this literature is beyond the scope of the current paper, however, there are several challenges associated with the experience of poverty and these relate to children's early learning and social adjustment. For example, prior research has indicated that the quality of instruction and teacher-child interactions is lower in low-income elementary schools, which have disproportionately higher numbers of ethnic minority students (National Center for Education Evaluation, 2011; Pianta, Belsky, Houts, & Morrison, 2007). Because of associations between poverty and adjustment, it is important to examine the extent to which the association between racial-ethnic match and children's gains may be conditioned upon children's family poverty, with the expectation that children at greater risk (high poverty) would benefit more from a racial/ethnic match with their teachers.

1.4. The current study

Drawing from a large, longitudinal study that examines the associations between experiences in pre-kindergarten classrooms and children's school readiness and involves 701 state-funded pre-k classrooms and over 2900 children across 11 states, the current study examines racial/ethnic match between teachers and young children and the associations between match with teacher perceptions of children's adjustment and children's learning gains from fall to spring. We first report the extent to which African American and Latino pre-k children share race/ethnicity with their teachers in the classroom. Second, we focus on analyses *within the two groups of children of color* (African American and Latino). With socio-

demographic variables controlled, we compare teacher perceptions and child learning gains for African American or Latino (separately for English proficient and non-English proficient[1]) children taught by teachers of the same ethnic background with those taught by teachers with different ethnic backgrounds (largely Caucasian). In the context of these within-ethnic group contrasts, we examine the extent to which: (a) an African American or Latino child will be perceived to have more social skills, greater language/literacy skills, and fewer problem behaviors at the beginning of pre-k when rated by a same-race teacher than by a different-race teacher, and, (b) an African American or Latino child will demonstrate more gains in social, language, literacy, and math skills during the pre-k year when in the classroom of a same-race teacher rather than a different-race teacher. Finally, we examine the extent to which the association between racial-ethnic match and teacher perceptions/gains may be greater for children at greater risk (boys, high poverty).

2. Methods

2.1. Participants

Data for this analysis come from the National Center for Early Development and Learning (NCEDL) Multi-State Study of Pre-Kindergarten and the State-Wide Early Education Programs (SWEEP) study. Combined, these studies took place in 11 states selected because they had committed significant resources to pre-k initiatives in 2001. When the studies began in 2001–2002, 79% of all children in the United States who were participating in state-funded pre-k, and 83% of state dollars spent on pre-k, were in one of these 11 states (Barnett, Hustedt, Robin, & Schulman, 2003).

Pre-kindergarten data collection for the Multi-State Study of Pre-Kindergarten took place during the 2001–02 school year in six states. States were selected to maximize diversity with regard to geography, program settings, program intensity and educational requirements. In each state, a stratified random sample of 40 centers/schools was selected from the list of all the school/centers or programs provided to us by each state's department of education. In total, 238 sites participated in the Fall of 2001 and two additional sites joined the study in the Spring of 2002.

Pre-kindergarten data collection for the SWEEP study took place during the 2003–04 school year in five states. These states were selected to complement the states already in the Multi-State Study of Pre-K by including programs with different models of funding and service delivery. In each of the five states, the aim was to randomly recruit nearly 100 state-funded pre-k sites for participation in the study from a list provided by the state. In total, 463 sites participated in the Fall of 2003 and Spring of 2004.

In both studies, one classroom in each site was selected at random for participation in data collection. Children, teachers, and programs sampled represented that state's publicly-funded pre-k programs. A total of 701 teachers participated and helped data collectors recruit children. From a group of eligible children with parental consent, data collectors randomly selected approximately four children to participate per classroom. Whenever possible, two girls and two boys were selected in each classroom. In total, 2982 children participated in the studies. Most classrooms served only 4-year-olds, with a minority serving 3- and 4-year-olds. 62% of the pre-k classrooms were located in public schools and 15.2% received Head Start funding. Average program length of day was 4.9 h. Classrooms had a mean maternal education level of 12.8 years and were made up of 58% non-Caucasian children and 58% children from families in poverty. Fifty percent of classrooms had at least one teacher who spoke Spanish. Almost all (99%) of the teachers were women and predominantly Caucasian (64%). Thirteen percent of the teachers were African American, and 15% were Latina. Teachers in the entire sample were on average 41 years old, with nearly nine years experience teaching preschool. In terms of education and credentials, sixty percent held both a Bachelors degree and a specialized early childhood certification.

Table 1
Race/ethnicity match and mismatch between African American and Latino Children and their preschool teachers.

Child	Teacher					
	African American		Latino		Caucasian	
	n	%	*n*	%	*n*	%
African American	194	43	19	4	237	53
Latino	39	6	316	47	311	47

There were few Caucasian children taught by non-Caucasian teachers (less than 5%). Similarly, Asian and multiracial children including fifteen children who were identified as Hispanic and African American were excluded from analyses. There were reasonable proportions of African American and Latino children taught by teachers of the same ethnic background (43% and 47%, respectively) or by Caucasian teachers (53% and 47%, respectively) to pursue analyses within those groups (see Table 1). Accordingly, in this paper, we focus exclusively on three subsamples: non-Hispanic African American ($n = 450$), English-proficient Latino ($n = 348$), and non-English proficient Latino ($n = 318$) children.[2] Each of these is now described, with further details in Table 2.

Many of the African American children in this study were from families below the poverty level (65%), and had mothers with an average of 12.55 years of education ($SD = 1.83$). These children attended pre-k classrooms that tended to serve high poverty families (62%). African American children attended classrooms with other African American (49%) and some Latino peers (15%). Teachers in these classrooms were Caucasian (62%), African American (31%) or Latino (7%), with 70% holding a Bachelor's degree or higher.

Almost three quarters of the English-speaking Latino children in this study were from families below the poverty level (72%), and had mothers with an average of 11.69 years of education ($SD = 1.96$). These children attended pre-k classrooms that tended to serve high poverty families (69%). English-proficient Latino children attended classrooms with other Latino (56%) and some African American peers (11%). Teachers in these classrooms were Caucasian (60%), Latino (33%) or African American (6%), with 75% holding a Bachelor's degree or higher.

The vast majority of non-English proficient Latino children in this study were from families below the poverty level (90%), and had mothers with an average of 10.91 years of education ($SD = 2.38$). These children attended pre-k classrooms that tended to serve high poverty families (82%). Non-English proficient Latino children mainly attended classrooms with other Latino (74%) and very few African American peers (6%). Teachers in these classrooms were

[1] Language groups were analyzed separately in an effort to clarify and unconfound race/ethnicity match/mismatch from language match/mismatch, which was a highly likely possibility in the Spanish-speaking sample. Additionally, analyses for Latino children include a covariate indicating whether or not a teacher in the classroom spoke Spanish.

[2] The possibility of using the Caucasian child sample in a match-mismatch frame was considered, however there were not enough Caucasian children with a mismatch to conduct analyses; only 50Caucasian children had a teacher who was either African American (36, 3%) or Latino (15, 1%). This unbalanced nature of student and teacher race in this sample is consistent with the distributions of teacher and child race/ethnicity in contemporary pre-k programs (National Research Council, 2012).

Table 2
Child, family, teacher, and classroom characteristics for the three subsamples of minority children.

