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Investigating Vocabulary Abilities in Bilingual Portuguese-English-Speaking Children

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INVESTIGATING VOCABULARY ABILITIES IN BILINGUAL PORTUGUESE-ENGLISH-SPEAKING CHILDREN

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Ana Paula Fabian

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To: Dean Michael R. Heithaus
College of Arts, Sciences and Education

This thesis, written by Ana Paula Fabian, and entitled Investigating Vocabulary Abilities in Bilingual Portuguese-English-Speaking Children, having been approved in respect to style and intellectual content, is referred to you for judgment.

We have read this thesis and recommend that it be approved.

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Florida International University, 2016

DEDICATION

I dedicate this thesis to my children, Giulia and Leonardo, who are my inspiration, and to my husband Marcelo, for his love and encouragement throughout this time.

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ABSTRACT OF THE THESIS

INVESTIGATING VOCABULARY ABILITIES IN BILINGUAL PORTUGUESE-ENGLISH-SPEAKING CHILDREN

by

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This study investigated the vocabulary abilities of bilingual Portuguese-English-speaking children compared to their monolingual peers. Parental Report Surveys were conducted using the MacArthur-Bates Communicative Development Inventories (CDIs), which are standardized norms for vocabulary assessment. Electronic versions of the "Words and Sentences CDI" in English and Brazilian-Portuguese were used in order to assess the vocabulary of children between the ages of 16 and 36 months. Parents answered the surveys online.

Different vocabulary score types were used in order to evaluate the children's lexicons: The Total Vocabulary score, the Conceptual Vocabulary scores, and the Total Modified Vocabulary. The analyses of the results showed that bilinguals had fewer words than the monolinguals in each language separately, but no significant differences between bilinguals and monolinguals when the two languages of the bilinguals were compared together to the monolinguals'. An analysis of cognates and translation equivalents showed that cognates help with the acquisition of words.

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1 INTRODUCTION

The purpose of this study is to investigate the vocabulary knowledge of bilingual Portuguese-English-speaking children compared to their monolingual peers, speakers of English and Portuguese. The goal is to examine patterns of vocabulary acquisition in language development in children exposed to those two languages. We will examine the Total Vocabulary (TV) of bilinguals as well as their Total Conceptual Vocabulary (TCV) in comparison to those of monolinguals. We expect that cognate words will facilitate acquisition of similar elements by bilinguals in their two languages.

Language acquisition is one of the most important phases of a child's development (O'Grady, 2010) and an essential part of it involves a child's acquisition of vocabulary. The number of words a child speaks or understands is a sign of development that most pediatricians, researchers, and speech pathologists use to evaluate a child's language abilities.

As explained by Gatt, O'Toole, and Haman (2015), comparing the productive vocabulary of children that are exposed to more than one language can promote insights as to whether scores are specific to the language pair being studied or are common to other bilingual settings as well.

This study intends to assess the vocabulary abilities of bilingual Portuguese-English speaking children in comparison to monolingual English and monolingual Portuguese speaking children, from ages ranging from 16 months to 36 months. There is a growing population of bilingual Portuguese-English children; however, many issues regarding bilingual language acquisition for these speakers remain unstudied, especially within the age range mentioned above, and within the realm of vocabulary acquisition.

Information on bilingual children's acquisition of vocabulary can provide insights to the following questions we will try to answer in this study:

1. Will bilingual Portuguese-English speaking children have similar patterns as those of other populations of bilingual children? Do they have translation pairs (Translation Equivalents) or do they avoid translation pairs? What proportion of their words are Translation Equivalents?

2. Do bilingual children perform better with the cognates as opposed to non-cognate TEs? How much does form-similarity matter for children's performance on words?

3. What is the best way to incorporate the fact that these children are bilingual in order to assess them?

This thesis contains five chapters. After this introduction (Chapter 1), Chapter 2 consists of the literature review, Chapter 3 presents the methodology adopted for this study, in Chapter 4 the results are presented followed by the data analysis, and finally Chapter 5 presents a discussion on the topics covered in this study.

2 LITERATURE REVIEW

In the review of the literature, I will examine topics relevant for this study: the acquisition of the lexicon, differences between bilinguals and monolinguals, bilingualism, and parent reports as a tool for vocabulary assessment.

2.1 Acquisition of vocabulary

When a child is learning two languages, his or her attention is focused on more than one lexicon (Pearson, 2008). If the aspect of acquisition being assessed is frequency-dependent, bilinguals might score lower than monolinguals (Genesee and Nicoladis, 2006), because bilingual children hear less of both languages when compared to what a monolingual child hears. Among those items that require exposure to be learned is vocabulary. The amount of exposure a child receives in each language will affect his/her vocabulary size (Hoff, Core, Place, Rumiche, Señor, & Parra, 2012) and the vocabulary knowledge will be distributed across languages (Gatt, O'Toole, & Haman, 2015; Gathercole & Thomas, 2009). Bilingual children might score a little below the norms in each of their languages when vocabulary size is analyzed for each language separately (Hoff et al, 2012; Gathercole & Thomas, 2009). (See below for a discussion of Total Vocabulary score and Total Conceptual Vocabulary score).

For monolinguals and bilinguals, many early language milestones are similar, regardless of which language children are learning, or how many languages they are learning (Pearson, 2009). De Houwer (2012) explains that there are specific milestones for bilinguals that should be considered, in addition to the universal milestones that are well known and should also be considered for all children. The milestones that are

important for all children: babbling (at around 6 months), language comprehension (at around 9 months), first words (at around 12 months), first 50 words (between 18 and 24 months), and short sentences (by the age of 3 years) are reached at about the same time for monolinguals and bilinguals (O'Toole, 2013; Pearson, 2008).

Pearson (2008) describes that between 6 to 9 months, babies turn towards their name and they can start producing their first syllables, like 'dadada', 'bababa'. At around 12 months, babies start to recognize words for things that interest them, and some might have started saying a few words. At 16 months, the receptive vocabulary averages 140 (for boys) and 190 (for girls). At 18 months, the average expressive vocabulary for a boy is 75 words, and for girls, 112 words[1]. By 24 months, the child understands most of what is spoken to her and a major milestone is reached: two-word combinations, which emerged around the fifty-word mark. Around 36 months of age, children understand much more of the language spoken to them and can follow two-step directions. They are able to speak in simple sentences, although sometimes not intelligibly. De Houwer (2012) and Genesee and Nicoladis (2006) also maintain that monolinguals and bilinguals do not differ at the ages at which these milestones are reached.

Comprehension in both languages and development of two separate grammatical systems are milestones important only to bilinguals (De Houwer, 2012), therefore there is need for an assessment that considers these bilingual characteristics.

[1] Pearson explains that gender differences observed become less evident by school age. These data are from a standard parent report form.

2.2 Differences and similarities between bilingual and monolingual word acquisition

In studying bilinguals, one question that frequently comes to mind is that of a bilingual advantage or disadvantage in comparison to monolinguals. It is important to clarify, as explained by Hoff, Core, Place, Rumiche, Señor, & Parra (2012), that there are not any serious and current claims saying that bilingual children are confused or slower than monolinguals in their ability to learn a language. For Thordardottir (2005), development in more than one language is different in some ways from monolingual development, but it is not more difficult. If fact, many studies that have measured both lexicons of bilingual children showed that they look very similar to those of monolinguals (Pearson and Fernandez, 1994; Patterson and Pearson, 2004). In a study with French-English bilinguals compared to monolinguals, Poulin-Dubois, Bialystok, Blaye, Polonia, and Yott, (2013) found significant differences between monolingual and bilinguals' expressive vocabulary size in their L1, but similar total vocabularies (TV).

According to Gathercole (2002), bilinguals will likely be different than monolinguals in quantitative measures, such as inventories of words in terms of production, especially when compared within a language in which they have not reached a threshold of enough input; in this case, the bilinguals will score lower than monolinguals (Pearson, 2013). This threshold is a proposed mechanism that would allow bilinguals and monolinguals' inventories to be equivalent, independent of the amount of input (Gathercole, 2002). However, it is not yet possible to predict thresholds for different constructions of different complexities in different languages (Pearson, 2013).

When considering the differences between bilinguals and monolinguals, it is also important to take into consideration the distributed characteristics of bilinguals' language knowledge and experience, a characteristic that is not relevant to monolinguals. According to Oller (2005), in some instances, the vocabulary of a bilingual tends to be available in one language without a translation equivalent available in the other language, hence the term 'distributed' across the two languages. This distributed characteristic might prove to be a problem in case a bilingual is being assessed using strictly monolingual norms, as the whole lexicon of the bilingual will not be available for the single-language assessment. For example, a bilingual child might know certain words used to name family members (*aunt, uncle, cousin*, etc.) in her home language because that is the language in which those words are used. However, at the daycare not many of those words to name family members are used, so the child does not know those words in the dominant language. In contrast, the child might know the names of the shapes and colors, for example, in the school language because that is what the teachers and caregivers use, but she might not know those words in her home language, because her parents never talk about those items.

Because language in bilinguals is distributed across two languages, the issue of what "counts" for vocabulary knowledge in bilinguals has been the focus of much research. Some have proposed that what needs to be examined is the "Total Conceptual Vocabulary" of bilinguals. The Total Conceptual Vocabulary (TCV) scores are the number of concepts produced or understood by children in either language, whereby Translation Equivalents – corresponding words or expressions in the two languages – (TEs) are only counted once (O'Toole, 2013). Others have argued that, for comparisons

of monolinguals and bilinguals, the use of both TCV and Total Vocabulary (TV) is needed (Gatt et al., 2015). The Total Vocabulary scores are the total number of words produced in both languages by children. Bosch and Ramon-Casas (2014) agree that the measurement of combined vocabulary scores results in a more accurate account of bilingual lexicons. Also important for studies involving vocabulary acquisition in bilinguals, are the cognates, words that have the same etymological origin, and share an identical or similar meaning, spelling or pronunciation. Research shows that early lexical acquisition in the two languages can be increased by cognates (Bosch & Ramon-Casas, 2014). The so called *cognate facilitation effect* has been already established by studies on bilingual word recognition. (Dijkstra, Miwa, Brummelhuis, Sappelli, & Baayen, 2010).

