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Interaction and language directed at children aged 15 months

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Abstract: In this study we compare maternal and paternal interaction and speech directed to their children, in order to analyze differences and similitudes between the dyads. For that purpose, 80 dyads were taped in a free play situation – forty 15 months old children (25 girls, 15 boys) interacting with their parents. Results demonstrate no significant differences regarding the way mothers and fathers interact with their sons and daughters. However, differences in mothers versus fathers' style of communication toward their children were found, particularly naming and positive evaluation behaviors. Although differences were found, we underline positive correlation in interaction and communication of cohabiting parents.

Keywords: interaction, children directed speech, gender, parenthood.

Introduction

The quality of parent-child interaction plays a crucial role in child development (Bijouu & Baer, 1965; Lopez, 1991; Schore, 2001; Spitz, 1965; Stams, Juffer, & Ijzendoorn, 2002). Research indicates that mothers are more caring (Geiger, 1996; Hewlett, 1992; Lamb, 1997; Parke & Buriel, 1998; Roopnarine, Fouts, Lamb, & Lewis-Elligan, 2005) and fathers more prone to provide for and play with (Clarke-Stewart, 1978; Crawley & Sherrod, 1984; Feldman, 2003; Rohner & Veneziano, 2001). A longitudinal study on the influence of parental care on the development of children points out that while the quality of the interaction with the mother contributes to linguistic development, the quality of the interaction with the father contributes more to motor development (Parfitt, Pike, & Ayers, 2014). Another study indicates that the fathers' language tends to be more instructive and intrusive, while the mothers' language tends to be more permissive and supportive (Leaper, Anderson, & Sanders, 1998).

In verbal communication, mothers emerge as more communicative, involving the child more emotionally, and fathers seem to be more challenging, establishing bridges with wider discursive contexts (Tomasello, Conti-Ramsden, & Ewert, 1990). Over the last few decades, there have been considerable changes in the organization and functioning of families. Among other trends, the number of mothers working full-time away from home and the increasing number of children living with only one parent are highlighted. It is therefore important to study the role of parents in children's lives.

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Quality of parent-child interaction

During the early months of life, both mother and child engage in a multiplicity of reciprocal transactions, creating typical modes of interaction in a process along which they modulate each other's behavior, in a dyadic process of mutual influence (Sameroff, & Chandler, 1975). The quality of parent-child interaction has been associated with child development (Lopez, 1991; Schore, 2001; Stams, Juffer, & Ijzendoorn, 2002), their adaptation to preschool settings, improved self-regulation under stress (Kotelchuck, 1976; Lamb, 2012; Parke & Swain, 1975) and socialization with peers. These results are the basis of research for maternal and paternal behaviors that stimulate the development of the child and generate conditions for personal and socioemotional developement. However, research has shown that positive reinforcement of skills, sensitive affective responses (appropriate to the child's needs, prompt and warm) and reciprocal behavior as structuring elements of the parental response that enhance well-being and development, are important factors (Beeghly, Fuertes, Liu, Delonis, & Tronick, 2011; Fuertes, Lopes-dos-Santos, Beeghly, & Tronick, 2009; Stams, 2002). These parental behaviors can be a resilient factor for children at risk of delayed developmental, and can provide learning opportunities as well as a secure affective basis for them to engage positively with other adults and children, who are also promoters of learning and effects.

Verbal communication between parents and children

Studies indicate that maternal interaction and language affect children's overall and linguistic

development (Bruner, 1981; Snow, 1989; Snow, Burns, & Griffin, 1998; Tamis-LeMonda, Bornstein, & Baumwell, 2001). While the role of mothers has been much studied, the role of fathers in child development has been investigated to a lesser extent (Abkarian, Dworkin, & Abkarian, 2003). The family, a key factor in children's cognitive, social and emotional development (Berger, 2001), has changed a lot over the last thirty years and continues to change, particularly in regards to the roles of each spouse (Coleman, Garfield, & Committee on Psychosocial Aspects of Child and Family Health, 2004; Lamb, 1992; Prado & Vieira, 2003; Torres, 2001; Torres, Marques, & Maciel, 2011). Therefore, studies that focus on fathers' care and the impact it may have on child development (Abkarian et al., 2003) are important. How and when does the father relate to the child? What impact does his presence have on his children's lives and development?

