

MESTRADO INTEGRADO EM PSICOLOGIA  
INTERVENÇÃO PSICOLÓGICA, EDUCAÇÃO E DESENVOLVIMENTO HUMANO

# Associations Between the Educator-Child Relationship and Children's Language Development

Jessica Alves Santos

**M**

2020



**Universidade do Porto**  
**Faculdade de Psicologia e de Ciências da Educação**

**ASSOCIATIONS BETWEEN THE EDUCATOR-CHILD RELATIONSHIP AND  
CHILDREN'S LANGUAGE DEVELOPMENT**

**Jessica Alves Santos**

Setembro de 2020

Dissertação apresentada no Mestrado Integrado de Psicologia,  
Faculdade de Psicologia e de Ciências da Educação da Universidade do  
Porto, orientada pelo Professor Doutor *Joana Cadima* (FPCEUP).

## **AVISOS LEGAIS**

O conteúdo desta dissertação reflecte as perspectivas, o trabalho e as interpretações do autor no momento da sua entrega. Esta dissertação pode conter incorrecções, tanto conceptuais como metodológicas, que podem ter sido identificadas em momento posterior ao da sua entrega. Por conseguinte, qualquer utilização dos seus conteúdos deve ser exercida com cautela.

Ao entregar esta dissertação, o autor declara que a mesma é resultante do seu próprio trabalho, contém contributos originais e são reconhecidas todas as fontes utilizadas, encontrando-se tais fontes devidamente citadas no corpo do texto e identificadas na secção de referências. O autor declara, ainda, que não divulga na presente dissertação quaisquer conteúdos cuja reprodução esteja vedada por direitos de autor ou de propriedade industrial.

## Resumo

A Teoria da Vinculação reconhece a importância de relações positivas entre a criança e a figura de vinculação, promovendo um sentimento de segurança na criança, condição necessária para uma exploração ativa do seu ambiente, envolvendo-se em atividades de aprendizagem. A relação entre educador-criança, numa perspectiva alargada da teoria da vinculação, é associada à aquisição de competências, nomeadamente a linguagem. No entanto, poucos estudos analisaram esta relação, especialmente em crianças pequenas.

A presente investigação examina a correlação entre a díade educador-criança e o vocabulário, numa metodologia longitudinal durante a primeira infância.

Os participantes foram 286 crianças (51.9% rapazes) com média de idade de 35.1 meses ( $SD = 4.02$ ) no primeiro momento da investigação. As competências de linguagem foram avaliadas individualmente, com recurso à *Griffiths*, e em dois tempos diferentes (primavera e inverno de 2017), sendo que os educadores foram inquiridos sobre as suas percepções relativamente a três dimensões relacionais, através do instrumento STRS.

Os resultados sugerem que a proximidade relacional prediz positivamente as competências de vocabulário, do momento 1 para o momento 2, enquanto o conflito e a dependência não se relacionam com a linguagem. Ainda, o vocabulário no primeiro momento de avaliação prediz positivamente a proximidade educador-criança. Estes resultados sustentam o papel fundamental que a proximidade educador-criança desempenha no desenvolvimento da linguagem na primeira infância e vice-versa.

*Palavras-chave:* Criança; Qualidade da relação; Proximidade; Vocabulário Expressivo; Vocabulário Receptivo; Longitudinal.

## Résumée

La théorie du lien reconnaît l'importance des relations positives entre l'enfant et la figure du lien, favorisant un sentiment de sécurité chez l'enfant, condition nécessaire à une exploration active de leur environnement, s'engageant dans des activités d'apprentissage. La relation entre l'éducateur et l'enfant, dans une perspective large de la théorie de l'attachement, est associée à l'acquisition de compétences, à savoir le langage. Cependant, peu d'études montrent cette relation, en particulier chez les jeunes enfants.

La présente enquête examine l'interaction entre la dyade éducateur-enfant et le vocabulaire, dans une méthodologie longitudinale pendant la petite enfance.

Les participants étaient 286 enfants (51.9% de garçons) avec un âge moyen de 35.1 mois ( $SD = 4.02$ ) au premier moment de l'enquête. Les compétences linguistiques ont été évaluées individuellement, à l'aide de *Grifthis*, et à deux moments différents (printemps et hiver 2017), les éducateurs étant interrogés sur leur perception des trois dimensions relationnelles, à l'aide de l'instrument STRS.

Les résultats suggèrent que la proximité relationnelle prédit positivement les compétences de vocabulaire, du moment 1 au moment 2, alors que le conflit et la dépendance ne sont pas liés au langage. Pourtant, le vocabulaire du premier moment d'évaluation prédit positivement la variable de proximité. Ces résultats confirment le rôle fondamental que la proximité entre l'éducateur et l'enfant joue dans le développement du langage dans la petite enfance et vice versa.

*Mots-clés:* enfant; Qualité de la relation; Proximité; Vocabulaire expressif; Vocabulaire réceptif; Longitudinal.

## Abstract

The attachment theory recognizes the importance of positive relations between child and attachment figure, promoting a safety haven, a necessary condition for an active exploration of the environment by the child, engaging in more learning experiences. The associations between the educator-toddler relationship and children's language skills are acknowledged in the attachment theory but few empirical studies have tested it, especially in young children.

The current study examines the links between educator-toddler relationship and children's vocabulary in a longitudinal study during toddlerhood.

The participants of the study were 268 toddlers (51.9% boys) with an average age of 35.1 months ( $SD = 4.02$ ) at the first time point. The language skills were individually assessed across two assessment waves (spring and winter 2017), using the *Griffiths*, and three relationship dimensions were reported by educators, through the STRS short form.

Results suggested that closeness was a positive predictor of vocabulary skills from assessment wave 1 to assessment wave 2, while neither conflict nor dependency were associated with vocabulary. Besides, vocabulary at the first assessment wave positively predicted closeness. These findings highlight the powerful role of closeness in the development of language skills in toddlerhood, but also the need of considering children's prior vocabulary skills in nurturing and supporting positive educator-child relationships.

