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Social Engagement and Adaptive Functioning During Early Childhood: Identifying and Distinguishing Among Subgroups Differing With Regard to Social Engagement

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This study tested the hypothesis that social engagement (SE) with peers is a fundamental aspect of social competence during early childhood. Relations between SE and a set of previously validated social competence indicators, as well as additional variables derived from observation and sociometric interviews were assessed using both variable-centered and person-centered approaches (N = 1453, 696 girls) in 4 samples (3 U.S.A., 1 Portuguese). Directly observed SE was positively associated with broad-band measures of socially competent behavior, peer acceptance, being a target of peers' attention, and also with broad-band personality dimensions. Using individual Q-items significantly associated with SE in 3 of our 4 samples, a hierarchical cluster analysis yielded a 5-cluster solution that grouped cases efficiently. Tests on relations between cluster membership and the set of social competence and other variables revealed significant main effects of cluster membership in the full sample and within each individual sample, separately. With the exception of tests for peer negative preference, children in the lowest SE cluster also had significantly lower overall social competence, personality functioning scores than did children in higher SE clusters.

Keywords: social engagement, social competence, peer relations, person-centered, social withdrawal

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Sociability and social engagement are fundamental attributes of human beings from birth forward and persons deficient with respect to social motivation or social engagement (SE) are thought to be at risk for a range of dysfunctional outcomes. Porges and associates (e.g., Porges, 2003; Porges & Furman, 2011) have described a neural "social engagement system" that is activated from early infancy and is believed to act, in part, to monitor the relative safety of immediate contexts. This system also coordinates activities with the social context, when conditions in that context signal that engagement would promote the child's well-being (Porges, 2003). A typical outcome associated with normal functioning of the SE system during the first years of life is the

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coconstruction of a secure base (i.e., attachment) relationship(s) with the primary caregiver(s) (Bowlby, 1982; Feldman, 2012; Waters & Sroufe, 1983).

As the child's capacities for adaptive functioning mature after infancy, other children (e.g., siblings, age-peers) become important elements in the child's social context that are evaluated by the SE system (e.g., Howes, 1980; Parten, 1932, 1933; Waters & Sroufe, 1983), and interactions with peers are recognized as critical elements of positive adaptation throughout childhood and adolescence (e.g., Coplan, Ooi, & Rose-Krasnor, 2014; Deutsch, Steinley, & Slutske, 2014; Powers, Bierman, & the Conduct Problems Prevention Research Group, 2013; Vaughn et al., 2009). Although "peer groups" often have been characterized as phenomena of later childhood and adolescence (e.g., Bukowski, Newcomb, & Hartup, 1996; Hartup, 1996), a large literature suggests that peer groups can form at any age level, even during infancy and toddlerhood, when children have opportunities to be in proximity with age-peers on a daily basis (e.g., Hawley & Little, 1999; Howes, Rubin, Ross, & French, 1988; Strayer & Trudel, 1984). Even in samples of very young children, peer groups are characterized by structural properties (e.g., affiliation, dominance, distinct subgroups) and processes (e.g., selection, influence, social preference) found in groups of school-age children and adolescents (Vaughn & Santos, 2009).

The present study was focused on SE, operationalized here as the rate of interaction bids initiated to peers, during early childhood (i.e., 3–6 years of age), because by this age period it is normative for children to be placed in group childcare outside the family in the United States and Portugal, where our samples were recruited (Federal Interagency Forum on Child & Family Statistics, 2014; Torres et al., 2015). Moreover, prior research suggests that SE is an indicator of peer social competence for preschool children in both U.S. and Portuguese samples (e.g., Santos, Monteiro, et al., 2015; Santos, Peceguina, Daniel, & Vaughn, 2013; Santos, Vaughn, Peceguina, & Daniel, 2014, Santos, Vaughn, Peceguina, Daniel, & Shin, 2014; Shin, Vaughn, Kim, et al., 2011; Vaughn et al., 2009).

Vaughn and associates have argued that SE provides important opportunities for practicing existing skills required to attain personal goals within a given social context, and for acquiring new skills relevant to that context (see also Buss et al., 2013), and that children with very low rates of peer engagement would lose opportunities to practice and learn socially skilled behaviors relevant to goal achievement within their current social context. Furthermore, low-engaged children would deprive peers of opportunities to learn about them (i.e., the less engaged child) and would be less likely to be perceived as desirable play partners. The preschool peer group is also the context in which deficits with respect to SE become apparent and implicative (e.g., Gazelle & Rubin, 2010; Rubin & Coplan, 2004; Rubin, Coplan, & Bowker, 2009). With time and subsequent, less than optimal, peer experiences, the social engagement deficits of early childhood may become diagnosed disorders (e.g., social anxiety disorder) during middle childhood and adolescence (e.g., Gazelle & Rubin, 2010).

Thus, our first goal was to observe preschool children's individual rates of social engagement with peers in their classrooms in order to characterize the range of differences among the children. A second goal was to examine the behavioral and personality correlates of observed social engagement to determine whether more highly engaged children were described by observers as more socially skilled and as preferred interaction and play partners by peers (i.e., more socially competent), using both molar (i.e., broad band) and molecular (i.e., item level) scores from our dataset. Answers to research questions subordinate to each of these goals would advance understandings of the role(s) peer interactions and relationships can play in the developmental construction of social competence and would also help determine the regions of relative "risk" to peer social competence associated with levels of social engagement.

To date, research on the implications of SE during early childhood has been concerned primarily with the least engaged cases, variously described as inhibited/fearful/withdrawn, socially avoidant, shy, anxiously solitary, unsociable, and socially reticent in this literature. As the research tradition surrounding the study of low-engaged children has matured (e.g., Rubin et al., 2009), considerable effort has been expended to determine whether discrete "types" of low-engaged children exist at different age periods and the degree to which these types may have distinct antecedents, outcomes, and developmental trajectories during childhood and adolescence (e.g., Coplan & Armer, 2007; Coplan et al., 2013; Harrist, Zaia, Bates, Dodge, & Pettit, 1997). This work has identified several categories of low-engaged children and has demonstrated links between psychosocial and psychobiological antecedent factors that distinguish these categories. One consistent finding from this research concerns differences in the impact of low engagement for girls versus boys. Although the relative frequency of socially withdrawn children is usually similar across the sexes, socially withdrawn boys seem to be more at risk for interpersonal difficulties both in concurrent and longitudinal studies, when compared with socially withdrawn girls (e.g., Coplan, Prakash, O'Niel, & Armer, 2004; Morison & Masten, 1991; Nelson et al., 2005).

As important as these insights into the antecedents and consequences of low engagement have been, the developmental psychopathology perspective adopted by many researchers studying social withdrawal tends to overlook the possibility that individual differences for SE reflect locations of individuals on a continuum and that benefits as well as costs might be distributed across the full range of this continuum. We assume that the SE continuum should be studied across its full range and that partitions of this continuous distribution should be based on empirical data reflecting behavioral and personality differences among children who occupy different positions on that continuum. Thus, data analyses must be both variable and person centered and interpretations of results will be inductive and descriptive as well as deductive and hypothetical.

