

How fathers' attachment security and education contribute to early child language skills above and beyond mothers: parent-child conversation under scrutiny

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ABSTRACT

Attachment (AQS) of 100 children aged 12 to 24 months was observed, with more than half of the fathers (and mothers) representing higher social status. Children's language comprehension and production were measured using the Bayley Scales for receptive (RLS) and expressive language skills (ELS). Spontaneous book reading conversations in father-child and mother-child dyads were coded from videotapes, capturing five modes of conversation derived from research on dialogic reading. Path modelling examined the association of these modes on children's RLS and ELS in concurrence with parental attachment and education. First time, significant effects of father-child attachment security on children's RLS were revealed (and confirmed for mother-child dyads). Fathers' impact on child language skills could be further explained through modes which inquire and imitate child responses which were related to RLS and ELS, respectively. Although mothers' modes of conversation were associated with the mother-child attachment relationship, the father-child conversations were not so but instead were associated with the father's educational background.

KEYWORDS

Language pragmatics; dialogic reading; parent gender; fatherhood; picture book

How Fathers' Attachment Security and Education Contribute to Early Child Language Skills Above and Beyond Mothers: Five Modes of Conversation under Scrutiny

Studies on early language acquisition traditionally focused on the two basic integral facets of language, i.e., comprehension and production. Clearly, universal mechanisms play a role, such that comprehension drives language acquisition insofar as comprehension precedes language production developmentally and exceeds it substantively (see Bornstein & Hendricks, 2012). However, early language acquisition is also clearly susceptible to environmental conditions, of which parent-child interactions that provide children with opportunities for communicative experiences are central. In exploring parents' and children's language use, past studies have therefore increasingly paid attention to the quality of the home environment in the form of social status, and a few studies also began to examine the quality of the parent-child relationship.

Different home environments produce different communication contexts and shape language development in such a way that effects of the social status of the families are obvious even when children's language skills in middle-class and upper-class families are

examined; children from high-SES families use a richer vocabulary, for example (e.g., Hoff, 2006; Pancsofar & Vernon-Feagans, 2006; Varghese & Wachen, 2016). These findings suggest that families with high social status cultivate a strong language experience for children. Perhaps parents' education influences parents' language input such that better parental language skills lead to more appropriate and stimulating parent-child conversations.

Parent-child conversations rest on a psychological infrastructure of joint attention, shared knowledge and shared intentionality (Tomasello, 2008). While current research on parents' and children's language use has been dealing with structural linguistic characteristics (i.e., length of utterance, quantity of words, lexical diversity, linguistic and syntactical complexity, intonation, and prosody), studies on pragmatic and conversational patterns of parent-child dyads remain rare (for an overview see MacWhinney & O'Grady, 2015). Only a few studies used shared picture book reading to identify and provide types of pragmatic modes (see Bus, Belsky, van IJzendoorn, & Crnic, 1997; Zevenbergen & Whitehurst, 2003). Book reading situations are well-tailored to the child, providing a frame in which common intersubjective grounds for parent-child communication can be established and pragmatic modes of conversation explored (Clark, 2009). Zevenbergen and Whitehurst (2003) suggested dialogic reading techniques, and encourage parents to start by asking the child questions, to follow the child's answers, to repeat what the child says, to help the child's expressions (e.g., describing and commenting), to follow the child's interests (e.g., expanding and elaborating) and to have fun by initiating turn-taking cycles during the conversation. The present study utilized shared picture book reading in order to understand how fathers stimulate conversation with their children, and whether the ways fathers stimulate are associated with the father-child attachment and related to the children's language output. For this reason, we involved the mothers of the same children in this study to explore how a father contributes to child language acquisition over and above the mother. Five modes of conversation were analyzed, namely *Describing-Commenting*, *Pointing-Labeling*, *Inquiring-Clarifying*, *Expanding-Elaborating*, and *Repeating-Imitating*, which were not exhaustive but representative for adult-child conversations during the early phases of language acquisition.

Following the view that SES in middle-class and upper-middle-class families is most often represented by fathers' education, it was first expected that the five modes of conversation would be associated with fathers' education. But research has also shown that fathers' education in general relates to positive regard for their children. This may indicate an important aspect of parental competence – namely, the ability to appropriately perceive children's behaviors and to adequately respond to them, which, in turn, might shape parent-child conversations (e.g., Marjanovic-Umek, Fekonja-Pekljaj, & Socan, 2017; Tamis-LeMonda, Shannon, Cabrera, & Lamb, 2004). These response patterns are known as sensitivity, which is the parental behavior thought to underlie secure attachment. Interestingly, when the association between attachment security and sensitivity across 66 studies was explored, SES significantly moderated the association, with higher effects for middle-class than lower-class families (de Wolff & van IJzendoorn, 1997). Therefore, it was expected that attachment security and education are related, at least for fathers.

