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Language Development in the Early School Years: The Importance of Close Relationships With Teachers

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This longitudinal study examined developmental links between closeness in teacher–child relationships and children's receptive language ability from the end of the preschool years into the early elementary years, while controlling for changes in peer interaction quality and child behavioral functioning. The sample included children and their parents and teachers (N = 4,983) participating in the Longitudinal Study of Australian Children (LSAC) at ages 4–5, 6–7, and 8–9 years (3 waves). Teachers reported on levels of closeness in relationships with individual children. Independent assessments of receptive language were employed. Parents and teachers reported on peer interaction problems and child conduct problems. Results indicated reciprocal associations between close teacher–child relationships and receptive language development above and beyond associations with peer interaction quality and child behavioral functioning. However, the effects were only modest.

Keywords: teacher–child relationships, support, receptive language, transactional models

Language is a critical factor in children's adjustment. Deficits in language development have been linked to social problems, conduct problems, and delinquency (Menting, van Lier, & Koot, 2011; Moffitt, 1993; Nigg & Huang-Pollock, 2003). In addition, poor language skills, and in particular poor verbal comprehension or receptive language, at school entry are an indicator of low school readiness and a risk for subsequent academic problems (NICHD Early Child Care Research Network, 2004). From a prevention and intervention perspective, it is thus of primary importance to identify normative conditions and processes that contribute to language development during the early school years. Considering the time children spend in classrooms, teachers are proximal interaction and communication partners and unique sources for language input in children's daily lives (Dickinson & Porche, 2011; Hoff, 2006; Pianta, 2006). Very few studies, however, have examined the possibility that children's language development is promoted in the context of a close teacher–child relationship, and none of these have examined reciprocal associations between closeness with teachers and receptive language development.

Close Relationships as a Context for Language Development

Social constructivist perspectives (Leseman & Jong, 1998) and social-interactionist theories of language acquisition (Chapman, 2000) consider language acquisition a fundamentally social process. In particular, social-interactionist theories highlight the importance of warm and affectionate relationships with communication partners (Chapman, 2000). Language, in particular its functional goal, is stimulated in the context of close dyadic relationships through conversation. In this respect, Justice, Cottone, Mashburn, and Rimm-Kaufman (2008) cite Chapman saying that "frequent, relatively well-tuned affectively positive verbal interactions support rapid language acquisition" (Chapman, 2000, p. 43). There is ample evidence for this position from research on parenting showing a unique contribution of maternal sensitivity and warmth to the language acquisition of young children, additional to the effect of cognitive stimulation (e.g., Lugo-Gil & Tamis-LeMonda, 2008; Raviv, Kessenich, & Morrison, 2004). Securely attached children have more rewarding literacy interactions with mothers and receive more sensitive instruction and feedback from mothers, which explains individual differences in language development (Bus & van Ijzendoorn, 1988; Bus & van Ijzendoorn, 1997). In contrast, insecurely attached children show less interest in reading, appear more occupied by feelings of anxiety, and were more distracted during literacy interactions. The affective dimensions of the mother–child relationship thus clearly seem to affect

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This paper uses unit record data from Growing Up in Australia, the LSAC. The study is conducted in partnership between the Department of Social Services (DSS; previously Families, Housing, Community Services and Indigenous Affairs), the Australian Institute of Family Studies (AIFS), and the Australian Bureau of Statistics (ABS). The findings and views reported in this paper are those of the authors and should not be attributed to DSS, AIFS, or the ABS.

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the quality of children's language experiences. Likewise, the affective dimensions of the teacher–child relationship too have been hypothesized to contribute to children's language development (Pianta, 2006).

Research on language development in the context of relationships with peers also highlights the importance of close relationships with communication partners (Pellegrini, Galda, & Flor, 1997; Pellegrini, Galda, Flor, Bartini, & Charak, 1997; Pellegrini, Melhuish, Jones, Trojanowska, & Gilden, 2000). Pellegrini and colleagues (1997, 2000) found that children expressed more emotional and sophisticated language in solving conflicts in their interactions with friends compared with nonfriends.

Close Relationships with Teachers as a Context for Receptive Language Development

Guided by an extended attachment perspective (Pianta, 1992; Verschueren & Koomen, 2012), relationships with teachers have been conceptualized as affective relationships that have similar (but not identical) functions to parent–child relationships. In particular, the secure-base function of the teacher–child relationship is considered an important determinant of child development within the school context. Children who feel secure with teachers are more likely to have personalized conversations with teachers (Dickinson & Porche, 2011) and to be engaged in language learning activities (Hughes, Luo, Kwok, & Loyd, 2008), both of which are believed to promote receptive language. In addition, drawing further parallels with parent–child relationship contributions to language learning, children with close teacher–child relationships are considered to be more likely to elicit high-quality instruction and feedback on language learning from teachers. Moreover, children who feel secure with their teachers are also more likely to profit from this higher-quality instruction and feedback (Crosnoe et al., 2010; Pianta, 2006).

Conversely, it can also be hypothesized that children with better receptive language skills develop closer relationships with teachers (Justice et al., 2008; Moritz Rudasill, Rimm-Kaufman, Justice, & Pence, 2006). Good receptive language skills are necessary for children to engage in more sophisticated and extended conversations, which promotes to the development of a personal and close relationship. Poor receptive language abilities, on the other hand, place children at risk of poor relationships with others due to difficulties in comprehending others, which makes it difficult to respond in an appropriate manner. This process is explained by theorizations about the role of verbal (neuropsychological) deficits in the early development of antisocial behavior (e.g., Moffitt, 1993; Nigg & Huang-Pollock, 2003) and is consistent with recent research demonstrating that low receptive language places children at risk of poor peer relationships, which in turn contributes to the development of behavior problems (Menting et al., 2011).