	African American (n = 450)				English proficient Latino (n = 348)				Non-English proficient Latino (n = 318)			
	n	%	*M*	*SD*	*n*	%	*M*	*SD*	*n*	%	*M*	*SD*
Child characteristics												
Boy	205	45.6			174	50			170	53		
Family characteristics												
Poor	276	64.5			236	72			260	90		
Mother's education (years)	444		12.55	1.83	345		11.69	1.96	289		10.91	2.38
Teacher characteristics												
Age	194		41.95	11.13			42.28	11.04	140		41.92	11.26
Years experience	194		13.57	9.72			13.06	8.72	141		11.95	8.3
BA or greater	138	70			151	75			105	73		
Race												
African American	62	31.3			13	6.4			11	7.7		
Latino	13	6.6			67	33.2			69	48.3		
Caucasian	123	62.1			122	60.4			63	44.1		
Classroom characteristics												
% poor	198		0.62	0.27	202		0.69	0.26	143		0.82	0.19
% African American	198		0.49	0.31	202		0.11	0.17	143		0.06	0.13
% Latino	198		0.15	0.2	202		0.56	0.32	143		0.74	0.28
In a public school	112	56.6			132	65.3			99	69.2		
Head Start	33	16.7			26	13			22	15.4		
A teacher speaks Spanish	41	21			116	57			118	83		

Latino (48%), Caucasian (44%) or African American (8%), with 73% holding a Bachelor's degree or higher.

2.2. Procedure and measures

Teachers completed questionnaires about their educational background and rated study children in the fall and spring. Children in the study had the same teachers in fall and spring. Parents provided demographic information about the children and their families. We used a multi-method approach to assessment of children's readiness for school during the fall and spring of the pre-k year. We individually assessed children using standardized measures of academic achievement that are widely used in the field and considered by policymakers to indicate school success. We asked teachers to rate children on scales indicating academic achievement and social and motivational skills. On average, these assessments were 151.3 days apart (SD = 25.0, range = 91–244). The entire child assessment battery took between 45 min and one hour and was conducted during the school day, outside the classroom. Children who did not speak English at home according to their teacher were given a portion of the Pre-LAS (Duncan & DeAvilla, 1998) to screen for English proficiency. The Pre-LAS observational assessment has good internal consistency reliability, .86 –.90. Children who did not pass this screen (score at least 31 out of a possible 40 points) and spoke Spanish at home were given a Spanish assessment battery. Tests used within the English and Spanish assessment batteries are reported below, and these children were examined separately in final analyses.

2.2.1. Teacher-child interactions

To assure that significant effects for racial/ethnic match were not due to the quality of teacher-child interactions, classrooms were observed and teacher-child interactions rated using the Classroom Assessment Scoring System (CLASS; Pianta, La Paro, & Hamre, 2004). The CLASS rates the emotional climate, classroom climate, and instructional supports for learning in early childhood classrooms. Classrooms were rated from 1 (low) to 7 (high) on nine dimensions, such as Positive Climate, Teacher Sensitivity, and Concept Development. Data collectors rated the classroom and teacher on the nine dimensions about every 30 min throughout an observation day. The CLASS scores for children in the Multi-State study reflect the mean of a fall and a spring observation, and for children in the SWEEP study a single observation day in the spring. Factor analysis of the CLASS yielded two factors that were used in the current study as covariates: Emotional Support (kappa = 0.86) and Instructional Support (kappa = 0.78).

2.2.2. Demographic covariates

In addition to the CLASS, a number of child, classroom, and program level characteristics were included as control variables in our study analyses in an effort to reduce potential effects due to classroom composition. Parents provided their child's gender and family income data that was used to determine poverty status (at or below 150% of federal standard, based on income and family size). Family poverty data were also aggregated at the classroom-level (percent of children in poverty). Teachers provided other classroom-level covariates, including classroom racial/ethnic composition (percent African American, percent Latino) and whether or not a teacher in the classroom spoke Spanish. Parents (about their children) and teachers provided race/ethnicity information, which was then used in combination to determine whether a child experienced a racial/ethnic match or mismatch with their lead teacher in pre-k. Ten dummy codes were also entered to represent the eleven states in which pre-k classrooms were located.

2.3. Direct assessments

2.3.1. Language skills

Two measures of language were collected from those children who were deemed proficient in English. The *Peabody Picture Vocabulary Test – 3rd Edition (PPVT-III*; Dunn & Dunn, 1997) is a test of receptive vocabulary and has been shown to relate to other measures of language, literacy, and academic achievement (Chow & McBride-Chang, 2003; Dunn & Dunn, 1997). Children are shown a set of four pictures and are asked to select the picture that best represents the meaning of a word spoken by the examiner. A standard score is computed for this scale. Internal consistency (Cronbach's alpha) for the present sample was .95. The *Oral & Written Language Scale* (*OWLS*; Carrow-Woolfolk, 1995) is a standardized measure designed to assess the understanding and use of spoken language. During the assessment, the examiner reads a verbal stimulus aloud while the child looks at a stimulus board containing one or more

Table 3
Associations between African American children's racial/ethnic match with their teacher and social, language, literacy, and math outcomes in preschool (n = 450).

	Teacher Perceptions						Direct Assessment[a]			
	Social Competence		Problem Behaviors		Language /Literacy		Receptive Vocabulary	Expressive Vocabulary	Rhyming	Math Skills
	Fall Estimate SE	Spring Estimate SE	Fall Estimate SE	Spring Estimate SE	Fall Estimate SE	Spring Estimate SE	Spring Estimate SE	Spring Estimate SE	Spring Estimate SE	Spring Estimate SE
Intercept	3.48***	2.21**	1.59***	2.49***	2.41***	2.29**	84.15***	76.69***	1.56	87.41***
	0.12	0.64	0.10	0.49	0.14	0.92	7.51	7.17	2.42	9.34
Child Level										
Fall Score	–	0.61***	–	0.66***	–	0.57***	0.63***	0.62***	0.73***	0.51***
		0.05		0.05		0.06	0.04	0.05	0.06	0.05
Gender (Girl)	0.22**	0.19**	-0.20**	-0.17**	0.03	0.12	0.48	0.25	0.15	2.31*
	0.07	0.06	0.05	0.05	0.07	0.07	0.94	0.90	0.28	0.99
Poverty	-0.36***	-0.18*	0.24**	0.06	-0.19	-0.10	-0.69	-1.70	-0.30	-0.52
	0.10	0.08	0.07	0.06	0.10	0.10	1.29	1.22	0.36	1.30
Racial/ethnic match (Match)	0.03	0.01	-0.09	-0.16	0.44**	-0.35*	-0.84	0.00	0.14	-0.18
	0.12	0.11	0.09	0.08	0.14	0.16	1.28	1.24	0.41	1.59
Classroom Level										
Percent poor	-0.27	0.24	0.04	0.05	-0.23	0.03	1.01	-1.42	-0.51	-1.38
	0.23	0.20	0.17	0.15	0.26	0.28	2.57	2.36	0.78	3.03
Percent African American	0.10	0.36*	-0.03	0.03	-0.18	0.31	-0.05	-1.73	-0.41	0.06
	0.20	0.18	0.14	0.13	0.22	0.25	2.22	2.15	0.72	2.68
CLASS Emotional	–	0.10	–	-0.12	–	0.03	0.65	1.38	-0.05	1.45
		0.07		0.05		0.10	0.86	0.83	0.26	1.04
CLASS Instructional	–	-0.02	–	0.08	–	0.09	0.43	1.44	0.16	0.64
		0.08		0.06		0.12	1.01	0.97	0.31	1.19
Interactions										
Racial/ethnic match X Poverty	0.26	0.04	-0.10	-0.08	0.21	0.04	-3.15	-2.86	0.75	0.34
	0.17	0.14	0.13	0.11	0.18	0.18	2.04	1.91	0.63	2.21
Racial/ethnic match X Gender	0.17	-0.07	-0.09	0.20*	0.08	0.06	1.32	-0.45	-0.01	0.73
	0.15	0.12	0.11	0.09	0.15	0.15	1.91	1.81	0.57	2.00

Note:Standardized coefficients from 2-level HLM models are reported. Estimates predicting fall scores can be interpreted as the effect on initial status. Estimates predicting spring scores control for fall scores, thus reflect change.

[a] Direct assessments were conducted in English.