If it is true that human beings have innate abilities that allow them to learn, language learning being a particular case of cultural learning (Tomasello, Carpenter, Call, Behne, & Moll, 2005), then today no one calls the importance of interaction in the process of language acquisition into question. In fact, a child's world is populated by people who do things for and with children. In this interaction-rich environment, children learn the conventions of communication and learn to talk (Tomasello, 2003). But long before they start talking, children can communicate, they are able to signal their intentions even without using words. In fact, non-verbal communication emerges much earlier than speech, and gesture is a fundamental tool in the construction of meaning (Bates, Bretherton, & Snyder, 1991; Iverson & Goldin-Meadow, 2004).

During the period in which children are still not able to speak, parents and/or caregivers provide them with the words they do not yet have. Parents interpret behaviors, expressions, movements, gestures, and vocalizations and adjust their contribution, modifying speech: marked, even exaggerated, intonation, selection of lexical items or syntactic structures, and restriction of conversational topics (Cameron-Faulkner, Lieven, & Tomasello, 2003; Falco, Venutti, Esposito, & Bornstein, 2011). In fact, they engage the child in language, transforming their behavior into semiosis, mediating the interaction through signs. In fact, according to Oliveira and Guimarães (2016), meaning itself is the context of interaction. When the child begins to command words, they imitate him/her, thusly promoting understanding and motivating the child to speak: they leave blanks, ask questions and elicit imitation. When faced with a child's ungrammatical productions, parents reformulate, expand and ask for clarification.

Adequate and contingent parental responses are behaviors that promote advances in the development of children's language (Landry, Smith, & Swank, 2006). It is well known that in addition to interaction, the way that parents interact – their communicative style – is important for the development of the child: for example, mothers' questions are pointed out as an important factor for child development (Hoff, 2006). Research on child-directed speech has shown that maternal speech that includes many prohibitions and orders does not favor the child's communicative development (Hart & Risley, 1995; Hoff-Ginsberg, 1986). In contrast, speech in which the mother designates or explains the world around the child stands as a richer input, with more names and adjectives (Tamis-LeMonda, Song, Smith, Kahana-Kalman, & Yoshikawa, 2012). Thus, naming and ascribing characteristics to objects, while respecting the child's focus of attention, favors the learning of vocabulary in a meaningful and integrated context.

Conversation between parents and their children promotes a favorable context for language learning and communication. For Veneziano (2014), conversation is a privileged means of learning for the child because it has characteristics that enable the co-construction of meaning, which is achieved by the interlocutors in a contextualized way. In the back and forth of statements between adult and child, the form is altered, but the meaning remains almost invariant. This feature is pointed out as very important for language acquisition. However, the comparison between maternal and paternal communication is still little studied: who asks more questions, who gives more orders, with what purposes?

In a literature review, Tamis-LeMonda, Baumweel, and Cristofaro (2012) conclude that fathers and mothers are similar in adapting statements to the age of children, in reference to objects and events, in the production of explicit rather than implicit directive acts. They differ, however, in the quality and quantity of speech. While mothers use more declarative statements, talk more often with their children in longer conversational turns, fathers use more directive statements, more clarification requests and questions about past events (Tamis-LeMonda et al., 2012). Similar results were found in a study on the Portuguese language, where mothers rely more on verbal language than fathers do, i.e., they more often take greater initiative to speak and talk (syncopated and slowed speech), and they use verbal sequences of an expansive nature more frequently and make more direct compliments (Alves, Fuertes, & Sousa, 2015). Tamis-LeMonda et al. (2012) also noted that mothers repeat more what children say and use closed questions more often, while fathers use more affirmative statements to direct action and ask their children to repeat their statements. In an empirical study with 2- and 3-year-olds from disadvantaged backgrounds, the quality, quantity and diversity of maternal speech was associated with greater advances in language acquisition and child development (Song, Spier, & Tamis-LeMonda, 2013). Similarly, the parents' level of education appears in several studies as a predictor of language development (Pan, Rowe, Spier, & Tamis-LeMonda, 2004).

Empirical study

This study aims to contribute to understanding in regards to how Portuguese parents interact and communicate with their children. With this intention, fathers and mothers were observed separately, in a situation of free play with their children of 15 months of age. The sample comprised 80 dyads (40 mother-child, 40 father-child) with children who had no significant risk conditions (25 boys and 15 girls) (Faria, 2011). The aims of the study were: to analyze the quality of parent-child interaction; to compare mothers' and fathers' interactive behaviors with their children; and to compare the language directed to sons and daughters by fathers and mothers. According to the aims, three hypotheses were investigated: there are gender differences in the interactive behavior of fathers and mothers with their children; there are gender differences in the communication styles of fathers and mothers with their children; the gender of children conditions both the interaction and the communication of parents.