We thus can expect transactional rather than unidirectional effects between close teacher–child relationships and children's receptive language abilities. The language development of children with high receptive language ability could be accelerated in the context of a close teacher–child relationship, creating a positive cascade, whereas the language development of children with poor receptive language skills may be further impeded because they are at risk of less close relationships with teachers. This transactional hypothesis is consistent with social-ecological models of child development that emphasize the dynamic interplay between child dispositions and (social) environmental influences on child development (Bronfenbrenner, 1977; Sameroff, 2000), but contradicts child-driven or disorder-driven models (Ladd, 2006), which state that the course of development is determined by child dispositions or early emerging dysfunctions of the child.

As discussed above, research on both friendship relationships and parent–child relationships underscore that trust and felt security in interactions with the communication partner are important determinants of language acquisition. For this reason, in the current study, we focused on the dimension of trust and positive affect (i.e., closeness) of the teacher–child relationship to examine the contribution of teacher–child relationships to children's language development. In addition, we aimed to examine developmental associations between teacher–child closeness and receptive language rather than language expression for three reasons. First, receptive language seems more strongly related to environmental influences like caregiver–child relationships than language expression (e.g., Raviv et al., 2004). Second, receptive language is at the foundation of other language skills, including expressive language, and appears a better indicator of the overall language ability of young children than language expression (Justice et al., 2008). Third, there are marked individual differences in receptive language growth across different ages: recent research, for example, demonstrates that the gap between at-risk and nonrisk children in receptive language tends to widen in the early school years (Taylor, Christensen, Lawrence, Mitrou, & Zubrick, 2013). The early school years are thus an important developmental period to examine the effects of environmental influences on gains in receptive language. In the next sections, we discuss the mixed evidence for a developmental link between teacher–child closeness and cognitive development in general, and the handful of studies that have focused on closeness and receptive language specifically.

General Effects of Closeness on Cognitive Development

The importance of positive, nonconflicted teacher–child relationships as a predictor of children's cognitive growth is widely acknowledged (Hughes, 2012; Pianta & Stuhlman, 2004a; Roorda, Koomen, Spilt, & Oort, 2011). Several studies have reported main effects of teacher–child closeness on cognitive outcomes (Ahnert, Milatz, Kappler, Schneiderwind, & Fischer, 2013; Maldonado-Carreño & Votruba-Drzal, 2011; Mercer & DeRosier, 2008). However, effects on independent achievement test scores are not always found (Hamre & Pianta, 2001; Maldonado-Carreño & Votruba-Drzal, 2011), or found only in academically at-risk samples (Hughes, 2011; Hughes et al., 2008).

Effects of Closeness on Receptive Language

There is some, albeit mixed, evidence for a specific link between closeness and receptive language. Peisner-Feinberg and colleagues (2001) reported that close relationships with preschool teachers predicted modest increases in receptive language (but not reading ability) over a 5-year period (preschool to second grade) above and beyond relevant background variables and observed classroom practices. When teacher–child closeness was examined as a time-varying predictor in the same sample, but without inclu-

sion of observed classroom practices, slightly different results emerged: closeness predicted increases in receptive language, but the predictive effect applied primarily to African American children and declined over time (Burchinal, Peisner, Feinberg, Pianta, & Howes, 2002). Other studies that controlled for previous test scores or looked at gains within a given school year, however, report no predictive effects for teacher–child closeness on receptive language. Pianta and Stuhlman (2004b) did not find a predictive effect of teacher–child closeness in preschool and kindergarten on achievement tests including verbal comprehension in Grade 1. In addition, Howes et al. (2008) found small effects of closeness on gains in literacy and teacher-rated language ability over a 6-month period but not on independent tests of receptive language, in a large sample of prekindergarten children.

The Reversed Link: Effects of Children's Language Abilities on Closeness

Researchers have also considered language ability to be a predictor of close teacher–child relationships. In a cross-sectional study, Justice et al. (2008) found receptive language (but not language expression) predictive of teacher–child closeness among preschool children. Moritz Rudasill et al. (2006) did not find an association between expressed language complexity and closeness, but expressed language complexity was associated with teacher–child conflict for bolder children.

In sum, the emerging evidence for the hypothesized developmental link between teacher–child closeness and receptive language is mixed. In addition, research has examined either closeness as a predictor of language, or language as a predictor of closeness, and has not examined transactional associations.

The Possible Effects of Confounding Factors

When studying the transactional linkages between closeness and receptive language, the possibility of confounding variables should be considered. Deficits in language achievement and achievement in general have been related to poor self-regulation and child behavior problems. Children with behavior problems demonstrate less growth in emergent literacy, vocabulary, and math than children without behavior problems (McClelland et al., 2007; Spira, Bracken, & Fischel, 2005; Spira & Fischel, 2005; Vallotton & Ayoub, 2011). It is possible that behavior problems directly interfere with learning processes and instruction, but it is also possible that behavior problems hinder language achievement indirectly. Behaviorally challenging children tend to develop poor-quality relationships with peers and teachers, which impedes the beneficial effects of close relationships on language (Ladd, Buhs, & Seid, 2000; Valiente, Lemery-Chalfant, Swanson, & Reiser, 2008). It is thus possible that developmental links between closeness and language achievement are (partly) driven by child behavioral characteristics.