For mother-child dyads, it has been shown repeatedly that attachment security relates to children's language skills (Costantini, Cassibba, Coppola, & Castoro, 2012; van IJzendoorn, Dijkstra, & Bus, 1995), and that this association held even in difficult

life circumstances (e.g., Belsky & Fearon, 2002; Hirsh-Pasek & Burchinal, 2006). In addition, Tamis-LeMonda, Bornstein, and Baumwell (2001) demonstrated how powerfully sensitivity predicts the timing of several child language milestones; that is, child's first sound imitation, first word, time of acquisition of the 50-word vocabulary, combinatorial speech, and the use of language to talk about the past. Only a small number of researchers, however, aimed to include modes of conversations through which attachment security may act on children's language acquisition in specific ways (see Bus et al., 1997), even though some evidence-based theorems of attachment theory suggest this approach (e.g., Carter et al., 2006). *First*, the harmonious relationship climate in secure parent-child dyads might make it possible to communicate on current levels of child language performance. *Second*, orienting the child towards the environment might also mean that the parents with secure relationships with their children are motivated to enrich the child's world and convey every-day knowledge; they may thus describe and comment as well as inquire and provide clarifications about persons, objects, and activities that the child is interested in and involved with. *Third*, parents might also be invited by securely attached children to support their explorations, and might be encouraged to expand and elaborate what they assume the child is most interested in. *Finally*, parents of securely-attached children might also be willing to respond to their children's growing communicative needs, and might contribute by repeating and imitating child utterances. Overall, the five pragmatic modes substantiated by communication theories (Tomasello, 2008) and verified by dialogic reading techniques for helping children to acquire language (Zevenbergen & Whitehurst, 2003), should be common in parents' regular conversations with children, particularly in secure parent-child dyads. Whether and which modes of conversation are related to expressive and receptive language skills, however, needs to be explored.

Past research on child language was mainly conducted with mothers, who were expected to have both more contact and familiarity with their children and influence on their children's language development than fathers. Recent studies that included fathers reported many similarities between mothers' and fathers' conversations with their children – for example, when they provide or request information (e.g., Kwon, Bingham, Lewsader, Jeon, & Elicker, 2013; Ryckebusch & Marcos, 2004). However, there are also areas in which differences are well documented. Fathers are less likely to continue a child's topic of conversation, and are less skillful in supporting their children's conversations than mothers (Leaper, Anderson, & Sanders, 1998), and place more demands on their children for language production (Lovas, 2011). However, many studies did not control for SES influences or only explored low-income families (e.g., Rowe, Coker, & Pan, 2004; Tamis-LeMonda, Baumwell, & Cristofaro, 2012), and the quality of parent-child attachments was rarely taken into account (c.f., Bus et al., 1997). Altogether, this makes it challenging to compare parents' and children's language use across studies.

Until now, it is quite unclear whether and how parents' education and attachment security support the child's language acquisition, and especially whether and how fathers contribute to early child language skills above and beyond mothers. The present study thus explored conversations in father-child dyads (in middle- and upper-middle-class families) during spontaneous picture book reading situations, which have been consistently used to assess adults' language input (see Clark, 2009). On these grounds, mothers' conversations with the same child were also controlled for in order to

investigate the unique contribution of the fathers to the children's language outcomes. A path model was utilized in order to tie the effects of education and attachment security to children's language skills and to test the impact of both fathers' and mothers' language input on children's language comprehension and production simultaneously, while evaluating the five modes of conversation.

Research questions were: (1) to what extent the five modes of conversation were applied in spontaneous picture book reading by the parents, and whether and how their usage differed between fathers and mothers, (2) whether and how fathers' education and attachment security influenced children's language skills above and beyond mothers, and (3) whether and how the modes were linked to children's language skills. Finally, (4) whether and how fathers' education and attachment security (above and beyond mothers') were associated with the modes of conversation was also examined.