2.3 Bilingualism and Bilinguals

Bilingual children and adults vary widely in their experiences in their two languages and in the level of proficiency in each of their languages. While a bilingual is, arguably, an individual who is able to speak competently – or fluently - at least two languages, the range of variation in language experience in bilinguals is vast (Gathercole, 2014). As Pearson (1998) says, by definition, a bilingual has (some) knowledge of two languages. Grosjean (2013) defines bilingualism as "the use of two or more languages (or dialects) in everyday life" (p. 5). Bialystok (2001) explains that, at best, bilingualism can be put on a scale, starting from no awareness of a second language to complete mastery of two languages. Moreover, bilingual children are from a variety of backgrounds and different environments. They differ in the age at which they start learning their two

languages, in the situations in which they use each language, and in the extent of the motivations they have to learn each of their languages (Thordardottir, 2005).

The simultaneous acquisition of two languages from birth is called *Bilingual First Language Acquisition* (BFLA) (Genesee and Nicoladis, 2006), whereas the learning of another language after the first is well established is called *early Second Language Acquisition* (early SLA) (Pearson, 2009). According to Pearson, those two groups are considered *early bilinguals,* in the sense that they will have native-like skills, although the simultaneous BFLA will occur from birth, while the early SLA will start after the ages of 2 or 3 years, following the establishment of the first language (L1). In comparison, a *late bilingual* will have non-native or near-native skills in his/her second language (L2). Children learning two languages sequentially will have a *first language* (L1) and a *second language* (L2).

Therefore, there are different types of bilinguals depending on when they have had the first contact with their languages: *simultaneous* and *sequential* (or consecutive) bilinguals. Simultaneous bilinguals are those who learn two languages from birth, as opposed to sequential bilinguals, who learn one language before the other (Pearson, 2008). Even 'simultaneous' bilinguals may become more proficient in one language than the other (Genesee and Nicoladis, 2006; Gathercole and Thomas, 2009). And even a sequential bilingual, as an early learner, can learn both languages in the same manner of the first language acquired.

With enough and rich language interactions in their two languages, children can learn two languages easily and without explicit formal instruction (Pearson, 2009). Children's relative dominance in each language can change over time as a result of

changes in the child's exposure to each language (Genesee and Nicoladis, 2006). Pearson (2013) believes that length of exposure to a language might be best to determine expected levels of performance, rather than the typical practice of using the chronological age of a child. However, for the purposes of this study chronological age will be the basis for the assessment. It is also important to notice that, in bilinguals, one of the languages of the bilingual is typically dominant, while the other is non-dominant, or weaker. However, that can change over time, depending on the needs for one language or the other (Pearson, 2009).

De Houwer (2005) states that frequency of input is crucial in both monolingual and bilingual children, but more important in a bilingual environment. The more words children hear in the early years, the larger will be their lexicons (Cartmill, Armstrong III, Gleitman, Goldin-Meadow, Medina, & Trueswell, 2013). The amount of exposure of each language can affect the relative performance of bilingual children (Gathercole, Thomas, Roberts, Hughes, & Hughes, 2013) and also their vocabulary size (Pearson, 1998).

2.4 Use of parental reports to assess vocabulary

The MacArthur Bates Communicative Development Inventories – CDIs (Fenson, Dale, Reznick, Thal, Bates, Hartung, Pethick, & Reilly, 1993) are a popular tool that has gained favor across languages over the last three decades. These consist of parental reports; the original reports, developed for English, were adapted from early works of Elizabeth Bates and her colleagues (Fenson, Marchman, Thal, Dale, Reznick & Bates, 2007).

The norming for the first CDIs (http://childes.psy.cmu.edu/tools/CDI/) was based on an original sample of 671 infants and 1,142 toddlers (Fenson et al., 2007). The norms were created centered on guidelines established to assure the validity of the inventories. In a later updated sample, the participants were screened taking into consideration medical exclusionary criteria (excluding children born 6 or more weeks prematurely, having repeated ear infections, or reporting any serious medical condition). The total number of children in the updated sample was 1,089 infants and 1,461 toddlers. Maternal education and ethnicity, birth order, and exposure to a second language were also taken into account in order to expand the diversity of the sample, including the sites of data collection – New Haven, San Diego, and Seattle (Fenson et al., 2007).

The CDIs were designed to be completed by parents or main caregivers, in order to minimize the limitations of language samples and controlled tests (Fenson et al., 2007), which are time-consuming and can limit the number of children observed. O'Toole (2013) comments that language sampling has the disadvantage of being time-consuming and also restrictive in terms of the language structures observed; such records of free speech might also underestimate the verbal abilities of the child (Bornstein and Haynes, 1998).

Because they do not require child cooperation, parent reports can be used to evaluate infants and toddlers who might be reluctant to interact with strangers or who might not be willing to cooperate during tests (Feldman, Dollaghan, Campbell, Kurs-Lasky, Janosky, & Paradise, 2000; Fenson et al., 2007). A child's performance in a laboratory or clinical setting might be highly influenced by aspects of the child's personality. As Fenson et al. (2007) suggest, clinicians could also use parent reports as a

supplement to check the validity of their own assessments, being especially valuable in monitoring language development over time.

The use of parental reports for vocabulary assessment is seen as advantageous because they rely on the recognition of vocabulary items, rather than the recollection of them (Gatt et al., 2015; Fenson et al., 2007). They focus on current and emerging behaviors and avoid retrospective accounts of language. Moreover, because a parent has the opportunity to observe the child in a varied range of situations, the data collected can be more representative of the actual language of the child (Fenson et al., 2007).

Because of the format and its strict criteria, the CDIs have proven to be a reliable and valid tool for assessment of language in infants and toddlers (Jackson-Maldonado, Marchman, Thal, Bates, & Gutiérrez-Clellen, 1993). The CDIs have been used significantly in studies involving language skills of infants and toddlers, for both normal language processes and language processes of populations with special needs (Heilmann, Weismer, Evans, & Hollar, 2005).

The CDIs have been invaluable in studies of normally developing infants and toddlers, but also, as explained in the updated 'User's guide and Technical Manual' (Fenson et al., 2007), the CDIs can also be used for both clinical and research applications: to identify children at risk for a language delay and evaluate older children with language delay, to identify some of the aspects of the child's communication skills for intervention, to monitor changes after treatment, to screen and preselect children at different levels of language development to be included in research studies, and to examine the influence of other variables on language development, among others.

As will be explained in detail in the Methodology Section, Chapter 3, the CDIs are divided into 3 classes: CDI Words and Gestures (to be used with infants, ages 8-16 months); CDI Words and Sentences (toddler form, 16-30 months); and the MacArthur-Bates Communicative Development Inventory-III (CDI-III), for ages between 30 and 37 months. The value of the CDIs is demonstrated by the fact that these forms have been adapted to different languages (Dale & Penfold, 2011), such as Spanish (Jackson-Maldonado et al., 1993), Italian (Caselli & Casadio, 1995), Swedish (Berglund & Eriksson, 1996), Irish (O'Toole & Fletcher, 2008), Basque (Almgrem, Ezeizabarrena, & Garcia, 2007), Maltese (Gatt, 2007), among others. The CDIs have also been adapted to Brazilian Portuguese in the two forms "CDI Words and Gestures" (Silva, 2003) and "CDI Words and Sentences" (Teixeira, 2005), although these have not been normed.

Silva (2006) explains that the Portuguese versions of the CDIs do not consist of simple translation, but rather the researchers underwent a process of adaptation of the CDIs in order to make it a valid and efficient linguistic developmental measure also to be applied to the Brazilian Portuguese population, as oriented by the International Project Coordination, and considering the linguistics and cultural differences between the countries where the languages are spoken (Dale & Penfold, 2011).

Because the CDI adaptations have been created for many languages, it represents a step forward for the assessment of bilingual children, in that it allows for cross-linguistic assessment of those children, as seen in O'Toole (2013) with Irish-English bilinguals.

It should be noted that not all of the aspects of the CDIs have had a positive review. Even Fenson et al. (2007) recognize that parent reports have their limitations, as

parents might under- or overestimate their children's language abilities. Feldman et al. (2000) also report that in the original CDI norming, parents with low educational and income levels, who were underrepresented in the CDI norming sample, apparently overestimated their children's language abilities, when compared to parents of higher educational and income levels. Fenson, Marchman, Thal, Dale, Reznick, & Bates (2010) concur that CDI norming studies suggest that some lower-income parents overestimate or over-report certain language skills, mainly in infancy. However, the findings do not mean the CDIs should not be used to assess children from low-income households (Fenson et al., 2010). Another limitation mentioned by Core, Hoff, Rumiche, & Señor (2013) is related to the accuracy of the parent report for bilingual children: the parents might not know all the words the child says in both languages. In this case, it is suggested that another person completes the inventory, which might not be always practical.

Nevertheless, to date, the CDIs are considered by many to be one of the most reliable and convenient tools to measure vocabulary in children. As explained by Fenson and colleagues (2010), the existence of such instruments to assess vocabulary and, consequently, language abilities permit cross-linguistic questions to be investigated with large sample sizes.

2.5 Assessment in bilinguals

For Hoff (2009), bilingual children have distinctive strengths in each of their languages, so it is important to be able to assess those strengths accurately. Thordardottir (2005) states that assessment of language proficiency has to take both languages into account, carefully considering the amount of input received in each language. Many

researchers agree that we do not – yet – have satisfactory norms to assess bilinguals in many areas of language development, especially vocabulary acquisition (Pearson, 2008; De Houwer et al., 2014). For lexical assessment, monolingual norms are usually 'borrowed' and sometimes adapted to fulfil the needs for bilingual assessment, which is the case for the CDIs.

For the present study, in the absence of a bilingual Communicative Development Inventory to assess Portuguese-English bilinguals, the two versions of the CDIs for English and for Brazilian Portuguese are used. Although not without the issues cited above, the CDIs seem to be a reliable tool to assess vocabulary in bilingual infants and toddlers, as research has shown its validity for this purpose: Marchman and Martínez-Sussman (2002), for Spanish-English bilinguals; De Houwer et al. (2014), for French-Dutch bilinguals; O'Toole (2013), for Irish-English bilinguals.