Peer influences could be another confounding factor. As mentioned above, close relationships with peers facilitate children's language development (Hoff, 2006; Jones, 2002; Pellegrini et al., 1997). Conversely, being socially isolated, disliked, or rejected by peers can seriously impede the language development of a child. Because teachers and peers are part of the same social setting, the quality of children's relationships with teachers and peers in the same classroom is considered interrelated (Leflot, van Lier, Verschueren, Onghena, & Colpin, 2011; Mercer & DeRosier, 2008). In addition, the results of two methodologically strong studies suggest that the longitudinal effects of teacher support on child behavior problems may be trivial in comparison with the effects of peer social status (Leflot et al., 2011; Mercer & DeRosier, 2008). Thus, for a stringent test of developmental associations between teacher–child closeness and receptive language development, it is necessary to statistically control for the quality of peer interactions.

Present Study

We aimed to test a model of transactional associations between closeness with teachers and receptive language. Based on a social-interactionist perspective on language acquisition, we predicted positive effects of closeness on receptive language (e.g., Burchinal et al., 2002; Peisner-Feinberg et al., 2001). We also assumed that receptive language would predict closeness because children who have difficulties understanding others are less able to engage in personal conversations, which could seriously hinder the development of close relationships (Justice et al., 2008; Menting et al., 2011; Moritz Rudasill et al., 2006). These predictions are in accord with social-ecological models positing that both child dispositions and environmental influences contribute to children's development. To test the hypothesized transactional links between closeness and receptive language, we used an autoregressive cross-lagged design (Jöreskog, 1970). Autoregressive cross-lagged models have been advocated as optimal, yet conservative tests of developmental processes and directions of effects (Masten & Cicchetti, 2010). To our knowledge, no studies to date have examined teacher–child closeness and language ability longitudinally and in parallel across multiple waves of data.

Whereas prior research has predominantly focused on the early childhood years, this three-wave study extends this age period beyond school entry into the early elementary school (up to age 8–9). We also tested whether the association between closeness and receptive language would be invariant across time. It is possible that the effects of teacher–child closeness on language may diminish over time as individual differences in vocabulary growth become increasingly stable (Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002; Dickinson, McCabe, & Essex, 2006; Farkas & Beron, 2004). However, there is also research suggesting that academic development and vocabulary growth in the early and middle elementary school years continues to be influenced by teachers (Gámez & Lesaux, 2012; Maldonado-Carreño & Votruba-Drzal, 2011).

We included indicators of children's social experiences with peers in the classroom (i.e., peer problems) and child behavioral functioning (i.e., conduct problems) in the model as possible confounds. Time-invariant covariates included in the model were child sex (e.g., Spilt, Koomen, & Jak, 2012), socioeconomic status (e.g., Raviv, Kessenich, & Morrison, 2004), and ethnic minority status and main language spoken at home (e.g., Bradley, Draca, Green, & Leeves, 2007; Saft & Pianta, 2001).

Method

Participants and Selection

The sample included children, parents, and teachers participating in the kindergarten cohort of the Longitudinal Study of Australian Children (LSAC K-cohort). The LSAC K-cohort sample (N = 4,983) represents 57% of the potential sample of families identified within the sampling frame as having a 4- to 5-year-old child. At recruitment (Wave 1), children (50.9% boys) ranged in age from 51 to 67 months (M = 56.9, SD = 2.6). The LSAC K-cohort is a nationally representative sample that matches population data on demographic characteristics (e.g., sex, cultural background, and socioeconomic status) as ascertained by the Australian Bureau of Statistics Census data from 2001 (Gray & Smart, 2008).

The sampling frame for LSAC was the Health Insurance Commission's Medicare database, the most comprehensive database of Australia's population. Children in the scope of the survey were those aged 4 years 3 months to 5 years. In order to select a representative sample of Australia's children, a two-stage clustered design, based on postal codes, was used. Stratification ensured proportional geographic representation for each of Australia's eight states and territories and, within these, for capital city and rest of state areas. Postal codes were randomly selected with probability proportional to size selection, and with equal probability for small population postal codes. Children were randomly selected with approximately equal chance of selection for each child (about 1 in 25). Sample selection also sought to recruit children born across all months of the calendar year.

Because of missing data (see missing data analyses below), the final sample included 4,707 children (51% boys). The majority of children (88.5%) spoke English as the main language at home, 14.0% were from low socioeconomic status families (one *SD below* the mean or lower), and 3.3% of the children had an Aboriginal and/or Torres Strait Islander cultural background. Children who were excluded based on missingness on all dependent variables were more often from families with low socioeconomic status, $\chi^2(1) = 65.4$, $p < .001$, and from families whose main language was not English, $\chi^2(1) = 61.0$, $p < .001$, than included children. In addition, excluded children were more often children with an Indigenous background, $\chi^2(1) = 42.4$, $p < .001$.