** $p \leq 0.01$.

*** $p \leq 0.001$.

pictures. Children are required to respond orally by answering a question, completing a sentence, or generating a new sentence (or sentences). Internal consistency (Cronbach's alpha) for the present sample was 0.91.

Only one language subtest was administered to non-English proficient, Spanish-speaking children. The *Test de Vocabulario en Imagenes Peabody* (TVIP; Dunn, Padilla, Lugo, & Dunn, 1986), similar to the PPVT in format, was used to measure Spanish receptive vocabulary. Cronbach's alpha for the children in this study was 0.92.

2.3.2. Literacy skills

For English proficient children, the *Woodcock-Johnson III Tests of Achievement: Sound Awareness-Rhyming Subtest* (Woodcock, McGrew, & Mather, 2001) measures the ability to rhyme, a subcategory of phonological awareness. The maximum possible on this scale is 17. For this sample, Cronbach's alpha was 0.86. For non-English proficient, Spanish-speaking children, the Letter-Word Identification subtest from the *Batería Woodcock-Muñoz-Revisada: Pruebas de Aprovechamiento* (Woodcock & Munoz-Sandoval, 1996) was administered, asking children to identify letters and then words in Spanish. Most children moved beyond identifying letters to identifying words—that is, their ceiling set included word identification. For this sample, Cronbach's alpha was 0.89.

2.3.3. Math skills

From the well-established *Woodcock-Johnson III Tests of Achievement* (Woodcock et al., 2001) and *Batería Woodcock-Muñoz-Revisada: Pruebas de Aprovechamiento* (Woodcock & Munoz-Sandoval, 1996), the Applied Problems sub-test was used to measure children's applied problem solving skills, including basic math skills such as counting, numeracy, comparisons, and word problems (Woodcock et al., 2001). Parallel items in both English and Spanish cover basic mathematical operations, such as addition and subtraction, to solve problems and basic skills such as telling time and reading a thermometer. This sub-test has demonstrated high internal consistency reliability ($\alpha = 0.79–0.84$ in present sample), and is positively correlated with other measures of academic achievement (Woodcock et al., 2001).

2.4. Teacher perceptions

All teacher ratings (language and social skills) were completed on all study children in the fall and spring, regardless of language in which the child was assessed. Teachers were asked to think of the child's language skills in the child's primary language or English, whichever was stronger at the time of the survey.

2.4.1. Language and literacy skills

Teachers rated study children's language and literacy skills using items from the ECLS-K's *Academic Rating Scale* (*ARS*; West, Denton, & Germino-Hausken, 2000). Items were rated from 1 to 5 (1 = Not Yet, 2 = Beginning, 3 = In Progress, 4 = Intermediate, and 5 = Proficient), and the scale is the mean of nine items. Sample items include: (a) Uses complex sentence structures—for example, says, "If she had brought her umbrella, she wouldn't have gotten wet"; (b) Produces rhyming words – for example, says a word that rhymes with "chip"; (c) Predicts what will happen next in stories by using the pictures and storyline for clues. The ARS correlates above .70 with individual assessments of early literacy and math skills (see Perry & Meisels, 1996). Cronbach's alpha for this scale was 0.89.

2.4.2. Social skills and problem behavior

Using the *Teacher-Child Rating Scale* (*TCRS*; Hightower et al., 1986), teachers rated children on 20 social competence items and 18 behavior problem items. Examples of social competence items include: "participates in class discussions," "completes work," and "well-liked by classmates." Examples of behavior problem items include: "disruptive in class," "anxious," and "difficulty following directions." Teachers used a five-point scale (1 = not at all, 3 = moderately well, and 5 = very well) to indicate how well the statements concurred with their view of the child. The social competence scale is the mean of the 20 social competence items and had a Cronbach's alpha of 0.95. The behavior problems scale is the mean of the 18 behavior problem items and had a Cronbach's alpha of 0.92. An evaluation of the normative and parametric characteristics of the TCRS is reported by Weissberg et al. (1987).

2.5. Data analysis plan

We examined ethnic-match and mismatch between children and teachers and their correlates in several stages. First, we identified children as "Caucasian" "African American" or "Latino" on the basis of parent-reported ethnic background on the parent questionnaire. Then we identified teachers as "Caucasian," "African American," or "Latino" based on their own self-reported ethnicity. We then examined the cross-classification of teacher and child ethnicity for each child in the sample to determine match and mismatch from the perspective of the child's status. There were insufficient Caucasian children taught by non-Caucasian teachers for us to include Caucasian children in any analysis of match-mismatch; therefore, the next stage of analysis examined only the African American and Latino children for match and mismatch with their teacher. For each African American or Latino child in the sample, we calculated the extent to which those pre-k children shared race/ethnic status with their teachers (1 = match; 0 = mismatch). Next, we focused on comparisons *within the two groups of children of color* (African American, Latino—separately for English-proficient and non-English proficient) that, with socio-demographic variables controlled, contrasted African American (or Latino) children with teachers of the same ethnic background with African American (or Latino) children being taught by a Caucasian teacher.

In this framework of within-ethnic group contrasts and recognizing that multiple children were nested within classrooms, we used Hierarchical Linear Modeling (HLM, Raudenbush & Bryk, 2002) to specify 2-level models (level 1 = child; level 2 = classroom) that addressed both research questions; covariates included state, child gender, family poverty, classroom poverty, classroom composition (percentage of minority children matched to the target child), whether teachers spoke Spanish (for Latino children), and quality of teacher-child interactions (only in the gains models). Proc Mixed in SAS was used to specify the models (Singer, 1998). An initial set of analyses examined teachers' fall perceptions of the children's language/literacy skills, social skills, and problem behaviors at the beginning of pre-k and, the second set examined gains in language, literacy, math, and social skills during the pre-k year. A final set of analyses examined whether gains or differences in gains between the two groups were moderated by gender or family poverty. Anytime ethnic-match/mismatch was a significant predictor, standardized mean-difference effect size (d) was calculated using the standard deviation of the outcome. Results are reported in separate sections corresponding to these stages of analysis.

Of the 1116 children included in analyses, 340 children (30.5%) had complete data on all variables, including: child and family characteristics, classroom characteristics, directly assessed child outcomes, and teacher ratings of children's outcomes. Cross-tabulation analyses and independent samples t-tests showed that children for whom complete data were not available did not differ from the children with complete data on gender (girl, boy), their teacher's years of experience, teacher perceptions of children's problem behaviors in the fall or fall direct assessments of children's vocabulary, literacy, or math skills. There were, however, significant differences between children with complete data and

Table 4
Associations between English Proficient Latino children's racial/ethnic match with their teacher and social, language, literacy, and math outcomes in preschool (n = 348).