Consequently, our study goals also include identification of subgroups of children with similar profiles of the measured behavioral and personality attributes associated with SE and to test whether these subgroups differ significantly in terms of their level of SE, as well as the level of other social competence indicators. In addition, we tested whether subgroup membership is related systematically to child sex, age, and because our data come from four distinct samples, sociocultural group. Finally, we planned to test whether the implications of low social engagement differed according to child sex, as has been reported in studies of social withdrawal (e.g., Rubin et al., 2009). Results of analyses testing these relations between SE and social competence may extend understandings of social withdrawal during early childhood.

Our data come from an ongoing cohort-longitudinal study of preschool children's attachment relationships, social integration, social competence, social networks, and friendships being conducted in two countries (i.e., United States, Portugal). Previous reports using this dataset have established the structure and stability of peer social competence (e.g., Santos, Vaughn, Peceguina, & Daniel, 2014; Santos, Vaughn, Peceguina, Daniel, & Shin, 2014; Vaughn et al., 2009); prospective relations between attachment quality and peer social competence (e.g., Szewczyk-Sokolowski, Bost, & Wainright, 2005; Veríssimo, Fernandes, Santos, Peceguina, Vaughn, & Bost, 2011); relations between affect expression and children's social adaptation as measured using observation, interview, and teachers' ratings (e.g., Shin, Vaughn, Akers, et al., 2011); and structural properties of multichild subgroups within preschool classrooms (e.g., Daniel, Santos, Peceguina, & Vaughn, 2013; Santos, Daniel, Fernandes, & Vaughn, 2015). Cross-national comparisons in these studies have generally found only minor differences between the Portuguese and U.S. samples, with one exception. Overall social competence scores for girls have tended to be lower than for boys in the Portuguese sample (Santos, Vaughn, Peceguina, & Daniel, 2014), whereas these scores tend to be lower for boys than for girls in the U.S. samples (Vaughn et al., 2009), even though the structure of Social Competence is invariant across the Portuguese and U.S. samples (Santos et al., 2013).

The present report uses the methods and measures of prior studies but we modified the measure of SE for this study. Vaughn et al. (2009) used rate data for initiating interactions that were affectively positive or neutral and visual attention received from peers as indicators for their Social Engagement/Social Motivation latent variable. Although visual attention received is an indicator of social centrality in the group and social competence more generally (e.g., Vaughn & Waters, 1981; Waters, Garber, Gornal, & Vaughn, 1983) and is significantly correlated with initiations received from peers, it does not reflect the child's interaction rate per se. The original indicator variable set also did not include initiation of affectively negative interactions, because initiating negatively toned interactions tends to be negatively associated with peer acceptance. For this report, we excluded the visual attention received variable and added the affectively negative initiated interaction score, so as to more comprehensively assess social interaction (i.e., engagement) rates. Our analyses also include new participants added to the samples over the most recent years of data collection.

Our primary study goals lead to several specific expectations about analytic results. First, we expected to find that our SE measure would be associated with the social competence composites for behavioral and personality profiles and peer acceptance described by Santos, Vaughn, Peceguina, and Daniel, 2014 and with visual attention received from peers. These analyses test the validity of our modified SE variable in relation to the definition of the Social Engagement/Social Motivation construct described by Vaughn et al. (2009). Finding positive associations would suggest that this new SE composite approximates Social Engagement/Social Motivation, as operationalized in the earlier studies. In addition, we expect to find that SE is positively correlated with Block and Block's (1980) Ego-undercontrol construct—a complex, stable personality attribute characterizing the pace at which behavior, thought, and affect are experienced and expressed, as well as the permeability of boundaries between distinct behaviors, thoughts, mental structures, and affects across the life span (reactivity)—and with Ego-resiliency, a second complex, stable personality trait describing the ease with which the individual's characteristic level of ego-control can be adjusted/attuned according to the dynamic constraints imposed by different social and physical contexts (regulation; Block & Block, 1980; Gjerde, Block, & Block, 1986). Sociometric scores for Social Preference, Social Impact (Peery, 1979), and Negative Preference (sociometric dislike scores) were also examined in relation to SE. Finally, we also expected to identify a substantial number of item-level correlates of social engagement among the Q-sort items used to derive profile scores for social competence.

Second, we expected that distinct subgroups of cases would be apparent in cluster analyses of children in the sample, when grouped using the Q-item correlates of SE and that these subgroups would differ in terms of their levels of SE (i.e., a person-centered approach). We expected to find that our social competence composite scores, as well as the score for visual regard received from peers, would distinguish the children in the lower SE subgroups from children in more highly engaged subgroups. We also anticipated that less engaged subgroups would be distinguished in terms their levels of Ego-control, Ego-resiliency, Social Preference, Social Impact, and negative peer preferences.

Method

Participants

The four samples included here overlap with the samples in the Vaughn et al. (2009) report referenced above, with new cases being added to two samples. Written consent of a parent or legal guardian was obtained for every participating child, with ≥80% participation in every classroom. In each sample, children were assessed using direct observations of initiated interactions and visual attention directed to peers, independent observations that were later summarized using Q-sort methods, and sociometric interviews. Because children were occasionally absent from class during the periods of data collection, some children in each sample have missing data for one or more of these assessments. For this study, we selected all children in each sample who had contributed data for the initiated interactions variable (i.e., all initiated interactions for a given child, N = 1,453, 696 girls). Demographic particulars are presented in Table 1. Children in the U.S. samples were between 36 and 59 months of age at the start of each academic year (i.e., 3- and 4-year-olds). In the Portuguese sample, children remained in the preschool setting until they reached 6 years-of-age and in this sample, classrooms of 5-year-olds are also included here.

Sample 1 was recruited from Head Start programs in a southeastern state in the United States (N = 341 children, 162 girls). Over 95% of the sample was of African American ethnicity and all families met the income criteria for enrollment in Head Start. All of these children were included in the Vaughn et al. (2009) report. Sample 2 consists of 331 children (153 girls) from a community sample recruited from two cities in Alabama. One center was located in a large urban area and the others in a smaller city in the east central region of the state. Two centers were managed by a major university and were accredited by the National Association for the Education of Young Children (NAEYC); one was a not-

Table 1
Sample Demographic Characteristics

Sample	Head Start	Community	University	Portuguese
Years of data collection	1992–1995	1996–2000	2000–2005	2005–2010
Program type	Head Start	Mixed for and not-for-profit	University affiliated	Private preschool
No. centers	6	11	2	2
No. classrooms	30	29	25	14
Participation rate	>90%	>80%	>90%	>95%
Total girls	162	153	196	181
Total boys	179	178	234	157
Ethnic mix	>95% AA	30% AA 70% EA	32% AA 68% EA	European
SES mix	Low income	75% middle, 25% working class	Middle class	Middle class