Procedure

The LSAC design includes a biennial home visit with the parent and child at Wave 1 (age 4–5 years), Wave 2 (age 6–7 years), and Wave 3 (age 8–9 years). Home visits include a structured interview conducted by trained interviewers and computer-assisted self-administered questionnaires. The percentage of parents who completed the interviews and questionnaires was 100% at Wave 1, 98% at Wave 2, and 88% at Wave 3. Interviewers administered the Peabody Picture Vocabulary Test (PPVT) and other child assessments, and in Waves 2 and 3 assisted children to complete a self-report questionnaire. At Wave 1, Wave 2, and Wave 3, the PPVT was administered to 88%, 99%, and 99% of the children, respectively. At each wave, with the consent of parents, a questionnaire was mailed to the child's classroom teacher for completion and return. Questionnaire return rates increased from 69% at Wave 1 to 82% and 85% at Wave 2 and 3. Full information about the interviews and content is available elsewhere (Australian Institute of Family Studies, 2009).

Measures

Receptive language. The Peabody Picture Vocabulary Test-III (PPVT-III; Dunn & Dunn, 1997) is a widely used measure of oral receptive vocabulary with high-quality psychometric properties. The examiner says a word, and the child responds by pointing to the picture that illustrates the meaning of that word. For each wave of the LSAC, a shortened version of the PPVT was developed, based on work done in the United States for the Head Start Impact Study, with permission of the publisher (Rothman, 2003, 2005). The Adapted PPVT-III yields a standardized Rasch-modeled score. Correlations of between .93 to .97 were found between the full PPVT-III and the Adapted PPVT-III in separate samples of 215 children aged from 41 to 66 months, and 421 children aged 67 to 95 months.

Teacher–child relationship. Teachers' reports of closeness with the child were obtained with the Student Teacher Relationship Scale-Short Form (STRS; Pianta, 2001). The closeness subscale comprised eight items (e.g., "Shares an affectionate relationship") rated on a scale ranging from 1 (*definitely does not apply*) to 5 (*definitely applies*). The STRS has demonstrated sound psychometric properties in previous research (Doumen et al., 2009; Koomen, Verschueren, van Schooten, Jak, & Pianta, 2012; Pianta, 2001). In the current sample, the Cronbach's alphas ranged from .83 to .85 across waves.

Peer interaction quality and child behavioral functioning. Teachers and parents completed the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). The SDQ is a widely used screening questionnaire with adequate psychometric properties (Achenbach et al., 2008; Goodman, 2001; Hawes & Dadds, 2004). The subscale peer problems was selected as a broad measure of peer interaction quality. This subscale comprises two positive (e.g., "Generally liked by other children"; reversed coded) and three negative items (e.g., "Picked on or bullied by other children"). The subscale conduct problems was selected as a measure of (poor) child behavioral functioning. This subscale comprises one positive (e.g., "Generally well behaved, usually does what adults request"; reversed coded) and four negative items (e.g., "Often loses temper"). Items were rated on a 3-point scale ranging from 1 (*not true*) to 3 (*certainly true*).

Correlations between teacher and parent reports ranged between .25 and .42, $p < .001$, for conduct problems, and between .32 and .39, $p < .001$, for peer problems across waves. The magnitude of these correlations among raters is in line with the literature (e.g., Kerr, Lunkenheimer, & Olson, 2007). Although we aimed to control for children's social experiences in the classroom, we did not rely exclusively on teacher reports but used aggregated measures of teacher and parent reports in order to avoid (or reduce) possible same-source variance. The Cronbach's alphas of the aggregated subscales ranged from .66 to .73 for peer problems and from .74 to .75 for conduct problems in the current sample.

Covariates. Data was collected on child sex (1 = female, 0 = male), the main language that children spoke at home (1 = English, 0 = other), and Indigenous cultural background (1 = Ab-

original and/or Torres Strait Islander, 0 = not Indigenous). A *z* score for socioeconomic position (SEP) among families was derived from information about parental education, parent income, and occupational prestige (Blakemore, Gibbings, & Strazdins, 2006), which was transformed to a binary variable to facilitate interpretation. A score of 0 indicated low SEP (one *SD below* the mean or lower), whereas a score of 1 indicated average to high SEP (*above* one *SD* below the mean).

Data Analysis

The Mplus program (Muthén & Muthén, 1998–2011) was used to analyze autoregressive cross-lagged models. Maximum likelihood estimation with robust standard errors (MLR) was used to account for possible non-normality. The MLR estimator provides maximum likelihood parameter estimates with standard errors and a chi-square test statistic that are robust to non-normality. Model fit is considered good when the confirmatory fit index (CFI) is ≥.95, the standardized root mean square residual (SRMR) is ≤.08, and the root mean square error of approximation (RMSEA) is ≤.06 (Hu & Bentler, 1999). The Satorra-Bentler scaled χ^2 difference test was used for model selection (Satorra & Bentler, 2001). Because of the large sample size, alpha was set at ≤.01 (two-tailed) for model comparisons to reduce the likelihood of a Type 1 error. Parameter estimates were considered significant at the 99% confidence interval.

To note, in most studies on teacher–child relationships, researchers have to account for multilevel variance due to hierarchical clustering of the data. Note that the LSAC data are not nested due to the data collection strategy.