	Teacher Perceptions						Direct Assessment[a]			
	Social Competence		Problem Behaviors		Language /Literacy		Receptive Vocabulary	Expressive Vocabulary	Rhyming	Math Skills
	Fall Estimate SE	Spring Estimate SE	Fall Estimate SE	Spring Estimate SE	Fall Estimate SE	Spring Estimate SE	Spring Estimate SE	Spring Estimate SE	Spring Estimate SE	Spring Estimate SE
Intercept	4.24***	4.39***	1.12**	1.27**	3.03***	3.38**	81.60***	102.04***	2.72	109.11***
	0.46	0.67	0.30	0.45	0.45	1.01	8.54	8.51	2.85	9.01
Child Level										
Fall Score	–	0.58***	–	0.59***	–	0.55***	0.57***	0.56***	0.74***	0.40***
		0.07		0.07		0.10	0.07	0.07	0.11	0.07
Gender (Girl)	0.35**	0.02	-0.23**	-0.05	0.22**	0.01	0.67	0.67	0.25	0.77
	0.10	0.09	0.07	0.05	0.08	0.11	1.19	1.26	0.36	1.27
Poverty	0.06	-0.04	-0.06	-0.03	-0.14	0.08	-2.39	-1.82	-0.52	-2.40
	0.11	0.11	0.09	0.07	0.10	0.13	1.41	1.53	0.44	1.60
Racial/ethnic match (Match)	0.07	0.08	-0.04	0.01	0.12	0.13	1.86	-0.47	-0.20	-0.33
	0.16	0.14	0.10	0.09	0.16	0.19	1.60	1.61	0.53	1.62
Classroom Level										
Percent poor	-0.05	0.17	0.09	-0.07	0.64*	0.07	2.64	-0.53	-1.37	-3.70
	0.31	0.26	0.22	0.17	0.29	0.36	3.30	3.36	1.10	3.07
Percent Latino	0.08	-0.43	-0.17	0.11	-0.29	-0.51	-1.95	1.30	-0.16	-1.32
	0.27	0.24	0.18	0.15	0.27	0.34	3.14	3.15	0.95	3.56
A Teacher Speaks Spanish	-0.76	-0.38	0.18	0.30	-0.95*	0.13	2.25	-5.25	-1.34	-6.23
	0.41	0.33	0.26	0.21	0.40	0.46	3.99	4.05	1.40	4.21
CLASS Emotional	–	-0.08	–	-0.03	–	-0.21	1.17	-0.75	0.39	-1.16
		0.09		0.06		0.14	1.11	1.12	0.38	1.19
CLASS Instructional	–	0.10	–	0.02	–	0.37**	1.73	0.34	-0.31	1.35
		0.08		0.05		0.11	1.07	1.05	0.34	1.06
Interactions										
Racial/ethnic match X Poverty	0.06	-0.08	0.03	-0.16	0.27	0.21	-0.42	-0.27	0.94	0.60
	0.23	0.20	0.16	0.13	0.19	0.26	2.69	2.71	0.87	2.87
Racial/ethnic match X Gender	-0.21	-0.02	0.27	-0.15	-0.18	0.02	-2.39	-1.29	-0.98	-0.44
	0.19	0.18	0.14	0.11	0.16	0.22	2.42	2.55	0.75	2.63

Note: Standardized coefficients from 2-level HLM models are reported. Estimates predicting fall scores can be interpreted as the effect on initial status. Estimates predicting spring scores control for fall scores, thus reflect change.

[a] All direct assessments were conducted in English.

** $p \leq 0.01$.

*** $p \leq 0.001$.

Table 5
Associations between Non-English Proficient Latino children's racial/ethnic match with their teacher and social, language, literacy, and math outcomes in preschool (n = 318).

	Teacher Perceptions						Direct Assessment[a]		
	Social Competence		Problem Behaviors		Language /Literacy		Receptive Vocabulary	Letter-word Identification	Math Skills
	Fall Estimate SE	Spring Estimate SE	Fall Estimate SE	Spring Estimate SE	Fall Estimate SE	Spring Estimate SE	Spring Estimate SE	Spring Estimate SE	Spring Estimate SE
Intercept	3.35***	3.32***	1.48***	1.28*	1.50***	3.26*	83.61***	61.57***	71.77***
	0.24	0.25	0.14	0.47	0.25	1.17	11.84	15.75	12.18
Child Level									
Fall Score	–	0.54***	–	0.48***	–	0.52***	0.74***	0.34**	0.58***
		0.06		0.06		0.09	0.06	0.12	0.06
Gender (Girl)	0.28**	0.15	-0.32***	-0.19**	0.08	0.12	1.08	3.55	1.36
	0.09	0.08	0.07	0.06	0.08	0.09	1.50	1.78	1.65
Poverty	0.18	-0.16	-0.15	0.12	0.03	-0.06	0.22	4.88	4.78
	0.17	0.16	0.14	0.12	0.15	0.18	2.84	4.79	3.25
Racial/ethnic match (Match)	0.17	-0.05	-0.07	-0.02	0.08	-0.04	-3.29	6.15*	2.72
	0.15	0.12	0.09	0.09	0.15	0.20	2.12	2.89	2.16
Classroom Level									
Percent poor	0.10	0.30	0.35	-0.09	1.13*	0.76	5.10	9.92	0.60
	0.46	0.38	0.30	0.28	0.46	0.60	6.73	10.21	7.14
Percent Latino	-0.06	-0.04	0.12	-0.06	-0.46	0.43	7.82	6.41	-1.80
	0.39	0.31	0.26	0.23	0.40	0.49	5.68	7.69	5.89
A Teacher Speaks Spanish	0.02	-0.07	-0.06	0.06	0.05	-0.15	-1.08	-2.89	2.49
	0.23	0.19	0.15	0.14	0.23	0.34	3.60	4.73	3.78
CLASS Emotional	–	-0.20	–	0.12	–	-0.09	-0.26	5.94*	0.80
		0.11		0.08		0.19	2.05	2.73	2.11
CLASS Instructional	–	0.06	–	-0.09	–	-0.02	1.06	-3.09	0.01
		0.07		0.05		0.12	1.35	1.98	1.34
Interactions									
Racial/ethnic match X Poverty	0.05	0.57	-0.21	0.00	-0.07	0.02	6.75	1.88	0.46
	0.33	0.31	0.25	0.22	0.29	0.36	5.59	11.82	6.24
Racial/ethnic match X Gender	0.20	0.07	0.07	-0.01	0.08	0.32	-2.54	-0.60	-6.21
	0.19	0.17	0.15	0.12	0.16	0.20	3.11	3.92	3.42

Note: Standardized coefficients from 2-level HLM models are reported. Estimates predicting fall scores can be interpreted as the effect on initial status. Eestimates predicting spring scores control for fall scores, thus reflect change.

[a] All direct assessments were conducted in Spanish.

* $p \leq 0.05$.

** $p \leq 0.01$.

*** $p \leq 0.001$.

children with missing data on number of child and family characteristics, classroom characteristics, directly assessed child outcomes (spring), and teacher ratings of children's outcomes.

The Missing At Random (MAR) assumption was believed to be reasonable for these data and those variables that significantly differed (racial/ethnic match, family poverty, classroom poverty, percent African American students, percent Latino students, Head Start, and fall teacher perceptions of social competence and language/literacy skills) between children with missing data and children with complete data were included in the models as covariates to increase the likelihood that the MAR assumption was not violated (Enders, 2010). Missing data were estimated using multiple imputation procedures (Schafer & Graham, 2002) in SAS, which created 10 complete data files. The multi-level analyses were conducted for each of the 10 imputed data files, and coefficients and standard errors resulting from each analysis were averaged to provide estimates of the associations between children's estimated developmental outcomes at the end of pre-k, and pre-test scores, child and family characteristics, classroom characteristics, and the teacher-child racial/ethnic match.

3. Results

3.1. Ethnic/race match and teachers' perceptions of children's adjustment at the start of the year

We first examined teachers' perceptions of the children's adjustment in the fall, a period of time relatively uncontaminated by lengthy experiences together. HLM was used to predict teacher ratings of social competence, problem behavior, and language/literacy skills as a function of racial/ethnic match, adjusting for child gender and poverty, as well as classroom factors of percentage of poor children and percentage of children with similar ethnic status. It was hypothesized that an African American or Latino child would be perceived as better adjusted at the beginning of pre-k when rated by a same-race teacher than by a different-race teacher. Results are summarized in the columns titled *Fall* of Tables 3, 4, and 5.

For African American children taught either by African American or Caucasian teachers, there were no associations between ethnic match and teacher's perceptions of social competence or problem behaviors at the start of the year. African American children taught by African American teachers received higher scores on early language/literacy development ratings ($d = 0.46$) than those taught by Caucasian teachers, consistent with our hypothesis.