2.5.1 Theoretical issues

The investigation of vocabulary abilities in monolingual speakers of a language has been well documented. This is especially true for English: according to Hoff (2009) there is more research describing monolingual children acquiring English than any other language or group. With the exception of the adaptation of the CDIs to Brazilian Portuguese (Teixeira, 2005; Silva, 2003), studies specifically on Brazilian Portuguese involving quantitative or experimental research on vocabulary acquisition in infants and toddlers are rare. Even the milestones for the language are described based on those of English speakers, for example, or are based on a review of literature in English (Gândara & Befi-Lopes, 2010).

There are important theoretical issues that can be addressed in the examination of bilingual children's language development. Cross-linguistic studies of language acquisition in bilingual children can give us a better understanding of the processes and mechanisms of language development (Slobin, 2006). We can also learn how the two languages interact, or even what controls the sequence of development. According to De Houwer et al. (2014), it is important to assess different language combinations in order to address whether bilingual-monolingual similarities and differences are consistent across diverse language-pairs.

2.5.2 Practical Issues

There are practical ramifications of studying acquisition in bilinguals as well. Most relevant are the issues that concern assessment of language abilities in bilingual children. Much of what we know today is based on monolingual norms (Pearson, 2008), and researchers have argued that bilingual children should not be evaluated according to monolingual norms because the scores will not reflect the real abilities of the children in the languages (Pearson, 1998; Hoff et al., 2012).

Pearson (1998) advocates that it is important to have the right instruments to assess language development in bilinguals in order to have reliable results. Bilingual norms can add to the knowledge of language development in bilingual children, as well as identify new - or corroborate existent - milestones for that group. Norms for assessment of bilinguals would also facilitate the identification of young bilingual children at risk for language delay. According to Fenson et al. (2007), norms for assessment of language can be used as preliminary screening tools for language

impairment. Gatt, O'Toole, & Haman (2015) argue that measurements of vocabulary production can be one of the ways to identify early language delay.

Some efforts have already been made in this regard. O'Toole and Fletcher (2008) have adapted the CDI into a bilingual format, to assess bilingual Irish-English speakers. In their adaptation, the vocabulary items were listed in Irish, with an addition of two columns so parents could choose if the child produced the words either in Irish or English, or in both, by selecting both columns. A Maltese-English bilingual adaptation is also available (Gatt, 2007).

In a recent study from Gatt et al. (2015), the bilingual adaptations for Irish-English and Maltese-English were used to assess early lexical production, in order to establish a threshold for Specific Language Impairment in children that are exposed to more than one language. The study also employed adaptations of the CDIs that were not bilingual in form, but that were comprised of diverse language pairs: Polish-English, German-English, Hebrew-English, and French-Portuguese – using a different version of the CDI for European Portuguese (Frota, Butler, Correia, Severino, Vicente & Vigário, 2015).

As suggested by Pearson (2013), because most of what is available are monolingual norms, researchers should use caution when using them. Or even better, develop novel ways to assess the many aspects of bilingual language acquisition, but especially lexical acquisition, as it has been done already for Maltese-English and Irish-English languages.

2.6 The present study

The aim of the present study is to evaluate and compare the lexicons of bilingual and monolingual children. The study seeks to compare the vocabularies of monolingual English and monolingual Portuguese-speaking children with bilingual English-Portuguese-speaking children to compare the number of words and the nature of the words known. This study will make use of English and Portuguese Communicative Development Inventories (CDIs), to examine production and will consider both Conceptual and Total vocabulary scores. We predict, based on previous studies and relevant literature, that bilinguals might perform better than monolinguals when considering the Total vocabulary scores, but we expect no differences between bilinguals and monolinguals when comparing their Total Conceptual vocabularies. An examination of the acquisition of cognates and non-cognates in the bilinguals and monolinguals will be included to gauge the extent to which cognates are helpful for the bilingual group. It is hoped that this research will eventually lead to the development of a bilingual CDI with norms for assessment of Brazilian Portuguese-English bilingual children.

3 METHODOLOGY

3.1 Participants

The data presented in this study are from parents of children between the ages of 16 to 36 months. The participants were divided into three groups according to the language(s) to which their children were exposed: only English, only Portuguese (monolingual groups) or both English and Portuguese (bilingual group). The total number of participants was 34 bilinguals, 14 English monolingual and 19 Portuguese monolingual. The mean age for the bilingual group was M=24.4 months (range 16 to 36 months); for the monolingual English group the mean age was M=24.5 months (range 19 to 35 months, and for the monolingual Portuguese group, the mean age was M=26.8 months (range 18 to 34 months).

The participants were recruited via social media (Facebook, Instagram), through advertisements in local newspapers dedicated to the Brazilian immigrants living in the United States, and via personal contacts and connections of the researcher. The monolingual English speakers were from the United States; the monolingual Portuguese speakers were from Brazil, (2 monolingual Portuguese speakers lived in the United States but had little or no exposure to English, as reported by their parents); and the bilingual participants were mostly from the United States (5 participants were from Brazil, 3 from Canada, 1 from England). There were both simultaneous and sequential children in the bilingual group, according to the parents, who were able to report when their children had first contact to the languages by answering the background questionnaire.

If the parent reported that the child was exposed to another language other than Portuguese or English and that language was the dominant language, if the child had some type of speech delay, or if the child was younger than 16 months or older than 36 months, those children's responses were automatically excluded from the results. Prior to answering the questionnaires, the parents of the bilingual children were asked if they knew both English and Portuguese in order to be able to answer the questionnaires. If one parent did not speak one of the languages, the other parent was responsible for answering the questionnaire in the language that the first parent did not speak. If the parent reported that a child was exposed to a language other than Portuguese or English, but the exposure was minimal or limited, they were still included in the analysis, but this was noted for later analyses.

3.2 Instruments

For this study, the MacArthur Bates Communicative Development Inventories – CDIs Words and Sentences (Fenson et al., 1993) and an adaptation of the the CDI – Palavras e Frases (Words and Sentences) to Brazilian Portuguese (Teixeira, 2005) were adapted to be used electronically. In order to create electronic versions of the CDIs, both the English and the Portuguese versions of the inventories were entered into the survey platform Qualtrics. The Qualtrics survey software is widely used to create online surveys or any type of online data collection.

The English version of the CDI was entered in its entirety into Qualtrics (no modifications of any type, but in formatting), while the Brazilian-Portuguese version was entered into Qualtrics with some revisions (some words were added for the same item or

modified according to this researcher's judgment in order to make the inventory more suitable for participants of all the regions of Brazil). These versions of the CDIs - Words and Sentences and Palavras e Frases – were answered respectively by monolingual English and monolingual Portuguese speakers.

For the bilingual groups, two versions were created, both comprising the entire version of the two inventories; however, one contained the English lists of words first, followed by the lists of words in Portuguese, and the other containing the Portuguese words first, followed by the English lists, as a counterbalance measure. All the participants were also asked to answer a background questionnaire containing important questions pertaining the study, such as language upbringing, language exposure, etc. (See Appendices 1 and 2). The answers from the background questionnaire allow for the application of the exclusionary criteria and analyses related to relative exposure to the languages.

The CDI – Words and Sentences is divided in two parts: Part 1: Words children use, and Part 2: Sentences and grammar. For this study, we only analyzed Part 1, which contains 680 words divided into 22 categories, as follows: 1. Sound effects and animal sounds; 2. Animals (Real or Toy); 3. Vehicles (Real or Toy); 4. Toys; 5. Food and Drink; 6. Clothing; 7. Body parts; 8. Small household items; 9. Furniture and rooms; 10. Outside things; 11. Places to go; 12. People; 13. Games and routines; 14. Actions words; 15. Descriptive words; 16. Words about time; 17. Pronouns; 18. Question words; 19. Prepositions and locations; 20. Quantifiers and articles; 21. Helping verbs; and 22. Connecting Words.

The Portuguese version of the CDI – Palavras e Frases mirrors the English version with two parts: Part 1 – O uso das palavras (Use of words) and Part 2: Orações e Gramática (Sentences and Grammar). Part 1, however, includes 23 categories, some identical to the English version, some not. The categories are as follows: 1. Sons de coisas e animais (Sounds of things and animals); 2. Animais – reais ou de brinquedo (Animals – real or toys); 3. Veículos - reais ou de brinquedo (Vehicles – real or toys); 4. Brinquedos (toys); 5. Roupas e acessórios (Clothes and accessories); 6. Corpo (Body); 7. Comidas e bebidas (Food and drinks); 8. Lugares fora da casa (Places outside the house); 9. Objetos externos (Outside objects); 10. Móveis e aposentos (Furniture and rooms); 11. Utensílios da casa (Home appliances/items); 12. Rotina diária e fórmulas sociais (Daily routine and social formulas); 13. Pessoas (People); 14. Palavras relacionadas ao tempo (Words related to time); 15. Quantificadores e locativos (Quantifiers and locatives); 16. Palavras de ação (Action words); 17. Verbos auxiliares (Auxiliary verbs); 18. Qualidades e atributos (Qualities and characteristics); 19. Perguntas (Questions); 20. Artigos (Articles); 21. Preposições (Prepositions); 22. Pronomes (Pronouns); and 23. Conectores (Conjunctions). The total number of words in the Portuguese version is 599.

The inventories can be examined following the links below:

Monolingual English: https://fiu.qualtrics.com/SE/?SID=SV_8kQAPb9qMALG5WB

Monolingual Portuguese: https://fiu.qualtrics.com/SE/?SID=SV_d6DClHO0cTU2jLD

Bilingual English-first/Portuguese:

https://fiu.qualtrics.com/SE/?SID=SV_40dJz1k3bobRDqR

Bilingual Portuguese-first/English:

https://fiu.qualtrics.com/SE/?SID=SV_acagHsf5pHjrylf

A comparison of the two CDIs yielded the following crosslinguistic groupings for the analyses of the bilinguals:

Translation Equivalents:

The words from the English and from the Portuguese versions of the CDIs were matched in order to find the Translation Equivalents (TEs). Of the vocabulary items on the two tests, 391 were TEs. The TEs were then examined for the occurrence of cross-language cognates (e.g., *elefante* (Portuguese) - *elephant* (English), [elefãt͡ʃi] - [ɛləfənt]). In order to determine which words were cognates, the following principles were followed:

(1) The words had to have the same meaning or reference.