Method

Sample

A total of 100 Austrian children (46 girls) aged between 12 and 24 months ($M = 18.14$, $SD = 3.26$) and their parents participated in the study. All families originated from Austrian middle to upper-middle-class households, with 53% fathers and 61% mothers having a college or university degree. The monthly family income was less than 2,000 € for only 14.43%, 2,000 to 3,000 € for 36.06%, 3,000 to 4,000 € for 26.80%, and more than 4,000 € for 22.68% of the families. On average, fathers were 36.41 ($SD = 6.62$) and mothers 33.04 ($SD = 5.37$) years old. Two families were excluded from analyses due to an insufficient quality of the video recordings.

Overall design

The families were visited twice. Consistent with the ethical approval stipulations (Medical University of Vienna: ECS 1710/2013), parents provided written informed consent before the research began. During each visit, two-hour observations were made to capture a parent's attachment security with the target child, followed by a shared picture book reading situation for which the parent was randomly selected. In addition, parents were interviewed and answered questionnaires regarding their education, employment, family income as well as additional characteristics of the home environment during the first visit. The BSID-III scales were administered to assess the child's language skills during the second visit.

Measures

Parents' education

Parents' education was obtained from interviews, and was dichotomized based on a cut-off at the highest educational degree (university and college degree) into two groups of fathers and mothers with middle (without these degrees) vs. high education (with these degrees).

Attachment security

The Attachment-Q-Sort (AQS; Waters, 1995) was used to observe attachment security of the father-child and mother-child dyads, separately. During each home visit, two trained research assistants observed the respective parent-child dyad for at least two hours at the same time and evaluated the attachment security of the dyad independently from each other. The assistants reached an interrater reliability of $r = .87$, which justified that an averaged AQS score was used in subsequent analyses. These AQS scores ranged between -1.0 and $+1.0$ with higher scores representing higher attachment security of the observed dyad. In order to ensure normal distribution (see Teti, Nakagawa, Das, & Wirth, 1991), all AQS scores were subjected to Fisher's r -to- z transformation. The AQS scores did not reveal significant differences between mother- and father-child dyads, $t = 0.59$, $p = .560$ (mother-child AQS score: $M = 0.47$, $SD = 0.25$; father-child AQS score: $M = 0.49$, $SD = 0.23$).

Children's language skills

Using the Bayley Scales of Infant and Toddler Development (BSID-III; Bayley, 2006), language comprehension was assessed based on the subscale on receptive language skills (RLS), and language production based on the expressive language skills (ELS) subscale. BSID-III scaled scores for RLS were 11.47 ($SD = 2.78$) on average and 10.46 ($SD = 2.28$) for ELS. *Receptive language skills (RLS)* capture (a) child's size of vocabulary that identifies objects, pictures, and body parts, (b) child's grammar and sentence comprehension (child is confronted with short prompts), and (c) child's understanding of negations and comparatives. *Expressive language skills (ELS)* assess (a) child's preverbal behaviors, such as babbling, gesturing, joint referencing, and turn taking, (b) selected aspects of the child's vocabulary (child must name objects), and (c) child's morphosyntactic skills, such as the use of two-word utterances, plurals, and verb tense.

Modes of conversation

To capture modes of spontaneous parent-child conversations, picture book reading situations were videotaped during which the parent used a lift-the-flap book with farm animals (Schuld, 2011) to communicate with the child as long as the child liked. This situation lasted on average 5 min 22 s ($SD = 42$) for father-child dyads and $M = 5$ min 28 s ($SD = 43$) for mother-child dyads. Three assistants defined and coded the five modes of conversation: (1) *Describing-Commenting* when the parent described the depicted situation in the book, commented on details, and/or gave general information (without reference to the child's everyday experience), (2) *Pointing-Labeling* when the parent pointed and/or named a detail in the book, and drew the child's attention to inconspicuous details, (3) *Inquiring-Clarifying* when the parent asked any kind of open or closed questions including requests, and helped the child to express personal opinions, (4) *Expanding-Elaborating* when the parent followed the child's expressions and/or related them to everyday experiences of the child, and (5) *Repeating-Imitating* when the parent repeated the child's expressions literally and/or imitated them analogously, and paid attention to turn-taking routines. Examples for each mode are shown in Table 1.