Subjects: 80 dyads – 40 mother-child and 40 parent-child – filmed in a free play situation for three minutes (Faria, 2011). All of the children were 15 months (25 boys and 15 girls) and lived with their mothers and fathers in the same home.

Table 1. Mean and standard deviation of subject's demographic data

	M	*(SD)*
Gestational Age	*M*=38.82	*SD*=1.113
Apgar at 1 minute	*M*=8.78	*SD*=0.832
Apgar at 5 minutes	*M*=9.75	*SD*=0.75
	M	*(SD)*
Mothers age	*M*=29.80	*SD*=5.19
Fathers age	*M*=33.90	*SD*=6.58
Mothers education	*M*=11.08	*SD*=4.257
Fathers education	*M*=9.27	*SD*=4.466

Regarding employment, taking into account the national classification system for professions, the sample has a middle or lower middle socioeconomic status.

Procedures: After the data collection procedure was explained to the parents and their consent obtained, they were asked to spontaneously play with their child as they would usually do during their play time. At their disposal they had a box containing 10 toys with different degrees of difficulty: one below the zone of proximal development (sensorial stimulation toys – auditory, visual and tactile – like colored turtle, piano, rocks or bells with sounds), others in the zone of real development (action-reaction toys, symbolic association toys such as dolls or picture books), others in the zone of potential development (docking and stacking games for children aged 18 and 24 months). The filming took place in the family context of the child or in a clinical office, depending on the parents' choice. Each child was filmed in dyadic interaction with each parent independently for 3 minutes. Each video was transcribed taking into account all interactions (verbal and nonverbal) that occurred between the pairs during this interval. Below is a description of the interactions using the following framework:

Table 2. Operationalization of analysis categories

Time	*Second by second.*
Vocalizations by the adult	Transcription of: articulate language, words, interjections, onomatopeias, vocalic utterances and manifestations of other communicative behaviors (e.g., laughter).
Vocalizations by the child	Transcription of: articulate language, words, interjections, onomatopeias, vocalic utterances and manifestations of other communicative behaviors (e.g., laughter).
Nonverbal adult and child behaviors	Description of: movements of hands/arms and legs, facial expressions, movements.
Verbal and non-verbal affects	Behaviors with an evident affective tone – facial expression and/or voice tonality.
Context	Location, relative positioning of partners, distance between partners, intercurrences (e.g., outside noise).

We consider interaction in Tomasello's sense, as a participation in collaborative activities, involving joint attention and shared objects and contexts, between responsive partners (Tomasello, 2009). In fact, the child's action, the others' action and the interaction with significant others (Nelson, 1998) are central to the development.

For the analysis of interactions, we took five of Alves's categories (2013): play episodes – cohesive interaction units organized around a topic. Within each episode we observed sequences of interactions in which subjects engage verbally or there is involvement but no verbalization: the former being interactive verbal sequences – and the latter interactive nonverbal sequences. In each interaction sequence, verbal affects and nonverbal affects were also analyzed.

Starting from the work of Alves (2013), the following were categorized:

Alves's definitions of behaviors (2013) were based on the Infant Regulatory Scoring System (SSRIs), a microanalytical coding system of children's behavior, second by second, devised by Tronick and Weinberg (1990). Each behavior was rated according to the dyadic

functioning and taking into account the context itself, the categories being mutually exclusive.

Table 3. Interactive behavior categories

1– Interactive verbal sequences	
Simple	Behavior of one partner and direct response by the other to maintain interaction.
Interrupted	The partner does not continue the other's behavior.
Expansive	The partner accepts other's behavior by reformulating or correcting.
Extensive	The partner accepts other's behavior by widening to new possibilities.
2– Verbal affects	
Praise	Manifestation of appreciation by the other.
Positive reinforcement	Manifestation of support and appreciation of other's verbal and/or nonverbal activity.
Negative reinforcement	Manifestation of indifference or disapproval of other's verbal and/or nonverbal activity.
Neutral reinforcement	Manifestation of affect that cannot be included in the previous categories.
3– Nonverbal affects	
Positive facial expression	The partner is attentive, available, smiling and appropriate to the interaction.
Negative facial expression	The partner is inattentive, angry, tense and impassive.

The videos were transcribed and subsequently analyzed using indicators that provide information about children's language – quantity and diversity – as well as the social and pragmatic aspects. The amount of child-directed speech was analyzed while taking the number of statements and the number of words of fathers and mothers into account. The diversity of language was measured by only taking the number of verbs, names and conjunctions into account. The proportion of statements categorized, such as order, praise, etc. was calculated as a pragmatic social indicator of child-directed language.