(2) The words must primarily share the same/corresponding consonants. We established that if two words shared all consonants or all consonants but one (except if this only left one shared consonant -- e.g., 'new' [nu] and 'novo' [novu]), they were included. For example, *trator* [tratoɾ] and *tractor* [træktər]. In making judgments on "shared" consonants, the following correspondences were allowed:

(a) Portuguese dentals and English alveolars were considered as corresponding consonants; for example: *dançar* [d̪ãnsaɾ] and *dance* [dæns]

(b) Portuguese /ʒ/ and the English /d͡ʒ/ were considered equivalents; for example: *pijamas* [piʒãmas] and *pajamas* [pədʒæməz]

(c) the Portuguese sounds for 'r' ([ɾ, x] depending on the dialect) corresponded to English retroflex /ɹ/; for example: *carro* [kaxu] and *car* [kɑɹ]

and

(d) The nasal vowels in Portuguese correspond to a vowel + a nasal in English. For example, *planta* [plãnta] and *plant* [plænt].

(3) The words should have a similar syllable structure in relation to the consonant-vowel pattern. E.g., the words *café* [kafɛ] and coffee [kɔfi] were treated as cognates, but the words *star* [stɑɹ] and *estrela* [estɾela] were not.

The vowels can vary quite a bit across the two languages; there are some regular correspondences, but because of English vowel reduction, these can be unpredictable, so we did not take vowel quality into consideration.

Following these rules, the TEs were divided into two main categories: Translation Equivalents – Cognates (or just 'Cognates') (Appendix 3) and non-problematic non-cognates Translation Equivalents (Appendix 4). Any words that were not clearly one category or the other (e.g., *tigre* [ʧigɾe] and *tiger* [taigər] were classified as Translation Equivalents – Uncertain (Appendix 5), i.e., words that were not necessarily non-cognates, but that also didn't fit the Cognates category. The words that did not belong in either the Translation Equivalents lists are shown in Appendix 7, which shows the Non-Translation Equivalents on the Portuguese CDI, with their English meanings, and in Appendix 8, which shows the Non-Translation Equivalents in the English CDI, with their Portuguese meanings.

Conceptual Vocabulary

A second classification was made with regard to Conceptual Vocabulary. Following Pearson (1998), the Total Conceptual Vocabulary is the number of concepts a child knows. For a monolingual, each word a child produces corresponds to a concept. For bilinguals, however, that is not the case, because a bilingual will express some

concepts in only one of his/her languages, and some equivalent concepts in both of his/her languages. For example, a monolingual who has the words *table* and *apple* is credited with knowing the two concepts: the concept of what a table is and the concept of what an apple is, so the Total Conceptual vocabulary of a monolingual is the same as his/her Total Vocabulary.

The case with a bilingual child is more complex. For a bilingual child who knows the words *table* and *apple* but also knows the words *mesa* and *maçã* ('table' and 'apple' in Portuguese, respectively), we can say that this child has two concepts expressed through Translation Equivalents. When counting the Total Vocabulary of a bilingual, all the words in both of the bilinguals' languages are counted (so in the example above, the bilingual child would have a TV=4). In counting the Total Conceptual Vocabulary, this same child is credited with two concepts, TCV=2. (The Total Conceptual Vocabulary is the result of the difference between the Total Vocabulary minus the number of Translation Equivalent pairs).

However, this calculation of Conceptual Vocabulary is not always straightforward because languages behave differently. In many cases, there is a one-to-one correspondence between the TEs in the two languages -- i.e., one word in one language corresponds to only one word in the other, as exemplified by the pairs '*table-mesa'* and '*apple-maçã'* for English and Portuguese. These cases are clear and non-problematic. Sometimes, however, there is a one-to-many correspondence between the two languages. For example, the words *finger* and *toe* on the English CDI correspond to the entry *dedo* on the Portuguese CDI. How one counts the concepts involved is the issue? If a bilingual child has only the words *finger* and *dedo* in her lexicon, we could say that she has a TE

pair '*finger-dedo'*, meaning that although she produces two words, she has one concept. If another child has all three words -- *finger, toe,* and *dedo*, are these one or two concepts? The question becomes more problematic when one considers the meanings (i.e., concepts associated with these words) of these words: The words *toe* and *finger* are not essentially the same concept, since one is part of the foot and the other is part of the hand, whereas *dedo* means, more accurately, something like "digit".

On consultation with Pearson, Gatt, O'Toole, and Hickey (personal correspondence), we established a different way of counting conceptual vocabulary scores, as follows:

Modified Total Vocabulary

First, we established a "Modified Total Vocabulary" that excluded such cases. To come up with a Modified Total Vocabulary for bilinguals and for monolinguals, we excluded from the calculations of Total Vocabulary any words that had more than one correspondence in the other language. The excluded items are listed in Appendix 6. The Total Modified Vocabulary score is the Total Vocabulary score minus the 'problematic' words, calculated for both the monolinguals and for bilinguals.

Conceptual Vocabulary

Based on this Modified Vocabulary score, Total Conceptual Vocabulary scores were calculated. For the monolinguals, the TCV was equivalent to the modified vocabulary score; for the bilinguals, the TCV was equal to the Total Modified

Vocabulary score minus the Translation Equivalents from the modified vocabulary list for which the child had the words in both languages.[2]

3.3 Procedure

After potential participants were contacted via social media or in person, or responded to the advertisement and contacted this researcher via email or phone, an email was sent to the participants. The email contained the 'Consent to Participate' link, in which an explanation of the research and its purpose were provided, as well as a description of the rights of the participants. The participants were asked to follow the link, read its contents, and then click on the 'Agree to Participate' button in the case they chose to do so. The email also contained a link with the research itself. Parents of monolingual English children answered the English electronic version of the CDI – Words and Sentences and parents of monolingual Portuguese children answered the Portuguese electronic version of the CDI – Palavras e Frases. Parents of Portuguese-English bilingual children answered one of two versions of the inventories: English first, then Portuguese, or Portuguese first, then English. All participants were informed that the completion of the inventories and the background questionnaires would take between 25

[2] This is the procedure that is commonly followed in the literature. However, one issue needs to eventually be addressed. That is, this procedure might credit the bilingual child for concepts that are not tested in the "target" CDI. For example, the Portuguese CDI has the word *aranha* 'spider,' but the English CDI does not list the word *spider*. If we include this word in the bilingual child's conceptual vocabulary when her conceptual vocabulary is compared with the conceptual vocabulary of an English-speaking monolingual child, the comparison is problematic. It would credit the bilingual child with a concept that the monolingual English-speaking child doesn't show simply because the CDI for the monolingual child did not include that item. So we do not even know if the monolingual child has an equivalent concept. We do not address this issue further here, but believe it is worthy of careful consideration.

to 35 minutes in case of monolinguals, and between 30 to 45 minutes, in case of bilinguals. The background questionnaires were provided in the respective languages for the monolingual participants, and in Portuguese for the bilinguals; however, the bilingual participants had the option to ask for the English version if they preferred to answer that form.

Only participants who received an email with the links to the inventories were able to participate in this study. In the beginning of the survey, the parents had to provide the date they were completing the inventories and the date of birth of their children, as well as the child's name. For the completion of the inventories, the parents were instructed to choose the words their children produce by clicking on each word. The word(s) chosen would turn 'red', so the parents would know the options they chose. They could 'unclick' a word if they made a mistake and also go back to a question. However, once they clicked the button 'Submit', they could not change their answers unless they contacted this researcher to request a manual modification of the answer. This did not occur, however.

The exclusion of participants, as mentioned above, only occurred when the parents reported that they were worried their child had some kind of language delay or if the child was undergoing speech therapy; if the child was exposed to a language other than Portuguese or English; or if the child did not belong to the age range between 16 and 36 months of age. After applying these criteria, 9 participants were excluded. The questions that allowed the exclusionary criteria mentioned above were part of the background questionnaire.

4 RESULTS

This chapter will present the findings of this study. First, we compared the performance of the monolinguals and the bilinguals. In order to compare monolinguals and bilinguals alike, we used three different scores: Total Vocabulary of monolinguals compared to the Total Vocabulary of the bilinguals in each of the bilinguals' languages; Total Vocabulary of monolinguals compared to the Total Vocabulary of bilinguals in both languages, and Total Conceptual Vocabulary of bilinguals to the Total Conceptual Vocabulary of monolinguals. A separate set of analyses examine the performance of the bilinguals only, in order to determine the effect of cognates on performance. For the analysis Cognates were compared to Non-cognate Translation equivalents.

4.1 Bilingual vs Monolingual

4.1.1 Portuguese

Total vocabulary:

First, we examined the Total Vocabulary of monolinguals in comparison to the Total Portuguese Vocabulary portion of the bilinguals. We entered Language Group as the 'between subjects' factor, and Total Portuguese Vocabulary as the 'dependent' factor. We also entered Age (months) as a covariate. Results showed significant main effects of Language Group, where F (1, 50) = 6.2, p= 0.016; and Age (months), where F (1, 50) = 49.6, p< 0.001. The main effect of Language Group was due to the fact that the monolinguals had many more Portuguese vocabulary items (M=318.7; SD=27.8) than the bilinguals (M=231.5; SD=20.7). The significant effect of Age indicates that as children grew older, their vocabularies increased.

Second, we compared the Total Vocabulary of Bilinguals (Total Portuguese Vocabulary + Total English Vocabulary) in both languages to the Total Vocabulary of monolingual Portuguese children. Although the results for bilinguals were slightly higher (M=372, SD=26.65) than for the monolinguals (M=304, SD=35.9), there was not a significant difference F (1, 50) = 2.27, p= 0.137. Age (months), as anticipated, still appeared as significant: F (1, 50) = 61.5, p< 0.001.

Figure 1 shows a comparison between the Total Vocabulary of Monolinguals and Bilinguals, both for Portuguese and English (to be discussed below).