Table 1. Examples for the five modes of conversation.**Describing–Commenting**

Father of a 24-month-old boy comments on a picture: *“There are bugs all over the grass.”*

Father of an 18-month-old girl describes a picture: *“The rabbit hops down the way.”*

Mother of a 20-month-old girl explains: *“There is a mole down the earth.”*

Pointing–Labeling

Father of a 15-month-old boy points to a group of pigs: *“Look, these are pigs!”*

Father of a 17-month-old girl points to the face of a cow: *“Here is the nose.”*

Mother of a 23-month-old girl reveals a butterfly behind a flap: *“A butterfly!”*

Inquiring–Clarifying

Mother of a 19-month-old boy asks: *“Is this the cat?”*

Father of a 21-month-old boy asks: *“What does the pig say?”*

A 22-month-old boy says: *“A pi-h”*. Father asks: *“Do you mean the pig lying down here?”*

Expanding–Elaborating

Father of a 17-month-old girl says: *“Yeah, a pear. You have just eaten a pear 20 minutes ago.”*

A 23-month-old boy points to a tractor. Father says: *“We were driving the tractor yesterday.”*

A 20-month-old girl points to a bowl. Mother says: *“I think this bowl looks like grandma’s bowl. You also have a bowl.”*

Repeating–Imitating

A 23-month-old girl points to a sleeping sheep: *“Shhh!”*. Father repeats: *“Shhh!”*

A 12-month-old boy says: *“Woof, Woof!”*. The mother says: *“Woof woof makes the dog!”*

A 22-month-old boy points to a tractor and says: *“Boy, in”*. Father replies: *“A boy in the tractor.”*

Using the software INTERACT (Mangold, 2015), the average count for each mode was calculated per minute. The three assistants received intensive training to detect the modes during the ongoing parent-child conversation. Interrater reliability was based on 25% of all video recordings that were double coded ($n = 49$), and ranged between $ICC = .79$ and $.96$ for all modes.

Data analysis

We were first interested in how often fathers and mothers used the five modes of conversation per minute during the picture book reading situation, and tested the differences using Wilcoxon-tests. Second, a path analysis was conducted to examine the associations among parents’ education, attachment security, and the five modes of conversations on children’s RLS and ELS. The path analysis was run in R (R Core Team, 2017) using the package lavaan (Rosseel, 2012), and was set up as follows: (1) a direct path from RLS to ELS, the two domains of children’s language skills, was set to describe the fundamental connection between language comprehension and production, (2) child gender as well as attachment security with and education of both parents were entered to predict RLS and ELS, (3) parents’ modes of conversation were included to predict RLS and ELS, (4) parents’ modes of conversation were regressed on father- and mother-child attachment security and education, (5) correlations between the modes were included and equally constrained for both parents, taking into account the typical dialogic reading patterns. Finally, to control for the dependency of all variables, corresponding variables from fathers and mothers were correlated with each other.

The path model was run with ML estimation. According to Tabachnik and Fidell (2007), a satisfying model should have the following fit indices: The χ^2 -test should not be significant, the Comparative Fit Index (CFI), especially suitable for smaller sample sizes, should be greater or equal to $.95$, and the Root-Mean-Square Error of Approximation (RMSEA) should be lower or equal to $.05$.

Results

The use of pragmatic modes in parent-child conversations

A series of Wilcoxon-tests, revealed that fathers and mothers used the five modes of conversation similarly with one exception, i.e., the *Pointing-Labeling* mode was used more frequently by mothers than fathers. In addition, descriptive statistics showed that the use of *Inquiring-Clarifying* was most common in both parents, followed by *Pointing-Labeling* (see Table 2).

Effects of parents' attachment security, education and their modes of conversation on children's language skills

The path model explained 35.9% variance of RLS and 38.2% variance of ELS, and had an excellent fit with $\chi^2(74) = 76.656$, $p = .393$, $CFI = 0.983$ and $RMSEA = .019$ (Tabachnik & Fidell, 2007). All resulting paths and associations are presented in Table 3; significant ones are visualized in Figure 1.

As expected, RLS predicted ELS in the present model, $\beta = 0.366$, $p < .001$, underscoring the fact that language comprehension precedes production. Whereas RLS appeared at equal levels for girls and boys, child gender was negatively linked to ELS, $\beta = -0.230$, $p = .004$, with higher ELS levels for girls than boys (see Table 3, Block A).