In order to analyze child-directed language, the following categories were created: verbal affects: positive vocalizations and negative vocalizations, and statements: interrogation, requests (for action and attention), explanation, order, praise, naming, comment, negative evaluation. In the transcriptions, the statements were segmented according to prosodic and pragmatic criteria. Thus, a statement was defined as any sequence of words preceded or followed by a pause, change of turn and intonational tone. The categories order, praise, interrogation, request, etc., resulted from the previous analysis of the videos and the bibliographic review (Rowe, 2008; Serra, Serrat, Solé, Bel, & Aparici, 2000), and took the linguistic and prosodic format of statements and their purpose into account. For example, the interrogation category is defined either by linguistic structures (What is it? Where…? How…?), intonation curve (Mateus et al., 2003) or purpose: constituting an act in which the speaker requests information from his/her partner.

Results

From previous normality tests of continuous variables, we opted for parametric tests. Data analysis was performed using three types of statistics: descriptive, to describe means and standard deviations of the selected indicators, student's *t*-test, for comparison of means, and Pearson's correlation test, to study the association between variables. The accepted level of significancwe was 0.5 and the number of cases in all analyses was 40 (there were no drop outs).

Interactive behaviors of fathers and mothers

The study was designed to compare the interactive behavior of fathers and mothers in the following dimensions: play episodes, interactive verbal sequences, interactive nonverbal sequences, and verbal and nonverbal affects.

Differences and associations in the communicative episodes initiated by fathers, mothers and children

From the student's t-test, study hypothesis 1, there were no gender differences in the interactive behavior of fathers and mothers with their children, i.e., there were no significant differences between the fathers' and mothers' means in the studied dimensions ($M_{\text{episodes initiated by mother}}$=2.18; $SD_{\text{episodes initiated by mother}}$=1.81; $M_{\text{episodes initiated by father}}$=1.63; $SD_{\text{episodes initiated by father}}$=1.35). Moreover, the analysis indicated that there were no significant differences in episodes started by mothers or fathers [$t(39)=1.41$; *ns*]. Although there were no differences between the means, we sought to understand if mothers' and fathers' behaviors could be correlated positively or negatively. According to Pearson's correlation test, there were no significant associations between maternal and paternal behavior in regards to initiated episodes (r=-0.130; n=40, *ns*).

Subsequently, when the means of episodes started by children with parents or mothers ($M_{\text{episodes initiated by child with mother}}$=1.90; $SD_{\text{episodes initiated by child with mother}}$=1.32; $M_{\text{episodes initiated by child with father}}$=1.50; SD_{episodes}

initiated by child with father=1.24) were compared through the student's t-test, no significant differences were found [$t(39)=1.26$; *ns*]. In addition, the episodes started by children with fathers and mothers were not significant correlated either ($r=0.230$, $n=40$, *ns*).

Differences and associations in the interactive verbal sequences performed by fathers, mothers and children

According to the student's t-test, there were no significant differences in the means of maternal and paternal verbal behavior (see Table 4), as far as verbal sequences are concerned: simple [$t(39)=0.62$; *ns*], interrupted [$t(39)=-0.84$; *ns*], expansive [$t(39)=0.18$; *ns*] and extensive [$t(39)=1.66$; *ns*].

Table 4. Means and standard deviations of interactive verbal sequences

	Maternal M	*(SD)*	*Paternal M*	*(SD)*
Simple Verbal Sequences	49.48	27.33	47.43	23.94
Interrupted Verbal Sequences	14.38	8.73	15.58	9.91
Expansive Verbal Sequences	6.35	5.36	6.15	5.24
Extensive Verb Sequences	11.50	10.33	8.55	7.93

However, paternal and maternal behaviors are correlated in verbal terms of simple and interrupted sequences with children (see Table 5).

Table 5. Pearson correlations between fathers' and mothers' Verbal Behaviors

		Maternal Verbal Behavior			
		Simple sequences	*Interrupted Sequences*	*Expansive Sequences*	*Extensive Sequences*
Paternal Verbal Behavior	*Simple sequences*	0.673***	–	–	–
	Interrupted Sequences	–	0.533***	–	–
	Expansive Sequences	–	–	0.152	–
	Extensive Sequences	–	–	–	0.096

*** $p<0.001$, $n=40$

Differences and associations in interactive nonverbal sequences

According to the student's t-test, we found that there are significant differences in mothers' and fathers' nonverbal behaviors at the level of nonverbal sequences: simple [$t(39)=0.07$; *ns*], interrupted, [$t(39)=-0.08$; *ns*], extensive [$t(39)=0.72$; *ns*], the exception being for the category of expansive sequences [$t(39)=-3.01$; $p=0.004$], as shown in Table 6.