*Keywords:* Toddler; Relationship quality; Closeness; Expressive Vocabulary; Receptive Vocabulary; Longitudinal.

## **Introduction**

Since the last two decades, there has been an increased interest in the dyad teacher-child, and its influence in the school outcomes (Pianta, 1999). The quality of the teacher-child relationship has been linked, both positively and negatively, with children's academic growth within classroom settings (Pianta, Steinberg, & Rollins, 1995). Within the systemic perspectives of development, research on human development contributed to the study of relationships, conceptually conceiving that the context and the human being interact dynamically and, in this interaction, human development occurs, thus reinforcing the importance of human relations in child development. The authors Bronfenbrenner and Morris (1998) stand out, and their theoretical contribution, the Bioecological Model of Human Development, standing that the innumerable interactions and relationships of the environment not only affect behaviors but also play a significant role in the development of the person over time (Bronfenbrenner & Morris, 2006). Additionally, the studies by Bowlby (1969) and Ainsworth et al. (1978), contributed, significantly, theoretically and empirically, to sustain the influence of adult-children relationships in development. The focus of their work was the comprehension of the mother-child bond and from this point they start conceiving attachment with other adult figures in the environment of the child. Moreover, Verschueren and Koomen (2012) considered teachers as an *ad hoc* attachment figure since that they assume the role of safe haven and secure base. Therefore, conceiving interpersonal relationships is crucial for understanding the impact of the classroom context on language development. Some teacher-child relationships are characterized by a high degree of closeness (i.e., high levels of warmth, approachability, and trustworthiness), whereas others are characterized by a high level of conflict (i.e., strained interactions and a general lack of rapport; Birch & Ladd, 1997; Pianta et al., 1995). Children who experience a positive and secure bond in the school environment and feel supported by their teachers are more likely to take more risks academically, to have higher levels of self-esteem, and to manifest more motivation overall (Birch & Ladd, 1997; Pianta et al., 1995).

### **Development and acquisition of language skills**

Dewey (1902/1990) and Vygotsky (1978) acknowledge this relationship, in their notable social and pedagogic contributions, and point to the perception of care by the educator as an important component in the conceptualization of the context of school.

According to Vygotsky (1978), the development consists of a learning process in which intellectual tools are used, through social interaction, for example, the language. Therefore, language assumes a significant role in communication in human relationships. Also, in Vygotsky's perspective, the interpersonal relations that the child has with the environment and his/her dynamic interaction with the world around is crucial for the development of diverse psychological functions, such as communication, through dialog and social interactions.

From a theoretical perspective, the developmental theory postulates that students learn primarily as a result of the direct experiences (i.e., proximal processes) they have in a classroom (Bronfenbrenner & Morris, 1998; Vygotsky, 1978). Therefore, language development occurs within social contexts and through interactions and communication, ideas, and information received.

The development of oral language can be influenced, and influence, several developmental domains such as intellectual skills, academic skills, and emotional well-being. (Ferracini et al., 2006). Still, in the domain of oral language, two faculties can be distinguished: 1) - receptive vocabulary: which corresponds to the words that the child is able to understand. 2) - expressive vocabulary: corresponding to the lexicon that can be emitted by the child, being able to be evaluated by the number of words that the child is able to pronounce. (Armonia, et al., 2015).

The author Carvalho (1989) cited by Castro (2001), recognizes two essential functions to language: an internal function, representing thought and, an external function, of pure externalization or transmission to a recipient of a determined content internally elaborated.

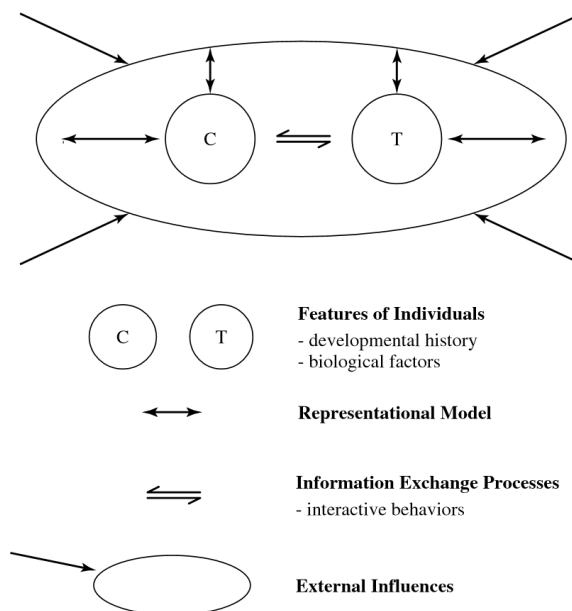
It is recognized the crucial role of language in children's development, in what concerns interpersonal communication and social and family interactions, which are fundamental needs for their growth and development (Chevrie-Muller, 1996 as cited in Castro, 2001). Thus, as children step into formal schooling, like kindergarten, the classrooms and the interpersonal relationships within the educational environment become a prime and fundamental setting for language development.

### **Conceptualization of the educator-child relationship**

In addition, the attachment theory and its conception of attachment figures and their importance for the human development contributes to the understanding of the educator-



child relationship (Bowlby, 1969 & Ainsworth et al. 1978). The main idea of this theory is that positive relationships between parents and children promote feelings of security in the child, and that safe haven is considered a necessary precondition for the exploration of the environment. Therefore, the main goal of attachment is to nurture a secure relationship, based on closeness and warmth, providing emotional conditions for the child growth and acquisition of various skills. According to an extended attachment perspective, sensitive teachers can serve as a secure base from which children can explore the school environment and become engaged in learning activities (Birch & Ladd, 1997; Pianta, 1999; Pianta, Nimetz, & Bennett, 1997). Therefore, the relationship between teacher and toddler is conceptualized by Pianta (1999) as the following model demonstrates (Figure 1) and offers an integrative and heuristic perspective over that dyad.