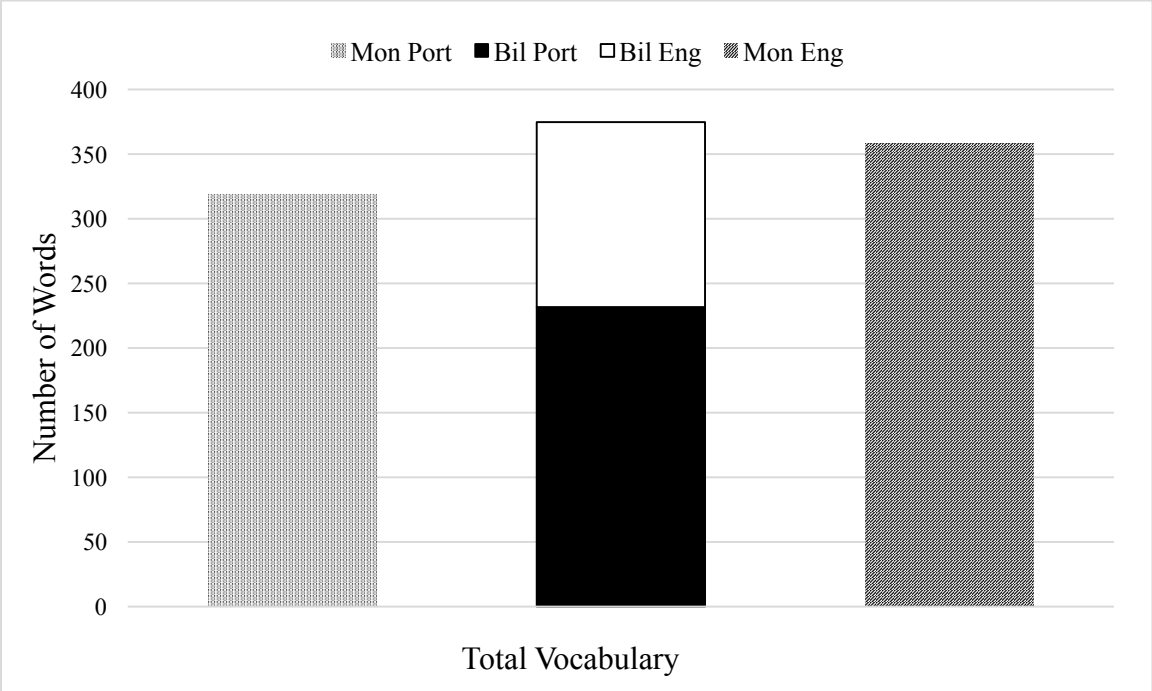

Figure 1: Comparison of the Total Vocabulary of Bilinguals and Monolinguals. Means for Bilinguals: Bil Port M=231.5; Bil Eng M=143; Monolingual Portuguese M=318.7; Monolingual English M=358.

Conceptual Vocabulary:

In order to compute the conceptual vocabulary, we first developed a "Modified Total Score," for the reasons outlined above. From this, the conceptual vocabulary score of the bilingual children was computed and compared with the totals for the monolinguals based on these modified totals.

The Total Conceptual Vocabulary (dependent variable) of bilinguals was compared to the Total Conceptual Vocabulary (based on the Total Modified Vocabulary) of monolingual Portuguese speakers. In this case, Language Group was not significant: $F(1,50) = 0.314$, $p = 0.578$, with M=269, SD=20.1 for bilinguals, and M=288.2, SD=27.07 for monolinguals. Age (months) was still significant: $F(1, 50) = 53.28$, $p < 0.001$, as expected, because as children get older, they learn more vocabulary concepts.

Figure 2 shows a comparison of the Total Conceptual Vocabulary of monolinguals and bilinguals. (Both Portuguese and English scores (to be discussed below) are shown).

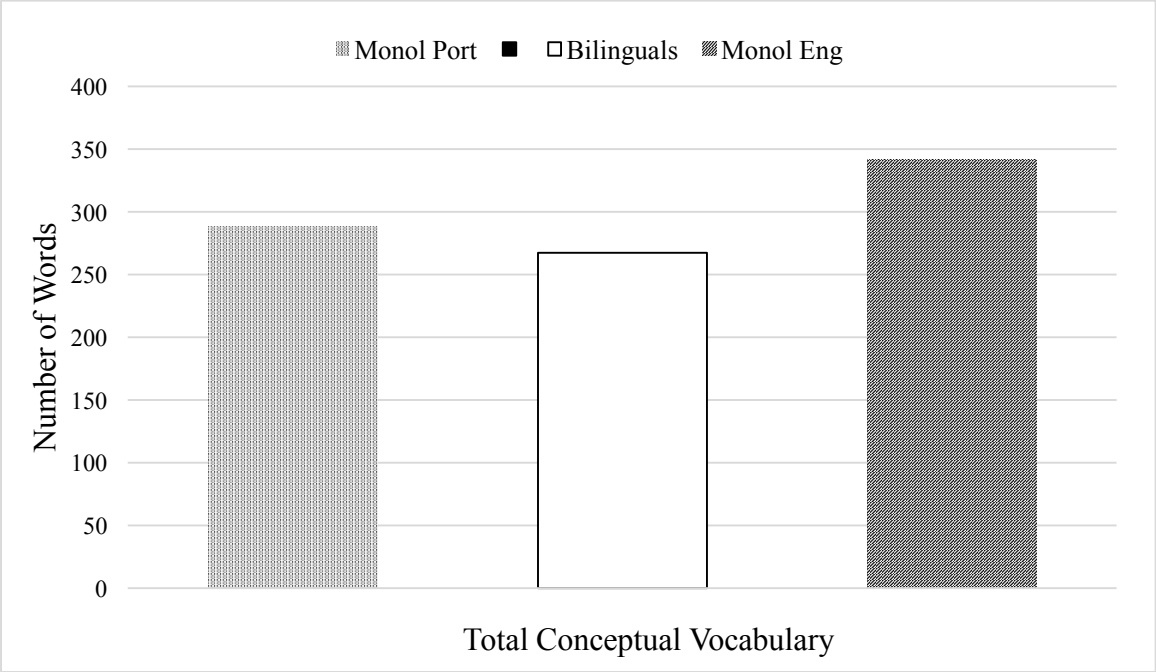

Figure 2: Comparison of Total Conceptual Vocabulary of Bilinguals and Monolinguals. The Mean for the bilinguals is M=267.5; Monolingual Portuguese M=288.2; Monolingual English M=342.

4.1.2 English

The same type of analyses were done with the monolingual English scores.

Total Vocabulary:

We compared the Total Vocabulary of monolingual English speakers to the Total English Vocabulary portion of the bilinguals. The Total English Vocabulary was entered as the dependent variable, with Age as covariate. Language Group had a significant main effect, with F (1, 45) =22.12, $p< 0.001$, and Age (months), with F (1, 45) = 15.28, $p< 0.001$. The means for each group were M=143; SD=24.3 (bilinguals) and M=358; SD=38.2 (monolingual English), with the monolinguals showing more English words than the bilinguals have.

Second, the Total Vocabulary of bilinguals in both languages was compared to the Total Vocabulary of monolingual English children. The means were M=326, SD=47.1 for monolinguals, and M=368, SD=30 for bilinguals. No main effects were found for Language Group F (1, 45) = 0.561, p= 0.458. Age was significant, F (1, 45) = 52.28, p< 0.001. (See Figure 1)

Conceptual Vocabulary:

The Total Conceptual Vocabulary (dependent variable) of the bilinguals was compared to the Conceptual Vocabulary scores of the monolinguals, as computed above, based on the Total Modified Vocabulary of monolingual English speakers. Language Group was not significant: F (1,45) =2.561, p=0.117. Age was again significant, F (1, 45) = 37.9, p< 0.001. The means were M=266, SD=25.15 for the bilinguals, and M=342, SD=39.51 for monolinguals. (See Figure 2).

4.2 Bilinguals only

In order to determine whether cognates played a role in the acquisition of the lexical items, TEs that were cognates were compared with TEs that were non-cognates. We compared the proportions of the number of Cognates and the proportion of non-cognates TEs the children knew (number of cognates present in the child's lexicon/total number of cognates possible in the "cognates" list (total = 50); number of non-cognate TEs present in the child's lexicon/total number of non-cognate TEs in the "TE non-cognates" list (total = 337).

A *t*-test comparing the two sets of scores was computed. There was a significant difference in performance on the cognates vs the non-cognates, t (33) =10.657, p < .001.

There was a higher proportion of cognate TEs in the children's speech than of non-cognates TEs: Translation Equivalents Non-cognates: M=0.1571, SD=0.195; Translation Equivalents – Cognates: M=0.2902, SD=0.165.

5 DISCUSSION

In this chapter, the results of the analyses done for this study, as stated in Chapter 4, will be discussed in order to answer the research questions proposed in Chapter 1.

The first set of questions stated was: Will bilingual Portuguese-English-speaking children have similar patterns to those of other populations of bilingual children? Do they have translation pairs (Translation Equivalents) or do they avoid translation pairs? What proportion of their words are Translation Equivalents?

As per the results shown in Chapter 4, bilinguals produce fewer words in each of their languages when compared to monolinguals. The comparison of the Total Vocabulary of monolinguals to the Total Vocabulary of each language of the bilinguals showed that the bilinguals have fewer words in English, when compared to the monolingual English speakers and also fewer words in Portuguese, when compared to the monolingual Portuguese speakers. As per our predictions, this corresponds to similar findings in previous studies, and supports researchers' recommendation that bilinguals should be tested in their two languages (Patterson & Pearson, 2004), not only one, otherwise it may appear that the bilinguals are deficient when compared to monolinguals.

However, the other two analyses conducted, when the Total Vocabulary and the Total Conceptual Vocabulary were compared and analyzed, for bilinguals in comparison to monolinguals showed that there is no significant difference between the two groups. On both measures, the bilinguals and the monolinguals scored similarly, confirming the predictions that these groups have similar vocabulary sizes when both of the languages of the bilinguals are taken into consideration during the analysis.

The second part of the question inquires if the bilinguals have translation pairs – Translation Equivalents – and if so, what is the proportion? The bilinguals do have TEs in their lexicons, however, the number of TEs is considerably low: Of the possible TEs, the children averaged 23.2% (2.1 SD) use of both of the words in the two languages. This might be explained by the distributed characteristics factor, one that says that the words bilinguals know are distributed across their two languages. The only factor that was consistently significant in the results was the Age of the children. As expected, as children get older, they learn more words, and with more words in their lexicons, the higher the number of TEs is expected to be.

The next research question was: do bilingual children perform better with the cognates as opposed to non-cognate TEs? How much does form-similarity matter for children's performance on words? From our results, it appears that cognate words help bilingual children acquire new vocabulary. Of the possible cognates, the children had 29% in both languages. And of the possible non-cognate translation equivalents, the children had 15% of the words in both languages.