Model fitting. Given the number of variables in the model, many models may fit the data well. Therefore, it is a common strategy in testing autoregressive cross-lagged models to compare the model fit of increasingly complex models in order to identify the most parsimonious model. We tested a series of four nested models. First, starting with the most parsimonious model, a *baseline autoregressive model* was examined to assess continuity or stability within measures over time as well as concurrent associations but without cross-lagged paths. In the second model, we added direct cross-time paths from conduct problems to all other variables as well as cross-time paths from language to all other variables. We labeled this second model the *child-driven model* because this model included unidirectional paths from child characteristics (receptive language ability and conduct problems) to social influences (peer problems and teacher–child closeness) but not vice versa, suggesting that child characteristics are the driving force behind changes in the variables over time. However, note that this child-driven (unidirectional) model was not in line with our predictions. The third model examined bidirectional (transactional) paths between child characteristics and social influences by adding cross-time paths from teacher–child closeness and peer problems to both conduct problems and receptive language. This model was labeled the *transactional model*. By comparing the child-driven model with the transactional model, we tested our basic assumption that social relationships have an influence on child development, specifically receptive language development. Moreover, by comparing the child-driven model with the transactional model, it was tested whether teacher–child closeness predicts language above and beyond child dispositions. Finally, a *full model* was tested with all cross-lagged paths possible, including cross-time paths between teacher–child closeness and peer problems. Testing cross-lagged paths between teacher–child closeness and peer problems was not part of our study's aim, and we therefore did not state an a priori hypothesis. In all models, we controlled for covariates (i.e., child sex, SEP, Indigenous status, main language).

Missing data. Mplus offers the advantage to accommodate incomplete data on the dependent variables using full information maximum likelihood (FIML) estimation under the assumption of missing at random (MAR). Cases with missing data on the covariate variables (0.4%) and cases with missing data on all dependent variables (5.2%) were excluded from the analyses. The covariance coverage matrix provides information on the extent of missing data estimation for the remaining sample. The covariance coverage ranged between .515 and .976 across all data points, which is well above the minimum threshold of .100 (Muthén & Muthén, 1998–2011).

Auxiliary variables were used to facilitate missing data analyses. Auxiliary variables included the conflict subscale of the STRS and teacher- and parent-rated SDQ subscales (i.e., prosocial skills, emotional problems) at all waves; parent reports of child school liking (e.g., "How much does your child like his or her teacher(s)?") and the "Who Am I?" school readiness measure of skills in literacy and numeracy (Australian Council for Educational Research, 1999) at Wave 1; the Matrix Reasoning test from the Wechsler Intelligence Scale for Children (WISC-IV; Wechsler, 2003); and child reports of teacher liking ("Do you like to see your teacher when you get at school?") and peer liking ("Are the children at school nice to you?") at Wave 2 and 3. Auxiliary variables are not part of the measurement model and thus do not influence the model.

Results

Table 1 presents descriptive statistics and correlations among the constructs at all waves. All correlations were in the expected directions.

Model Selection

First, a model with autoregressive pathways within constructs and within time correlations among constructs was tested (baseline model). The fit of the model was moderate, $\chi^2(40) = 825.4$; RMSEA = .07; SRMR = .05; CFI = .93. Second, cross-lagged paths were added from language and conduct problems to peer problems and closeness as well as cross-lagged paths between language and conduct problems (child-driven model), which significantly improved the model, $\Delta\chi^2(12) = 311.9$, $p < .0001$. Third, cross-lagged paths were added from peer problems and closeness to language and conduct problems (transactional model). Again, model fit improved significantly, $\Delta\chi^2(8) = 82.6$, $p < .0001$. Fourth, cross-lagged paths were added from closeness to peer problems and vice versa (full model). The change in model fit did not meet our significance level of $p < .01$, $\Delta\chi^2(4) = 10.3$, $p = .03$. Therefore, the full model was rejected, and the transactional model was selected as the best model. The overall fit of this final model was satisfactory, $\chi^2(20) = 459.6$; RMSEA = .07; SRMR = .02; CFI = .96. We then tested whether the cross-lagged paths

Table 1
Descriptive Statistics and Correlations Across Constructs and Ages (Age 4–5, Age 6–7, and Age 8–9)

	1	2	3	4	5	6	7	8	9	10	11	*M* (*SD*)
1. Peer problems 4–5												1.32 (.28)
2. Peer problems 6–7	.42											1.29 (.28)
3. Peer problems 8–9	.36	.51										1.29 (.30)
4. Conduct problems 4–5	.29	.27	.26									1.40 (.34)
5. Conduct problems 6–7	.24	.43	.35	.49								1.24 (.26)
6. Conduct problems 8–9	.20	.31	.47	.42	.60							1.22 (.28)
7. Language 4–5	−.18	−.12	−.13	−.13	−.13	−.14						64.4 (6.0)
8. Language 6–7	−.12	−.06	−.06	−.10	−.10	−.09	.47					73.9 (5.1)
9. Language 8–9	−.14	−.07	−.08	−.11	−.11	−.11	.42	.53				78.4 (4.9)
10. Closeness 4–5	−.36	−.20	−.14	−.20	−.14	−.12	.16	.15	.13			4.34 (.64)
11. Closeness 6–7	−.13	−.23	−.10	−.11	−.18	−.10	.09	.08	.10	.24		4.20 (.62)
12. Closeness 8–9	−.10	−.10	−.18	−.09	−.12	−.21	.10	.06	.07	.21	.25	4.03 (.67)

Note. All correlations were significant at $p < .001$ (two-tailed).

between language and closeness were invariant across time. We compared a model with paths constrained over time with a model with unconstrained paths over time. The effects of receptive language on closeness, $\Delta\chi^2(1) = .405$, $p = .32$, and the effects of closeness on receptive language were invariant across time, $\Delta\chi^2(1) = .994$, $p = .32$.