The same hypothesis, however, was not supported for Latino children. For Latino-children proficient in English, there were no associations between these indicators of child adjustment in the fall of pre-k and whether the Latino child was taught by a Latino or Caucasian teacher. Moderation by gender and family poverty was not present. With regard to the Latino children who were directly assessed in Spanish and presumably not proficient in English (having failed the Pre-LAS screener), there were also no associations between ethnic match and teacher's perceptions of child problem behavior, academic skills, or social skills at the start of the year. There were no significant interactions between racial/ethnic match and poverty or child gender for teachers' perceptions of African American or Latino children.

3.2. Ethnic match and children's skill gains in pre-k

A series of HLM analyses examined the extent to which gains in child outcomes across the year (spring outcomes controlled for fall scores) were predicted by whether or not the child's teacher was the same ethnic status, in this case African American or Latino. These analyses adjusted for prior child functioning (fall teacher perceptions and direct assessments) and for attributes of the child (gender), family background (poverty), and classroom (percent in poverty, similar ethnic status, quality of teacher-child interactions). In addition, these analyses estimated the extent to which an association of ethnic match and child outcomes was conditioned on child gender or family poverty. It was hypothesized that an African American or Latino child would demonstrate more gains during the pre-k year when in the classroom of a same-race teacher rather than a different-race teacher. Results are displayed in columns titled *Spring* of Tables 3, 4, and 5.

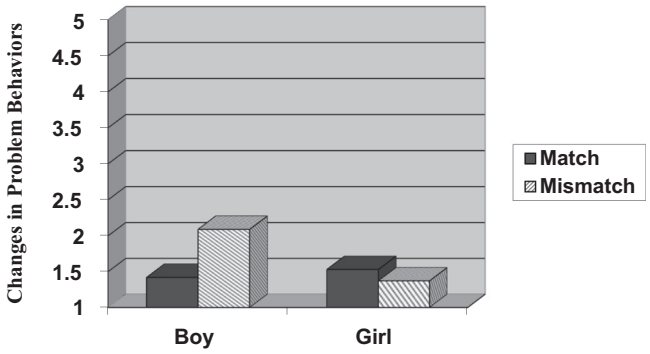

Fig. 1. Changes in problem behaviors during the pre-k year for African American boys and girls under conditions of racial/ethnic match and mismatch with their teacher.

Contrary to our hypothesis, African American children taught by African American teachers were rated by those teachers as somewhat lower on language/literacy ($d = 0.41$) skills in the spring (lower gains) than African American children taught by Caucasian teachers. There was also a significant interaction involving ethnic match and child gender. Consistent with our hypothesis, teacher ratings of problem behaviors of African American boys showed greater increases throughout the year when their teacher was Caucasian relative to when the teacher was African American ($d = 0.29$; see Fig. 1). There were no associations between ethnic match/mismatch and any of the direct assessments of children's language or literacy skills (see Table 3).

Table 4 presents results for those Latino children who passed an English-language screener and were assessed in English during the fall and spring. In terms of ethnic match and teacher perceptions in the fall or spring of pre-k, or directly-assessed child outcomes in spring, there were no associations between these indicators of child outcomes and whether the Latino child was taught by a Latino or Caucasian teacher. Moderation by gender and family poverty was not present.

With regard to the Latino children who were not proficient in English and whose skills were assessed in Spanish (after failing the Pre-LAS screener), in both fall and spring of pre-k, results are presented in Table 5. In terms of skill gains in pre-k, there were no associations between ethnic match and teacher's ratings of child outcomes in the spring. However, non-English proficient Latino children taught by Latino teachers gained more in terms of directly-assessed early literacy skills ($d = 0.28$) than did non-English proficient Latino children taught by Caucasian teachers.

4. Discussion

The current study used a large, diverse sample of young children and their teachers to examine the consequences of children sharing (or not) racial/ethnic characteristics with their pre-k teachers. In the early 2000's when these data were collected across more than 700 classrooms in 11 states, it was exceedingly rare for Caucasian children to experience a teacher of a different race/ethnicity,

and minority children were hardly ever enrolled in classrooms with teachers from a minority background that differed from their own. The racial/ethnic landscape of state-funded pre-k classrooms is heavily impacted by the composition of the ECE workforce, which at the time was majority Caucasian (Kisker, Hofferth, Phillips, & Farquhar, 1991; Saluja, Early, & Clifford, 2002), a pattern that has not changed in the years since (National Research Council, 2012). Thus, children rarely experienced a teacher with a different race/ethnicity from themselves, except in the case of African American or Latino children attending Caucasian teachers' classrooms. When examining the outcomes of African American or Latino children matched or mismatched racially or ethnically with their teacher, racial/ethnic match seemed to play an important role in teachers' initial perceptions of children and in children's academic and social gains during the pre-k year.

4.1. Role of racial/ethnic match in teacher perceptions and children's pre-k outcomes

Conceptual and theoretical frameworks for early learning, as well as patterns of empirical results pertaining to group differences in outcomes, provided reason to believe that racial/ethnic match might play a role in teachers' early judgments about children in their classroom (Bates & Glick, 2013; Downey & Pribesh, 2004). Consistent with the hypothesis that children would be perceived more positively at the beginning of pre-k when rated by a same-race teacher than by a different-race teacher, African American teachers reported a more positive view of African American children's language and literacy skills at the start of the year than Caucasian teachers, although no differences were noted for teachers' ratings of children's social or behavioral adjustment. These findings are partially aligned with past work noting that African American teachers are liable to see African American children in a more positive light and have higher expectations for African American children than do Caucasian teachers (Bates & Glick, 2013; Downey & Pribesh, 2004; Murray, Murray, & Waas, 2008; Saft & Pianta, 2001; Tenenbaum & Ruck, 2007), although in the present case this applies to teachers' views of children's language and literacy skills.

African American teachers reported less growth in problem behavior for African American boys than did Caucasian teachers. Such a pattern of teacher perceptions could help to explain why African American boys especially, are more likely than children from other family or cultural backgrounds to be expelled from pre-k (Gilliam, 2005), if in fact such decisions are more likely for White teachers. This finding, which suggests a possible buffering effect of teachers' views of problem behavior when a teacher is of the same race as the child, may also align with findings from the k-12 years showing that African American students are more likely to be referred for special education or receive harsh discipline when taught by a White teacher than when taught by an African American teacher (Achilles et al., 2007; Skiba et al., 2011; Sullivan, Klingbeil, & Van Norman, 2013; Wiley et al., 2013). Given the possible differential vulnerability of African American students to the negative consequences of potential teacher biases, it is imperative to both better understand the lens through which African American teachers view same-race children and determine the extent to which the behavior of African American teachers toward African American students mitigates against development of disruptive behaviors.

Interestingly, African American teachers also rated African American children as lower in terms of gains in language/literacy throughout the year. However, as noted above, these same teachers rated African American children's language/literacy skills more positively than Caucasian teachers at the beginning of the year. This finding points toward the possibility that African American teachers are more likely to have favorable perceptions of same-race children's emergent literacy skills at first sight, but also set higher expectations for their growth during the year; this is meaningful in that high expectations for minority youth have been linked to favorable child outcomes (Gregory, Cornell, & Fan, 2011).

It is important to emphasize that the findings discussed above, which suggest some support for the hypotheses of race-match benefits, pertains only to teacher-reported child outcomes. Analyses also examined the extent to which racial/ethnic match contributed to variation in gains in children's directly-assessed language, literacy, and math skills during the pre-k year. Consistent with the hypothesis that children would demonstrate more gains during the pre-k year when in the classroom of a same-race teacher rather than a different-race teacher, findings for non-English proficient Latino children revealed greater gains on a direct assessment of literacy from fall to spring if their teacher was also Latino rather than Caucasian. This is evidence in support of the hypothesis that racial/ethnic match, and perhaps linguistic match given overlap between Spanish-speaking and Latino teachers, for Latino children is an important part of a preschool environment supporting literacy skills. This finding corresponds with work indicating that instruction and interactions in both Spanish and English can be more beneficial to young Spanish-speakers' development of literacy skills than immersion in English only classrooms (August, Calderon, Carlo, & Nuttall, 2006; Barnett, Yarosz, Thomas, Jung & Blanco, 2007), and suggests that this shared linguistic background may serve as a protective factor for non-English proficient children. No such benefit for ethnic match for gains in directly-assessed child readiness outcomes were detected for comparisons involving African-American teachers and children.