Next, the model tested whether and how attachment security and parents' education might influence ELS and RLS, and found significant paths of both attachment security and parents' education, but only on RLS not ELS. Specifically, fathers' attachment security, $\beta = 0.189$, $p = .025$, and fathers' education, $\beta = 0.211$, $p = .017$, predicted RLS positively, above and beyond mothers' attachment security, $\beta = 0.231$, $p = .009$, whereas mothers' education did not show any predictive power. Parallel to attachment security and parents' education, the model further tested whether the five modes of conversation were related to ELS and RLS. The results showed that three modes of conversation (*Inquiring-Clarifying*, *Pointing-Labeling* and *Repeating-Imitating*) were associated with RLS and/or ELS overall. In more detail, both parents' use of *Inquiring-Clarifying* predicted RLS, even though fathers' use was negatively, $\beta = -0.191$, $p = .036$, and mothers' use was positively, $\beta = 0.262$, $p = .005$, related to RLS. Although no significant link between fathers' *Pointing-Labeling* and RLS was found, mothers' *Pointing-Labeling* predicted RLS positively, $\beta = 0.198$, $p = .027$. Finally, ELS was predicted by fathers' *Repeating-Imitating*, $\beta = 0.192$, $p = .028$ (see Table 3, Block A).

As a next step, the model tested whether the five modes of conversation were linked to attachment security and parents' education. Surprisingly, fathers' modes were only

Table 2. Parents' use of the five modes of conversation.

Modes of conversation	Fathers			Mothers			Wilcoxon-test
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	
Describing-Commenting	87	0.98	0.85	87	1.06	1.22	$Z = -0.102$
Pointing-Labeling	97	2.13	1.45	96	2.56	1.29	$Z = -2.667^*$
Inquiring-Clarifying	98	4.76	2.29	95	4.60	2.07	$Z = 0.181$
Expanding-Elaborating	34	0.11	0.18	40	0.10	0.15	$Z = 0.375$
Repeating-Imitating	83	0.73	0.77	73	0.62	0.63	$Z = 0.286$

n = number of parents using the respective mode at least once. *M* = mean usage of the mode per minute. * $p < .05$

Table 3. Results of path analysis.

Variable	Association	Variable	<i>b</i>	<i>SD</i>	β	<i>p</i>
BLOCK A						
Receptive language skills (RLS)	←	Child gender (male)	0.644	0.456	0.115	.158
	←	Attachment security (M)	2.614	1.004	0.231	.009
	←	Education (M)	-0.331	0.487	-0.058	.497
	←	Attachment security (F)	2.362	1.052	0.189	.025
	←	Education (F)	1.191	0.497	0.211	.017
	←	Inquiring–Clarifying (M)	0.350	0.124	0.262	.005
	←	Describing–Commenting (M)	-0.078	0.206	-0.033	.704
	←	Pointing–Labelling (M)	0.439	0.199	0.198	.027
	←	Expanding–Elaborating (M)	0.201	1.725	0.010	.907
	←	Repeating–Imitating (M)	0.294	0.396	0.067	.458
	←	Inquiring–Clarifying (F)	-0.249	0.119	-0.191	.036
	←	Describing–Commenting (F)	0.198	0.302	0.061	.511
	←	Pointing–Labelling (F)	0.053	0.185	0.026	.776
	←	Expanding–Elaborating (F)	-0.254	1.279	-0.017	.843
Expressive Language Skills (ELS)	←	Repeating–Imitating (F)	-0.076	0.332	-0.020	.819
	←	RLS	0.292	0.080	0.366	.000
	←	Child gender (male)	-1.031	0.361	-0.230	.004
	←	Attachment security (M)	0.903	0.813	0.100	.267
	←	Education (M)	-0.564	0.383	-0.123	.141
	←	Attachment security (F)	0.159	0.845	0.016	.851
	←	Education (F)	-0.111	0.401	-0.025	.781
	←	Inquiring–Clarifying (M)	0.091	0.101	0.085	.370
	←	Describing–Commenting (M)	-0.054	0.161	-0.029	.736
	←	Pointing–Labelling (M)	0.210	0.160	0.119	.188
	←	Expanding–Elaborating (M)	-2.381	1.351	-0.152	.078
	←	Repeating–Imitating (M)	0.374	0.311	0.107	.229
	←	Inquiring–Clarifying (F)	-0.075	0.095	-0.072	.431
	←	Describing–Commenting (F)	-0.202	0.237	-0.079	.394
←	Pointing–Labelling (F)	0.228	0.145	0.143	.116	
←	Expanding–Elaborating (F)	-0.967	1.003	-0.079	.335	
←	Repeating–Imitating (F)	0.571	0.260	0.192	.028	
BLOCK B						
Inquiring–Clarifying (M)	←	Attachment security (M)	0.675	0.828	0.080	.415
	←	Education (M)	-0.152	0.422	-0.035	.719
Describing–Commenting (M)	←	Attachment security (M)	0.164	0.483	0.034	.735
	←	Education (M)	-0.265	0.246	-0.109	.281
Pointing–Labelling (M)	←	Attachment security (M)	0.713	0.508	0.140	.160
	←	Education (M)	0.112	0.259	0.043	.666
Expanding–Elaborating (M)	←	Attachment security (M)	0.181	0.055	0.314	.001
	←	Education (M)	-0.010	0.028	-0.034	.725
Repeating–Imitating (M)	←	Attachment security (M)	-0.038	0.250	-0.015	.880
	←	Education (M)	0.033	0.127	0.025	.797
Inquiring–Clarifying (F)	←	Attachment security (F)	0.931	0.933	0.097	.318
	←	Education (F)	-0.119	0.422	-0.028	.777
Describing–Commenting (F)	←	Attachment security (F)	0.193	0.375	0.050	.607
	←	Education (F)	0.512	0.169	0.293	.003
Pointing–Labelling (F)	←	Attachment security (F)	-0.202	0.615	-0.032	.742
	←	Education (F)	0.626	0.278	0.222	.024
Expanding–Elaborating (F)	←	Attachment security (F)	0.014	0.083	0.017	.868
	←	Education (F)	0.012	0.037	0.034	.738
Repeating–Imitating (F)	←	Attachment security (F)	0.006	0.324	0.002	.986
	←	Education (F)	-0.089	0.146	-0.059	.545
BLOCK C						
Inquiring–Clarifying (M) [a]	↔	Pointing–Labelling (M)	0.636	0.177	0.244	.000
Inquiring–Clarifying (M) [b]	↔	Repeating–Imitating (M)	0.363	0.094	0.273	.000
Describing–Commenting (M) [c]	↔	Pointing–Labelling (M)	0.380	0.090	0.259	.000
Describing–Commenting (M) [d]	↔	Expanding–Elaborating (M)	0.034	0.011	0.214	.002
Inquiring–Clarifying (F) [a]	↔	Pointing–Labelling (F)	0.636	0.177	0.218	.000
Inquiring–Clarifying (F) [b]	↔	Repeating–Imitating (F)	0.363	0.094	0.227	.000

