

Parent–Teacher Agreement and Reliability on the Devereux Early Childhood Assessment (DECA) in English and Spanish for Ethnically Diverse Children Living in Poverty

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Research Findings: Social-emotional competence is especially important for children living in poverty, and effective assessment of social-emotional skills is critical. This study examined parent–teacher agreement and reliability of the Devereux Early Childhood Assessment (DECA; P. A. LeBuffe & J. A. Naglieri, 1999) English and Spanish forms in a large ($n = 7,756$) sample of impoverished, ethnically diverse preschoolers. Both forms were reliable. Parents reported greater social-emotional protective factors and behavioral concerns than teachers. Parent–teacher agreement was moderate ($r_s = .20-.28$) and consistent with previous research. Parent–teacher agreement was higher when both informants completed the survey in the same language. Agreement was highest for average-functioning children, according to a standardized assessment of cognition, language, and motor skills that was also administered. Parents rated low-functioning children more favorably than did teachers; teachers rated high-functioning children more favorably than did parents. *Practice*

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or Policy: The English and Spanish DECA forms demonstrate reliability for examining social-emotional skills and behavioral concerns for impoverished, ethnically diverse preschoolers.

Effective social skills and appropriate self-regulation of emotion and behavior are critical for children's school readiness (Denham, 2006; Graziano, Reavis, Keane, & Calkins, 2007; McClelland et al., 2007) and their early academic trajectories in elementary school (Caprara, Barbaranelli, Pastorelli, Bandura, & Zimbardo, 2000; Coolahan, Fantuzzo, Mendez, & McDermott, 2000; Evans & Rosenbaum, 2008). In recognition of this, young children's social, emotional, and behavioral competencies are often the specific targets of early childhood education, prevention, and intervention efforts (Denham & Burton, 2003; Hemmeter, Ostrosky, & Fox, 2006; Raver, 2002). However, the first step in effectively promoting young children's social and emotional skills is being able to assess such skills effectively with a variety of reliable, valid, and practical assessment instruments appropriate for use with an increasingly diverse group of young children. Indeed, the dire need for effective assessments for preschool children's social-emotional and self-regulatory skills as they relate to school readiness was indicated by recent federal inter-agency calls for the development of early childhood assessment instruments (U.S. Department of Health and Human Services, 2004). This article examines internal consistency reliability and parent-teacher agreement on both the English and Spanish versions of the Devereux Early Childhood Assessment (DECA; LeBuffe & Naglieri, 1999) among ethnically and linguistically diverse children and families living in poverty.

Assessments with school-age children and adults are typically used to document individual cognitive potential, to place individuals into appropriate educational or vocational programs, and to predict later success (Kaplan & Saccuzzo, 2001). Assessment in early childhood has a necessarily different focus—the acquisition of information about a child's development and environment in order to understand that child's strengths and weaknesses and facilitate the creation of curricula and interventions to meet the child's needs (Meisels & Atkins-Burnett, 2000). Standardized early childhood assessment comes with unique challenges, such as children's noncompliance with examiners, young children's short attention spans, children's limited verbal skills for self-reporting, and the difficulty of controlling and standardizing the assessment situation in developmentally appropriate ways for young children (Bagnato & Neisworth, 1991). Given preschool children's limited self-reflection and self-reporting capabilities, parent and teacher reports are often the only sources of information available, especially regarding a child's social-emotional development, for which repeated observations

in different contexts and over time are necessary for adequate assessment. For this reason, parents, teachers, and caregivers close to young children are excellent and important sources of information regarding children's behavior and abilities (Bagnato & Neisworth, 1991); however, they do not always agree on children's development and abilities (Achenbach, McConaughy, & Howell, 1987). Questions have arisen regarding the extent of agreement and disagreement between informants; the reasons for, and correlates of, disagreement; and what disagreement might mean for child referral decisions.

PARENT-TEACHER AGREEMENT

A fair amount of research regarding parent-teacher agreement on child behavior and cognitive functioning has been conducted to date (e.g., Achenbach et al., 1987; Ferdinand et al., 2003; Hundert, Morrison, Mahoney, Mundy, & Vernon, 1997; Keogh & Bernheimer, 1998; Keogh, Juvonen, & Bernheimer, 1989; Winsler & Wallace, 2002). Researchers have examined agreement on competence (Keogh et al., 1989; La Paro & Pianta, 2000; Peet, Powell, & O'Donnel, 1997), temperament (Victor, Halverson, & Smith-Wampler, 1988), and psychopathology (Ferdinand et al., 2003; Kumpulainen et al., 1999). In a meta-analysis, Achenbach et al. (1987) reported a mean correlation of .28 between parent and teacher reports of children's behavioral and emotional problems, and there was no significant difference in agreement related to a child's clinical or nonclinical status or to gender. Higher agreement was found for children aged 6-11 than for adolescents. Furthermore, informants were more consistent when rating externalizing than internalizing behavior problems. These researchers concluded that information gained from one informant is unique and cannot be substituted for information gained from another informant. In fact, even the youngest children (6-year-olds) could sometimes give information about their own condition that was different and uniquely useful from the information provided by parents, clinicians, and teachers (Achenbach et al., 1987).

Cross-informant research with preschool-age children, however, is less available. One study that did address cross-informant agreement regarding social-emotional development in preschool-age children was conducted by Winsler and Wallace (2002). These authors examined parent-teacher ratings and independent observer ratings of young children's social skills, internalizing behavior problems, and externalizing behavior problems. They found that parents and teachers more strongly agreed on children's externalizing behavior problems than on their internalizing behavior problems and social

skills, and that compared to teachers, parents reported more overall behavior problems in their children. Increased communication between parents and teachers and combined information across different contexts can lead to greater understanding of children's behavior and social-emotional protective factors.