Note. AA = African American; EA = European American; SES = socioeconomic status.

for-profit center serving low-income working families, and eight were for-profit centers serving primarily middle and working class families. All children from this sample contributed data to the Vaughn et al. (2009) report. Sample 3 consisted of 432 children (196 girls) recruited from two NAEYC accredited centers managed by a major southeastern university. Families served by these programs were predominantly middle class by the standards of their local communities and approximately 28% of these families were from ethnic minority backgrounds. Of the 432 children, 325 had contributed data for the Vaughn et al. (2009) study. Sample 4 consisted of 349 children (185 girls) recruited from two different centers serving middle-class families in the region near Lisbon, Portugal. Of these, 237 had contributed data to the Vaughn et al. (2009) study. All Portuguese children were of European ethnicity. Preschool classrooms in Portugal are usually formed when a child is 36+ months of age and the group remains together until the children move to primary school (after reaching 6 years of age). Although many children in this sample were assessed in consecutive years, our analyses include only one assessment period for each child. With respect to education levels and job titles, families served by these centers were middle class by Portuguese standards.

Measures

Most of the measures used in this study have been described in detail elsewhere (e.g., Santos et al., 2013; Shin, Vaughn, Kim, et al., 2011; Vaughn et al., 2009) and we provide abbreviated descriptions of these measures here.

Initiated interactions and visual attention. Teams of observers (usually two) collected interaction and visual attention data in each classroom. Using the class roster, an observer watched a given child for a 15-s interval and recorded identifiers for all persons with whom the target interacted. Codes for the initiator of the interaction episode were recorded. The variable of interest for this report is the total number of initiated interactions. All children present were watched for one 15-s interval before any child was watched twice. To adjust for absences during the observation period and for differences in the number of observational rounds across classrooms (range 100 to 228 rounds of observation across classrooms), total initiated interaction scores were converted to rates by dividing the total score by the number of observation rounds for which the target child was present in the classroom. These rates were standardized within classroom prior to further analysis and these were used as the indicator of social engagement. All 1,453 participants had some observation data for SE; however, 65 of these children had been present in the classroom for less than 50% of the total observation rounds completed in that particular classroom. We found a small, but significant, negative association between the number of absences from class and the rate score for SE. Vaughn et al. (2009) had excluded these cases from analyses of the structure of social competence and we also excluded them here, resulting in an effective sample of 1,388 children for subsequent analyses.

Observers were trained in the observation system before beginning classroom observations. Rater agreement was estimated as the alpha coefficient for individual rate scores across raters. Alpha coefficients for total initiated interactions were consistently above .70 in all classrooms. For 30 classrooms, raters conducted separate joint observations and kappa coefficients were calculated. These ranged from .78 to 1.00 (median = .87) across the several rater dyads. These data suggest that the overall rates of interaction for these children were reliably observed.

Interaction observers also collected the visual attention data. Observers interspersed rounds of interaction and visual attention observations (e.g., five interaction, five visual attention). An observer watched a given target child for a 6-s interval and recorded the identity codes for all peers receiving a unit of visual regard from the observation target (where a "unit" is a look or glance directed to a child and only a single unit was credited for a given "receiver" in any 6-s interval). All children present in the class were observed once before any child was observed twice and this constituted a "round" of observation. Observers collected approximately 200 observation rounds in each classroom (range = 139 to 225 observation rounds across classrooms). Total scores were the sum of visual regard units received by a child from all peers and these were adjusted for absences and differences in total rounds completed across classrooms by converting the totals to rate scores and standardizing these rate scores within each classroom. Alpha coefficients ranged from .53 to .90 (median = .85) across all classrooms. Kappa coefficients (based on joint observations in 30 classrooms) ranged from .74 to .91 across rater pairs with joint observation data (median = .81).

Q-sort data. Q-sort observers (different from the interaction/visual regard teams) worked in teams of two for each classroom, with each observer spending a minimum of 20 hr observing the

children in the classroom. They took notes on the behaviors and personality attributes of individual children over this period, taking care to observe each child on multiple days and across a variety of activity settings. In three samples (community, university managed, Portugal) each observer described the children with both the California Child Q set (CCQ; Block & Block, 1980) and Preschool Q set (PQ; W. Bronson's revision of a Q set described originally by Baumrind, 1967) item-sets after completing his or her observations, according to predetermined distributions of items to nine categories. In the Head Start sample, observers split the sorting task such that one observer described half the children with the CCQ and the other half using the PQ item-sets. The other observer described the first half of the class using the PQ and the other half using the CCQ. For all samples, if a child was absent for over half a given observer's observation hours, she or he did not provide a Q-sort description of that child. For this reason, 12 children in the present sample did not have complete CCQ-data and 11 children did not have complete PQ data for this study and could not be included in cluster analyses. However, their data are included in correlation analyses reported below. We also used the CCQ data to score two constructs (Ego-undercontrol, Ego-resiliency; Block & Block, 1980).

Prior to data collection, observers were trained in the meanings of the items and were instructed about items they were not likely to be able to observe (such items were to be placed in the center categories [4, 5, 6] of the Q-sort). Both Q-sets were sorted into rectangular distributions with equal numbers of items in each category (i.e., 9 piles of 11, with the odd item sorted into Pile 5 for the CCQ and 9 piles of 8 for the PQ). The CCQ descriptions were used to derive construct "scores" using the criteria published by Block and Block (1980). Thus, the Q-sort description for a child provided by an observer was correlated with the profile of a hypothetical child at the extremes for Ego-undercontrol, Ego-resilience, and Social Competence (from both the CCQ and PQ data) that had been generated by aggregating the descriptions provided by developmental scientists with expertise in children's social/personality development (Block & Block, 1980; Waters et al., 1983).

The correlation between a Q-sort for a given child and the "criterion" sort for the construct becomes her or his construct "score." This technique is commonly used to summarize Q-data and yields valid and reliable scores over a range of personality and behavior relevant constructs for children (e.g., Block, 1978/1961; Block & Block, 1980; Vaughn et al., 2009; Waters, Noyes, Vaughn, & Ricks, 1985). Following suggestions made by Waters et al. (1983) about influences of social desirability bias in Q-sort data, these scores were adjusted for observers' social desirability response sets by controlling for the effects social desirability (i.e., partial correlations) while calculating the correlations between individual children and the criterion sorts. These scores were standardized within classroom. The average of the CCQ and PQ criterion scores for social competence constitutes the Profiles of Behavior and Personality attributes used by Vaughn et al. (2009) as one "family" of social competence indicators. We also used the raw scores for all Q-sort items (172 items total from the CCQ and PQ) to determine the degree of cross-sample similarity in the patterns of associations between SE and the behavior/personality attributes represented by the Q-items. The average cross-rater agreement correlations were .59, .63, and .59 for CCQ Ego-resiliency, Ego-control, and Social Competence, respectively. Rater agreement was .62 for the PQ Social Competence score. This level of agreement was considered satisfactory because raters did not typically observe in a classroom at the same time and children were not necessarily seen with the same groups of peers by each observer due to classroom absences.