*Figure 1.* A conceptual model of teacher-child relationships. Adapted from Relationships Between Teachers and Children by R.C. Pianta, B. Hamre & M. Stuhlman, 1999. *“Handbook of Psychology, Educational Psychology”* 10: 206

As portrayed in Figure 1, the major components of relationships between teachers and children are (a) features of the two individuals themselves – contemplating development history and biological predispositions (b) each individual’s representation of the relationship – the perception of the role which one of them plays in the relationship (Bowlby, 1969; Sroufe & Fleeson, 1986), (c) processes by which information is exchanged between the

relational partners – interactive behavior, such as communication and language, and d) external influences of the systems in which the relationship is embedded. The relationship educator-child has been conceptualized as involving three dimensions with their origins on the attachment theory and the concepts of attachment figure: The dimensions of Closeness, Conflict, and Dependency. In what concerns closeness, it is important to note the amiability and receptivity inherent, while conflict reflects discordant and coercive interactions. Dependency refers to patterns of functioning of children with excessive dependence and reliance (Pianta & Hamre, 2001). Thereby, the only dimension typically faced as positive is closeness, since conflict and dependency assume a negative relational valence.

It should also be noted the theoretical contribution from the socio-motivational perspective. Theories such as the Self-system Theory (Connell & Wellborn, 1991) and the Self-Determination Theory (Deci, Vallerand, Pelletier, & Ryan, 1991), conceive the child as an individual motivated by three basic psychological needs: relationship needs; the need for competence; and the need for autonomy. When these needs are met, their commitment to learning activities will increase, since motivation is a key concept in the mediation between commitment and learning and behavior, as an answer (Skinner & Belmont, 1993). In the school context, teachers and educators must support these basic psychological needs, essentially by showing they are involved (e.g., care and interest for the student child), providing structure (e.g., establishing clear rules and being consistent), and supporting autonomy (e.g., allowing freedom of choice and matching school content to the individual interests of each one). So, emotional support, ensured by the quality of the educator-child relationship, is a key condition for all the learning experiences within the school context.

### **Empirical Research**

In recent decades, empirical research on the emotional and affective importance of the educator-child relationship on child adjustment to the school context has increased. The quality of this relationship has been positively associated with students' socio-emotional functioning (e.g., Ladd, Birch, & Buhs, 1999), behavioral problems (e.g., Graziano, Reavis, Keane, & Calkins, 2007), academic involvement (e.g., Skinner, Wellborn, & Connell, 1990), and academic writing (e.g., Valiente, Lemery-Chalfant, Swanson, & Reiser, 2008). Therefore, a considerable amount of literature provides evidence that positive and supportive relationships between teachers and students are fundamental to the healthy development and adjustment of students in the school context (Birch & Ladd, 1998; Hamre & Pianta, 2001;

Pianta, 1999). Hamre and Pianta (2001) showed that the degree of conflict in the relationship between early childhood educators and children negatively predicted school grades and positive work habits, and positively predicted disciplinary infractions. In 2007, a meta-analysis revealed a substantial association between teachers' individual variables (e.g., affective variables, empathy, and affectivity) instructional variables (e.g., encouragement to learn and thought-making) and, affective performance, behavioral and/or cognitive (Cornelius-White, 2007). The value of a favorable relationship is clear, in order to stimulate and support learning and to deal with the demands of the school context (Al-Yagon & Mikulincer, 2004; Hamre & Pianta, 2001; Howes, Hamilton, & Matheson, 1994). However, most of the empirical research focuses on children at school ages and, although there is important scientific support on linguistic development, there is a need to deepen the dynamics between the educator-child relationship and linguistic development.

### **Problem statement**

Given the value of positive early relationships, which support a secure base for active exploration, allowing diverse experiences and opportunities for development and also underlining the importance of socio-emotional skills in adjustment and performance in the school context, it is imperative to understand more of these concepts and how they are linked at early ages. The toddlerhood period is a phase in which there is a great leap in several developmental domains, with language and, particularly, vocabulary as one of these areas. (Benedict, 1979; Naudeau et al., 2011; Reznick & Goldfield, 1992). A considerable amount of the empirical research has focused on children at school and preschool ages, and although there is important scientific support on the quality of teacher-child relationship and language development, there is a need to deepen the knowledge of this dynamic in children in the toddler period, granting more clues for early intervention.

The purpose of this study is to investigate the link between two main variables, Relationship Educator-Child x Language development. These are composed of different levels, the first one comprehends three dimensions – Closeness, Conflict, and Dependency – and the second one is subdivided into two levels – Expressive Vocabulary and Receptive Vocabulary. We intended to verify if there is an association between the two variables. Our research questions are: (1) How do the three relational dimensions influence language development in toddlers? (2) Is a positive relationship a stronger predictor of language skills

than negative relational patterns? (3) Can language skills predict the type of relationship between the teacher and the child?

## 1. Method

### 1.1 Participants

This study was part of a broader research project designed to examine the complex relations among activity settings, educator-child interactions, and peer interactions during toddlerhood (Quality Matters, PTDC/MHCCED/5913/2014). For the larger project, three regions in Portugal were selected in order to have geographic variability – two large urban areas and one rural area.

The centers were selected based on a set of criteria previously established: a) the establishments were judged to be of high quality, as asserted by experts (e.g. innovating practices, collaboration with universities); and b) the establishments had to have structural characteristics aligned with national guidelines (e.g., group size, educator's qualification). Participating classrooms in each establishment were selected via age range (classrooms serving children with 2 years old). Different establishments were contacted until 31 separate classrooms total accepted the invitation. 31 toddler aged classrooms were selected in total, and 10 children selected at random in each one. The classrooms were dispersed throughout 23 establishments, including both private non-profit and for-profit ones, as in Portugal, Crèches serve children under 3-years-old, and they can be either private for-profit or non-profit. This is all under the tutelage of the Portuguese Ministry of Labor and Social Security. For this study, children were selected whose individual data on language and teacher-child relationships was available, making a total of 268 children (51.9% boys). See Table1 for descriptive statistics.