The present study suggests that racial or ethnic match between children and their teachers may play a role in producing or reducing the racial and ethnic differences observed in children's performance early in school (Downer & Pianta, 2006). These effects are present above and beyond the contribution of child's gender, SES, or quality of teacher-child interactions which have been repeatedly related to children's academic and social skill development (Howes et al., 2008; Mashburn et al., 2008). It is important to note that the presence of null findings reported throughout these analyses do not necessarily mean that racial/ethnic matches between these teachers and young children are irrelevant. The linkages among culture, race, ethnicity, family, and early education are complicated and multifaceted, and these analyses have addressed a very limited and perhaps superficial aspect of these links. Furthermore, the dichotomous variable of match used in this study is based on the assumption that shared race/ethnicity equals shared cultural values, yet this may be untrue or inaccurate. Barbarin, Downer, Odom, & Head-Reeves (2010), suggest that more detailed descriptive studies are needed to better and more accurately characterize actual discrepancies between child-rearing practices and belief systems in a child's home cultural environment and those valued within public schools.

4.2. Limitations

It is important to note that the data used in the current study are now more than a decade old. However, the study findings remain relevant and important for early education today because the demographic characteristics of children, teachers, and pre-k programs are nearly identical in these states now, relative to when the data were collected. Still, a number of sampling and study design issues place limits on interpretation of these findings. First, the prevalence rate of certain teacher-child race/ethnicity combinations was so low in this sample that certain comparisons could not be explored. In fact, the almost complete absence of Caucasian children in minority teachers' classrooms led to within-minority group analyses that preclude study of differential perceptions or experiences within classrooms among children of different racial/ethnic

backgrounds. However, this limitation is likely to be present in almost any study of this topic, especially in the K-12 system, given that the majority of teachers are Caucasian females. Second, these classrooms were all part of state-funded pre-k systems, so findings may look different if the full spectrum of early care and education settings were included. Additionally, in an effort to examine effects of teacher-child match/mismatch holding other factors constant, we statistically controlled for classroom characteristics such as poverty level, racial/ethnic composition, and quality of teacher-child interactions. It is possible that some of the control variables could be explanatory factors and this would be an interesting direction for future research. Finally, procedures for screening and assessing Spanish-speaking children limited the way that directly assessed outcomes for these children could be examined. Given that the Pre-LAS screener led to children being tracked into English only or Spanish only batteries, there is no way to examine the potential link of racial/ethnic match with bilingual development (e.g., the Spanish vocabulary development of English proficient Spanish-speakers). And in the few cases where racial/ethnic match seems to play a role in perceptions and outcomes, there still remains a question of how and why the match matters. Tackling these types of questions would need to involve more in-depth questioning about teacher judgments and cultural expectations, and observation of the extent to which children receive differential treatment in the classroom.

4.3. Conclusion

Serving a population of young children of increasing diversity culturally, racially, ethnically, and linguistically, early education programs in the United States are understandably interested in the ways in which such diversity can be best addressed and might be related to the impacts these programs have on child outcomes. For example, given the largely White female workforce in early childhood education programs that serve mostly racial/ethnic minority children, it could be recommended that programs focus on diversity during teacher recruitment. Furthermore, given the importance of teachers in these settings (Hamre & Pianta, 2007), racial/ethnic and cultural discrepancies between teachers and children give rise to questions about whether racial/ethnic match or mismatch might play a role in determining a teacher's perceptions of a child and the extent to which the classroom benefits children's learning. In the present study, there was evidence that ethnic match between teacher and child was a significant factor in relation to these outcomes, suggesting that this match ought to be considered within efforts to address the early learning needs of young children alongside other aspects of a teacher's influence in the classroom that demonstrate empirically established links to learning (e.g., Downer et al., 2012) for a wide and inclusive range of children.

Acknowledgements

The authors gratefully acknowledge the National Institute for Early Education Research (NIEER), W. Steven Barnett, The Pew Charitable Trusts, and the Foundation for Child Development for their support of the SWEEP Study, and the U.S. Department of Education for its support of the Multi-State Study of Pre-Kindergarten. The development of this paper was also supported by the Institute of Education Sciences, U.S. Department of Education (Grants R305B130013 and R305A060021), including the National Center for Research on Early Childhood Education. However, the contents do not necessarily represent the positions or policies of the funding agencies, and endorsement by these agencies should not be assumed.

References

Achilles, G. M., Mclaughlin, M. J., & Croninger, R. G. (2007). Sociocultural correlates of disciplinary exclusion among students with emotional, behavioral, and learning disabilities in the SEELS national dataset. *Journal of Emotional and Behavioral Disorders*, *15*, 33–45. http://dx.doi.org/10.1177/10634266070150010401

Alexander, K. L., Entwisle, D. R., & Thompson, M. S. (1987). School performance, status relations, and the structure of sentiment: bringing the teacher back in. *American Sociological Review*, *52*, 665–682. http://dx.doi.org/10.2307/2095602

August, D., Carlo, M. S., Calderón, M., & Nuttall, M. (2006). Developing literacy in English-language learners: an examination of the impact of English-only versus bilingual instruction. In P. McCardle, & E. Hoff (Eds.), *Childhood bilingualism: research on infancy through school age*. Clevedon, England: Multilingual Matters.

Barbarin, O., Downer, J., Odom, E., & Head-Reeves, D. (2010). Home-school differences in beliefs, support, and control during public pre-kindergarten and their link to children's kindergarten readiness. *Early Childhood Research Quarterly*, *25*, 358–372. http://dx.doi.org/10.1016/j.ecresq.2010.02.003

Barnett, W. S., Hustedt, J. T., Robin, K. B., & Schulman, K. L. (2003). *The state of preschool: 2003 preschool yearbook*. New Brunswick, NJ: The National Association for Early Education Research.

Barnett, W. S., Yarosz, D. J., Thomas, J., Jung, K., & Blanco, D. (2007). Two-way and monolingual English immersion in preschool education: an experimental comparison. *Early Childhood Research Quarterly*, *22*, 277–293. http://dx.doi.org/10.1016/j.ecresq.2007.03.003

Bates, L. A., & Glick, J. E. (2013). Does it matter if teachers and schools match the student? Racial and ethnic disparities in problem behaviors. *Social Science Research*, *42*, 1180–1190. http://dx.doi.org/10.1016/j.ssresearch.2013.04.005

Benner, A. D., & Yan, N. (2014). Classroom race/ethnic composition family-school connections, and the transition to school. *Applied Developmental Science*, *0*, 1–12. http://dx.doi.org/10.1080/10888691.2014.983028

Berends, M., & Penaloza, R. V. (2008). Changes in families, schools, and the test score gap. In K. Magnason, & J. Waldfogel (Eds.), *Steady gains and stalled progress: inequality and the Black-White test score gap*. New York: Russell Sage Foundation.

Brooks-Gunn, J., & Markman, L. B. (2005). The contribution of parenting to ethnic and racial gaps in school readiness. *Future of Children*, *15*, 139–168. http://dx.doi.org/10.1353/foc.2005.0001

Burchinal, M., & Cryer, D. (2003). Diversity, child care quality, and developmental outcomes. *Early Childhood Research Quarterly*, *18*, 401–426. http://dx.doi.org/10.1016/j.ecresq.2003.09.003

Carrow-Woolfolk, E. (1995). *Oral and written language scales (OWLS)*. Circle Pines, MN: American Guidance Service.