Peer acceptance. Positive and negative sociometric scores were derived from a nominations sociometric task (McCandless & Marshall, 1957) administered individually by a trained researcher. Children were presented with an array of photographs of their classmates and asked to identify a child they "especially liked." After making three such choices, the children were asked to identify a classmate they "did not especially like," making three negative choices. Positive and negative choice scores were derived on the basis of these interviews. Average values were calculated by dividing the total number of positive or negative choices received by the number of children making choices. These were then standardized within classrooms.

Peer acceptance was also scored from a paired-comparisons task. For this task, images for all pairs of children in the class were prepared, with each child's image appearing on the left- or right-hand side of the display an equal number of times. The order of presentation was such that no child was seen twice before all other children were seen once. Dyadic images were presented one at a time and the child was asked, "Which of these two children do you especially like?" (or "especially like to play with"). Because this task is relatively time consuming (i.e., children make $N \times (N - 1)/2$ choices, or 190 choices in a class with 20 children), the questions were changed occasionally within an interview to maintain the child's interest in the task. Positive acceptance scores were the total number of times a child was chosen by peers. These were averaged by dividing the total by the number of children making choices and then standardized within classroom.

Vaughn et al. (2009) used the positive nominations and total received score from the paired comparisons measure to represent their Peer Acceptance component of global social competence by averaging the standard scores for the two measures. We also retained the negative nominations score (standardized within classroom) as a possible correlate of SE. Two additional scores were derived from the nominations task (Social Preference, Social Impact) following the standard practice (Peery, 1979). Social Preference is defined as the difference between standardized "like" and "dislike" scores and Social Impact is defined the sum of these two scores.

Analysis Plan

Preliminary analyses described the psychometric parameters (i.e., mean, standard deviation, range) of the social engagement index and also examined the associations between SE scores and both sex and age level, to determine whether these variables needed to be included as grouping factors or covariates in subsequent analyses. We also calculated correlations between the social engagement variable and the variables used in studies of the structure of social competence (e.g., Vaughn et al., 2009) to verify that this modified variable has the same pattern of positive associations with other social competence indicators that had been observed with the original social engagement/social motivation composite.

Further analyses included tests on correlations between SE and the personality dimensions (e.g., Ego-undercontrol) and social outcome variables (e.g., Negative Preference, Social Impact). These were followed by analyses of the Q-sort item-correlates of overall social engagement. In these analyses, Q-items with a correlation more than or equal to $r = \pm.20$ were retained for each sample, to determine how many of these items were similarly associated with SE across samples. The subset of Q-items found to be significant in at least three of the four samples were then subjected to hierarchical cluster analysis and the distribution of cases to each cluster was compared across samples. We then tested relations between cluster membership and the set of correlates identified as significant in the variable-centered analyses, with cluster membership and sample as a grouping factors (and with sex and age as possible factors or covariates).

Results

Preliminary Analyses

The average rate of social engagement was .51 (SD = .22), meaning that the children initiated an interaction with a peer about once in every 30 s of observation. An analysis of variance (ANOVA) with sex and age level as grouping factors revealed significant effects for both sex, $F(1, 1382) = 8.5$, $p < .005$, and age level, $F(2, 1382) = 9.56$. $p < .001$. Girls tended to have lower rates of interaction than did boys and 4-year-olds has significantly higher rates of interaction than did either 3- or 5-year-olds. We also calculated these tests separately by sample because the oldest age level (5-year-olds) were only included in the Lisbon sample. We did not find significant sex differences for the U.S. samples and age level was significant in only one of the three U.S. samples; however, both age level and sex were significant in the Portuguese sample. Boys had higher rates of interaction than did girls (means .59 vs. .42 for boys and girls, respectively), $F(1, 328) = 26.99$, $p <$ .001, and 4-year-olds had higher rates of interaction than did either 3- or 5-year-olds. We included sex and age level as covariates in analyses contrasting the samples.

Table 2 presents correlations between the modified SE variable and the social competence composite scores for Peer Acceptance, Profiles of Behavior and Personality, and the visual attention received variable reported in previous studies. For reference, the correlations with the original Social Engagement/Social Motivation composite (Vaughn et al., 2009) are also presented in Table 2. Briefly, with two exceptions, the modified SE variable used here was positively and significantly (i.e., $p < .001$) associated with composite variables representing the Profiles of Behavior/Personality and Peer Acceptance measurement domains, as well as with the rate of receiving visual attention from peers that had been used in previous studies of social competence (e.g., Santos, Vaughn, Peceguina, & Daniel, 2014; Vaughn & Santos, 2009). This was true for the full sample and in the individual subsamples, except that for the university-affiliated and Head Start samples, the association between the modified SE variable and the Peer Acceptance composite did not reach the $p < .001$ level of significance. The patterns of association parallel those for the original Social Engagement/Social Motivation composite in Table 1, but are somewhat lower across the board for the new measure.

Primary Analyses

Variable-centered analyses. Table 2 also shows correlation analyses relating social engagement to the set of variables not included in previous studies of social competence structure for these samples. All of these are significant and range from small (e.g., negative nominations, $r = .06$, $p < .05$) to moderate (e.g., Ego-resiliency, $r = .31$, $p < .001$), in the full sample. Similar, but not identical, correlation patterns were observed for the community, Head Start, and Portuguese samples; however, a somewhat different pattern was observed in the university-affiliated sample. For this sample, the new SE measure was positively associated with the negative nominations score and negatively with the Social Preference score. These correlations demonstrate that SE is intertwined with both more and less (Negative Preference) positive aspects of social functioning in preschool age children and that there is some variability in these correlates across samples.

Next, we examined the Q-sort item correlates of SE. Because we had found some differences in the patterns of associations between our new SE variable across samples, correlations between overall SE and the 172 items comprising the CCQ and PQ item-sets were

Table 2
Correlations Between New and Prior Social Engagement Composites and Other Study Variables

Correlates of social engagement	Full sample		Community		University affiliated		Head Start		Portuguese	
	mSE	SE/SM	mSE	SE/SM	mSE	SE/SM	mSE	SE/SM	mSE	SE/SM
Q-profiles	.36***	.54***	.40***	.49***	.21***	.54***	.46***	.58***	.52***	.53***
Peer acceptance	.20***	.33***	.33***	.40***	.00	.26***	.13*	.22***	.39***	.47***
VR	.47***		.53***		.25***		.58***		.67***	
Ego-resiliency	.31***	.41***	.35***	.45***	.15**	.44***	.33***	.35***	.45***	.44***
Ego-undercontrol	.27***	.25***	−.03	−.02	.32***	.33***	.41***	.38***	.35***	.36***
Social preference	.08**	.20***	.19**	.26***	−.11*	.22***	.03	.07	.23***	.31***
Social impact	.22***	.21***	.22***	.21**	.24***	.16**	.12*	.16**	.30***	.35***
Negative preference	.06*	−.05	−.02	−.10	.23***	−.10	.04	.03	−.01	−.05