(Continued)

Table 3. (Continued).

Variable	Association	Variable	<i>b</i>	<i>SD</i>	β	<i>p</i>
Describing–Commenting (F) [c]	↔	Pointing–Labelling (F)	0.380	0.090	0.336	.000
Describing–Commenting (F) [d]	↔	Expanding–Elaborating (F)	0.034	0.011	0.224	.002
BLOCK D						
Attachment security (M)	↔	Attachment security (F)	0.013	0.006	0.232	.026
Education (M)	↔	Education (F)	0.058	0.025	0.239	.022
Inquiring–Clarifying (M)	↔	Inquiring–Clarifying (F)	1.103	0.417	0.247	.008
Describing–Commenting (M)	↔	Describing–Commenting (F)	0.009	0.085	0.010	.911
Pointing–Labelling (M)	↔	Pointing–Labelling (F)	0.146	0.148	0.086	.325
Expanding–Elaborating (M)	↔	Expanding–Elaborating (F)	0.000	0.002	0.012	.902
Repeating–Imitating (M)	↔	Repeating–Imitating (F)	0.139	0.048	0.292	.003
R^2						
Receptive Language Skills (RLS)			.359			
Expressive Language Skills (ELS)			.382			

M = mother, F = father. Brackets with the same letter specify an equality constraint.