Table 1

*Descriptive statistics for the participants*

Characteristics	<i>N</i>	<i>%</i>	<i>M</i>	<i>SD</i>	<i>Minimum</i>	<i>Maximum</i>
Child characteristics						
Boys	298	51.9				
Age (months)	268		35.14	4.02	23	53

Educators characteristics						
Women	28	90.3				
Age (years)	27		40.85	7.85	27	57
Bachelors' degree in ECE	18	58.1				
Masters' degree in ECE	10	32.3				
Classroom characteristics						
Group size	26		16	3.09	8	22
Adults	27		2.22	0.75	1	4

Children were on average 35.1 months ( $SD = 4.02$ ) and were enrolled in 28 classrooms. The number of participating children per classroom varied from 8 to 22 ( $M = 3.09$  children per classroom). Regarding the mother's education level, 10.4% attended high school or less and 64.7% had a higher education degree. Most mothers worked outside the home (85.2%), 8% were unemployed, 2.4% were studying, 2.3% were stay-at-home mothers, and 1.1% were both working and studying.

Participating educators were the classroom lead educators ( $N = 27$ ), 90.3% of them women, with an average age of 40.9 years ( $SD = 7.9$ ), and an average teaching experience of 12.6 years ( $SD = 5.9$ ). In Portugal, the lead educator is required to have at least a bachelor's degree. In this sample, 58.1% of the educators had a bachelor's degree and 32.3% held a master's degree in early childhood education.

Classrooms' age group was 2 years old, although all classrooms included slightly younger (1-year-old) and older children (3-years-old) as well, depending on the timing of the child's birthdate. Group size ranged from 8 to 22, with an average of 16 children enrolled per classroom ( $SD = 3.09$ ).

## 1.2 Measures

### Short Form STRS

The scale we used to assess the teacher's perception of their relationship with a child was The Student-Teacher Relationship Scale – Short Form (STRS - SF). It measures student-teacher relationship patterns through capturing the teacher's perception by indicators such as student's interactive behaviours with the teacher and teacher's beliefs about the student's feelings toward the teacher (Pianta, 2001).

The scale is a self-report instrument, using a 5-point Likert-type rating scale, from 1 (not apply) to 5 (applies). This scale is composed of three factor-based subscales corresponding to the different dimensions of student-teacher relationship: Conflict, Closeness, and Dependency. The conflict subscale is composed of 7 items that describe teacher-perceived negativity and discordance with the child (e.g., "This child and I always seem to be struggling with each other"). The closeness subscale is composed of 8 items that indicate the perceived warmth and open communication with the child (e.g., "This child openly shares his/her feelings and experiences with me"). In this study, given that prior studies have shown low reliability of the original dependency subscale (e.g., Cadima et al., 2015), following the study developed by Koomen et al. (2012), we used the adapted version of the STRS in which extra items for this subscale were added aiming at improving its internal consistency. In this version, the dependency subscale is composed by 7 items (e.g., "This child looks to me for help, appreciation and support") describing the child's overreliance and possessiveness over the teacher. By using the raw scores of the three subscales, a total score for the overall relationship's quality is obtained.

Through the analysis of the reliability of the scale, Cronbach's alpha indicated moderate internal consistency of conflict and closeness dimensions ( $\alpha = .81$ , and  $\alpha = .74$ , respectively). The dependency dimension internal reliability indicated modest internal consistency ( $\alpha = .66$ ).

### **Griffiths- Expressive and Receptive Vocabulary**

Expressive and receptive vocabulary was measured with two tasks from the Griffiths Language subscale (Griffiths, 2007). In the first task (receptive vocabulary), children are asked to point to the objects (e.g., knife, key, doll) as the observer named them, in a total of 18. A score of 1 is assigned to correct answers and a score of 0 to incorrect answers, resulting in a maximum possible score of 18. In the second task (expressive vocabulary – pictures), children are asked to name 20 pictures depicting objects and animals (e.g., spoon, bed, cup). Pictures are presented in small cards, one at a time. A score of 1 is assigned to correct answers and a score of 0 to incorrect answers, resulting in a maximum possible score of 20. Griffiths is a widely known and used measure of development with good reliability, validated for the Portuguese population, ( $\alpha = .97$ ) (e.g., Griffiths, 2007).

### 1.3 Procedure

For this study, two waves of data assessment were used. The first wave occurred between May and July 2017, and the second between October and December 2017. Approximately 154 days elapsed between the two waves. Trained research team members conducted the assessments in a quiet room located in crèches. Each assessment lasted for approximately 25 minutes and was usually completed in a single session. Between the waves, teachers filled the STRS questionnaires.

## 2. Results

In Time 1, the average number of correct objects identified by children was relatively high ( $M = 13.83$ ,  $SD = 3.27$ ), although there was great variation. For expressive vocabulary, the average number of images that children mentioned was also relatively high ( $M = 12.82$ ,  $SD = 3.06$ ), and increased at T2 ( $M = 14.78$ ,  $SD = 2.40$ ). In T1, the average number of objects mentioned by the children while looking at the Large Image was nearly 10 ( $M = 9.92$ ,  $SD = 5.64$ ). In what concerns the teacher-child relationship dimensions, the average for Closeness was very high, ( $M = 4.41$ ,  $SD = 0.53$ ), whereas the means of both Conflict and Dependency were at the low range, 1.72 ( $SD = 0.70$ ) and 2.21 ( $SD = 0.75$ ), respectively.