Cross-Sectional Links Between Covariates and Study Variables

In the final model, child gender and SEP were significant predictors of the dependent variables at all waves. Main language and Indigenous status were significant predictors at age 4–5 only. Specifically, girls had closer relationships with teachers at all ages, βs = .23 to .30; less peer problems at age 4–5 and 6–7, βs = −.09 to −.18; and less conduct problems at all ages, βs = −.19 to −.24. In addition, girls had higher receptive language scores than boys at age 4–5, β = .16; but lower scores at age 6–7, β = −.19. Children with average to high SEP had closer relationships with teachers at age 4–5 and 6–7, βs = .15 to .31; less peer problems at all ages, βs = −.16 to −.46; less conduct problems at all ages, βs = −.17 to −.41; and higher receptive language scores at all ages, βs = .18 to .48. Children whose main language was English had closer relationships with teachers, β = .27; less peer problems, β = −.33; and higher receptive language scores, β = .74, at age 4–5 only. Main language did not predict conduct problems. Indigenous children had more peer problems, β = .32; lower receptive language scores, β = −.23; and more conduct problems, β = .41, at age 4–5 only. Indigenous status did not predict closeness.

Hypothesized Developmental Links Between Study Variables

Figure 1 presents the final, time-constrained, transactional model with regression coefficients of the developmental paths significant at the 99% confidence interval. As expected, transactional associations between language and closeness were found (see Table 2). Receptive language at age 4–5 and age 6–7 predicted an increase in closeness at age 6–7 and age 8–9, respectively. Closeness at ages 4–5 and 6–7 predicted increases in receptive language at ages 6–7 and 8–9, respectively.

Multigroup analyses, comparing models with the cross-lagged paths between closeness and language constrained across groups and unconstrained across groups, showed that the cross-lagged paths were similar for boys versus girls, $\Delta\chi^2(4) = 3.924$, $p = .42$; for children with a low SEP versus average to high SEP, $\Delta\chi^2(4) = 0.565$, $p = .97$; for Indigenous children versus non-Indigenous children, $\Delta\chi^2(4) = 6.189$, $p = .19$; and for children who spoke English at home versus children who did not, $\Delta\chi^2(4) = 4.829$, $p = .31$. In addition, we created subgroups of children with low receptive language abilities (one or more *SD* below the mean on the PPVT) versus average to high receptive language abilities (one *SD* below the mean or higher) at age 4–5. The cross-lagged effects did not differ between these subgroups, $\Delta\chi^2(4) = 5.021$, $p = .29$.

Finally, because of possible rater bias, we examined two additional models. First, we reexamined the model using only parent reports of peer problems and conduct problems, $\chi^2(20) = 532.9$; RMSEA = .08; SRMR = .03; CFI = .95. Second, we reexamined the model using only teacher reports of peer problems and conduct problems, $\chi^2(20) = 305.8$; RMSEA = .06; SRMR = .02; CFI = .96. Both models showed adequate fit and demonstrated similar cross-lagged paths between closeness and receptive language to the original model.

Discussion

This study indicates that children's receptive language development in the early school years is promoted in the context of a close teacher–child relationship. It is among the first studies to demonstrate a reciprocal effect between closeness and language development in the general population. The findings complement and extend previous research that has found teacher–child closeness to be a predictor of developmental changes in receptive language in early childhood (Burchinal et al., 2002; Peisner-Feinberg et al., 2001) and literacy (Howes et al., 2008), and a predictor of developmental changes in reading and grammar in at-risk samples (Hughes, 2011; Liew, Chen, & Hughes, 2010; Schmitt, Pentimonti, & Justice, 2012). It also confirms processes found in cross-sectional research demonstrating that teachers develop closer relationships with children with higher language abilities (Justice et al., 2008; Moritz Rudasill et al., 2006). Our findings, however, contradict research that failed to find a prospective effect of

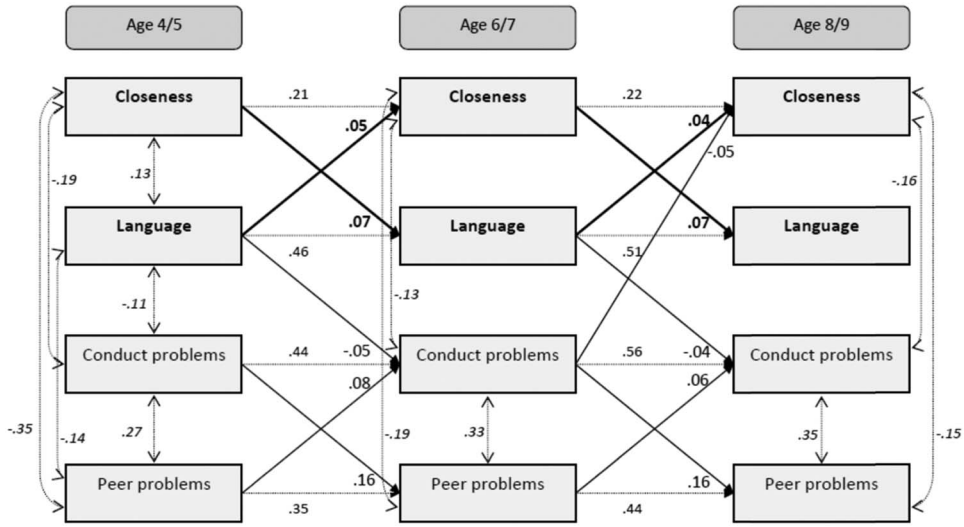

Figure 1. Developmental links between teacher–child closeness and receptive language while controlling for changes in peer interaction quality (peer problems) and child behavioral functioning (conduct problems). Standardized path coefficients (single-headed arrows) and within-wave correlations (double-headed arrows, estimates in italics) significant at the 99% confidence interval are presented. Correlations of the constructs at age 4–5, 6–7, and 8–9 with the time-invariant covariates (gender, SEP, language spoken at home, Indigenous ethnicity) were present but not depicted. The thick arrows represent the hypothesized cross-lagged paths between closeness and receptive language.

closeness on receptive language (Howes et al., 2008; Pianta & Stuhlman, 2004b).