The form-similarity of items seems to facilitate the acquisition of new words. I.e., a child who already knows, e.g., the word *giraffe* will be more likely to know the word *girafa* ('giraffe' in Portuguese) than if the two words were non-cognates.

The third question asked what would be the best way to incorporate the fact that these children are bilingual in their assessments? In first place, one of the most important points is to test bilinguals in both of their languages. As shown in the results above, if bilinguals are tested in only one of their languages, then they will probably be unfairly considered at a disadvantage in comparison to monolinguals. The development of a

bilingual CDI that considers the characteristics of both languages of the bilinguals, and the effect of cognates and TEs in acquisition of vocabulary would be a step further in this field of study. There have been two bilingual CDIs developed so far: Irish-English and Maltese-English, and those are good examples to be followed.

Although the focus of this study was to answer the research questions mentioned above, some other issues surfaced during the development of this study that might require further and deeper analyses in the future. One of the issues was the decision of what words were cognates and what words were not. Even though we created rules to be able to assess if a word was a cognate and also to be consistent in this classification, within the category 'Cognates' there are different types of cognates. For example, the word *pizza* which was present in the two CDIs, pronounced very similarly in Portuguese and English, was considered a cognate. The words *orange* and *laranja* were also placed in the Cognates category, as it obeyed the rules created to classify words into cognates and non-cognates. However, the words *orange* and *laranja* are not as clear in terms of being a cognate as the word *pizza*. This is an issue to be considered in future analyses involving cognates, in the sense that the type of cognates we consider (clear cognate vs non-clear-cognate) might affect the results for that specific analysis.

Another issue is the fact that there are more Cognates between English and Portuguese than we were able to report for this study: the word *mosquito* is not present in the English CDI, however it is present in the Portuguese CDI ('mosquito', same spelling as English) and it is a clear cognate. The CDIs are not intended to be an exhaustive list, but if we had a more comprehensive list, maybe we could have a more accurate list of

cognates as well, and therefore more accurate scores, as we could be more specific with the classification of Cognates.

As stated above, the CDI are not exhaustive lists. There are still a number of words that are 'missing' from the lists, even though they are commonly used by children aged 16-36 months. Some examples that might be included in the future are the names of shapes (*square, triangle, circle*, etc.) that are commonly taught and used by daycare teachers, appear in many children's books, and TV shows designed for the ages aforementioned. Other examples are the numbers: it is common practice for parents and educators, and educational TV shows to try and teach numbers to children. The Portuguese version of the CDI collapses some terms that were distinct into one category. For example: *desenhar*/*pintar* (*draw*/*paint*) belong to one item in the category 'Action words' but are two distinct actions. The words *draw* and *paint* in English appear each in one item so the parent has the option to choose one, two, or neither depending whether the child says the words or not. The Portuguese-speaking child may know both words, but she will be credited with only 1 'point', because there are not two items from which the parent has to choose. This situation is present in many other examples: *tio*/*tia* (*uncle*/*aunt*), *menino*/*menina* (*boy*/*girl*) are also presented as one item in the category 'Pessoas' (People) in the Portuguese CDI, whereas the words *uncle* and *aunt,* and *boy* and *girl* appear as separate items in the English CDI. Such cases make the comparison of the two languages of bilingual children difficult. As the Portuguese CDI is not yet normed, one suggestion would be to separate those words, put them as individual items, so the parents have a clearer set of options while answering the inventories.

Another issue we found after reviewing the CDIs was the fact that there were words that were repeated in different categories. For example, the word *water* appears in the category 'Food and drinks' and then again in the category 'Outside things' for the English CDI. In this case, the same word is counted twice if the parent marks both items, or it might be counted only once, if the parent only chooses one category. That may create a different type of issue: when a child says the word *water* inside the house is she referring to the water we drink and only that? When a child says the word *water* when she sees a lake outside, or even the ocean, is there a different 'type' of water than the water we drink? Are those two separate concepts in the child's mind or only one? This is further complicated in the case of the bilingual child, since *água* is only listed in one of the categories, "Comidas e bebidas" (Food and drinks). The same case happens for the word *planta* (plant) in Portuguese, which appears in two different categories: 'Objetos externos' (Outside things) and 'Utensílios da casa' (Small household items) (and in only one place in English – 'Small household items'). If the parents choose the word *planta* from the two categories, then the word will be counted twice in Portuguese, even though it may be only one concept. When these issues are taken into consideration, such items may profit from revising and re-configuring the lists, to enable more reliable results.

One a positive note, the fact that we used the internet to collect the data for this study was a good factor, as it facilitated the process immensely. We were able to have access to people from all over the world (although our participants were from specific regions where the languages cited in this study were spoken). There was no need to pick up report forms from parents or have them delivered via mail. Everything could be done via the internet. (This procedure still shares issues with the non-electronic CDIs in that

one is relying on the parent for all the information given and has no access to the child whatsoever.) This is a methodology that has been useful and efficient and should be used in the future more often, as more people have access to the internet and to computers.

5.1 Limitations of this study

One of the main limitations encountered during this project was the fact that our sample size was not a balanced sample. We had 34 bilingual participants to compare to 14 monolingual English and 19 monolingual Portuguese. Ideally, a higher number of participants would be better as it would allow for a more accurate final result. It would also have been more interesting to have more detailed information on what type of exposure the bilinguals have in each of their languages. A more meticulous analysis considering the children's age, age of acquisition of their languages, and socio-economic status would also be appropriate, and these analyses will be conducted on these and more data in the future.

REFERENCES

Almgrem, M., Ezeizabarrena, M.J. & Garcia, I. (2007). The Basque CDI: Applications in a bilingual society. In M. Eriksson (Ed.) Proceedings from the First European Network Meeting on the Communicative Development Inventories (pp. 83-92). Gävle: Gävle University Press. ISBN: 978-91-974948-8-5

Berglund, E. & Eriksson, M. (1996). Different sampling methods of parental reports. The case for the Swedish Early Communicative Development Inventory, SECDI. Poster presented at the VIIth International Congress for the Study of Child Language, 14-19 July, Istanbul, Turkey.

Bialystok, E. (2001). Bilingualism in development: Language, literacy, and cognition. Cambridge, England: Cambridge University Press.

Bornstein, M. H., & Haynes, O. M. (1998). Vocabulary Competence in Early Childhood: Measurement, Latent Construct, and Predictive Validity. *Child Development*, *69*(3), 654–671. http://doi.org/10.2307/1132196

Bosch, L., & Ramon-Casas, M. (2014). First translation equivalents in bilingual toddlers' expressive vocabulary: Does form similarity matter? *International Journal of Behavioral Development, 38* (4) 317–322. http://dx.doi.org/10.1177/0165025414532559

Cartmill, E.A., Armstrong III, B.F., Gleitman, L. R., Goldin-Meadow, S., Medina, T.N., & Trueswell, J.C. (2013). Quality of early parent input predicts child vocabulary 3 years later. *Proceedings of the National Academy of Sciences of the United States of America.* doi: 10.1073/pnas.1309518110

Caselli, M. C. & Casadio, P. (1995). Il primo vocabolario del bambino: guida all'uso del questionario MacArthur. Milan, Italy: Franco Angeli.

Core, C., Hoff, E., Rumiche, R., & Señor, M. (2013). Total and Conceptual Vocabulary in Spanish–English Bilinguals From 22 to 30 Months: Implications for Assessment. *Journal of Speech, Language, and Hearing Research: JSLHR*, *56*(5), 1637–1649. http://doi.org/10.1044/1092-4388(2013/11-0044)

Dale, P. S. & Penfold, M. (2011). Adaptations of the MacArthur-Bates CDI into non-U.S. English languages. Retrieved from http://mb-cdi.stanford.edu/documents/AdaptationsSurvey7-5-11Web.pdf

De Houwer, A. (2005). Bilingualism: an interview with Annick De Houwer. ReVEL. Vol. 3, n. 5, 2005. ISSN 1678-8931 [www.revel.inf.br/eng].

De Houwer, A. (2012). Milestones in bilingual children's language development. *Encyclopedia of Language and Literacy Development* (pp. 1-8). London, ON:

Western University. Retrieved from http://literacyencyclopedia.ca/pdfs/topic.php?topId=313

De Houwer, A., Bornstein, M. H., and Putnick, D. L. (2014). A bilingual–monolingual comparison of young children's vocabulary size: Evidence from comprehension and production. *Applied Psycholinguistics*, 35, pp 1189-1211. doi:10.1017/S0142716412000744.

Dijkstra, T., Miwa, K., Brummelhuis, B. Sappelli, M., Baayen, H. (2010). How cross-language similarity and task demands affect cognate recognition. *Journal of Memory and Language*. 62, 284-301.

Feldman, H. M., Dollaghan, C. A., Campbell, T. F., Kurs-Lasky, M., Janosky, J. E., & Paradise, J. L. (2000). Measurement Properties of the MacArthur Communicative Development Inventories at Ages One and Two Years. *Child Development*, *71*(2), 310–322. Retrieved from http://www.jstor.org/stable/1131991

Fenson, L., Dale, P. S., Reznick, J.S., Thal, D., Bates, E., Hartung, J. P., Pethick, S. J. & Reilly, J. S. (1993). *The MacArthur Communicative Development Inventories*. San Diego, CA: Singular.

Fenson, L., Dale, P., Reznick, J., Bates, E., Thal, D., & Pethick, S. (1994). Variability in early communicative development. *Monographs of the Society for Research in Child Development*, Serial No. 242, Vol. 59, No. 5.

Fenson, L., Bates, E., Dale, P., Goodman, J., Reznick, J. S., & Thal, D. (2000). Measuring Variability in Early Child Language: Don't Shoot the Messenger: [Reply]. *Child Development*, *71*(2), 323–328. Retrieved from http://www.jstor.org/stable/1131992

Fenson, L., Marchman, V.A., Thal, D.J., Dale, P.S., Reznick, J.S., & Bates, E. (2007). *MacArthur-Bates Communicative Development Inventories. User's guide and technical manual.* Second Edition. Baltimore: Brookes Publishing.