Table 2

#### *Descriptive Statistics*

Variables	<i>M</i>	<i>SD</i>	<i>Min.</i>	<i>Max.</i>
Language skills				
Receptive vocabulary (T1)	13.83	3.27	1.00	18.00
Expressive vocabulary – pictures (T1)	12.82	3.06	.00	19.00
Expressive vocabulary - pictures (T2)	14.78	2.40	5.00	19.00
Teacher-child relationship				
Closeness	4.41	0.53	2.43	5.00
Conflict	1.72	0.70	1.00	4.50
Dependency	2.21	0.75	1.00	4.33

Table 3 displays simple correlations for the variables implicated in this study. The results indicated modest, and positive statistically significant associations between vocabulary variables and teacher-child closeness. In addition, the age of the child was positively correlated with both closeness and dependency,  $r = .192$ ,  $p < .05$  and  $r = .201$ ,

$p < .01$ , respectively. This means that older children are more likely to present higher levels of closeness and dependency with the teacher. Plus, the gender also correlated positively with the conflict dimension,  $r = .244$ ,  $p < .01$ , meaning that boys were more likely to have conflictual relationships with their teachers.

Table 3

*Pearson Correlations between Teacher-child Relationships and Child Characteristics and Language Skills at T1 and T2*

Variables	Closeness	Conflict	Dependency
Age (in months)	<b>.192*</b>	.007	<b>.201*</b>
Child Gender	-.139	<b>.264**</b>	-.046
Receptive vocabulary (T1)	<b>.508**</b>	-.077	-.118
Expressive vocabulary – pictures (T1)	<b>.436**</b>	-.044	-.093
Expressive vocabulary – pictures (T2)	<b>.401**</b>	-.121	-.083

Next, considering the positive associations between closeness and language skills, we performed a series of hierarchical regression analyses to examine the associations between closeness and expressive vocabulary at T2, after controlling for expressive vocabulary at T1. The results are displayed in Table 4.

Table 4

*Summary of the Regression Analysis predicting Expressive vocabulary - Pictures (T2)*

Variables	$\Delta R^2$	<i>B</i>	<i>SE</i>	$\beta$
Step 1.				
Constant	.533	7.05	0.63	
Expressive vocabulary – pictures (T1)		0.61	0.05	<b>.73**</b>
Step 2.				
Constant	.014	4.66	1.30	
Expressive vocabulary – pictures (T1)		0.57	0.05	<b>.68**</b>
Closeness		0.65	0.31	<b>.13*</b>

The regression analyses showed that expressive vocabulary at T1 explaining 53% of the variation of the language development at T2,  $\Delta R^2 = .53$ ,  $\beta = .73$ ,  $p < .001$ . In addition, this analysis showed that even though closeness was a modest predictor of language skills, explaining additionally 1.4% of the variance of the language development at T2, closeness was a statistically significant and positive predictor of the development of the language in children,  $\Delta R^2 = .014$ ,  $\beta = .13$ ,  $p < .05$ .



At the last step, we run hierarchical regression analyses to explore how language skills at T2 – receptive and expressive vocabulary – predicted closeness after controlling for the age of the child.

Table 5

*Summary of the Regression Analysis predicting Closeness*

Variables	$\Delta R^2$	<i>B</i>	<i>SE</i>	$\beta$
Step 1. <i>Constant</i>	.037	3.607	.345	
Age (in months)		.023	.010	<b>.192**</b>
Step 2. <i>Constant</i>	<b>.221</b>	3.273	.308	
Age (in months)		.004	.009	.032
Receptive vocabulary (T1)		.074	.011	<b>.497**</b>

Table 6.

*Summary of the Regression Analysis predicting Closeness*

Variables	$\Delta R^2$	<i>B</i>	<i>SE</i>	$\beta$
Step 1. <i>Constant</i>	.043	3.547	.341	
Age (in months)		.025	.010	<b>.208**</b>
Step 2. <i>Constant</i>	<b>.154</b>	3.209	.320	
Age (in months)		.010	.009	.086
Expressive vocabulary – pictures (T1)		.067	.013	<b>.411**</b>

The regression analyses showed that receptive vocabulary was a moderate predictor of the closeness, explaining a total of 22.1% of the variance,  $\Delta R^2 = .221$ ,  $\beta = .497$ ,  $p < .001$ . Moreover, age (in months) explained 3.7% of the variation of closeness between educator-child at T2,  $\Delta R^2 = .037$ ,  $\beta = .192$ ,  $p < .001$ , but it was no longer a statistically significant predictor after adding vocabulary into the model (see Table 5).

In addition, the regression analysis revealed that expressive vocabulary was a moderate predictor of closeness, even when age was controlled, explaining 15.4% of the variance,  $\Delta R^2 = .154$ ,  $\beta = .411$ ,  $p < .001$ .

### 3. Discussion

This study sought to examine if and how the relationship educator-child plays a role in the development of the language, both expressive and receptive vocabulary. We mainly focus our analysis in the apprehension of the associations between the different relationship dimensions – closeness, conflict and dependency – and the language development in order to extend the previous evidence of these links with older children.

Innumerable authors have investigated the relationship between older children and their teacher and its implications for different developmental outcomes such as behavior (Graziano, Reavis, Keane, & Calkins, 2007), social-emotional skills (Ladd, Birch, & Buhs, 1999), learning process (Al-Yagon & Mikulincer, 2004; Hamre & Pianta, 2001; Howes, Hamilton, & Matheson, 1994), adjustment at school (Pianta & Nimetz, 1991) and school's success (Birch & Ladd, 1997).

The major conclusion generated by this investigation is the role that closeness plays in the development of vocabulary skills. Even though this dimension has a small effect in the development of language, it was statistically significant, explaining 1.4% of the vocabulary skills at wave 2. Our findings are aligned with prior research, such as studies that support the premise that a close and warm child-teacher relationship is an important contributor to child's development skills (e.g., Mashburn et al., 2008; Pianta & Stuhlman, 2004), in particular to language growth (Hamre & Pianta, 2001; Spilt, Koomen, & Harrison, 2015). A recent study found that a close teacher-child relationship offers toddlers with more opportunities to profit from educator's language modeling (Wolter et al., 2014).