Research on parent-teacher agreement has been conducted with a number of ethnic groups, including Chinese (Deng, Liu, & Roosa, 2004), Japanese (Satake, Yoshida, & Yamashita, 2003), and African American (Cai, Kaiser, & Hancock, 2004) children. However, little research has investigated relations between parent-teacher reports of children's social-emotional protective factors and academic outcomes within low-income, ethnically diverse populations. Children from minority backgrounds, and particularly African American and Hispanic children, are disproportionately more likely to live in poverty (Duncan & Magnuson, 2005) and attend low-quality child care, and they typically have early childhood teachers who are of a different ethnic background (Magnuson & Waldfogel, 2005). Good communication and congruence between home and school is particularly important for such populations, and therefore it is important to understand cross-informant agreement across these two settings in early childhood assessment instruments. Cai et al. (2004) examined parent-teacher agreement on children's behavior problems in a sample of low-income, predominantly African American children. Teachers tended to report problem behaviors affecting academic performance, classroom management, and peer relationships, whereas parent rankings of behavior problems were related to household maintenance (Cai et al., 2004). This is evidence that differences between teacher and parent ratings of behavior problems are at least partly due to differences in the environments in which adults observe children's behavior.

Previous research has also pinpointed differences in parent-teacher agreement depending on children's gender, academic achievement, and both the type and severity of children's behavioral concerns. With a sample of Chinese children ages 6 to 11, Deng et al. (2004) found that parent-teacher agreement was stronger for girls than for boys and stronger for children with higher academic performance. They also reported that parents and teachers most strongly agreed on problems of attention, followed by externalizing behavior problems, then by internalizing behavior problems. It is important to note that Deng et al. also found that agreement between parent and teacher reports decreased with increasing severity of the child's difficulties. Pinpointing levels of disagreement related to the level of child functioning is important because it has clear implications for referrals and for clinical practice. If parent and teacher reports diverge further from one another in a child with lower functioning versus a child with higher-functioning,

clinicians may need to use information from each informant very differently or combine the two reports differently for the lower functioning child most in need of services. The present study thus examined whether agreement between parents and teachers on children's social and behavioral skills on the DECA is the same for children who vary in cognitive/language competence. Agreement as a function of child gender and age was also examined for the same reason.

Research on the assessment of bilingual and multilingual preschool-age children is rare (Cofresi & Gorman, 2004). There is no research to date regarding parent-teacher agreement when language differences between parents and teachers are likely. This is an important area for research because of quickly expanding populations of English language learners (National Center for Education Statistics, 2000). Poor communication and a lack of understanding of issues related to learning two languages simultaneously can lead to misdiagnosis, over- or under-referral, and improper enrollment of bilingual children in special education classrooms (Cofresi & Gorman, 2004). Furthermore, assessment instruments are often translated directly from English into another language without going through the proper standardization and/or validation procedures needed in the new language, which is problematic because much can be lost in the translation process because of lack of cross-language equivalence and other differences (Cofresi & Gorman, 2004). In the current study, we examined agreement between parents and teachers who used the same and different language versions (English-Spanish) of the DECA.

THE DECA

The DECA (LeBuffe & Naglieri, 1999) is a 37-item parent- and teacher-report instrument of child social-emotional protective factors and behavioral concerns that is appropriate for use with children between the ages of 2 to 5. It is available in English and Spanish. It was created as a screening device to identify children's individual social and emotional strengths and weaknesses for use in program planning and assessment. One of the features of the DECA that distinguishes it from other available measures of social skills and behavior in early childhood is that it was designed with a focus on children's strengths and resilience, whereas most other measures emphasize child problems and pathology (LeBuffe & Naglieri, 1999). The DECA, for example, yields an overall Total Protective Factors scale that emphasizes the child's strengths in self-control, initiative, and attachment/closeness with adults. Children's strengths in social competence may be conceptualized as potential *protective factors*, which have

been defined as “antecedent conditions associated with a decrease in the likelihood of undesirable outcomes or with an increase in the likelihood of positive outcomes” (Kazdin, Kraemer, Kessler, Kupfer, & Offord, 1997, p. 377). Because they reflect positive aspects of children’s circumstances, protective factors are important to consider along with potential risk factors that threaten children’s early academic and social success. Another unique aspect of the DECA is that the child assessment instrument is embedded within a larger program or curriculum system designed to improve children’s social-emotional strengths in early childhood classrooms (Devereux Early Childhood Initiative, 2006). These features have made the DECA a popular tool in many communities throughout the United States (i.e., Miami, Florida; Bristol, Connecticut; Bowling Green, Ohio; Passaic, New Jersey; Pueblo, Colorado) for large-scale early childhood community program evaluation, curriculum development, and assessment/intervention initiatives (Devereux Early Childhood Initiative, 2006).

Only two published studies to date have examined the utility of the DECA and reported psychometric data on the instrument (Jaberg, Dixon, & Weis, 2009; Lien & Carlson, 2009) to compare with the material discussed in the DECA user’s manual. Jaberg et al. (2009; see also Mayor’s Commission for Children, 2007) examined the utility of the DECA with a sample of 780 children from one community in the American Midwest (88% White, 4% American Indian/Alaska native, 3% African American, 2% Hispanic/Latino, and 2% other). These authors reported parent–teacher correlations (ranging from .20 to .38) and internal consistency reliability coefficients (between .71 and .95) very similar to those reported by the DECA authors (LeBuffe & Naglieri, 1999). The children participating in this study were by and large middle class, as evidenced by the percentage of children who received free or reduced lunch in kindergarten (32%). In addition 79% of these children had parents who were married at the time of the study, and 97% of the parents had a high school diploma or more education (Mayor’s Commission for Children, 2007). Although this information is certainly useful, the sample used in the Jaberg et al. study is limited with respect to ethnic and language diversity.

A study by Lien and Carlson (2009) utilized a sample of 1,208 children attending Head Start to examine the psychometric properties of the DECA. These authors reported internal consistency ratings (ranging from .71 to .91) close to those found by Jaberg et al. (2009). These authors also did a factor analysis that revealed some differences in item loadings, but basically the same factor structure was found as that reported in the DECA technical manual. They also found that the children in their Head Start sample scored significantly higher on the Behavioral Concerns scale (i.e., had more behavior problems) and significantly lower on the protective

factors scale (i.e., had poorer social skills) than did the sample of children used to standardize the DECA. Unfortunately, demographic information about the children in the Lien and Carlson study were not available. The participating families likely were living in poverty because they were enrolled in Head Start; however, their ethnic backgrounds are not actually known. The authors stated that the study took place in a “diverse area of mid-Michigan” (Lien & Carlson, 2009, p. 389), so perhaps the proportion of African American and Latino children was somewhat larger than that for Michigan as a whole (77% White, 15% African American, 4% Hispanic; U.S. Census Bureau, 2010). However, it does not appear that Hispanic/Latino children were a large part of the sample. Additional evaluation of the DECA for use with ethnically and linguistically diverse children, and specifically for children living in poverty, is clearly needed to inform intervention efforts for at-risk children. The current study thus evaluated reliability and parent–teacher agreement on the DECA with a large sample of ethnically and linguistically diverse children living in poverty in Miami, Florida.