Close Teacher–Child Relationships Facilitate the Development of Receptive Language

In line with social-interactionist perspectives on language acquisition that emphasize the importance of close relationships with communication partners, we found children's receptive language promoted in the context of a close teacher–child relationship. In addition, a consistent effect of receptive language on closeness was found across waves. This indicates that not only close relationships promote language skills but also that young students with better receptive language skills develop closer relationships with their primary school teachers (cf. Justice et al., 2008; Moritz Rudasill et al., 2006). Good receptive language skills are needed to engage in more sophisticated and extended conversations with teachers, which in turn appears to contribute to the development of a close and affectionate relationship. This in turn has a positive effect on subsequent growth in receptive language. Thus, the results suggest that the language development of children with high language ability is accelerated in the context of a close teacher–child relationship, creating a positive cascade in the first school years. Conversely, children with poor language abilities are at-risk of less close relationships with teachers in the first school years, which appears to further enlarge individual differences in language development.

Previous longitudinal research in the United States has yielded mixed support for a developmental link between closeness and receptive language in the preschool years and early elementary years. Some longitudinal studies did find a positive effect (Burchinal et al., 2002; Peisner-Feinberg et al., 2001), whereas other studies that controlled for previous test scores or examined gains within a given school year did not (Howes et al., 2008; Pianta & Stuhlman, 2004b). It is difficult to explain these differences as these previous studies were fairly similar with respect to sample characteristics, measurement, and analyses. The present study with a nationally representative sample of Australian children, however, expands prior studies in at least three ways. First, we examined bidirectional associations between closeness and receptive language, instead of unidirectional effects from closeness to language or vice versa, showing that language and closeness are reciprocally related. Second, this study provides an especially stringent test of the developmental link between receptive language and closeness because we controlled for child behavior problems and peer interaction problems as possible confounds in addition to relevant background variables. Third, we included an older age range, showing that the importance of close and personal relationships with school teachers for children's receptive language development extends well beyond the early childhood period.

Table 2
Standardized Cross-Lagged Paths Between Teacher–Child Closeness and Receptive Language

	β	99% Confidence interval
Closeness age 4–5 → Language Age 6–7	.068	.037–.100
Closeness age 6–7 → Language Age 8–9	.068	.037–.099
Language age 4–5 → Closeness Age 6–7	.047	.010–.083
Language age 6–7 → Closeness Age 8–9	.036	.008–.065

Because several previous studies have failed to find main effects of closeness on cognitive development (e.g., Hamre & Pianta, 2001; Pianta & Stuhlman, 2004b), it has been suggested in the literature that closeness is important only for the cognitive development of at-risk children (e.g., Baker, 2006). The present study provides new and strong support for a general promotive effect of closeness on cognitive development for all children as indicated by a positive (albeit small) main effect on receptive language development. Furthermore, it is noteworthy that the current findings contradict the suggestion found in some of the literature that associations between teacher–child relationships and achievement can be fully explained by a preference of teachers for relationships with children with higher academic skills and not by a promotive effect of close teacher–child relationships on language (cf. Maldonado-Carreño & Votruba-Drzal, 2011). In addition, the use of a well-established independent test as the measure of receptive language development excludes the possibility of teacher bias related to a tendency of teachers to rate students with whom they have a close relationship higher on language and other academic skills (cf. Maldonado-Carreño & Votruba-Drzal, 2011).

The effects of close teacher–child relationships on language and vice versa were very modest. Other studies of teacher and peer influences on children's language development have reported similarly small effects (Mashburn, Justice, Downer, & Pianta, 2009; Peisner-Feinberg et al., 2001). Several explanations are possible for the small effects. Although the assessment of receptive language was objective and standardized, the measure was not aligned with children's language curriculum at school. Curriculum-referenced assessment could have yielded stronger links between closeness and receptive language. On the other hand, using a more general test of receptive language may indicate that closeness truly contributes to aspects of children's broader language development than only to their school performance in language. In addition, the developmental link between closeness and language was found in a community sample and may be larger for specific at-risk groups of children (Burchinal et al., 2002; Justice et al., 2008), although our analyses indicated that the results did not differ depending on SEP, Indigenous ethnicity, initial level of receptive language skills at age 4–5, or whether children spoke English at home or not.

The small developmental association between closeness and language may also indicate that other factors are more important. In a study on home literacy, Leseman and Jong (1998) infer that the opportunity to engage in language-related activities (i.e., exposure) and instruction quality are more proximal predictors of language development than the quality of the caregiver–child relationship (see also Howes et al., 2008). The effect of closeness may also be dependent on such variables. It could be that the promotive effect of closeness on language learning will be maximized in the context of high instruction quality, but closeness may add little to language learning when instruction quality is low or when there is little opportunity to engage in language activities (Pianta, Belsky, Vandergrift, Houts, & Morrison, 2008). Unfortunately, instruction quality has not been assessed in the LSAC study.