Note. mSE = modified Social Engagement; SE/SM = original Social Engagement/Social Motivation composite; Q-profiles = Profiles of Behavior and Personality; VR = standardized rate of visual attention received from peers; Social preference = Standardized nominations sociometric preference scores; Social Impact = Standardized nominations sociometric impact score; Negative preference = Standardized number of negative sociometric nominations.
* $p < .05$. ** $p < .01$. *** $p < .001$.

calculated separately for each sample. Because the samples are large and because Q-sets tend to have redundancies, we set the criteria for item selection at an absolute value of ≤|.20|, and a p level of <.001. All children with Q-data for either the CCQ or PQ were used in these analyses. Using these criteria, 74 item correlates for the Head Start Sample, 57 item correlates were obtained for the community sample, 43 item correlates for the university affiliated sample, and 59 item correlates for the Portuguese sample (i.e., between 25% and 43% of the item pool). These findings are consistent with the results relating SE to child social competence reported above, but the total of item correlates by sample does not convey the degree to which associations found in one sample were replicated in others. We found that 40 Q-items were associated at the r = |.20| level in at least three of the four samples. The chance probability of finding the same 40 significant item correlates (of 172) in common across three independent samples is nearly infinitesimal. Table 3 presents abbreviated item titles and correlation values for the 40 items that were significantly associated with SE in at least three of the four samples (full tables of Q-item analyses by sample are available from Brian E. Vaughn upon request).

Person-Centered Analyses

Identifying and validating clusters of cases. The next set of analyses were designed to determine whether there are meaningful subsets of children in these samples who share common profiles of scores on the 40 items presented in Table 3, which we assume to reflect individual differences with respect to SE. To test this possibility, we used hierarchical cluster analysis to group cases with respect to the items presented in Table 3. The 1,375 cases with complete CCQ and PQ data contributed data for these analyses. Ward's hierarchical method, with squared Euclidian distances as the distance measure, was used to group cases into clusters. Four cluster solutions were examined (i.e., 4, 5, 6, 7 clusters). Our goal was to identify a solution that (a) included cases from each of the four samples in every cluster; (b) did not include

Table 3
Item Correlates of Social Engagement in Four Samples

Item	Item title	Community	University affiliated	Head Start	Portuguese
CCQ(1)	Prefers nonverbal methods of communication	−.31	−.03	−.31	−.38
CCQ(8)	Tends to keep thoughts, feelings, to self	−.37	−.23	−.32	−.36
CCQ(21)	Tries to be the center of attention e.g., by showing off, demonstrating	.31	.21	.33	.15
CCQ(26)	Is physically active	.07	.21	.33	.25
CCQ(35)	Is inhibited and constricted	−.26	−.27	−.35	−.41
CCQ(37)	Likes to compete; tests and compares self to others	.33	.21	.27	.41
CCQ(44)	When in conflict or disagreement, tends to yield and give in	−.29	−.24	−.32	−.23
CCQ(45)	Has high standards of performance for self	−.30	−.17	−.35	−.33
CCQ(52)	Is physically cautious	−.35	−.30	−.32	−.25
CCQ(53)	Tends to be indecisive and vacillating	−.26	−.19	−.27	−.39
CCQ(62)	Is obedient and compliant	−.21	−.25	−.25	−.10
CCQ(63)	Has a rapid personal tempo; reacts, and moves quickly	.28	.24	.32	.24
CCQ(69)	Is verbally fluent; can express ideas well in language	.25	.03	.28	.27
CCQ(70)	Daydreams; tends to get lost in reverie	−.21	−.17	−.37	−.30
CCQ(82)	Is self-assertive	.35	.22	.30	.29
CCQ(84)	Is a talkative child	.25	.15	.38	.30
CCQ(85)	Is aggressive (physically or verbally)	.27	.25	.26	.19
CCQ(86)	Likes to be by him/herself, enjoys solitary activities	−.38	−.17	−.36	−.35
CCQ(93)	Behaves in a dominating manner with others	.28	.23	.28	.38
CCQ(98)	Is shy and reserved; makes social contacts slowly	−.38	−.34	−.43	−.39
CCQ(100)	Is easily victimized by other children; tends to be treated as a scapegoat	−.25	−.03	−.36	−.24
PQ(1)	Expresses negative feelings directly	.22	.21	.25	.20
PQ(2)	Indirect in his dealings with peers	−.23	−.14	−.28	−.32
PQ(5)	Forcefully goes after what he wants	.23	.28	.29	.13
PQ(10)	Spectator in social activities	−.35	−.19	−.38	−.33
PQ(13)	Hesitant with other children	−.30	−.23	−.39	−.39
PQ(14)	Characteristically unoccupied	−.34	−.10	−.25	−.24
PQ(15)	Hesitates to engage	−.30	−.28	−.42	−.28
PQ(16)	Confident of his own ability	.21	.15	.24	.29
PQ(19)	Disoriented in his physical environment	−.23	−.02	−.24	−.23
PQ(21)	Peer leader	.34	.15	.27	.26
PQ(28)	High energy level	.33	.23	.27	.32
PQ(34)	Unaware, turned off, "spaced out"	−.33	−.13	−.20	−.22
PQ(38)	Communicates messages clearly	.28	.01	.20	.20
PQ(40)	Likes to compete	.32	.24	.26	.25
PQ(47)	Suggests activities	.23	.08	.30	.28
PQ(50)	Socially withdrawn	−.38	−.26	−.42	−.37
PQ(57)	Withdraws from excitement or commotion	−.25	−.23	−.37	−.28
PQ(60)	Typically in the role of listener	−.34	−.19	−.35	−.26
PQ(67)	Does not hit peers	−.20	−.22	−.22	−.04

Note. All correlation values greater than ±.20, p < .001. CCQ = California Child Q set; PQ = Preschool Q set.

any clusters with fewer than 10% of the total; (c) did not include large clusters accounting for more than 50% of the total sample; and (d) efficiently distinguished between clusters with respect to social engagement (i.e., had the lowest proportion of nonsignificant cluster contrasts in post hoc tests). All cluster solutions met the first and third criteria; however, the seven-cluster solution failed to meet Criterion 2 and was dropped from consideration.

ANOVAs comparing four-, five-, and six-cluster solutions, with the SE score as dependent variable and sample as independent variable, and with age level and sex as covariates each yielded significant results. Post hoc tests contrasting the clusters indicated that 33% of cluster contrasts (5 of 15) did not reach significance in the six-cluster solution versus 20% of cluster contrasts for the five-cluster solution (2 of 10) versus 33% of cluster contrasts for the four-cluster solution (2 of 6). Thus, the five-cluster solution was the most efficient, by Criterion 4, and we used this solution in subsequent analyses. Scores for SE by cluster are presented in Table 4, for the five-cluster solution. Because the clusters based on profiles of Q-sort items were ordered efficiently using the SE score, we refer to these as "SE clusters" in the remainder of this article.