POVERTY AND ETHNIC/LANGUAGE DIVERSITY

Although social-emotional skills and behavior are important aspects of school readiness for all children, they may be especially important for young children living in poverty because such children are at greater risk for numerous developmental problems because of the stressors associated with the impoverished environments in which they live (Brooks-Gunn, Britto, & Brady, 1999; McLoyd, 1998). Children living in poverty have been shown to have particular difficulty with the self-regulation of emotion and behavior (Evans & Rosenbaum, 2008; Miller, Gouley, Seifer, Dickstein, & Shields, 2004), and many early childhood programs target social skills and behavior for intervention (see Webster-Stratton & Reid, 2008, for a review). Therefore, it is important to verify that assessment instruments are effective within specific low-income populations.

Given that ethnic and language minority groups in the United States are more likely to be living in poverty compared to English-speaking Caucasian individuals (Garbarino & Ganzel, 2000), examination of assessment tools for use within low-income families also requires careful attention to issues of language and culture. Instruments need to demonstrate reliability, validity, and measurement equivalence across different populations, languages, and income groups. Standardization samples, although generally large and intended to be nationally representative, typically do not include sufficient numbers of individuals within any one ethnic group to explore such issues

adequately, and the DECA is no exception. Several components of social and emotional skills, such as teacher–child attachment relationships (Howes & Smith, 1995) and teacher-reported problems during children’s transition to kindergarten (Rimm-Kaufman, Pianta, & Cox, 2000), have been found to vary as a function of either child or teacher ethnicity, typically favoring Caucasian children and teachers. Understanding how ethnically diverse parents and teachers rate ethnically diverse children on social-emotional skills and behavior concerns is important for teasing apart the extent to which differences might be due to the child versus the rater.

Little information is available pertaining to the development, translation, reliability, or validation of the Spanish form of the DECA. The DECA items were first written in English, translated into Spanish, and then back-translated into English. Comparison of the original and back-translated English versions was completed and minor modifications were made (Devereux Early Childhood Initiative, 2001). The Spanish DECA uses the English-normed standardization tables for calculation of the standard scores, a practice justified by the publisher after preliminary analyses revealed that bilingual raters’ scores of the same children in English and Spanish did not differ in mean levels (Devereux Early Childhood Initiative, 2001). The present project represents the first external study to our knowledge to examine the utility of the Spanish DECA.

THE PRESENT STUDY

The goal of this study was to examine internal consistency reliability and parent–teacher agreement on the DECA (LeBuffe & Naglieri, 1999). Consistent with calls by scholars to examine phenomena within specific local communities and minority populations (Garcia-Coll & Magnuson, 2000; McLoyd, 1998; Phinney & Landin, 1998), the present study explored the use of both the English and the Spanish versions of the DECA within one large, urban, predominantly Latino and African American sample of children living in poverty in Miami, Florida—an at-risk population that stands to benefit greatly from social-emotional interventions in early childhood. This work emerges from the larger Miami School Readiness Project (Winsler et al., 2008) a large-scale, county-wide, community–university collaborative, program evaluation and assessment/intervention project designed to improve the quality of early childhood programs in the community. Miami is one of the several communities that selected the DECA as their social-emotional and behavioral school readiness assessment tool. Both ensuring the use of reliable instruments and understanding disagreements between parents and teachers on adult reports of children’s social

skills are critical for effective program evaluation and intervention efforts as well as for accurate and helpful individual child referral decisions. Much of the prior research discussed previously has focused on parent–teacher agreement on mental health problems and among older, monolingual, and often clinical samples. In the current study, we focused on the congruence between linguistically and ethnically diverse parents and teachers in a large ($n = 7,756$) community-based sample of low-income children attending either child care in the community with the assistance of child care subsidies or Title I pre-kindergarten programs in the public schools. Also, whereas prior research has typically examined informant ratings at only one point in time, the present investigation adds to the literature by exploring agreement over time at the beginning and end of the 4-year-old preschool year. To that end, the following research questions were addressed:

1. What is the internal consistency reliability of the English and Spanish versions of the parent and teacher DECA within a relatively high-risk sample of ethnically and linguistically diverse urban children living in poverty?
2. To what extent do parents and teachers agree on the DECA within this population, both at the beginning and at the end of the academic year?
3. To what extent does parent–teacher agreement on the DECA within this population vary as a function of language of the form (English, Spanish), child ethnicity, age, gender, or child cognitive/linguistic competence?

METHOD

Participants

The sample for this study consisted of the child care teachers and parents of 3- and 4-year-old children ($n = 7,756$) attending center-based child care facilities while receiving child care subsidies for low-income families. This overall sample size reflected the total number of children for whom a DECA was completed by any informant at any time (the sample sizes for the various analyses that follow vary depending on the time point and informant[s] included). The sample of children reflected the ethnic diversity of the county in general (57% Latino/Hispanic, 38% African American/Caribbean islander, 5% White/other) and was 49% female. The children were all 3 or 4 years of age at the beginning of the school year; the mean age was 49 months ($SD = 6.9$ months). The mean education level for the parents of children in this sample was 11 years (i.e., less than high school completion). Of a subsample ($n = 3,779$) for which this kind of information was available, only 8%

of the children lived with two currently married parents, 61% of the parents reported being a single parent, and 31% of the parents reported being divorced or separated. Mean family size was 3.35 family members.