However, these paternal and maternal behaviors are correlated in all dimensions (Table 7). This means that when mothers exhibit more nonverbal behavior with children, the fathers exhibit these behaviors with them more often as well. Thus, children who receive more nonverbal responses from their mothers also do from their fathers.

Table 6. Means and standard deviation of Interactive Nonverbal Sequences

	Maternal M	*(SD)*	*Paternal M*	*(SD)*
Simple Nonverbal Sequences	7.20	6.06	7.13	5.40
Interrupted Nonverbal Sequences	6.25	4.33	6.20	4.39
Expansive Nonverbal Sequences	0.88	1.36	2.28	3.25
Extensive Nonverbal Sequences	1.40	2.24	1.70	3.00

Table 7. Pearson's correlations between maternal and paternal nonverbal behaviors

		Maternal Nonverbal Behavior			
		Simple sequences	*Interrupted Sequences*	*Expansive Sequences*	*Extensive Sequences*
Comportamento Não Verbal paterno	*Simple sequences*	-	-	-	-
	Interrupted Sequences	-	0,509***	-	-
	Expansive Sequences	-	-	0,435	-
	Extensive Sequences	-	-	-	0,521

*** $p<0.001$, $n = 40$

Affective Behaviors

Differences and associations in fathers' and mothers' verbal affective responses

According to the student's t-test, mothers exhibit more affective behavior in terms of praise than fathers [$t(39)=2.93$; $p=0.022$]. However, there are significant differences at the level of maternal and paternal means in positive reinforcement [$t(39)=1.80$; *ns*], negative reinforcement [$t(39)=-1.04$; *ns*] and neutral reinforcement [$t(39)=-1.64$; *ns*]. For means and standard deviations, see Table 8:

Table 8. Means and standard deviations of fathers' and mothers' verbal affective responses

	Maternal	*(SD)*	*Paternal*	*(SD)*
Praise	0.38	0.77	0.05	0.31
Positive reinforcement	37.20	19.34	32.57	13.53
Negative reinforcement	0.72	1.37	1.12	2.25
Neutral reinforcement	3.47	3.75	4,700	4.63

However, as can be seen in Table 9, it is interesting to note that mothers' positive reinforcement is correlated with fathers' positive reinforcement.

Differences and associations in fathers' and mothers' physical affective responses

Fathers and mothers do not differ as regards affection [$t(39)=-0.23$. *ns*, $M_{\text{affective responses by mother}}=0.35$; $SD=1.00$; $M_{\text{affective responses by father}}=0.27$; $SD=0.82$]. Nevertheless, mothers' and fathers' affective behavior are correlated ($r=0.350$, $n=40$; $p<0.005$), as are children behaviors with parents ($r=0.397$, $n=40$; $p<0.001$).

Nonverbal affects – differences and associations in fathers' and mothers' facial expressions

Fathers and mothers do not differ in regards to positive [$t(39)=-1.34$; *ns*; $M_{\text{affective responses by mother}}=11.34$; $SD=6.78$; $M_{\text{affective responses by father}}=14.25$; $SD=4.53$] and negative [$t(39)=-0.76$; *ns*; $M_{\text{affective responses mother}}=1.75$; $SD=1.00$; $M_{\text{affective responses father}}=2.31$; $SD=2.60$] facial expressions. However, mothers' and fathers' positive facial expressions are highly correlated ($r=0.730$, $n=40$, $p<0.001$), as are mothers' and fathers' negative facial expressions ($r=0.786$, $n=40$, $p<0.001$).

Table 9. Pearson correlations for paired samples between maternal and paternal affective responses

	Maternal			
	Praise	*Positive Reinforcement*	*Negative Reinforcement*	*Neutral Reinforcement*
Praise	-0.079	–	–	–
Positive reinforcement	–	0.559***	–	–
Negative reinforcement		–	0.160	–
Neutral reinforcement	–	–	–	0.381

*** $p<0.001$

Differences and associations in fathers' and mothers' communication

The second aim was to study and compare the language directed to sons and daughters by fathers and mothers. We hypothesized that there are gender differences in the communication styles of fathers and mothers with their sons and daughters. We analyzed the statements that mothers and fathers direct towards their sons and daughters based on the following categories: questions, request for attention, request for action, explanation, order, praise, naming, comment, and negative evaluation.