Last, the age range should be considered as a possible explanation for the small effects. It has been suggested that the basis for receptive vocabulary development is laid in the earlier years of childhood prior to formal school entry and may become increasingly stable afterward (Burchinal et al., 2002; Dickinson et al., 2006). This implies that, in comparison with parents and preschool teachers, school teachers may have a limited impact on the vocabulary development of children. However, the analyses of invariance of the effects of time suggest that the effects of close teacher–child relationships, although modest, may continue without decline throughout the elementary school years. Longitudinal research covering a larger developmental period is needed to further examine these assumptions.

Limitations of the Study

Several qualifications of the research should be considered. First, we aimed to control for children's relationship experiences within the same social setting, that is, the classroom. However, the measure of peer interaction problems represents an indirect measure of children's experiences with peers. A direct measure of peer relationships in the classroom was not available, given that children's peers were not part of the LSAC study design.

A second limitation to be considered is that autoregressive cross-lagged designs do not prove causation. Although two key confounds were included in the model, the possibility of spurious associations among constructs due to the omission of unmeasured "cause variables" cannot be ruled out (Masten & Cicchetti, 2010). Based on the literature, it can be expected that the parent–child relationship predicts initial levels of, and some degree of continuity in, both teacher–child relationship quality and language abilities (O'Connor & McCartney, 2006; Verschueren & Koomen, 2012). However, because initial levels and stability were controlled for in the transactional model, parent–child relationships were not likely to account for the transactional links between closeness and language. Third, the findings of this study are limited to developmental links between closeness and (oral) receptive language. It would be interesting in future research to examine developmental associations between closeness and other measures of vocabulary (e.g., word comprehension, productive vocabulary, cf. Pearson, Hiebert, & Kamil, 2007) as well as other language skills (e.g., language complexity, cf. Moritz Rudasill et al., 2006) or curriculum-based assessments. Fourth, teacher reports of closeness provide an indirect measure of children's experiences and generally show modest convergence with children's own reports of relationship quality (e.g., Doumen et al., 2009). The measurement of closeness could be improved by using a multi-informant approach including the child's perceptions but perhaps also the perceptions of peers (e.g., Doumen et al., 2009). Fifth, it should be noted that teacher–child relationship quality is typically described along three separate dimensions: closeness, conflict, and dependency (Koomen et al., 2012; Pianta, 2001). Because the social-interactionist theory on language acquisition emphasizes the importance of closeness and affection in dyadic relationships, we focused on closeness in this study. In addition, there seems to be less evidence for a direct link between conflict and language comprehension (Justice et

al., 2008) or other language abilities (Oades-Sese & Li, 2011; Schmitt et al., 2012). Finally, it should be noted that we divided our sample into children from a low versus children from an average-to-high SEP. To ensure that this did not affect the results, we reexamined the final model using a continuous *z* score of SEP, which yielded virtually the same results.

Recommendations for Future Research

Future research needs to further unravel why it is that receptive language development is promoted in the context of close teacher–child relationships. It is hypothesized that a child who shares a close relationship with his or her teacher has more personalized and extended one-to-one conversations with the teacher. To test this latter assumption, researchers could examine the frequency, quality or complexity, and emotional-valence of dyadic teacher–child conversations as mediating mechanisms (Dickinson & Porche, 2011). The quality of verbal interaction could be observed in social activities and reading-focused activities. Furthermore, the positive effects of close teacher–child relationships on motivation for learning and classroom participation may account for the effects of close teacher–child relationships on improved receptive language (Hughes et al., 2008). In addition, children with close relationships may receive academic instruction tailored to their educational and emotional needs, which enhances cognitive processing of instruction and subsequent learning (Crosnoe et al., 2010).

It is important to consider instructional dimensions in addition to emotional dimensions of teacher–child relationships. Warm relationships may promote language-related skills and facilitate language development, but for full language mastery explicit instruction is also needed (Pianta, 2006). Future research could examine the relative influence of emotional and instructional aspects of teacher–child interactions on language development (e.g., Howes et al., 2008), or whether the impact of instruction is dependent on the emotional quality of the relationship with the teacher (e.g., Crosnoe et al., 2010; Pianta et al., 2008). Observational research is recommended for a detailed study of language exposure and informal (e.g., personal conversation) and formal activities (e.g., language lessons) and quantity and quality of received instruction and feedback in relation to teacher–child relationship qualities. Finally, it remains to be examined whether the findings are specific for children's receptive language development or whether the findings represent a more general effect of closeness on cognitive development.

Conclusions and Practical Implications

Language plays a vital role in children's sociobehavioral and school development. Taking into consideration the increasing stability of externalizing problems and achievement trajectories in mid-elementary school (NICHD Early Child Care Research Network, 2004; Pianta et al., 2008), it is critically important to identify malleable factors in children's early school environment that can improve language development and indirectly influence trajectories of externalizing problems and academic problems. This study highlights close teacher–child relationships as a means through which children's language development can be promoted in the early school years. Although intervention research on dyadic teacher–child relationships is still at an early stage, there are several programs that have yielded promising results, including dyadic intervention based on play therapy (Driscoll & Pianta, 2010), individualized consultant-facilitated teacher reflection on relationships with individual children (Spilt, Koomen, Thijs, & van der Leij, 2012), and individualized coaching of teachers to improve classroom interactions (Cappella et al., 2012). These programs may be especially interesting to encourage the development of close relationships between teachers and children with low language abilities. Moreover, in future research, these interventions could be used to experimentally manipulate teacher–child closeness and obtain evidence for a causal effect of closeness on children's cognitive development in general and language development specifically.

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