These data represent a center-based, child care subsidy-receiving subsample from the larger Miami School Readiness Project, a large-scale university-community collaborative and applied research, program enhancement, intervention, and program evaluation initiative in Miami, Florida (Winsler et al., 2008). The sample here included functionally the entire (consenting) county population of low-income children whose families received child care subsidies to attend non-Head Start community-based child care centers of their choice or who attended Title I public school pre-kindergarten programs. Although center quality in this community varies considerably, with many very fine facilities included, as is true throughout the United States (National Institute of Child Health and Human Development Early Child Care Research Network, 2000), the average quality of the centers is likely mediocre in this community, as indicated by overall Early Childhood Rating Scale-Revised (Harms, Clifford, & Cryer, 1998) scores (for a small, nonrandom, but likely representative sample of 312 classrooms of the participating centers here that was collected for other purposes) averaging 4.88 on a scale of 1 to 7 (scores of 3-5 on this measure indicate average/mediocre quality). Because of the nature of the community-based project, ethnic and other demographic information about teachers was unfortunately not available. However, given the ethnic composition of the area, strong support for Spanish use in the community in general, and the teacher preferences for which language version of the DECA they completed (see below), it is clear that at least half of the teachers were Spanish-speaking Latinas.

All told, 1,454 different teachers were involved in the context of 847 centers/schools. Many teachers had only one participating child in their classroom (25%), and many centers had only one participating child (17%); furthermore, a majority of teachers (60.4%) had four or fewer participating children in their classroom. Analytic procedures such as hierarchical linear modeling that control for the nesting of children in classrooms and/or centers were deemed unnecessary in this study, because (a) in most cases, teachers only completed the DECA on a small number of (subsidy-receiving) children in their classrooms; (b) the very nature of the investigation (teacher-parent agreement) was to examine differences between teacher reports on children (in the context of teachers having multiple children as reference points in the classroom) and parent reports (for which only their own children are present) that are perhaps due to such nesting by design; and (c) we wanted to compare our results to prior reports of agreement that did not involve nested analyses.

Assessments

The DECA (LeBuffe & Naglieri, 1999) is divided into four subscales: Initiative, Self-Control, Attachment, and Behavioral Concerns. The first three scales can be collapsed into a Total Protective Factors score, with larger scores indicating better social-emotional protective factors. The Behavioral Concerns scale is scored such that larger numbers indicate more behavior problems. The DECA has 37 items with responses ranging from 0 (*never*) to 4 (*very frequently*). Identical forms are completed by both parents and teachers. The same standardization table is used for the calculation of *Z* scores, *T* scores, and national percentiles for children of all ages (2–5 years) and genders; however, there are separate standardization tables for parents and teachers. The DECA was standardized on a sample of children ($N=2,000$) representing the U.S. population on demographic characteristics (LeBuffe & Naglieri, 1999). The internal consistencies reported in the DECA technical manual were all greater than .7, and many were greater than .9, indicating high internal consistency. Original correlations between parent and teacher scores were as follows: Initiative ($r = .34$), Self-Control ($r = .23$), Total Protective Factors ($r = .29$), all $ps < .05$; Attachment ($r = .19$), Behavioral Concerns ($r = .23$), nonsignificant (LeBuffe & Naglieri, 1999).

Parents and teachers were asked to complete the DECA (in their choice of English or Spanish) at the beginning of the academic year (September), and parents and teachers of the 4-year-old children (but not the 3-year-olds) completed it again at the end of the school year (May). One survey form went home with the children from the center, and parents were asked to complete it within 2 weeks and return it to the center. The parent or guardian who filled out the DECA questionnaire self-reported his or her relationship to the child on the form. During the September assessment period, 73% of the forms were filled out by the child's mother, 6% by the child's father, and 1% by both parents. Another 18% simply wrote "parent," so it is not known which parent completed the form, and the remaining 2% were filled out by "other relative." The DECA provides separately normed scores for teachers and parents; however, because our goal was to examine teacher–parent agreement in its purest form on the same identically worded items, and because it would be more difficult to interpret the meaning of mean differences across raters using adjusted, within-rater standardized scores, we chose to use raw scores for the analyses. To examine the magnitude and direction of mean differences by rater, we computed mean difference scores between informants (the teacher score minus the parent score). Thus, negative scores indicate that parents scored children higher than did teachers on that dimension, whereas positive scores mean that teachers scored children higher than did parents on that dimension. Scores at or near zero indicate that parents and teachers rated

children similarly on that dimension. Finally, for some analyses in which magnitude (and not direction) of disagreement was of interest, the absolute value of the difference score was used.

The children were also assessed at the beginning (September) and end (May) of the school year using the Learning Accomplishment Profile–Diagnostic (LAP-D; Nehring, Nehring, Bruni, & Randolph, 1992) as part of the larger community project. The LAP-D (and DECA) was chosen because it was available in English and Spanish, it fit in well with the state’s performance standards (Florida Partnership for School Readiness, 2003), and it had good psychometric properties. The LAP-D is a standardized developmental and curriculum-based instrument that is divided into four domains, with each domain subdivided into two subdomains: cognitive (matching and counting), language (comprehension and naming), fine motor (writing and manipulation), and gross motor (body and object movement). The gross motor scale was not included here. The LAP-D was standardized using a sample of preschoolers ($N = 792$) selected to represent the 1990 U.S. Census. Internal consistency for the LAP-D during standardization was confirmed for each subscale, with alphas ranging from .76 to .92. Internal consistency reliabilities for the LAP-D within the Miami sample ranged from .93 to .95 (Winsler et al., 2008). LAP-D assessments were conducted individually by trained bilingual assessors in a separate room of the child’s school. The assessors had master’s degrees in social work, education, psychology, or a related field. Standardized national percentile scores were used. The assessment was given in English or Spanish based on whichever language the child’s teacher and the assessor believed was the child’s strongest language.

RESULTS

Table 1 contains the means and standard deviations for the parent and teacher raw scores at Time 1 and the interscale correlations on DECA scores for parents and teachers for Time 1. Similar means and interscale correlations were run for Time 2 but are not reported here because they were so similar to those at Time 1. As might be expected, the scales belonging to the Total Protective Factors scale were moderately correlated with one another and negatively correlated with Behavioral Concerns. Correlations within the Total Protective Factors scales were similar for both parents and teachers. However, it is evident from Table 1 that the negative associations between the Total Protective Factors and Behavioral Concerns scales were stronger for teachers than for parents, and this was confirmed by Fisher’s test for independent correlations ($Z = -16.55, p < .05$).