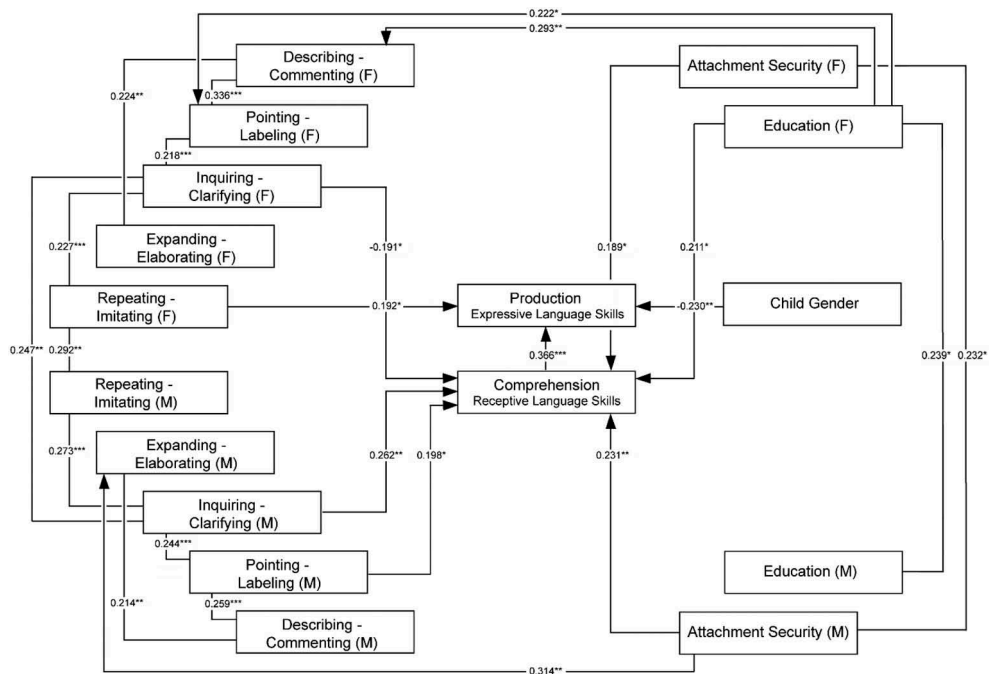


Figure 1. The path model predicting expressive and receptive language skills by attachment security, education, modes of conversation and child gender. Only significant paths and associations are drawn with standardized coefficients. Intercorrelations are drawn as paths without arrows. M = mother, F = father. * $p < .05$; ** $p < .01$; *** $p < .001$.

connected to fathers' educational level. The use of *Describing–Commenting*, $\beta = 0.293$, $p = .003$, and *Pointing–Labelling*, $\beta = 0.222$, $p = .024$, was positively associated with fathers' education. In contrast, mothers' modes were connected to attachment security; i.e., the use of *Expanding–Elaborating*, $\beta = 0.314$, $p = .001$, was positively associated with mother-child attachment security (see Table 3, Block B).

In addition, entire patterns of parent-child conversation that typically emerge in dialogic reading situations were demonstrated. The model revealed associations between *Inquiring-Clarifying* and *Pointing-Labeling* as well as *Repeating-Imitating*, and likewise between *Describing-Commenting* and *Pointing-Labeling* as well as *Expanding-Elaborating* (see Table 3, Block C). Finally, the model controlled for dependencies of the measures between fathers and mothers and found significant interparental associations for education, $\beta = 0.239$, $p = .022$, and children's attachment security, $\beta = 0.232$, $p = .026$. Furthermore, the use of two modes of conversation was related for fathers and mothers; i.e., *Inquiring-Clarifying*, $\beta = 0.247$, $p = .008$, and *Repeating-Imitating*, $\beta = 0.292$, $p = .003$ (see Table 3, Block D).

Discussion

The present study examined whether and how fathers may influence their children's language development above and beyond mothers. We chose book reading situations as they allow for dialogue structures in which parents stimulate conversation and encourage the child's language skills. These situations trigger a typical ritualized dialogue structure that helps the child to integrate current language use, thereby enabling parents to challenge child language development. On these grounds, we investigated the role of father-child attachment (against the background of mother-child attachment) in five modes of conversation that are typical for parent-child conversations at the level of one-year olds' language performance. We further examined links between father-child attachment and children's language skills, and were among the first to do so. While there was consensus so far that the harmonious relationship climate in secure mother-child dyads is linked to appropriate mother-child conversations, which in turn foster children's language skills (e.g., Costantini et al., 2012; van IJzendoorn et al., 1995), the present study found this link for father-child dyads too.