According to the attachment theory, closer relationships support children to feel secure and to rely on teachers as a safe haven, an essential condition to explore and take more risks in order to apprehend the world around (Birch & Ladd, 1997; Pianta, 1999; Pianta, Nimetz, & Bennett, 1997). It is also possible that children within close relationships, are more motivated and supported to learn new words and their meaning, using them more, because educators are more likely to have frequent, personalized and well-tuned verbal interactions likely to support vocabulary growth (Dickinson et al., 2003; Spilt et al., 2015).

Our findings also showed that vocabulary positively predicted closeness. It seems that children with better vocabulary skills are more likely to establish close and warm relations with the educator, even after controlling for children's age. It was important to control for the effects of age because in very young children, only one month can make a

huge difference in terms of developmental skills, so that controlling for the effect of age on closeness dimension allowed us to better understand the role of vocabulary skills.

These findings corroborate prior research that has shown that child characteristics, such as linguistic skills, can also influence the quality of relationship, by showing a direct connection between the quality of the teacher–child relationship and children's language development (Rudasill et al., 2006). This can be explained by the fact that toddlers with higher language skills may be more capable of expressing themselves and their needs and interests, helping the teacher to respond to them, which can contribute for closer relationships.

Furthermore, it is important to notice that receptive vocabulary was a moderate predictor of the closeness dimension, even after controlling for child's age. This outcome is a notable contribution, being thus possible that it is not the age itself that origins closer relationships but are the language skills that facilitate it. However, more research is needed to unpack this finding.

Previous investigations showed a positive association between child characteristics such as age and gender and the type of relationship with the educator, finding that our study corroborates. Older children are more likely to present higher levels of closeness and dependency (Hamre & Pianta, 2001) and kindergarten teachers reported closer and less conflictual relationships with girls than with boys (Hamre & Pianta, 2001). Similarly, we found that gender also correlated positively with the conflict dimension, with boys having more conflictual relationships with their educators. This result could be explained by the fact that boys typically show more frequent antisocial behaviors, such as verbal and physical aggression (Pianta, Hamre, & Stuhlman, 1999, p. 209).

Another interesting result that should be discussed is the lack of a statistically significant correlation between the dimensions conflict and dependency and vocabulary, either receptive or expressive. We can advance some hypotheses to explain it, such as the early age of children and the cultural context. The children might be too young to develop more negative patterns of relationships with adults, as the mean scores suggest. Also, previous studies that examined the dimensions of dependency, closeness, and conflict in teacher-child relationships, suggested that the concept of dependency may be subject to cultural differences. A recent study by Ferreira and collaborators (2020), developed in Portugal, showed that the two dimensions dependency and closeness were positively correlated, suggesting that higher levels of dependency had higher ratings of closeness. This finding is consistent with the idea that within some cultures with more collectivistic values,

dependency is seen as a positive dimension, increasing feelings of protection and proximity with the teacher (Demirkaya & Bakkaloglu, 2015; Tsigilis et al., 2017; Gregoriadis et al., 2020).

### **3.1 Limitations and Strengths**

This study has several limitations that are important to take into consideration when interpreting our findings. First, our sample may not be representative of Portuguese toddlers' development due to crèches selection criteria. Second, we were unable to control variables that might play a role in the relation between the child-educator relationship and language skills, such as child general cognitive ability (Fuhs et al., 2014). Third, we acknowledge that, given our correlational design, no strict causality links can be strained from our results.

Regardless of the limitations, there are strengths to point out. The first one is the focus in toddlerhood, an understudied period of child development. Indeed, it is theoretically well known that between 18 and 36 months, the young child undergoes a real cognitive revolution, the symbolic function, and this function will be translated at various levels such as imitation and the permanence of the object, which will allow to associate a meaning with its linguistic representation (Castro, 2001). Language development reveals itself through babbling, pointing, and gesticulating in early stages being that the first words and sentences appears around ages 2 and 3, consequent of a vocabulary explosion (Naudeau, Kataoka, Valerio, Neuman, & Elder, 2011). Despite all the investigation produced within this problematic, there is a lack of studies of children in this age group (e.g., Justice et al., 2008; Spilt et al., 2014; Schmitt et al., 2012; Cadima et al., 2018).

Another strength of the study was the inclusion of analyses that examined both directions of the associations between closeness and language skills. That is not only we have studied the role language skills plays in the educator-child relationship, but also the influence of the quality of this relationship in the language development, particularly receptive and expressive vocabulary. Even though the correlations were modest to moderate, they were nevertheless statistically significant, underlining attention to this subject in future researches.

### **3.2. Implications**

There are some important theoretical and practical implications. Our results can inform theoretical approaches regarding the emotional connection between teacher and child, and how this relationship affects the development in an early stage. Furthermore, results support that age itself has less influence on the closeness dimension of the relationship, suggesting that child's language skills may play a more important role in the establishment of warm and close relationships.

Considering these conclusions, curricular guidelines for ECEC could benefit from approaching emotional support and positive relationships as an important tool for early childhood development.

Results from the current study also suggest that designing interventions with a focus on close relationships could also have positive effects on language development and designing interventions with a focus on linguistic development could also have positive effects on the relationship educator-child early.

In addition, a more subtle implication can be pulled out from these findings. As shown, the level of linguistic competence has an effect in the nature and quality of the relationship established between educator and toddler, thus the more vocal the child is and able to express herself and her needs to the adult, more likely she/he will create a close and positive bond and consequently language development will increase (cf. Spilt et al., 2015). This means that toddlers with less linguistic competence struggle more to establish a close relationship and therefore the stimulation necessary to develop the language domain will be neglected. Thus, the language development, which translates in good language skills, plays an important role in contributing to the development of close relationship between educator-child, since toddlers with better receptive and expressive vocabulary engage in more sophisticated and extended conversations with teachers. So, it is important to take that in consideration when training future educators and teachers so they can be prepared to read and access to nonverbal clues of communication.