TABLE 1
Means, Standard Deviations, and Interscale Correlations for the Devereux Early
Childhood Assessment Scale for Teachers and Parents at Time 1

<i>Variable</i>	<i>Initiative</i>	<i>Self-Control</i>	<i>Attachment</i>	<i>Total Protective Factors</i>	<i>Behavioral Concerns</i>
Initiative	—	.61	.70	.91	-.14
Self-Control	.53	—	.58	.83	-.36
Attachment	.72	.61	—	.86	-.15
Total Protective Factors	.90	.80	.88	—	-.24
Behavioral Concerns	-.33	-.61	-.35	-.49	—
Teacher					
<i>M</i>	26.98	20.85	22.99	70.47	10.39
<i>SD</i>	7.56	5.42	4.74	15.53	5.89
Parent					
<i>M</i>	30.90	21.14	25.95	77.93	11.88
<i>SD</i>	6.63	4.90	4.31	13.81	5.48
Possible range	0-44	0-32	0-32	0-108	0-40
Disagreement (Teacher Minus Parent Scores)					
<i>M</i>	-3.91 ^a	-0.28 ^a	-2.96 ^a	-7.15 ^a	-1.48 ^a
<i>SD</i>	8.79	6.21	5.73	17.66	6.93

Note. Correlations above the diagonal are from parent forms, and those below the diagonal are from teacher forms. All correlations were significant at the $p < .01$ level.

^aSignificant difference between teacher and parent scores at $p < .01$.

Internal Consistency Reliability

The first research question concerned the internal consistency reliability of the DECA within this low-income, ethnically diverse sample. Cronbach's alphas were computed for the five DECA scales (Initiative, Attachment, Self-Control, Total Protective Factors, and Behavioral Concerns) for both teacher reports and parent reports, in English and Spanish, and these are displayed in Table 2. All alphas were greater than .70 and thus were acceptable; and many were greater than .90, indicating very high internal consistency reliability. Attachment and Behavioral Concerns were the two scales with the lowest (but still acceptable) internal consistency reliability. Generally speaking, teacher-reported scales had higher reliability (by 5 to 10 points for the scales) than parent-reported scales. There were no differences in reliability between the English and Spanish forms. The alpha values reported in the DECA manual for the standardization sample were all very similar to the ones found in this study. Thus, the present investigation showed that the DECA has strong internal consistency reliability in both English and Spanish within a low-income, diverse sample of children. Unless

TABLE 2
Cronbach's Alphas for DECA Scales for Parents and Teachers at Time 1 by
Language of the Form and by Child Ethnicity

Variable	Informant	DECA Scale				
		Initiative	Self-Control	Attachment	Total Protective Factors	Behavioral Concerns
Overall	Parent (<i>n</i> = 1,893)	.85	.83	.77	.92	.72
	Teacher (<i>n</i> = 2,287)	.90	.90	.82	.94	.81
English	Parent (<i>n</i> = 1,231)	.85	.85	.78	.92	.72
	Teacher (<i>n</i> = 1,203)	.90	.90	.83	.94	.81
Spanish	Parent (<i>n</i> = 662)	.85	.79	.75	.91	.72
	Teacher (<i>n</i> = 645)	.91	.89	.82	.94	.80
Latino children	Parent (<i>n</i> = 1,050)	.85	.82	.77	.91	.71
	Teacher (<i>n</i> = 1,246)	.90	.90	.81	.94	.80
African American children	Parent (<i>n</i> = 777)	.85	.85	.77	.93	.72
	Teacher (<i>n</i> = 961)	.90	.90	.84	.94	.81

Note. DECA = Devereux Early Childhood Assessment.

otherwise stated, analyses that follow were conducted without regard to the language of the DECA form.

The aforementioned analyses examined internal consistency for the entire sample of children. Also of importance, however, was whether the reliability of the DECA is the same for African American and Latino children compared to that reported in the standardization table. We thus selected just those groups of children and reran the analyses to see if there were any differences in reliability as a function of child ethnicity. These alphas by child ethnicity are displayed in Table 2. There were no differences in the reliability of the DECA forms by child ethnicity. The values for African American or Latino children were typically within two hundredths of those for the overall group and quite similar to those reported in the DECA manual, indicating that the DECA has strong internal consistency reliability for ethnically and linguistically diverse children.

Parent–Teacher Agreement

The second research question asked to what extent parents and teachers agree on the DECA. To examine parent–teacher congruence in this population, we conducted two different types of analyses: (a) correlational analyses to examine agreement across informants in terms of children’s relative rankings (what is typically done in agreement research) and (b) repeated measures analyses of variance (ANOVAs) examining level, or mean, differences in the raw scores. Differences in raw scores illustrate the overall amount of disagreement between the raters and show the directional pattern of differences across informants (i.e., which adult rates children higher on which scales).

Agreement in terms of relative ranking. Pearson correlations were computed between parent-reported scores and teacher-reported scores at both the beginning and end of the school year (see Table 3). Parent–teacher agreement in this group was fairly similar for all scales, with all correlations ranging from .18 to .30. The highest correlations were found for Self-Control and Behavioral Concerns, and the lowest correlations were found for Attachment. Correlations were all statistically significantly different from zero, and there was very little change in the associations between Time 1 and Time 2. For example, on the Initiative scale, the correlation between parent and teacher scores was .24 at both Time 1 and Time 2. Only the Behavioral Concerns scale included a change of more than .01 in the correlation over time (Time 1, $r = .28$; Time 2, $r = .31$), and even that difference was very small. Fisher’s Z tests for significant differences were conducted

TABLE 3
Correlations Between Parent and Teacher Scores on the DECA Scales at T1 and T2

DECA Scale	Overall Group T1 Only ^a ($n = 5,745$)	4-Year-Olds Only		3-Year-Olds Only T1 ($n = 2,631$)
		T1 ($n = 3,111$)	T2 ($n = 2,553$)	
Initiative	.24*	.24*	.24*	.23*
Self-Control	.28*	.28*	.26*	.27*
Attachment	.20*	.19*	.18*	.21*
Total Protective Factors	.27*	.27*	.25*	.27*
Behavioral Concerns	.26*	.28*	.30*	.23*

Note. DECA = Devereux Early Childhood Assessment; T1 = Time 1; T2 = Time 2.

^aThree-year-old children were only assessed at T1, so for the overall group and for the 3-year-olds only group, only T1 correlations are given.