Chow, B. W.-Y., & McBride-Chang, C. (2003). Promoting language and literacy development through parent-child reading in Hong Kong preschoolers. *Early Education and Development*, *14*, 233–248. http://dx.doi.org/10.1207/s15566935eed1402_6

Downer, J. T., López, M. L., Grimm, K. J., Hamagami, A., Pianta, R. C., & Howes, C. (2012). Observations of teacher–child interactions in classrooms serving Latinos and dual language learners: applicability of the Classroom Assessment Scoring System in diverse settings. *Early Childhood Research Quarterly*, *27*, 21–32. http://dx.doi.org/10.1016/j.ecresq.2011.07.005

Downer, J. T., & Pianta, R. C. (2006). Academic and cognitive functioning in first grade: associations with earlier home and child care predictors and with concurrent home and classroom experiences. *School Psychology Review*, *35*, 11.

Downey, D. B., & Pribesh, S. (2004). When Race Matters: teachers' evaluations of students' classroom behavior. *Sociology of Education*, *77*, 267–282. http://dx.doi.org/10.1177/003804070407700401

Duncan, S., & DeAvilla, E. (1998). *Pre-Las*. Montgomery, CA: McGraw-Hill.

Dunn, L. M., & Dunn, L. M. (1997). *Peabody Picture Vocabulary Test* (3rd edn.). Circle Pines, MN: American Guidance Service, Inc.

Dunn, L. M., Lugo, D. E., Padilla, E. R., & Dunn, L. M. (1986). *Test de Vocabulario en Imagenes Peabody*. Circle Pines, MN: American Guidance Service.

Egalite, A. J., Kisida, B., & Winters, M. A. (2015). Representation in the classroom: the effect of own-race teachers on student achievement. *Economics of Education Review*, *45*, 44–52. http://dx.doi.org/10.1016/j.econedurev.2015.01.007

Enders, C. K. (2010). *Applied missing data analysis*. Guilford Press.

Espinosa, L., Laffey, J., & Whittaker, T. (2006). *Language minority children analysis: focus on technology use*. CREST/NCES. Final report.

Ewing, A. R., & Taylor, A. R. (2009). The role of child gender and ethnicity in teacher–child relationship quality and children's behavioral adjustment in preschool. *Early Childhood Research Quarterly*, *24*, 92–105. http://dx.doi.org/10.1016/j.ecresq.2008.09.002

Federal Interagency Forum on Child and Family Statistics. (2013). *America's Children: Key National Indicators of Well-Being*. Washington, DC: U.S. Government Printing Office. Retrieved from: http://www.childstats.gov/pdf/ac2013/ac_13.pdf Accessed 03.04.15.

Fisher, C. B., Jackson, J. J., & Villarruel, F. A. (1997). The study of ethnic minority children and youth in the United States. In R. M. Lerner (Ed.), *Theoretical models of human development. Handbook of child psychology* (Vol. 1). New York: Wiley Press.

García Coll, C., Lamberty, G., Jenkins, R., McAdoo, H. P., Crnic, K., Wasik, B. H., et al. (1996). An integrative model for the study of developmental competencies in minority children. *Child Development*, *67*, 1891–1941. http://dx.doi.org/10.1111/j.1467-8624.1996.tb01834.x