Frota, S., J. Butler, S. Correia, C. Severino, S. Vicente & M. Vigário. (2015). *MacArthur-Bates Communicative Development Inventories (CDI) for European Portuguese: Short forms*. Lisboa: Laboratório de Fonética, CLUL/FLUL. [http://labfon.letras.ulisboa.pt/babylab/pt/CDI]

Gândara, J. P., & Befi-Lopes, D. M. (2010). Tendências da aquisição lexical em crianças em desenvolvimento normal e crianças com Alterações Específicas no Desenvolvimento da Linguagem. *Revista da Sociedade Brasileira de Fonoaudiologia*, *15*(2), 297-304. https://dx.doi.org/10.1590/S1516-80342010000200024

Gathercole, V. C. M. (2002). Command of the mass/count distinction in bilingual and monolingual children: An English morphosyntactic distinction. In D. K. Oller & R. E. Eilers (eds.), *Language and literacy in bilingual children.* Clevedon: Multilingual Matters. 175-206.

Gathercole, V. C. M., & Thomas, E. M. (2009). Bilingual first-language development: Dominant language take- over, threatened minority language take-up. *Bilingualism: Language & Cognition, 12*(2), 213-237. doi: 10.1017/S1366728909004015

Gathercole, V.C.M., Thomas, E.M., Roberts, E.J., Hughes, C.O., & Hughes, E.K. (2013). Why assessment needs to take exposure into account: Vocabulary and grammatical abilities in bilingual children. In VCM Gathercole (ed.), *Issues in the assessment of bilinguals.* Bristol: Multilingual Matters. 20-55.

Gathercole, V. C. M. (2014). Bilingualism matters: One size does not fit all. Special Issue on "Language Development in Multilingual Environments," edited by Erika Hoff. *International Journal of Behavioral Development*, *38* (4), 359 - 366.

Gatt, D., O'Toole, C., & Haman, E. (2015). Using parental report to assess early lexical production in children exposed to more than one language. In S. Armon- Lotem, J. De Jong, & N. Meir (Eds) *Assessing Multilingual Children Disentangling Bilingualism from Language Impairment*, pp.151-195. Bristol: Multilingual Matters.

Gatt, D. (2007). Establishing the concurrent validity of a vocabulary checklist for young Maltese children. *Folia Phoniatrica et Logopaedica*, 59 (6), 297-305.

Genesee, F., & Nicoladis, E. (2006). Bilingual acquisition. In E. Hoff & M. Shatz (eds.), *Handbook of Language Development*, Oxford, Eng.: Blackwell.

Grosjean, F. (2013). Bilingualism: A Short Introduction. *The Psycholinguistics of Bilingualism,* First edition. Oxford: Wiley-Blackwell

Heilmann, J., Weismer, S.E., Evans, J., Hollar, C. (2005). Utility of the MacArthur-Bates Communicative Development Inventory in identifying language abilities of late-talking and typically developing toddlers. *American Journal of Speech-Language Pathology*, *14*, 40-51.

Hoff, E. (2009). Language Development at an Early Age: Learning Mechanisms and Outcomes from Birth to Five Years. Language Development and Literacy. *Encyclopedia on Early Childhood Development*.

Hoff, E., Core, C., Place, S., Rumiche, R., Señor, M., & Parra, M. (2012). Dual language exposure and early bilingual development. *Journal of Child Language* 39, pp 1-27. doi:10.1017/S0305000910000759

Jackson-Maldonado, D., Marchman, V., Thal, D., Bates, E., Gutiérrez-Clellen, V. (1993) Early lexical development in Spanish-speaking infants and toddlers. *Journal of Child Language* 20: 523-549

Kristoffersen, K. E., Simonsen, H. G., Bleses, D., Wehberg, S., Jørgensen, R. N., Eiesland, E. A. & Henriksen, L. Y. (2012). The use of the Internet in collecting CDI data - an example from Norway. *Journal of Child Language, 39*(5).

Marchman, V.A. & Martínez-Sussman, C. (2002). Concurrent validity of caregiver/parent report measures of language for children who are learning both English and Spanish. *Journal of Speech, Language and Hearing Research, 45, 983-997.*

Macrory, G. (2006) Bilingual language development: what do early years practitioners need to know?, *Early Years*, 26:2, 159-169, DOI: 10.1080/09575140600759955

O'Grady, W. D., Archibald, J., Aronoff, M., & Rees-Miller, J. (2010). Contemporary linguistics: An introduction. New York: Bedford.

Oller, D. K. (2005). The distributed characteristic in bilingual learning. In J. Cohen, K. T. McAlister, K. Rolstad & J. MacSwan (Eds.), *ISB4: Proceedings of the 4th International Symposium on Bilingualism* (pp. 1744-1749). Somerville, MA: Cascadilla Press.

O'Toole, C. (2013) Using parent report to assess bilingual vocabulary acquisition: A model from Irish. In: Gathercole, VCM (eds). *Solutions for the Assessment of Bilinguals*. Bristol: Multilingual Matters.

O'Toole, C. and Fletcher, P. (2008). Developing assessment tools for bilingual and minority language acquisition. *Journal of Clinical Speech and Language Studies*. 16, 12-27

Patterson, J. & Pearson, B. Z. (2004). Bilingual lexical development: Influences, contexts, and processes. In G. Goldstein, (Ed.) *Bilingual Language Development and Disorders in Spanish-English Speakers* (pp. 77-104). Baltimore, MD: Paul Brookes.

Pearson, B. Z. (2013). Distinguishing the bilingual as a late talker from the later talker who is bilingual. In L. Rescorla & P. Dale (Eds.), *Late talkers: Language development, interventions, and outcomes* (pp. 67-87). Baltimore MD: Paul Brookes.

Pearson, B. Z. (2009). Children with two languages. In E. Bavin (Ed.), *Handbook of Child Language*. Cambridge: Cambridge University Press.

Pearson, B. Z. (2008). *Raising a bilingual child: A step-by-step guide for parents.* NY: Random House.

Pearson, B. Z. (1998). Assessing lexical development in bilingual babies and toddlers. *IJB 2*, 347-372.

Pearson, B. Z., & Fernandez, S. (1994). Patterns of interaction in the lexical development in two languages of bilingual infants. *Language Learning, 44,* 617-653.

Poulin-Dubois, D., Bialystok, E., Blaye, A., Polonia, A., & Yott, J. (2013). Lexical access and vocabulary development in very young bilinguals. *The International Journal of Bilingualism : Cross-Disciplinary, Cross-Linguistic Studies of Language Behavior*, *17*(1), 57–70. http://doi.org/10.1177/1367006911431198

Sebastian-Galles, N. (2010). Bilingual Language Acquisition: Where does the Difference Lie? *Human Development*; 53:245–255 Universitat Pompeu Fabra, Barcelona, Spain doi: 10.1159/000321282

Silva, C. T. S. da (2003) O desenvolvimento lexical inicial dos 8 aos 16 meses a partir do Inventário Macarthur de Desenvolvimento Comunicativo – protocolo Palavras e Gestos. Dissertação Inédita de Mestrado, UFBA.

Silva, C. T. S. da. (2006) Considerações em torno da adaptação do protocolo Palavras e Gestos do Inventário MacArthur de Desenvolvimento Comunicativo. *Revista Inventário*. 5. ed. Retrieved from: http://www.inventario.ufba.br/05/05csilva.htm.

Slobin, D (2006). Cross-Linguistic Comparative Approaches to Language Acquisition. In: Keith Brown, (Editor-in-Chief) *Encyclopedia of Language & Linguistics*, Second Edition, 3, 299-301. Oxford: Elsevier.

Teixeira, E.R. (2005). CDI's Adaptation to Brazilian Portuguese: Validation Study of the Words and Sentences Form. *X International Congress for the Study of Child Language*. http://www.ctw- congress.de/iascl/download/iascl_abstracts.pdf, Berlin.

Thordardottir, E. (2005). Language intervention from a bilingual mindset. *Perspectives on Language Learning and Education, 12 (2),* 17-22. ASHA Leader

Words & Sentences from Mac Arthur-Bates Communicative Development Inventories (CDIs), Second Edition, Fenson et al. © 2007 The CDI Advisory Board. Used by permission. www.brookespublishing.com\

APPENDICES

Appendix 1

English Background Questionnaire

This is a questionnaire about your child's language upbringing. It should be completed by the child's main caregiver; i.e., the person who spends most time with the child.

Questionnaire adapted from work of Gathercole et al.

Gathercole, Virginia C. Mueller, Thomas, Enlli Môn, Jones, Leah, Viñas Guasch, Nestor, Young, Nia, & Hughes, Emma K. (2010)
Stadthagen-González, Hans, Gathercole, Virginia C. Mueller, Pérez-Tattam, Rocío, & Yavas, Feryal. (2013)
Gathercole, Virginia C. Mueller, Thomas, Enlli Môn, Roberts, Emily, Hughes, Catrin, & Hughes, Emma K. (2013)
Pérez-Tattam, Rocío , Gathercole, Virginia C. Mueller, Yavas, Feryal, Stadthagen-González, Hans, & Anrrich, Graciela. (2013)

Q47 I would be very grateful if you could answer the following background information questionnaire. The information provided will help with this study. Please feel free to leave any item blank if you prefer not to answer.

Child's Name (1)
Child's Date of Birth (2)
Child's Place of Birth (3)

Q48 Birth order:

- 1st Born (Oldest) (1)
- 2nd Born (2)
- 3rd Born (3)
- 4th Born (4)
- 5th Born (5)
- 6th Born (6)

Q49 Contact details of Parent:

Name: (1)
Email: (2)
Telephone: (3)

Q50 Is your child?
- ❍ Male (1)
- ❍ Female (2)

Q51 Was your child born in the United States of America?
- ❍ Yes (1)
- ❍ No (2)

Q52 If your child was not born in the USA:
At what age did s/he move to the USA? (1)
How long has she lived in the USA? (2)
N/A (3)

Q53 Please indicate the areas where your child has lived for significant periods (more than a year) of his/her life:
e.g.: Place and Date: São Paulo, Brazil; 2012-14
Place and Date: New York City, NY; 2014-15
Place and Date: Miami, FL; 2015
Place and Date: (1)
Place and Date: (2)
Place and Date: (3)

Q54 LANGUAGE UPBRINGING
Which of the following languages does your child speak? (Please, select all that apply)
- ❑ Portuguese (1)
- ❑ English (2)
- ❑ Other language (3)

Q55 If your child speaks Portuguese, when did s/he begin speaking it?
- ❍ as a baby (1)
- ❍ by age 1 (2)
- ❍ by age 2 (3)
- ❍ N/A (4)

Q56 If your child speaks English, when did s/he begin speaking it?
- ❍ as a baby (1)
- ❍ by age 1 (2)
- ❍ by age 2 (3)
- ❍ N/A (4)

Q57 If your child speaks a language other than Portuguese or English:
What language? (1)
S/he began speaking this language at around age? (2)

Q58 What language(s) did the child's mother and/or father speak to him or her AT HOME from birth until today?