We found that mothers gave more praise/stimulation [$t(40)=2.878$; $p<0.005$ $M_{\text{mother's praise}}=2.58$, $SD=2.56$; $M_{\text{father's praise}}=1.28$, $SD=1.69$] and naming [$t(40)=2.033$; $p<0.05$; $M_{\text{mother's naming}}=3.68$, $SD=4.53$; $M_{\text{father's naming}}=2.23$, $SD=2.39$] compared with the fathers.

It should be noted that fathers' and mothers' behaviors are correlated in the categories referring to questions, attention requests, comments and orders (Table 10), i.e., children of fathers who ask more questions have mothers who do the same, and the same is true for attention requests, comments and orders.

Table 10. Pearson's correlations with paired subjects relative to indicators of child-directed language

	Mot Quest	Fat Quest	Mot att request	Fat att request	Mot action request	Fat action req	Mot expl	Fat expl	Mot ord	Fat ord	Mot praise	Fat Praise	With Mother	With Father
Mother's questions		0.543 ***	-0.012	0.067	0.227	-0.070	0.330 *	-0.005	0.034	0.316 *	0.053	-0.161	0.441 **	0.047
Father's questions			0.068	-0.183	0.060	-0.022	0.068	0.125	0.101	0.365 *	-0.285	-0.007	0.481 **	0.244
Mother's attention requests				0.369 *	0.345 *	0.276	-0.061	0.200	0.063	-0.035	0.053	-0.077	0.242	0.245
Father's attention requests					0.170	0.108	0.207	0.320 *	0.133	0.064	0.091	-0.106	-0.166	0.075
Mother's action request						0.099	0.217	0.285	0.133	0.111	0.147	0.009	0.264	0.237
Father's action request							-0.079	0.265	0.185	-0.106	-0.111	-0.078	-0.073	0.165
Mother's explanation								0.213	0.196	-0.104	0.110	0.115	0.199	-0.143
Father's explanation									-0.068	-0.098	-0.265	0.334	-0.057	-0.101

*** $p<0.001$; ** $p<0.01$; * $p<0.05$

Relationship between dependent variables and demographic variables

In regards to the relationship between dependent variables and demographic variables, we can observe that children's gender affects the interaction and communication between parents and children. According to the student's t-test, boys exhibit significantly more avoidance of their mother [$t(38)=-2.459$; $p<0.01$] than girls. Girls exhibit more negative vocalizations [$t(38)=2.161$; $p<0.05$] and more negative facial expressions [$t(38)=2.158$; $p<0.05$] addressed to their fathers than to their mothers.

Another important variable seems to be Maternal Education. Mothers with more years spent in education have higher rates of avoidance with their children ($r=0.442$; $n=40$; $p<0.005$), and in turn, children also have more avoidance towards mothers with more education ($r=0.338$; $n=40$; $p<0.05$).

Interestingly, children with more siblings tend to start more activities ($r=-0380$; $n=40$; $p<0.05$). Older mothers ($r=0.338$; $n=40$; $p<0.05$) and fathers ($r=0.421$; $n=40$; $p<0.01$) tend to exhibit more nonverbal behavior.

Birth factors, particularly Gestational Age and the Apgar scale, conditioned the results. Indeed, infants' gestational age is positively correlated with the quantity of mothers' positive facial expressions ($r=0.349$; $p<0.05$) and negatively correlated with mothers' negative facial expressions ($r=-0338$; $n=40$; $p<0.05$). In addition, infants' gestational age is positively correlated with fathers' positive affective behavior ($r=0.444$; $n=40$; $p<0.05$).

Children born with lower Apgar scores tend to exhibit negative facial expressions ($r=0.718$; $n=40$; $p<0.05$) and negative affective behavior ($r=0.329$; $n=40$; $p<0.05$) more frequently with their mothers.

Discussion

This study was designed to analyze and compare the interactive behavior of parents with children aged 15 months in a free-play situation, as well as to compare the language used by their parents. Regarding the first hypothesis of the study, gender differences in mother-child and father-child interactive behaviors, when mother-child and father-child dyads were compared regarding play episodes, verbal sequences and nonverbal sequences, no significant differences were found. However, when the mother-child dyad and father-child dyad were compared, significant correlations were found.