Ultimately, the current study shows the need to understand the dependency dimension, supporting previous researches in which this relational dimension lacks in the comprehension of its influence on various levels of the child development, such as language domain (e.g. Ferreira, T. et al., 2020).

#### 4. Conclusion

This study takes a first step in establishing the links between relationship dimensions and language skills for toddlers. Our results provide support to dynamic theories of development that advocate for the intertwined nature of several skills developing in unison, and that highlight the variability in development.

The current study is an important starting point to consider attachment style and its fundamental role on human growth, especially in the development of core and foundational skills, such as language.

#### References

- Ainsworth, M. D., Blehar, M. C., Waters, E., & Wall, D. (1978). *Patterns of attachment: A psychological study of the strange situation*. Hillsdale, NJ: Erlbaum.
- Al-Yagon, M., & Mikulincer, M. (2004). Socioemotional and academic adjustment among children with learning disorders: The mediational role of attachment-based factors. *Journal of Special Education, 38*, 111–123.
- Armonia, A. C., Mazzega, L. C., Pinto, F. C. A., Souza, A. C. R. F., Perissinoto, J., Tamanaha, A. C. (2015). Relationship between receptive and expressive vocabulary in children with Specific Language Impairment. *Revista CEFAC, 17*(3):759-765.
- Benedict, H. (1979). Early lexical development: Comprehension and production. *Journal of Child Language, 6*, 183-200. doi:10.1017/s0305000900002245.
- Birch, S. H., & Ladd, G. W. (1997). The teacher-child relationship and children's early school adjustment. *Journal of School Psychology, 35*, 61–79.
- Birch, S. H., & Ladd, G. W. (1998). Children's interpersonal behaviors and the teacher-child relationship. *Developmental Psychology, 34*, 934–946.
- Bowlby, J. (1969). *Attachment and loss: Attachment*. Vol. 1. New York: Basic Books.
- Bronfenbrenner, U., & Morris, P. A. (1998). The ecology of developmental processes. In W. Damon & R. M. Lerner (Eds.), *Handbook of child psychology: Theoretical models of human development*. Vol 1 (5th ed., pp. 993–1028). New York: Wiley.

- Bronfenbrenner, U., & Morris, P. (2006). The bioecological model of human development. In W. Damon & R. M. Lerner, (Eds.), *Handbook of Child Psychology: Theoretical models of human development*. Vol 1 (5 ed., pp. 793-828). New York: Wiley.
- Cadima, J., Barros, S., Ferreira, T., Serra-Lemos, M., Leal, T., & Verschueren, K. (2018). Bidirectional associations between vocabulary and self-regulation in preschool and their interplay with teacher–child closeness and autonomy support. *Early Childhood Research Quarterly*, *46*, 75-86. doi: 10.1016/j.ecresq.2018.04.004.
- Cadima, J., Verschueren, K., Leal, T., & Guedes, C. (2015). Classroom interactions, dyadic teacher–child relationships, and self–regulation in socially disadvantaged young children. *Journal of Abnormal Child Psychology*, *44*(1), 7-17. doi:10.1007/s10802-015-0060-5.
- Castro, M. (2001). A Linguagem em Crianças de 2 e 4 Anos no Contexto Creche/Jardim de Infância ou no Contexto Familiar. Dissertação de Mestrado em Psicologia do Desenvolvimento e Educação da Criança Especialidade de Intervenção Precoce – Faculdade de Psicologia e Ciências da Educação. Universidade do Porto, Porto.
- Connell, J. P., & Wellborn, J. G. (1991). Competence, autonomy, and relatedness: A motivational analysis of self-system processes. In M. R. Gunnar & L. A. Sroufe (Eds.), *The Minnesota symposia on child psychology*, Vol. 23. Self-processes and development (p. 43–77). Lawrence Erlbaum Associates, Inc.
- Cornelius-White, J. (2007). Learner-centered teacher–student relationships are effective: A meta-analysis. *Review of Educational Research*, *77*, 113–143.
- Deci, E. L., Vallerand R. J., Pelletier L. G. & Ryan R. M. (1991) Motivation and Education: The Self-Determination Perspective. *Educational Psychologist*, *26*:3-4, 325-346. DOI: 10.1080/00461520.1991.9653137.
- Demirkaya, P., & Bakkaloglu, H. (2015). Examining the student-teacher relationships of children both with and without special needs in preschool classrooms. *Educational Sciences: Theory & Practice Early*, *15*(1): 159–175. DOI:10.12738/estp.2015.1.2590
- Dewey, J. (1990). *The child and the curriculum*. University of Chicago Press. (Original work published 1902).
- Dickinson, D., McCabe, A., Anastasopoulos, L., Peisner-Feinberg, E., D. Poe, M. (2003) The Comprehensive Language Approach to Early Literacy: The Interrelationships among Vocabulary, Phonological Sensitivity, and Print Knowledge among Preschool