Gilliam, W. S. (2005). *Prekindergarteners left behind: expulsion rates in state prekindergarten systems*. New Haven, CT: Yale University Child Study Center.
Graves, S. L., Blake, J., & Kim, E. S. (2012). Differences in parent and teacher ratings of preschool problem behavior in a national sample: the significance of gender and SES. *Journal of Early Intervention*, 1053815112461833.
Gregory, A., Cornell, D., & Fan, X. (2011). The relationship of school structure and support to suspension rates for Black and White high school students. *American Educational Research Journal*, *48*, 904–934. http://dx.doi.org/10.3102/0002831211398531
Gregory, A., Skiba, R. J., & Noguera, P. A. (2010). The achievement gap and the discipline gap: two sides of the same coin? *Educational Researcher*, *39*, 59–68. http://dx.doi.org/10.3102/0013189X09357621
Grieco, A., Acosta, Y. D., de la Cruz, G. P., Gambino, C., Gryn, T., Larsen, L. J., et al. (2012). *The foreign-born population in the United States: 2010, American Community Survey Reports*. Washington: U.S. Census Bureau. Retrieved from: https://www.census.gov/prod/2012pubs/acs-19.pdf Accessed 03.04.15.
Hamre, B. K., & Pianta, R. C. (2007). Learning opportunities in preschool and early elementary classrooms. In R. Pianta, M. Cox, & K. Snow (Eds.), *School readiness & the transition to kindergarten in the era of accountability* (5th edn., Vol. 1, pp. 49–84). Baltimore: Brookes.
Hemphill, F. C., & Vanneman, A. (2011). *Achievement gaps: how Hispanic and White students in public schools perform in mathematics and reading on the National Assessment of Educational Progress (NCES 2011-459)*. Washington, DC: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education.
Hernandez, D. J., Denton, N. A., & Macartney, S. E. (2007). Demographic trends and the transition years. In R. Pianta, M. Cox, & K. Snow (Eds.), *School reading and the transition to kindergarten in the era of accountability* (pp. 217–281). Baltimore: Paul H. Brookes.
Hernandez, D. J., Denton, N. A., & Macartney, S. E. (2008). Children in immigrant families: looking to America's future. *Social Policy Report*, *21*, 3–22.
Hightower, A. D., Work, W. C., Cowen, E. L., Lotyczewski, B. S., Spinell, A. P., Guare, J. C., et al. (1986). The teacher to child rating scale: a brief objective measure of elementary children's school problem behaviors and competencies. *School Psychology Review*, *15*, 393–409.
Howes, C. (2010). *Culture and child development in early childhood education: practices for quality education and care*. New York: Teachers College Press.
Howes, C., Wishard Guerra, A., Fuligni, A., Zucker, E., Lee, L., Obregon, N. B., et al. (2011). Classroom dimensions predict early peer interaction when children are diverse in ethnicity, race, and home language. *Early Childhood Research Quarterly*, *26*, 399–408. http://dx.doi.org/10.1016/j.ecresq.2011.02.004
Howes, C., Burchinal, M., Pianta, R., Bryant, D., Early, D., Clifford, R., et al. (2008). Ready to learn? Children's pre-academic achievement in pre-kindergarten programs. *Early Childhood Research Quarterly*, *23*, 27–50. http://dx.doi.org/10.1016/j.ecresq.2007.05.002
Howes, C., James, J., & Ritchie, S. (2003). Pathways to effective teaching. *Early Childhood Research Quarterly*, *18*, 104–120. http://dx.doi.org/10.1016/S0885-2006(03)00008-5
Howes, C., & Shivers, E. M. (2006). New child-caregiver attachment relationships: entering child care when the caregiver is and is not an ethnic match. *Social Development*, *15*, 343–360. http://dx.doi.org/10.1111/j.1467-9507.2006.00358.x
Hulsey, L.K., Aikens, N., Kopack, A., West, J., Moiduddin, E., Tarullo, L., 2011. Head Start Children, Families, and Programs: Present and Past Data from FACES. OPRE Report 2011-33a. Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.
IOM (Institute of Medicine) & NRC (National Research Council). (2015). *Transforming the workforce for children birth through age 8: a unifying foundation*. Washington, DC: The National Academies Press. Retrieved from: http://books.nap.edu/openbook.php?record_id=19401 Accessed 03.04.15.
Jacobson Chernoff, J., Flanagan, K. D., McPhee, C., & Park, J. (2007). *Preschool: first findings from the third follow-up of the Early Childhood Longitudinal Study, birth cohort (NCES 2008-025)*. Washington, DC: National Center for Education Statistics.
Jennings, J. L., & DiPrete, T. A. (2010). Teacher effects on social and behavioral skills in early elementary school. *Sociology of Education*, *83*, 135–159. http://dx.doi.org/10.1177/0038040710368011
Johnson, D. J., Jaeger, E., Randolph, S. M., Cauce, A. M., Ward, J., & NICHD Early Child Care Research Network. (2003). Studying the effects of early child care experiences on the development of children of color in the United States: towards a more inclusive research agenda. *Child Development*, *74*, 1227–1244. http://dx.doi.org/10.1111/1467-8624.00604
Kisker, E. E., Hofferth, S. L., Phillips, D. A., & Farquhar, E. (1991). *A profile of child care settings: early education and care in 1990* (GPO.;1; 1992 322-968, Vol. I: QL-3). Washington, DC: U.S: Government Printing Office.
Lucas, T., Henze, R., & Donato, R. (1990). Promoting the success of Latino language minority students: an exploratory study of six high schools. *Harvard Educational Review*, *60*, 315–340.
Mashburn, A. J., Pianta, R. C., Hamre, B. K., Downer, J. T., Barbarin, O., Bryant, D., et al. (2008). Measures of classroom quality in prekindergarten and children's development of academic, language, and social skills. *Child Development*, *79*, 732–749. http://dx.doi.org/10.1111/j.1467-8624.2008.01154.x
McGrady, P. B., & Reynolds, J. R. (2013). Racial mismatch in the classroom beyond Black-White differences. *Sociology of Education*, *86*, 3–17. http://dx.doi.org/10.1177/0038040712444857
Murray, C., Murray, K. M., & Waas, G. A. (2008). Child and teacher reports of teacher–student relationships: concordance of perspectives and associations with school adjustment in urban kindergarten classrooms. *Journal of Applied Developmental Psychology*, *29*, 49–61. http://dx.doi.org/10.1016/j.appdev.2007.10.006
National Center for Education Evaluation. (2011). *Do low-income students have equal access to the highest-performing teachers? (NCEE 2011-4016)*. pp. 2011–4016. Retrieved from:. http://ies.ed.gov/ncee/pubs/20114016/pdf/20114016. pdf
National Research Council. (2012). *The early childhood care and education workforce: challenges and opportunities: a workshop report*. Washington, DC: The National Academies Press. Retrieved from: http://www.ncbi.nlm.nih.gov/books/NBK189910/ Accessed 03.04.15.
Nieto, S. (2002). *Language, culture, and teaching: critical perspectives for a new century*. Mahwah, NJ: Lawrence Erlbaum Associates Publishers.
Nieto, S., & Bode, P. (2008). *Affirming diversity: the sociopolitical context of multicultural education* (5th edn.). New York: Allyn & Bacon.
Perry, S., & Meisels, S. (1996). *Validity of teacher-reported academic performance: the STARS Academic Rating Scale*. Washington, DC: NCES. Technical report.
Pianta, R. C., Belsky, J., Houts, R., & Morrison, F. (2007). Opportunities to learn in America's elementary classrooms. *Science*, *315*, 1795–1796. http://dx.doi.org/10.1126/science.1139719
Pianta, R. C., La Paro, K. M., & Hamre, B. K. (2004). *Classroom assessment scoring system [CLASS] manual: Pre-K*. Baltimore, MD: Brookes Publishing.
Pigott, R. L., & Cowen, E. L. (2000). Teacher race, child race, racial congruence, and teacher ratings of children's school adjustment. *Journal of School Psychology*, *38*, 177–196. http://dx.doi.org/10.1016/S0022-4405(99)00041-2
Raudenbush, S. W., & Bryk, A. (2002). *Hierarchical liner model: applications and data analysis methods* (2nd). New York: Sage.
Rogoff, B. (2003). *The cultural nature of human development*. NY: Oxford: University Press.
Rothstein, R. (2008). Whose problem is poverty? *Educational Leadership*, *65*, 8–13.
Saft, E. W., & Pianta, R. C. (2001). Teachers' perceptions of their relationships with students: effects of child age, gender, and ethnicity of teachers and children. *School Psychology Quarterly*, *16*, 125–141. http://dx.doi.org/10.1521/scpq.16.2.125.18698
Saluja, G., Early, D., & Clifford, R. (2002). Demographic characteristics of early childhood teachers and structural elements of early care and education in the United States. *Early Childhood Research & Practice*, *4*, 1–20. Retrieved from: http://ecrp.uiuc.edu/v4n1/saluja.html Accessed 03.04.15.
Schafer, J. L., & Graham, J. W. (2002). Missing data: Our view of the state of the art. *Psychological Methods*, *7*, 147–177. http://dx.doi.org/10.1037/1082-989X.7.2.147
Skiba, R. J., Horner, R. H., Chung, C. G., Karega Rausch, M., May, S. L., & Tobin, T. (2011). Race is not neutral: A national investigation of African American and Latino disproportionality in school discipline. *School Psychology Review*, *40*, 85. Retrieved from: http://www.indiana.edu/~atlantic/wp-content/uploads/2011/12/Skiba-et-al.-Race-is-not-neutral.pdf Accessed 03.04.15.
Singer, J. D. (1998). Using SAS PROC MIXED to fit multilevel models, hierarchical models, and individual growth models. *Journal of Educational and Behavioral Statistics*, *23*(4), 323–355.
Sullivan, A. L., Klingbeil, D., & Van Norman, E. (2013). Beyond behavior: multilevel analysis of the influence of sociodemographics and school characteristics on students' risk of suspension. *School Psychology Review*, *47*, 99–114.
Tenenbaum, H. R., & Ruck, M. D. (2007). Are teachers' expectations different for racial minority than European American majority students? A meta-analysis. *Journal of Educational Psychology*, *99*, 253–273. http://dx.doi.org/10.1037/0022-0663.99.2.253
U.S. Census Bureau. (2012). *Most children younger than age 1 are minorities, Census Bureau Reports*. U.S. Census Bureau News Release. Retrieved from: http://www.census.gov/newsroom/releases/archives/population/cb12-90.html Accessed 03.04.15.
Van den Bergh, L., Denessen, E., Hornstra, L., Voeten, M., & Holland, R. W. (2010). The implicit prejudiced attitudes of teachers relations to teacher expectations and the ethnic achievement gap. *American Educational Research Journal*, *47*, 497–527. http://dx.doi.org/10.3102/0002831209353594
Vanneman, A., Hamilton, L., Baldwin Anderson, J., & Rahman, T. (2009). *Achievement gaps: how Black and White students in public schools perform in mathematics and reading on the National Assessment of Educational Progress, (NCES 2009-455)*. Washington, DC: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education.
Weissberg, R. P., Cowen, E. L., Loyyczewski, B. S., Boike, M. F., Orara, N. A., Stalonas, P., et al. (1987). Teacher ratings of children's problem and competence behaviors: normative and parametric characteristics. *American Journal of Community Psychology*, *15*, 387–401. http://dx.doi.org/10.1007/BF00915209
West, J., Denton, K., & Germino-Hausken, E. (2000). *America's kindergartners: NCES 2000-070*. Washington, DC: National Center for Educational Statistics.
Wiley, A. L., Brigham, F. J., Kauffman, J. M., & Bogan, J. E. (2013). Disproportionate poverty, conservatism, and the disproportionate identification of minority students with emotional and behavioral disorders. *Education and Treatment of Children*, *36*, 29–50. http://dx.doi.org/10.1353/etc.2013.0033
Woodcock, R. W., McGrew, K. S., & Mather, N. (2001). *Woodcock Johnson III: tests of achievement*. Itasca, IL: Riverside Publishing.
Woodcock, R. W., & Munoz-Sandoval, A. F. (1996). *Batería Woodcock Muñoz revisada: Pruebas de aprovechamiento*. Itasca, IL: Riverside Publishing.