* $p < .01$.

for each scale and revealed that none of the differences across time were significant, indicating that there was no significant change in parent–teacher agreement over the course of the school year.

Because 3-year-old children were only assessed at Time 1, we felt it important to report the correlations at Time 1 separately for the 3- and 4-year-olds, so the Time 1 and Time 2 correlations just involving the 4-year-olds can be compared directly. This also allowed us to examine whether agreement between parents and teachers differed for 3- and 4-year-olds, which is a reasonable possibility given that social and behavioral developmental expectations change rapidly in the preschool years. As is clear in Table 3, cross-informant agreement for the younger and older children at Time 1 was practically identical.

Directional disagreement. Means and standard deviations for directional difference scores (teacher minus parent) are listed at the bottom of Table 1. A repeated-measures ANOVA was conducted with informant (teacher, parent) as the within-subjects factor to test whether the differences between teacher and parent scores were significantly different for the DECA scales. The results indicated that there were significant differences between raters on all four scales: Initiative, $F(1, 5744) = 1,138.41$; Self-Control, $F(1, 5744) = 11.90$; Attachment, $F(1, 5744) = 1,533.06$; Behavioral Concerns: $F(1, 5744) = 26,404$ (all $ps < .01$). For all scales, parents scored children higher on average than did teachers. Parents reported children as having stronger social-emotional protective factors but also as demonstrating worse behavior problems than did teachers.

Correlates of Disagreement

Child gender and ethnicity. A multivariate ANOVA was conducted using child gender and ethnicity (White/Caucasian, $n = 262$; African American, $n = 2,153$; and Latino, $n = 3,226$) as independent variables and the absolute value disagreement scores on the four DECA scales as dependent variables. There was no multivariate effect of gender, Wilks's $\Lambda = .999$, $F(4, 5632) = 0.89$, $p = .47$; but the multivariate effect of ethnicity was significant, Wilks's $\Lambda = .996$, $F(8, 5632) = 2.70$, $p < .01$. Follow-up univariate tests revealed that the agreement differences related to ethnicity were significant only for the Self-Control scale, $F(2, 5641) = 3.16$, $p < .05$. Post hoc Tukey honestly significant difference contrasts revealed that overall disagreement between parents and teachers on the Self-Control scale of the DECA was slightly higher for parents and teachers of African American children (disagreement = 5.05) than for parents and teachers of Hispanic/Latino children (disagreement = 4.78, Cohen's $d = .07$); however, the effect size

was very small. The multivariate interaction between gender and ethnicity was not significant, $F(2, 5641) = 0.32, p = .96$.

Age. ANOVAs were conducted to examine differences in disagreement scores for parents and teachers of younger (3-year-old, $n = 2,534$) and older (4-year-old, $n = 3,111$) preschoolers. Age group at first assessment (3 or 4 years) was entered as the independent variable and disagreement between parent and teacher scores on the four DECA scales was entered as the dependent variable. Differences in disagreement between parents and teachers were significant for the two age groups on only the Initiative scale of the DECA. Disagreement on child initiative between parents and teachers was slightly greater for 3-year-olds (disagreement = 7.7) than for 4-year-olds (disagreement = 7.3, $d = .07$), $F(1, 5744) = 6.23, p < .05$, also a small effect.

Language of the form. Children were divided into three groups based on what language their parent and teacher used to complete the DECA. The children were first grouped based on whether the parent and teacher shared a language on the DECA (i.e., both used the Spanish form or both used the English form) or whether the informants used two different languages (i.e., one informant used English and the other Spanish). Then the shared language group was split on the basis of which language was shared across the two informants (English or Spanish). This yielded three groups: child's parent and teacher did not share a language on the DECA ($n = 966$), child's parent and teacher shared English ($n = 2,439$), and child's parent and teacher shared Spanish ($n = 1,194$). Table 4 contains the mean disagreement scores for each of the different language groups. Also included in the last column of the table are parent-teacher agreement correlations done separately for each of the groups. All correlations between parent and teacher scores were significant and moderate and ranged between .15 and .29. The unshared language group showed the lowest correlations for all DECA scales, whereas the shared language groups had very similar correlations for the Self-Control (.28 and .29) and Attachment (both .22) scales. For Behavioral Concerns and Initiative, the both-English group had slightly higher correlations than the both-Spanish group. Fisher's Z tests indicated that the correlations for the both-English and unshared language groups were significantly different for all four scales. The correlations for the both-Spanish and unshared language groups were significantly different for just Self-Control and Attachment. Both-English and both-Spanish correlations were significantly different for just the Initiative and Behavioral Concerns scales.

The effect of language group membership on mean levels of disagreement was significant for all three DECA protective factor scales: Initiative,

TABLE 4
 General Disagreement Between Parents and Teachers as a Function of the Language
 of the Form Used

<i>DECA Scale</i>	<i>Language Group</i>	<i>General Disagreement</i>	<i>Agreement (Parent-Teacher Correlation)^a</i>
Initiative	Both Spanish	7.9 ^b	.21
	Both English	7.3 ^c	.27
	Unshared language	7.9 ^b	.18
Self-Control	Both Spanish	4.5 ^c	.28
	Both English	5.1 ^b	.29
	Unshared language	5.1 ^b	.22
Attachment	Both Spanish	4.7 ^c	.22
	Both English	5.1 ^b	.22
	Unshared language	5.4 ^b	.15
Behavioral Concerns	Both Spanish	5.4	.24
	Both English	5.5	.28
	Unshared language	5.7	.22

Note. DECA = Devereux Early Childhood Assessment.

^aAll correlations were significant at $p < .01$.

^{b,c}Groups with different superscripts were significantly different from one another at $p < .05$.

$F(2, 4596) = 6.21, p < .01$; Self-Control, $F(2, 4596) = 8.5, p < .01$; and Attachment, $F(2, 4596) = 6.6, p < .01$; however, it was not significant for the Behavioral Concerns scale. Post hoc Tukey honestly significant difference contrasts revealed that for the Initiative scale, parents and teachers in the both-English group showed slightly lower disagreement than parents in the both-Spanish group and unshared language group. For the Self-Control and Attachment scales, post hoc contrasts revealed that parents and teachers in the both-Spanish group showed significantly lower disagreement than parents and teachers in the both-English group and unshared language group. Generally speaking, the unshared language group showed the most disagreement.