Although both parents used the five modes equally frequently (except *Pointing-Labeling*), sources and beneficial effects for parents' conversations with their children differed as a function of parent gender. Mothers seemed to generate their modes of conversation foremost out of the attachment relationship to the child. Fathers' modes seemed to derive from their social status, indicated by fathers' education. These findings confirm Bus et al. (1997), showing that the paternal modes of conversation are not related to father-child attachment. Overall, it seemed that the modes used in mother-child conversations were mainly attachment-driven, whereas father-child conversations appeared rather education-driven. One might speculate that fathers with higher education might feel responsible for a stimulating home environment, may value good conversation and language skills, and therefore expect themselves to scaffold their children's language development in order to transmit their social status to the next generation. Moreover, the present study revealed that fathers' education was related to father-child attachment security (whereas the same was not observed for mothers), so that father-child conversations might be generated from paternal education, but nurtured and maintained by attachment. This is in line with Piskernik and Ahnert (in press), who demonstrated that the higher levels of attachment security in father-child dyads were, the more fathers engaged in learning and language-based activities with their children.

In the present study, attachment security in mother-child dyads appeared influential on the use of *Expanding-Elaborating*, which was linked to other modes (specifically

Pointing–Labeling and *Inquiring–Clarifying*), suggesting that the association of attachment security and child language skills might be supported by entire conversational patterns. The maternal input was also positively associated with children’s language comprehension, suggesting that mothers might patiently accompany the child’s perception of language and trust in a gentle approach to language development that results in a linguistically competent child. This interpretation is in line with studies on the relation between children’s language comprehension and production, which attach greater importance to comprehension rather than production (Bornstein & Hendricks, 2012). Notably, the association between mothers’ language input and ELS was mediated by RLS. Interestingly, the present study confirmed gender-based findings of children’s language output only in terms of language production, with girls outperforming boys (see MacWhinney & O’Grady, 2015). The fundamental processes of language comprehension remained unaffected by child gender.

However, the present findings also suggest that fathers tend to be less “fine-tuned” to their children’s conversation than mothers. That is, fathers’ use of the *Inquiring–Clarifying* mode was associated with lower levels of children’s language comprehension. Greater use of questions and clarification requests in father-child dyads is consistent with the notion that fathers are more challenging communication partners. However, fathers’ use of questions was negatively associated with child language comprehension, which might be a consequence of fathers’ failure to understand what the child has said. Asking for more clarification might therefore also reflect the less precise nature of father-child conversations (e.g., Kornhaber & Marcos, 2000; Leaper et al., 1998; Leech, Salo, Rowe, & Cabrera, 2013; Rowe et al., 2004). In addition, fathers’ *Repeating–Imitating* was positively linked to children’s language production. That is, greater use of this mode was associated with higher levels of children’s expressive language skills, which might function as a feedback mechanism consolidating and encouraging children’s verbal expression (see also Schwab, Rowe, Cabrera, & Lew-Williams, 2018). Fathers’ *Repeating–Imitating* may motivate children to actively take part in the conversation, reminiscent of findings about playfulness in father-child interactions and fathers’ tendencies to provide fun and entertainment in children’s lives (Ahnert et al., 2017; Lamb & Lewis, 2010).

Although this study contributes to our understanding of how fathers (above and beyond mothers) foster their children’s language skills, there are some limitations to this study. The shared picture book situation proved to be suitable for research on early language acquisition (e.g., Clark, 2009), but should be compared to other everyday conversational situations in children’s lives to assure ecological validity. We did not gather information on how often fathers (and mothers) read to their children, therefore, it is unclear whether and how parental experiences with book reading might shape the investigated issues. The handling of cross-sectional data in path models suggests causal and unidirectional interpretations, which, however, must be avoided. Furthermore, parent-child conversations are also shaped by the child’s language behaviors, especially as children become older. Parents adapt their communication style depending on the child’s language input (Kwon et al., 2013; Schwab et al., 2018). Future studies on the use of pragmatic modes should therefore include child language use to discern how much parents’ and children’s use of the modes are intertwined. Finally, the present results were found in middle to upper-

middle class families in which primarily one language was spoken. Thus, it is important to test the present model in lower-class families and for children raised bilingually to assure the generalizability of these results.

The present study found children's language skills not only related to mother-child, but also father-child attachment. Father's education, however, appeared influential, too. Thus, children's receptive and expressive language skills were nurtured by the harmonious relationship that a father maintains with his child as well as by his educational-driven language provision, whereas mothers' language provision appeared more fully integrated within the mother-child relationship.

Acknowledgments

This work has been carried out as part of CENOF (the Central European Network on Fatherhood with headquarters at the University of Vienna) and was supported by the Jacobs Foundation (AZ: 2013-1049). We are grateful to the participating families, to the student teams of the faculty for collecting and coding the data, as well as to Bernhard Piskernik for his helpful statistical advice.

Disclosure statement

No potential conflict of interest was reported by the authors.

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