Discrete analyses. Cross-tabulations comparing Sample, Age Level, and Sex of Child × Cluster membership revealed significant differences in the distribution of cases to clusters for each analysis. Children in the four samples were not distributed across clusters in the same proportions, $\chi^2(N = 1{,}375, df = 12) = 154.6$, $p < .001$. Compared to the full sample distribution, children in the Head Start sample were more likely to be in the extremes (i.e., lowest or highest levels of SE) in comparison to children from other samples, whereas children in the Portuguese sample were much less likely to be in the extreme clusters and more likely than children from the other samples to be in Cluster 4 (i.e., intermediate-high SE). Children from the community sample were also overrepresented in Cluster 4 and were underrepresented in Cluster 3 (median level of SE). With regard to age level, the 5-year-olds were more likely to be found in the intermediate-high SE cluster (i.e., ~69% of 5-year-olds in Cluster 4) than either 3- or 4-year-olds and were less likely to be found in the extreme SE clusters (Clusters 1, 5) than younger children, $\chi^2(N = 1{,}375, df = 8), = 96.6, p < .001$. Because all 5-year-olds were from the Portuguese sample, it is not clear whether this effect should be considered evidence of maturation or of sociocultural differences (or both together). Although the Sex × Cluster test was significant, $\chi^2(N = 1{,}375, df = 4) = 11.3, p < .05$, the distributions of girls and boys to clusters was more similar than for either sample or age level. Girls were somewhat overrepresented in the two clusters with the lowest SE scores and boys were somewhat overrepresented in the cluster with the highest SE scores. These analyses suggest that cluster classifications are not randomly distributed across sample, age level, or sex, but these differences do not provide evidence of systematic differences that may account for cluster differences in levels of SE or the set of social competence indicators and external variables reported below. Overall, the results support our decision to include age level and sex as covariates in subsequent analyses, so that we can more systematically examine potential sample effects on differences between the clusters. Tables for these cross-tabulation analyses are available as supplemental material for this article.

Table 4
Cluster Means and Standard Errors for Social Engagement: Five-Cluster Solution

Cluster 1		Cluster 2		Cluster 3		Cluster 4		Cluster 5	
Mean	*SE*	Mean	*SE*	Mean	*SE*	Mean	*SE*	Mean	*SE*
$-.399^{a}$	.044	$-.248^{a}$	.051	$.012^{b}$	.057	$.104^{b}$	.024	.256	.041

Note. Values for means are least squares means for standardized social engagement scores, adjusted for the age and sex covariates. All cluster contrasts, excepting those with common superscripts, were significantly different from each other (8 of 10 pairwise contrasts were significant).

Variance analyses. The Peer Acceptance and Profiles of Behavior/Personality composites, as well as the measured visual regard variable were analyzed using univariate ANOVAs, with the SE clusters and sample as independent variables with age and sex as covariates. Adjusted means and standard errors for the clusters are presented in Table 5 (results for the SE variable are presented also, for reference, in Table 5). For analyses yielding significant Cluster Membership × Sample interactions, follow-up analyses tested the cluster membership effect separately for each sample (see Table 6). The main effect of cluster membership was significant in each ANOVA, $F > 23$, 456, and 77 for the Peer Acceptance, Profiles of Behavior/Personality Attributes, and visual regard received scores, respectively (all F tests significant at $p < .001$). Post hoc tests (Tukey's honest significant difference) indicated that the 6 (of 10) cluster contrasts were significant for Peer Acceptance, whereas all 10 contrasts were significant for the Profiles of Behavior/Personality composite score and 9 of 10 contrasts were significant for visual regard received. In each analysis, children in the two least engaged clusters had significantly lower scores than did children in each of the two most engaged clusters.

Main effects for the social competence variables were qualified by significant interactions with sample, Fs = 2.02, 7.52 and 2.40, $p <$, 05, $p < .001$, and $p < .01$, for Peer Acceptance, Profiles of Behavior/Personality Attributes, and visual regard received, respectively (see Table 6 for adjusted means and standard errors by sample). Separate analyses for each sample indicated that the main effect of cluster remained significant across samples; F values ranged from >5.9 to 9.5 across the four samples for the Peer Acceptance analyses, from >92 to 230 across samples for the Profiles of Behavior/Personality Attributes analyses, and from >18 to 39 for the visual regard received analyses, with all p levels < .001. These analyses support our expectation that the modified SE variable would behave like the original Social Motivation/Social Engagement composite described by Vaughn et al. (2009) and also suggest that the children in these clusters differ with respect to social competence.

Additional effects of social engagement. The next analyses examined effects of cluster membership and sample on Ego-undercontrol, Ego-resiliency, Social Preference, Social Impact, and Negative Preference scores. Again, sample and cluster were grouping variables with age level and sex included as covariates. Adjusted means and standard errors for these variables are also presented in Table 5. Significant effects of cluster membership were observed in every analysis (Fs = 12.7, 203.4, 12.2, 9.7, and 10.1, for Ego-undercontrol, Ego-resiliency, Social Preference, Social Impact, and Negative Preference, respectively, all p values <

Table 5
Adjusted Means and Standard Errors for Clusters by Samples ANOVAs

Correlates of social engagements	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	*F* value
Peer acceptance[1]	−.40[a] (.070)	−.29[a] (.078)	−.39[a] (.092)	.17[b] (.036)	.16[b] (.065)	25.04
Q-sort profiles[1]	−1.25 (.043)	−.79 (.049)	−.26 (.056)	.35 (.023)	.85 (.040)	456.86
VR received[1]	−.83 (.066)	−.33[a] (.076)	−.12[a] (.086)	.18 (.035)	.62 (.061)	77.47
Ego-undercontrol[1]	−.56[a] (.052)	−.57[a] (.060)	.31 (.068)	.01 (.028)	.83 (.049)	127.74
Ego resiliency[1]	−1.03 (.05)	−.55[a] (.058)	−.33[a] (.065)	.34 (.027)	.50 (.047)	203.38
Social preference	−.45[a] (.139)	−.25[a] (.155)	−.88[a] (.183)	.26[b] (.071)	−.04[a,b] (.127)	12.18
Social impact	−.18[a] (.092)	−.43[a] (.102)	.23[a] (.120)	.04[a,b] (.047)	.31[b] (.083)	9.74
Negative preference	.14[a] (.083)	−.10[a,b] (.091)	.53[c] (.107)	−.12[b] (.042)	.18[a,c] (.076)	10.14

Note. Clusters are ordered by average level of social engagement. Mean values are adjusted for the effects of sample and for covariates (age level, sex). All main effects of cluster membership are significant ($p < .001$). Variables with a numeric superscript indicate significant Cluster × Sample interactions. Cluster means sharing a common superscript are not significantly different from each other (Tukey's honest significant difference test). ANOVA = analysis of variance; Q-sort profiles = Q-sort profiles of behavior/personality; VR received = visual regard received from peers.