Child cognitive/linguistic competence. To illustrate relations between disagreement between parents and teachers on the DECA and child preacademic competence, we used correlations and regression analyses. First, Pearson correlations were computed between the child's overall LAP-D score (cognitive, language, and fine motor scales combined) and the disagreement scores. In this case, we found it informative to examine both the absolute value version of the disagreement score (indicating the amount

of disagreement in general, forgetting about direction) and the directional disagreement score—thus, both are reported in Table 5. In terms of general (absolute value) disagreement, Table 5 shows that Initiative, Attachment, and Total Protective Factors were significantly negatively associated with children's overall LAP-D scores ($p < .01$). Thus, children who were higher functioning in terms of cognitive, language, and motor skills had parents and teachers who disagreed less (agreed more) about their social-emotional skills (at least attachment and initiative) compared to lower functioning children.

Correlations between the directional disagreement scores and the LAP-D are interesting because they inform about the pattern of parent and teacher ratings depending on child competence. These associations were all modest (ranging from $-.18$ to $.20$) but were significantly different from zero ($p < .01$). Recall that positive directional disagreement scores meant that teachers rated children higher than did parents. So, for example, the positive correlation between the Total Protective Factors directional disagreement score and child LAP-D competence ($r = .16$) indicated that children who were more academically prepared were more likely to have their teachers rate their social-emotional competence higher than parents. The negative correlation between Behavioral Concerns directional disagreement and LAP-D competence ($r = -.18$) indicated that children who were more academically competent were likely to have their parents (rather than their teachers) rate them as having more behavior problems.

Second, regression analyses predicting child competence on the basis of parent-teacher directional disagreement were conducted to help clarify

TABLE 5
Correlations Between LAP-D Overall Scores and Mean Differences Between
Parent and Teacher Scores

<i>DECA Scale</i>	<i>Correlation With LAP-D Scores</i>	
	<i>Directional Disagreement (Raw Mean Differences)</i>	<i>General Disagreement (Absolute Value Differences)</i>
Initiative	.20*	-.19*
Attachment	.07*	-.10*
Self-Control	.10*	-.04
Total Protective Factors	.16*	-.15*
Behavioral Concerns	-.18*	.02

Note. LAP-D = Learning Accomplishment Profile-Diagnostic; DECA = Devereux Early Childhood Assessment.

* $p < .01$.

these patterns. This was done for the Total Protective Factors scale and for the Behavioral Concerns scale. For the Total Protective Factors scale, directional disagreement between parent and teacher scores explained a small but significant amount (2%) of the variance in the children's overall LAP-D scores, $F(1,1958) = 48.36$, $p < .001$, $t = 6.95$, $p < .001$, $B = .20$. Children whose parents and teachers agreed the most on the Total Protective Factors scale (i.e., disagreed the least and gave the child the same score) tended to have average LAP-D scores. However, when parents reported much higher scores than teachers on the child's social-emotional competence (as indicated by negative numbers), children tended to have lower than average competence scores; and when teachers reported much higher DECA scores than parents (as indicated by positive directional disagreement numbers), the children tended to have higher than average LAP-D scores. This was a small effect but an important one, indicating that the pattern of parent-teacher agreement on child social skills was related to child functioning in interesting ways. Disagreement between informants was low for average children and higher for children who were more extreme in their academic functioning. For lower-functioning children, social-emotional competence was seen to be higher by parents than teachers, and for higher-functioning children the reverse was true, with teachers (rather than parents) seeing the children as having stronger social skills.

For Behavioral Concerns, differences between parent and teacher scores explained 3% of the variance in the children's LAP-D scores, $F(1, 1958) = 62.43$, $p < .001$, $t = -7.90$, $p < .001$, $B = -.67$. This was another small but important effect. Children with less competence (as measured by lower scores on the LAP-D) tended to have their parents (rather than their teachers) rate them as having more behavioral concerns, and children with higher scores on the LAP-D tended to show greater behavior concerns in the classroom than at home. Again, as with agreement on Total Protective Factors, good parent-teacher agreement on behavior problems was more likely for an average-functioning child.

Finally, simple bivariate correlations were conducted between each informant's ratings on Total Protective Factors and overall LAP-D score, and between Behavioral Concerns and overall LAP-D score. For both parent and teacher scores, the Total Protective Factors score was positively related to overall LAP-D performance (parents: Total Protective Factors with LAP-D, $r = .12$; teachers: $r = .29$). Behavioral concerns were negatively related to overall LAP-D scores (parents: Behavioral Concerns with LAP-D, $r = -.15$; teachers: $r = -.35$). In each case, teacher DECA scores were more highly correlated with overall child cognitive competence than were parent DECA scores (all Fisher's Z 's; $p < .05$).

DISCUSSION

The goals of this study were threefold: (a) to examine the internal consistency reliability of the English and Spanish versions of the parent- and teacher-report DECA within a sample of ethnically and linguistically diverse urban children living in poverty; (b) to determine the extent to which parents and teachers agree on the DECA both at the beginning and at the end of the academic year; and (c) to determine how much parent-teacher agreement varies as a function of language of the form, child ethnicity, age, gender, and child competence. Much of the prior research discussed previously has focused on informant agreement on behavior and mental health problems in older, monolingual, and often clinical samples. Also, whereas prior research has typically examined informant ratings at only one point in time, the present investigation adds to the literature by exploring agreement over time at the beginning and end of the 4-year-old preschool year. Because little reliability or validity data are available regarding the Spanish form of the DECA, and because virtually no reliability data are available regarding the use of the DECA within low-income, ethnically diverse samples of children, answers to these questions make a significant contribution to current research and practice.

Regarding the first research question, internal consistency reliability measures indicated that the DECA is a methodologically sound instrument in terms of internal consistency for examining social-emotional protective factors and behavioral concerns in preschool children from low-income and ethnically diverse (Latino and African American) backgrounds. The internal consistency in this sample of children was very similar to that reported in the original standardization sample for the DECA. Social-emotional development is central to children's early academic and social success (Coolahan et al., 2000; Denham, 2006; Raver, 2002), and social-emotional competence and social skills are important for children living in impoverished environments (Brooks-Gunn et al., 1999; Magnuson & Waldfogel, 2005; McLoyd, 1998). Because internal consistency reliability values of the DECA within the current sample, a population that may especially benefit from social-emotional interventions in early childhood because of poverty, were similar to those reported within a nationally normed sample, the DECA may be able to fulfill the need for effective tools for assessing children's social-emotional skills and protective factors during the preschool period, particularly for preschool children living in impoverished environments.