The data indicate that in the category of verbal sequences, maternal and paternal behaviors are correlated in two dimensions: simple sequences and interrupted sequences. Thus, children who receive more simple and interrupted verbal responses from their mothers receive the same from their fathers. This result should be carefully considered, because it can be an indicator of the importance of input (or deficit of input), i.e, children who receive more input from the mother get the same from the father, and children who receive less input from the mother also

receive less from the father. As previously mentioned, the quantity and quality of the language directed to a child is crucial in his/her development (Hoff, 2006; Pan et al., 2004).

On the other hand, simple sequences and interrupted sequences can be considered as less elaborate interactive behaviors than expansive and/or extensive sequences (which require more time and greater attention by the adult). Why do we only find correlation between the first two subcategories?

Alves (2013), in an exploratory study with 20 dyads in the same *corpus,* concludes that mothers rely more on verbal interaction with their children, i.e., they speak more and for longer periods than fathers do. If we broaden the number of dyads studied (80), the difference fades. This result was found in other cultures (Yago, Hirose, Okamitsu, Okabayashi, Hiroi, Nakagawa, & Omori, 2014). Similarly, when mothers' and fathers' nonverbal behaviors are compared, there are no significant differences. However, maternal and paternal nonverbal behaviors are correlated in all dimensions, i.e., children who receive more nonverbal responses from their mothers have the same from their fathers. So it seems that more than gender differences of parents or children, cohabitation (father/mother) is a variable to take into account. Parental coexistence may be modeling the behavior and styles of both verbal and nonverbal interaction. It should be noted that nonverbal behavior and less elaborate and extensive verbal behavior are those for which correlation was observed.

In regards to verbal affects, mothers exhibit on average more affective behavior than fathers. However, there were no significant differences observed in the categories praise, negative reinforcement and neutral reinforcement. It should be noted, however, that positive reinforcement and neutral reinforcement by the mother are correlated with the same types of reinforcements by the father. Mothers and fathers alike positively reinforce the child during play, which certainly increases the likelihood of the child being motivated and repeating the desired behavior.

For non-verbal affects, in the category positive and negative facial expressions, fathers and mothers do not show statistically significant differences. These behaviors, however, are highly correlated.

In regards to the second hypothesis, it is concluded that, as is true for children-directed language, there were no significant differences in most categories under analysis. However, there are significant differences in the means of fathers' and mothers' verbal behaviors in relation to statements: praise – mothers gave on average more praise than fathers; naming – mothers used on average more naming than fathers insignificantly, comments and negative evaluation statements (on average mothers made more comments). These results corroborate previous national studies showing that mothers have more positive responses towards their children than fathers (Alves et al., 2015; Faria, Santos, & Fuertes, 2014). The naming category includes statements in which names are assigned to objects or events of the context and highlights the need to name the surrounding reality. Naming and manipulation of objects favor learning of the lexicon and hence the child's knowledge is widened and deepened (Hirsh-Pasek, Golinkoff, Berk, & Singer, 2009).

In the naming behavior, it is observed that names are repeated several times. The importance given to child-directed speech and the role played by repetition in the learning of language cannot be overstated (Veneziano, 2014). In the corpus, we can see that mothers not only name a lot but also do it repetitively, reusing the same word in different syntactic contexts. Also noteworthy is the use of various strategies to highlight the word: highlight in a sentence, prosodic highlight, or even syllabic utterance. A more referential speech, in which the world around the child is designated or explained, is a richer input, with more names and adjectives (Tamis-LeMonda et al., 2012), which promotes the development of vocabulary. In an empirical study with children aged 2 and 3 years from disadvantaged social backgrounds, the quality, quantity and diversity of maternal speech were associated with advances in language acquisition and child development (Song et al., 2013). As previously noted, in the corpus under analysis, although mothers use more verbs and names and fathers more conjunctions (associated with more complex syntax), these differences are not statistically significant.

In addition to significant differences in the praise and naming categories, the results show that fathers' and mothers' behaviors are correlated in the following categories: questions, attention requests, positive comments and orders. In studies on children-directed speech, it was concluded that fathers' speech would be more challenging for the child than mothers' and, therefore, would establish a bridge (Tomasello, Conti-Ramsden, & Ewert, 1990) between the child's language and the surroundings. Thus, fathers and mothers have complementary roles. In our study, compliance stands out more than complementarity, since fathers and mothers have a wide range of related verbal behaviors. More than differences, fathers and mothers appear to show converging communicative behaviors. As a study on gender, this study points out new ways for research on communication styles and cohabitation.