.001). The cluster means for Ego-undercontrol and Ego-resiliency were strongly coordinated with the ordering of SE means (9 of 10 pairwise cluster-contrasts significant for each construct). However, only 4, 5, and 5 (of 10 for each construct) between cluster contrasts were significant for Social Preference, Social Impact, and Negative Preference scores, respectively. Moreover, the SE cluster order was not closely associated with scale means for these three variables.

Significant Cluster × Sample interactions were only found for the Ego-undercontrol and Ego-resilience scores. Subsequent ANOVAs for each sample separately indicated that the main effect of cluster membership remained significant in all samples (*F* values range from 12.2 to 179 for Ego-undercontrol and from 31 to 193 for Ego-resiliency, all *p*s $< .001$). Adjusted cluster means (and standard errors) by sample are also presented in Table 6. These results indicate that cluster membership effects were present in every analysis even when sample and Cluster × Sample interaction effects (and the age level and sex covariates) are included.

Data presented in Table 6 also suggest that sample differences are present for several of the variables, with respect to the distributions of scores across the five clusters. In particular, for the two categories with the lowest SE scores, children from the Lisbon

Table 6
Cluster Means and Standard Errors by Sample for Variables With Significant Cluster × Sample Interactions in ANOVAs

Variable	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	*F* value for cluster contrast
Peer acceptance						
Head Start	−.25 (.09)	−.63 (.224)	−.30 (.12)	.12 (.078)	.16 (.087)	6.57
Community	−.56 (.128)	.03 (.131)	−.69 (.252)	.20 (.070)	.21 (.138)	9.18
University affiliated	−.27 (.103)	−.01 (.102)	−.49 (.124)	.24 (.069)	.16 (.083)	9.52
Portuguese	−.54 (.217)	−.52 (.136)	−.06 (.221)	.11 (.067)	.10 (.194)	5.88
Q-sort profiles						
Head Start	−1.10 (.055)	−.65 (.132)	−.33 (.074)	.25 (.047)	.88 (.053)	185.06
Community	−1.19 (.081)	−.59 (.082)	−.56 (.170)	.47 (.045)	.75 (.089)	114.92
University affiliated	−1.17 (.063)	−.75 (.064)	−.37 (.074)	.46 (.043)	.90 (.052)	230.01
Portuguese	−1.57 (.139)	−1.14 (.089)	.24 (.111)	.22 (.045)	.87 (.122)	92.80
VR received						
Head Start	−.78 (.088)	−.19 (.211)	−.18 (.119)	.14 (.075)	.71 (.085)	39.20
Community	−.90 (.122)	−.18 (.124)	−.25 (.068)	.23 (.068)	.37 (.134)	18.94
University affiliated	−.74 (.104)	−.23 (.105)	−.11 (.125)	.23 (.071)	.63 (.086)	29.48
Portuguese	−.93 (.196)	−.68 (.126)	.24 (.156)	.12 (.063)	.80 (.173)	19.87
Ego-undercontrol						
Head Start	−.33 (.028)	−.14 (.067)	.09 (.038)	−.001 (.024)	.30 (.027)	65.61
Community	.35 (.133)	−.31 (.134)	.22 (.277)	−.14 (.074)	.86 (.146)	12.52
University affiliated	−1.12 (.071)	−.81 (.072)	.54 (.085)	.07 (.049)	1.02 (.058)	179.08
Portuguese	−1.15 (.176)	−.98 (.113)	.44 (.14)	.12 (.057)	1.13 (.155)	45.89
Ego-resiliency						
Head Start	−.28 (.033)	−.18 (.077)	.05 (.043)	.07 (.028)	.20 (.031)	31.57
Community	−1.24 (.099)	−.52 (.10)	−.83 (.207)	.47 (.055)	.68 (.109)	78.66
University affiliated	−.98 (.085)	−.50 (.086)	−.70 (.102)	.52 (.059)	.62 (.07)	93.22
Portuguese	−1.65 (.169)	−.99 (.109)	.14 (.14)	.26 (.055)	.53 (.149)	53.52

Note. Effects of cluster are all significant ($p < .001$) for all within-sample analyses. Mean values are adjusted for the effects for covariates (age level, sex). All main effects of cluster membership are significant ($p < .001$) in the presence of a significant interaction. Standard error terms are in parentheses. ANOVA = analysis of variance; VR received.

sample had the most extremely low scores. Furthermore, children from the Lisbon sample in the two lowest SE clusters also had the lowest scores for the Profiles of Behavior/Personality Attributes, visual regard received, Ego-undercontrol, and Ego-resiliency, although these differences were not as marked as for the SE variable. Thus, even though the analyses of cluster effects within each sample were significant, the variables we analyzed seem to distinguish the clusters to a greater extent in the Lisbon sample than in the U.S. samples, at least for those variables based on direct observations.

Sex Differences Among Low-Engaged Children

Our final analyses examined potential effects of SE the adaptation of girls versus boys. A new set of univariate ANOVAs included cluster and sex as grouping variables, with age as a covariate. Although main effects of sex were obtained in seven of the eight ANOVAs, the Sex × Cluster interactions were only significant in two of these (Profiles of Behavior/Personality Attributes, Ego-resiliency). Moreover, in no instance did we find evidence that boys from the lowest SE clusters differed significantly from girls in the same clusters. In fact, when within-cluster sex differences were observed, it was for the most highly engaged group.

Discussion

This study was designed to put our claim that social engagement with peers is a fundamental marker of social competence during early childhood to a test. Both variable- centered and person-centered approaches demonstrated that child SE is positively associated with a range of social competence indicators and with additional indicators of adaptive functioning that were not included among the social competence indicators identified in previous studies. Not only was the SE score associated positively and significantly with each of the other study variables, our person-centered analyses indicated that children with the lowest level of SE were less "visible" to peers (i.e., received less visual attention from peers than did more engaged children), displayed lower levels of socially skilled behavior and associated personality attributes than did more engaged children, and were less likely to be chosen as preferred playmates than were children in the more highly engaged clusters. They also tended to be more overcontrolling of behavior, cognition, and emotion and less able to modulate their characteristic level of control in response to contextual demands (i.e., Ego-undercontrol and Ego-resiliency). Finally, their Social Preference scores were lower than all but one other cluster, their Social Impact was lower than for children in most other clusters, and their Negative Preference score was intermediate among the clusters. These kinds of results lend support to the model of social competence we have described in earlier research reports (e.g., Santos, Vaughn, Peceguina, Daniel, & Shin, 2014; Vaughn et al., 2009).