- Aged Children. *Journal of Educational Psychology* 95(3). DOI: 10.1037/0022-0663.95.3.465.
- Ferracini, F., Capovilla, A. G. S., Dias, N. M., Capovilla, F. C. (2006) Expressive and receptive vocabulary assessment in preschool. *Revista Psicopedagogia*. 23(71): 124-133.
- Ferreira, T., Cadima, J., Matias, M., Leal, T., & Matos, M. P. (2020). Teacher-child dependency in preschool: links with teacher-child closeness, conflict and children's effortful control. *Attachment & Human Development*. <https://doi.org/10.1080/14616734.2020.1752438>.
- Fuhs, M. W., Nesbitt, K. T., Farran, D. C., & Dong, N. (2014). Longitudinal associations between executive functioning and academic skills across content areas. *Developmental Psychology*, 50(6), 1698-1709. doi:10.1037/a0036633.
- Graziano, P. A., Reavis, R. D., Keane, S. P., & Calkins, S. D. (2007). The role of emotion regulation in children's early academic success. *Journal of School Psychology*, 45, 3-19.
- Gregoriadis, A., Grammatikopoulos, V., Tsigilis, N., & Verschueren, K. (2020). Teachers' and children's perceptions about their relationships: Examining the construct of dependency in the greek sociocultural context. *Attachment & Human Development*.
- Griffiths, R. (1996). Griffiths mental development scales: 0-2 years. Oxon: The Test Agency.
- Griffiths, R. (2007). Escala de desenvolvimento mental de Griffiths 0-2 [Griffiths mental scales 0-2: Portuguese version] (C. R. Ferreira, I. T. Carvalhão, I. C. Gil, M. Ulrich & S. Fernandes, Trans). Lisbon, Portugal: CEGOC.
- Hamre, B. K., & Pianta, R. C. (2001). Early teacher-child relationships and the trajectory of children's school outcomes through eighth grade. *Child Development*, 72, 625-638. <http://dx.doi.org/10.1111/1467-8624.00301>.
- Howes, C., Hamilton, C. E., & Matheson, C. C. (1994). Children's relationships with peers: Differential associations with aspects of the teacher-child relationship. *Child Development*, 65, 253-263.
- Justice L. M., Cottone E. A., Mashburn A. & Rimm-Kaufman S. E. (2008). Relationships Between Teachers and Preschoolers Who Are at Risk: Contribution of Children's Language Skills, Temperamentally Based Attributes, and Gender. *Early Education and Development*, 19(4), 600-621. DOI: 10.1080/10409280802231021.



- Koomen, H., et al. (2012). Validating the Student-Teacher Relationship Scale: Testing factor structure and measurement invariance across child gender and age in a Dutch sample. *Journal of School Psychology, 50*, 215–234
- Ladd, G. W., Birch, S. H., & Buhs, E. S. (1999). Children's social and scholastic lives in kindergarten: Related spheres of influence? *Child Development, 70*, 1373–1400.
- Mashburn, A., Pianta, R., Hamre, B., Downer, J., Barbarin, O., Bryant, D., & Early, D. (2008). Measures of classroom quality in prekindergarten and children's development of academic, language, and social skills. *Child Development, 79*, 732–749. <http://dx.doi.org/10.1111/j.1467-8624.2008.01154>.
- Naudeau, S., Kataoka, N., Valerio, A., Neuman, M. J., & Elder, L. K. (2011). Investing in young children: An early childhood development guide for policy dialogue and project preparation.
- Pianta, R. C. (1999). Enhancing relationships between children and teachers. Washington, DC: American Psychological Association.
- Pianta, R. C. (2001). STRS: student-teacher relationship scale: professional manual. Lutz, FL: Psychological Assessment Resources.
- Pianta, R. C., & Stuhlman, M. W. (2004). Teacher-Child Relationships and Children's Success in the First Years of School. *School Psychology Review, 33*(3), 444–458.
- Pianta, R. C., Hamre, B., & Stuhlman, M. (2003). Relationships between teachers and children. In W. M. Reynolds & G. E. Miller (Eds.), *Handbook of psychology: Educational psychology, Vol. 7* (p. 199–234). John Wiley & Sons Inc.
- Pianta, R. C., Nimetz, S. L., & Bennett, E. (1997). Mother-child relationships, teacher-child relationships and adjustment in preschool and kindergarten. *Early Childhood Research Quarterly, 12*, 263–280.
- Pianta, R. C., Steinberg, M., & Rollin, K. (1995). The first two years of school: Teacher-child relationships and deflections in children's classroom adjustment. *Development and Psychopathology, 7*, 295–312.
- Reznick, J. S., & Goldfield, B. A. (1992). Rapid change in lexical development in comprehension and production. *Developmental Psychology, 28*(3), 406–413. doi:10.1037/0012-1649.28.3.406
- Rudasill, K., Rimm-Kaufman, S., Justice, L., & Pence, K. (2006). Temperament and language skills as predictors of teacher-child relationship quality in preschool. *Early Education and Development, 17*: 271–291. DOI: 10.1207/ s15566935eed1702\_4

- Schmitt M. B., Pentimonti J.M. & Justice L. M. (2012). Teacher–child relationships, behavior regulation, and language gain among at-risk preschoolers. *Journal of School Psychology, 50*, 681-699. <https://doi.org/10.1016/j.jsp.2012.04.003>.
- Skinner, E. A., & Belmont, M. J. (1993). Motivation in the classroom: Reciprocal effects of teacher behavior and student engagement across the school year. *Journal of Educational Psychology, 85*, 571–581.
- Skinner, E. A., Wellborn, J. G., & Connell, J. P. (1990). What it takes to do well in school and whether I’ve got it: A process model of perceived control and children’s engagement and achievement in school. *Journal of Educational Psychology, 82*, 22–32.
- Spilt, J. L., Koomen, H. M. Y., & Harrison, L. J. (2015). Language development in the early school years: The importance of close relationships with teachers. *Developmental Psychology, 51*(2), 185–196. <https://doi.org/10.1037/a0038540>.
- Sroufe, L. A., & Fleeson, J. (1986). Attachment and the construction of relationships. In W. Hartup & Z. Rubin (Eds.), *Relationships and development*. Hillsdale, NJ: Erlbaum.
- Valiente, C., Lemery-Chalfant, K., Swanson, J., & Reiser, M. (2008). Prediction of children’s academic competence from their effortful control, relationships, and classroom participation. *Journal of Educational Psychology, 100*, 67–77.
- Vygotsky, L. S. (1978). *Mind in Society: The development of higher psychological processes*. In Cole, M., Steiner, J. V., Scribner, S. & Souberman, E. (Eds.). Harvard University Press. Cambridge.
- Wolter, I. et al (2014). Gender-typicality of activity offerings and child closeness in German “Kindergarten”. Influences on the development of spelling competence as an indicator of early basic literacy in boys and girls. *Learning and Individual Differences 31*, 59–65. <http://dx.doi.org/10.1016/j.lindif.2013.12.008>