The third hypothesis was that children's gender determines the interaction or communication from parents. The results show no significant differences in parental behavior, whether it is in regards to boys or girls. However, boys show higher avoidance behavior with mothers and girls express more negative vocalizations and emotions towards fathers. This finding corroborates the results of previous studies indicating greater synchronization in same gender dyads (Manlove & Vernon-Feagans, 2002). If boys exhibit more avoidance towards the mother than girls, and girls show more negative vocalizations and facial expressions towards the father, one also finds that fathers and mothers tend to have different expectations and relationships with sons and daughters. In a study with

older children (3-5 years) in a situation of parent-child play, Barroso et al. (2017) found that fathers respect girls more and ignore boys' contribution more. Furthermore, Faria et al. (2014) point to greater synchronization in same-gender dyads.

The results showed sociodemographic differences. It is noted that fathers' and mothers' avoidance of children is correlated with paternal and maternal schooling. Children's avoidance towards parents is also correlated with paternal and maternal education. As for the variable age of parents, it is clear that older parents tend to display more nonverbal behavior.

Finally, let us reflect on the children-related variables that influence the interaction. These include physical strength, gestational weight, Apgar score, birth order and number of siblings. Gestational weight and Apgar score influence the relationship that parents have with their children: more robust babies and those with better Apgar scores appear to evoke more positive parental behaviors. Children with more siblings tend to start more activities. Is this behavior a result of interaction with brothers and sisters? Are extended families with many children a context in which children develop a greater sense of autonomy and initiative? In a research project on preschool children (Silva, 2009), no relationship was found between the number of siblings and construction of autonomy. This is an aspect that merits further study.

Focusing on the quality of mothers' and fathers' interaction and communication with their sons and daughters, in an observational study, we highlight the correlation of interparental behaviors in the relationship with their children. More studies are needed to investigate how the quality of the relational behavior of a parent influences the other's behavior and the way parents interact in triadic situations, i.e., father, mother and son/daughter.

Interação e linguagem dirigida a crianças de quinze meses

Resumo: Neste estudo são comparadas a interação e a linguagem dirigida aos filhos(as) pelos pais e mães, para analisar as diferenças e semelhanças entre as díades. Para o efeito, foram videogravadas durante uma situação de brincadeira livre 80 díades – 40 crianças (25 meninas e 15 meninos) de 15 meses em interação com os respetivos pai e mãe. Os resultados revelam que não há diferenças significativas na forma de os pais e as mães interagirem com seus filhos e filhas. Contudo, observam-se diferenças na linguagem dirigida às crianças por pais e mães, em particular em comportamentos de nomeação e avaliação positiva. Para além das diferenças são de sublinhar correlação positiva quer na interação, quer na comunicação de pais que coabitam.

Palavras-chave: interação, fala dirigida às crianças, gênero, parentalidade.

Interaction et langage adressé aux enfants de quinze mois

Résumé: Cet étude compare l'interaction et la communication de père-enfant et de mère-enfant pour analyser les différences et les similitudes entre les dyades. Dans ce but, 80 dyades ont été filmées dans une situation de jeu libre – 40 enfants âgés de quinze mois en interaction à la fois avec son père et sa mère (25 garçons et 15 filles). Les résultats révèlent qu'il n'y a pas de différences significatives dans l'interaction des parents avec leurs enfants. Cependant, en ce qui concerne la communication, des différences ont été observées dans le langage adressé aux enfants par les parents, en particulier, dans les énoncés ciblant des noms et d'évaluation positive. Au-delà des différences, nous soulignons la corrélation positive trouvée soit dans l'interaction soit dans la communication entre des parents qui cohabitent.

Mots-clés: interaction, langage adressé aux enfants, genre, parentalité.

Interacción y lenguaje dirigido a niños de 15 meses

Resumen: En este estudio se comparan la interacción y la comunicación entre padre-hijo(a) y madre-hijo(a) con el objetivo de analizar las diferencias y similitudes entre las díadas. Para esto, se grabaron en vídeo durante una situación de juego libre 80 díadas con 40 niños de 15 meses en interacción con sus respectivos padre y madre. Los resultados revelan que no hay diferencias significativas en la manera en que los padres y las madres interactúan con sus hijos e hijas. Sin embargo, se observan diferencias en el lenguaje que los padres dirigen a los niños, en particular en comportamientos de nombrar y valoración positiva. Más que las diferencias, es notable la correlación positiva, ya sea en la interacción, ya sea en la comunicación de padres que cohabitan.

Palabras clave: interacción, habla dirigida a los niños, género, parentalidad.

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