Importantly, despite the presence of some significant effects of sample, and controlling for effects of age and sex of child, the significant effects of cluster membership were replicated in all four samples in all tests. In part, these replicated results reflect the fact that the same 40 items tended to show meaningful associations with SE in three (or all four) of the samples included in the study. This fact seems likely to underlie our finding that measures derived from the Q-data (i.e., Profiles of Behavior/Personality Attributes, Ego-undercontrol, Ego-resiliency) more consistently distinguished among the SE clusters than did variables based on sociometric interviews (i.e., Peer Acceptance, Social Preference, Social Impact, Negative Preference).

These kinds of results suggest that social engagement with peers should be considered as an index of adaptive social functioning in peer groups during early childhood, at least for children similar to those in our samples. Although the programs in the United States reflect considerable diversity with regard to socioeconomic status (SES), ethnicity, and program type, we do not claim that they represent early childhood education or child-care settings nationally. Moreover, the Portuguese sample is far less diverse than the (combined) U.S. samples and may not be representative of other preschool programs in Portugal with respect to SES, ethnicity, or proportions of males and females attending. Nevertheless, the fact that the basic findings replicate across four independent samples does suggest that our results are robust with respect to program, SES, and ethnicity differences among these samples. At the same time, we suspect that future analyses and new studies that explore age level and sex of child differences with regard to SE will add nuance and new interpretations to our findings. It will also be important to study individual differences along the social engagement continuum longitudinally; using both variable-centered and person-centered approaches, as we did here, to determine whether individual differences are chronic, and if so, for whom. It will be especially interesting in such studies to include samples of children from outside North America and Western Europe to determine whether the continuum of SE is as strongly intertwined with other indices of social competence in societies placing more emphasis on interdependence than on autonomy among peers.

We noted at the outset that other investigators have highlighted the impact of constructs akin to our "social engagement" construct (e.g., social withdrawal, social reticence). To the extent that very low SE is indicative of poorer adaptation to the peer group, the children with the lowest level of engagement (about 15% of our total sample) may be comparable to preschoolers characterized as socially withdrawn in those studies. However, our tests of potential sex differences in the effects of low SE did not suggest that boys fare less well than girls when they are very low with respect to SE. Importantly, Rubin et al. (2009) have reviewed studies suggesting that (at least some) of the children who fail to engage with peers at early ages are at risk for a range of social problems over childhood and adolescence. Testing such speculation will require longitudinal analyses of existing data as well as new research to determine, for example, whether SE scores or membership in a particular low-engagement cluster demonstrate homotypic continuity over consecutive preschool years or over the transition from preschool to primary school classrooms. It will also be necessary to determine whether membership in social engagement clusters is maintained by the child's own behavior, thoughts, and emotions or by the actions of peers, who may actively avoid or resist interaction with children in the lowest engagement clusters. Answering these questions will require different data acquisition designs than those used here, although we suspect that direct observation and Q-sort methods will prove useful in such studies.

While our data clearly indicate that the lowest levels of social engagement are associated with indicators of poorer social adap-

tation in early childhood peer groups, relations between engagement and adaptation were not always linear. For example, in one case (i.e., children assigned to Cluster 3), the combination of an average level of SE and relatively high Ego-undercontrol was associated with the highest level of Negative Preference and the lowest level of Social Preference for any of the SE clusters. We also note that, even though SE Clusters 1 and 2 were not significantly distinguished by their levels of engagement or by their Peer Acceptance scores, children in these clusters were distinguished in by the Profiles of Behavior/Personality Attributes and by the visual attention receive (from peers) variables, as well as by scores for Ego-resiliency. This suggests the possibility that children in these two low- engaged clusters may differ with regard to their underlying social "reserves" and may follow differing growth trajectories with respect to social integration as they move into new social settings and peer groups. Although we understand that these speculative interpretations require replication in other (longitudinal) samples, it does suggest that the simple linear association between engagement and adaptive social functioning does not tell the full story concerning the implications of SE.

Although we are satisfied that our hypotheses were supported by the results presented, we also recognize that the study is limited insofar as all external measures available in all four of the samples are derived from the same kinds of observation and interview data that were used to index social competence at the outset. We have already mentioned that samples from different societies, with different perspectives on interpersonal relationships, will be useful to more broadly interpret our results. It also will be helpful in future studies to include other sources of test, adult report, and observation data that may serve to corroborate the kinds of results we reported here. Longitudinal data will be required to determine whether low SE is the critical controlling variable, as we suggest, or whether low SE is a consequence of inadequate social skills relevant to the child's social context. Certainly, such data will be necessary if our suggestion that very low SE in preschool groups constitutes a possible risk to future social adaptation in peer groups is to be accepted more widely.

We also note that our program of research was designed to highlight the measurement and implications of peer social competence during early childhood and we do not claim that the specific assessments used in preschool classrooms are necessarily the best measures for characterizing individual differences with respect to social competence for older children or adolescents. Indeed, obtaining estimates of social engagement rates using direct observations for samples of adolescents could be very challenging in school settings where children move from classroom to classroom over the course of a school day and may spend time with different groups of peers in different classrooms. Nevertheless, research reviewed by Rubin and associates (e.g., Rubin et al., 2009) has shown that social engagement (or its absence) continues to be an important aspect of adaptive functioning throughout childhood and adolescence, even though the construct is assessed using self-reports and other reports more frequently than by direct observations. Moreover, the sociometric tradition has adapted measures to capture peer acceptance, peer rejection, social preference, and social impact across many developmental periods and Block and Block and associates (e.g., Block & Block, 1980; Gjerde et al., 1986) have discussed the implications of personality constructs assessed using Q-sort methods from early childhood through adolescence. On balance, we believe that the definition of social competence as the capacity flexibly manage behavioral, cognitive, and emotional resources to achieve one's personal goals within relevant social contexts, without unduly limiting the opportunities for peers to attain their own goals (Waters & Sroufe, 1983), will be developmentally robust.

In conclusion, this study had a limited set of objectives and goals designed to test whether social engagement should be considered as foundational for social competence in early childhood. We tested this proposition using both variable-centered and person-centered approaches and both approaches yielded evidence of connection between the SE construct, as we assessed it, and both the set of indices used to assess social competence in prior studies and to an external set of variables that were not included in previous studies of the structure of social competence (Santos, Vaughn, Peceguina, & Daniel, 2014; Vaughn et al., 2009). Our results are consistent with the idea that SE is necessary to build new social skills and broaden/deepen skills already in the child's repertoire. The results are also consistent with the notion that being engaged provides information to peers regarding one's value as a play partner. That is, more engaged children display a wide range of skills and are more often preferred by their peers as playmates. These results provide useful information concerning what it means to be socially competent during early childhood and suggest interesting avenues for further research. Finally, our findings are consistent with research on socially withdrawn children in suggesting that low-engaged children may be relatively diverse with respect to their underlying sets of social skills (e.g., Rubin et al., 2009), and that these skills may interact with low social engagement to buffer (or exacerbate) the risks to social adaptation associated with low social engagement.

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