There were no differences in internal consistency reliability between the Spanish and English versions of the DECA. Parents and teachers are excellent consultants for obtaining information regarding children's behavior

and abilities (Bagnato & Neisworth, 1991), and according to this study, the language in which they completed the form does not influence the reliability of the instrument. This study is the first to provide internal consistency reliability data for the Spanish form of the DECA. Furthermore, this study is the first to evidence the internal consistency reliability of the Spanish form of the DECA within an ethnically diverse, low-income sample of preschoolers. Thus, these findings add to previous research validating the use of the DECA as a social-emotional assessment tool (LeBuffe & Naglieri, 1999).

This study also shows similar parent–teacher agreement to that found by the developers. As the participants in this study were a very different, larger, and more diverse group, this shows that the DECA is a potentially effective assessment tool for use with both teachers and parents across a wide range of socioeconomic, ethnic, and language backgrounds. The agreement between parents and teachers in this study was also similar to that found in prior research in other domains (Achenbach et al., 1987). It is important to examine instruments such as the DECA in at-risk populations like the one in this study and to confirm that they remain reliable with both parent and teacher reports.

This study did not find major differences in parent–teacher agreement related to the age of the child, the language of the form used, child ethnicity, or child gender. There were, however, differences related to shared or unshared language of the form. For example, this study shows that if parents and teachers do not chose to use the same language for completing the survey, they will disagree more about their child’s functioning than if they share the language (English or Spanish) of the form. This is important, as it suggests that perhaps efforts should be made, if possible and appropriate, with truly bilingual participants who do not have a language preference/dominance to have both informants complete the assessment instrument in the same language. In communities like Miami, where large bilingual populations speak English and Spanish regularly, matching the language of the forms completed by parents and teachers may be possible, but this is unlikely in other communities. Fortunately, agreement across informants who completed the DECA in different languages was not reduced much, so comparisons across informants using different versions of the form appear to still be valid. There were small differences between the groups that shared either Spanish or English on the Behavioral Concerns and Initiative scales of the DECA. For both these scales, the parents and teachers who both used the English form had higher agreement in terms of relative ranking. These latter effect sizes were very small, and although they were statistically significant for the large sample here, they are likely not practically significant.

There is very little research relating informant congruence with child functioning, and what does exist has examined parents and teachers of children with developmental disabilities (Hundert et al., 1997). These researchers divided their participants into three groups based on their diagnosis (severe developmental disabilities, mild/moderate developmental disabilities, and no diagnosis) and found that mean differences between parent and teacher scores were related to diagnosis, with the differences being significant only for children with severe developmental disabilities (i.e., teachers tended to score these children higher). It is interesting that our analyses reveal that the direction of informant agreement (whether parent scores were higher than teacher scores or vice versa) was related to children's general competence as measured by a developmental assessment. Children who were less competent in cognitive, language, and motor skills had higher parent ratings compared to teacher ratings on the DECA assessment, whereas children who were more competent had lower parent ratings compared to teacher ratings. Children with average scores in general academic competence were more likely to be rated by both informants at the same numerical level on social-emotional strengths. Disagreements between parents and teachers appeared more often when children were either very high functioning or very low functioning academically. The finding that teachers and parents had higher disagreement when children were either high or low functioning indicates that teachers and parents rate high- and low-functioning children differently than they rate average-functioning children. There are several possibilities for why this is happening: (a) The behavior of high- and low-functioning children may differ depending on the environment more than that of average-functioning children, (b) informants may have a harder time evaluating the social-emotional and behavioral functioning of children who are higher or lower functioning, or (c) informants may be defensive or protective of children who they perceive as being especially bright or as being slow learners compared to other children. This type of protective or defensive behavior by parents and teachers may carry over into home and school environments where high- and low-performing children are treated differently. It will be important for future research to see if the same pattern is true for other instruments that assess social-emotional skills, for assessments of other domains altogether, and with different populations and ages of children.

It is interesting to note that in this sample, parents rated their children systematically higher on both the positive (Total Protective Factors) and the negative (Behavioral Concerns) dimensions. Perhaps teachers are more likely to use the lower half of the choices in rating scales than are parents. As can be seen in Table 1, teachers had larger standard deviations than parents, indicating that there was more variance in teacher scores than in parent

scores, so teachers used a larger range of scores than parents. This is an area in which additional research is clearly needed.

There are a number of limitations of the present study because of the nature of the overall larger community project. The fact that this study was conducted in only one community may be seen as a limitation in terms of generalizability; however, it is also a strength given that the particular population examined here, namely linguistically diverse, low-income, Latino and African American children, is a group much in need of study for verifying the utility of the DECA in more diverse populations. Similarly, examining the use of the DECA within a local, large-scale, community-based quality initiative sacrificed experimental control but gained high external or ecological validity by examining the reliability of the DECA in real-world community agencies for large-scale assessment, evaluation, intervention, and policy purposes (rather than simply in the research laboratory). Another clear limitation is that very limited demographic information was available about the teachers and families who participated in the study. Thus, we were not able to examine potentially important variables such as teacher ethnicity, the language environment of the home or school, parent and teacher education, or the English proficiency of the informants. Thus, it is not known whether the differences observed here were in fact due to the language of the DECA form or to other unmeasured cultural or language differences between parent and teacher participants. Another limitation is that our analyses did not account for children being nested within classrooms/centers. Finally, we only examined internal consistency and parent-teacher agreement. To fully establish the utility of an assessment instrument in two languages among diverse populations, one must examine issues of validity, most notably factorial invariance across languages, informants, and populations. This should be the target of future research.

In conclusion, this study shows that the DECA appears to be a reliable and potentially useful instrument for examining social-emotional protective factors and behavioral concerns within a large sample of ethnically and linguistically diverse preschoolers living in an urban, impoverished environment. It is becoming clear that children's social-emotional and behavioral self-regulatory skills must be addressed if children are to thrive in school, and thus empirically validated assessment instruments within this domain are essential.

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