	Virtually 100% English (1)	About 80% English; 20% Portuguese (2)	About 60% English; 40% Portuguese (3)	About 50% English; 50% Portuguese (4)	About 40% English; 60% Portuguese (5)	About 20% English, 80% Portuguese (6)	Virtually 100% Portuguese (7)	N/A (8)
Mother (1)	❍	❍	❍	❍	❍	❍	❍	❍
Father (2)	❍	❍	❍	❍	❍	❍	❍	❍

Q59 What language(s) did the child speak to his/her mother and/or father BEFORE s/he began day care or early childhood education?

	Virtually 100% English (1)	About 80% English; 20% Portuguese (2)	About 60% English; 40% Portuguese (3)	About 50% English; 50% Portuguese (4)	About 40% English; 60% Portuguese (5)	About 20% English, 80% Portuguese (6)	Virtually 100% Portuguese (7)	N/A (8)
Mother (1)	❍	❍	❍	❍	❍	❍	❍	❍
Father (2)	❍	❍	❍	❍	❍	❍	❍	❍

Q60 What language(s) did the child speak to his/her mother and/or father AFTER s/he began day care or early childhood education?

	Virtually 100% English (1)	About 80% English; 20% Portuguese (2)	About 60% English; 40% Portuguese (3)	About 50% English; 50% Portuguese (4)	About 40% English; 60% Portuguese (5)	About 20% English, 80% Portuguese (6)	Virtually 100% Portuguese (7)	N/A (8)
Mother (1)	❍	❍	❍	❍	❍	❍	❍	❍
Father (2)	❍	❍	❍	❍	❍	❍	❍	❍

Q61 What language(s) does the child's younger/older siblings speak to him/her (if applicable)?

	Virtually 100% English (1)	About 80% English; 20% Portuguese (2)	About 60% English; 20% Portuguese (3)	About 50% English; 50% Portuguese (4)	About 40% English; 60% Portuguese (5)	About 20% English, 80% Portuguese (6)	Virtually 100% Portuguese (7)	N/A (8)
Younger Sibling(s) to the child (1)	❍	❍	❍	❍	❍	❍	❍	❍
Older Sibling(s) to the child (2)	❍	❍	❍	❍	❍	❍	❍	❍

Q62 What language(s) does the child speak to younger/older sibling(s) (if applicable)?

	Virtually 100% English (1)	About 80% English; 20% Portuguese (2)	About 60% English; 40% Portuguese (3)	About 50% English; 50% Portuguese (4)	About 40% English; 60% Portuguese (5)	About 20% English, 80% Portuguese (6)	Virtually 100% Portuguese (7)	N/A (8)
Child to Younger Sibling(s) (1)	❍	❍	❍	❍	❍	❍	❍	❍
Child to Older Sibling(s) (2)	❍	❍	❍	❍	❍	❍	❍	❍

Q63 Are there any other significant adult(s) (grandparents, aunts, uncles, etc.) with whom the child has frequent contact?

- ❍ Yes (1)
- ❍ No (2)

Q64 If yes, answer the following for each:

Q65 Adult 1 Please specify his/her relationship to you child:

Q66 Adult 1 What language(s) does this person speak to your child?

- ❍ Always English (1)
- ❍ Always Portuguese (2)
- ❍ Sometimes English, sometimes Portuguese (3)
- ❍ Other (4) _____

Q67 Adult 1 How often does your child see this person?

- ❍ Every day (1)
- ❍ At least once a week (2)
- ❍ About once a month (3)
- ❍ Once or twice a year (4)
- ❍ Less often (5)

Q68 Adult 2Please specify his/her relation to your child:

Q69 Adult 2What language(s) does this person speak to your child?

- ❍ Always English (1)
- ❍ Always Portuguese (2)
- ❍ Sometimes English, sometimes Portuguese (3)
- ❍ Other (4) _____

Q70 Adult 2How often does your child see this person?

- ❍ Every day (1)
- ❍ At least once a week (2)
- ❍ About once a month (3)
- ❍ Once or twice a year (4)
- ❍ Less often (5)

Q71 With whom does the child spend most of his/her day?

- ❍ Mother (1)
- ❍ Father (2)
- ❍ Grandparents (3)
- ❍ Babysitter (4)
- ❍ Other (5) _____

Q72 Day care center

What is the normal language of instruction in the day care center your child attends (if relevant)?

	Virtually 100% English (1)	About 80% English; 20% Portuguese (2)	About 60% English; 40% Portuguese (3)	About 50% English; 50% Portuguese (4)	About 40% English; 60% Portuguese (5)	About 20% English, 80% Portuguese (6)	Virtually 100% Portuguese (7)	N/A (8)
Day care center (1)	❍	❍	❍	❍	❍	❍	❍	❍

Q73 Day care center Other language combination? Please, specify:

Q74 Overall, what language(s) does your child speak with most of her/his friends?

	Virtually 100% English (1)	About 80% English; 20% Portuguese (2)	About 60% English; 40% Portuguese (3)	About 50% English; 50% Portuguese (4)	About 40% English; 60% Portuguese (5)	About 20% English, 80% Portuguese (6)	Virtually 100% Portuguese (7)	N/A (8)
Child to friends (1)	❍	❍	❍	❍	❍	❍	❍	❍

Q75 With friends

Other language combination? Please, specify:

Q76 GENERAL INFORMATION Please, indicate the level of education completed by the child's MOTHER:

- ❍ Primary education (Grade School) (1)
- ❍ Secondary education (High School) (2)
- ❍ University or college education (3)
- ❍ Post-graduate education (4)
- ❍ None of the above (5)

Q77 Please, indicate in which country or region was the mother born?

Q78 What is the child's mother's occupation (or if retired or unemployed, what was the last occupation before retiring or becoming unemployed)?

Q79 Please, indicate the level of education completed by the child's FATHER:

- ❍ Primary education (Grade School) (1)
- ❍ Secondary education (High School) (2)
- ❍ University or college education (3)
- ❍ Post-graduate education (4)
- ❍ None of the above (5)

Q80 Please, indicate in which country or region was the father born?

Q81 What is the child's father's occupation (or if retired or unemployed, what was the last occupation before retiring or becoming unemployed)?

Q80 Information about your child's health.

Q81 Was your child born prematurely?

- ❍ Yes (1)
- ❍ No (2)

Q82 Do you have any concerns about your child's language? (If 'yes', please explain briefly)

- ❍ Yes (1) _____
- ❍ No (2)

Q84 Has your child ever undergone speech or language therapy? (If 'yes', please explain briefly)

- ❍ Yes (1) _____
- ❍ No (2)

Q85 Has your child ever been treated for a hearing problem? (If 'yes', please explain briefly)

- ❍ Yes (1) _____
- ❍ No (2)

Q83 How old was your child when s/he spoke his/her first word?

Q79 Who answered this questionnaire? What is your relationship with the child?

Q86 Thank you very much for your time and cooperation!

Appendix 2

Portuguese background questionnaire

Q46 Questionário sobre a linguagem da sua criança
(Para ser respondido pela pessoa que passa o maior tempo com a criança)

Questionário adaptado a partir do trabalho de Gathercole et al.
Gathercole, Virginia C. Mueller, Thomas, Enlli Môn, Jones, Leah, Viñas Guasch, Nestor, Young, Nia, & Hughes, Emma K. (2010)
Stadthagen-González, Hans, Gathercole, Virginia C. Mueller, Pérez-Tattam, Rocío, & Yavas, Feryal. (2013)
Gathercole, Virginia C. Mueller, Thomas, Enlli Môn, Roberts, Emily, Hughes, Catrin, & Hughes, Emma K. (2013)
Pérez-Tattam, Rocío , Gathercole, Virginia C. Mueller, Yavas, Feryal, Stadthagen-González, Hans, & Anrrich, Graciela. (2013)

Q47 Eu ficarei muito grata se você, por gentileza, puder responder ao seguinte questionário sobre experiência de linguagem e outras informações relevantes. As informações obtidas serão úteis neste estudo. Por favor, sinta-se à vontade em deixar qualquer dos itens em branco se você preferir não respondê-los.

Nome da criança (1)
Data de nascimento da criança (2)
Local de nascimento da criança (3)

Q48 Ordem de nascimento:

1º filho/a (mais velho/a) (1)
2º filho/a (2)
3º filho/a (3)
4º filho/a (4)
5º filho/a (5)
6º filho/a (6)

Q49 Informação para contato de um dos pais:

Nome: (1)
Email: (2)
Telefone: (3)

Q50 Sua criança é:
Menino (1)
Menina (2)

Q51 Sua criança nasceu nos Estados Unidos da América?

Sim (1)
Não (2)

Q52 Se sua criança não nasceu nos Estados Unidos:

Com que idade ele/a se mudou para os Estados Unidos? (1)
Há quanto tempo ele/a mora nos Estados Unidos? (2)
Não se aplica (3)

Q53 Por favor, indique os lugares onde sua criança morou por períodos de tempo significativos (pelo menos um ano): Exemplo.:

Lugar e data: São Paulo, Brasil; 2012-14
Lugar e data: New York City, NY; 2014-15
Lugar e data: Miami, FL; 2015
Lugar e data: (1)
Lugar e data: (2)
Lugar e data: (3)

Q54 Uso da língua na infância: Qual(is) das línguas abaixo sua criança fala? (Escolha todas que se aplicam)
Português (1)
Inglês (2)
Outra língua (3)

Q55 Se sua criança fala Português, quando ela começou a falar essa língua?
quando bebê (1)
com 1 ano (2)
com 2 anos (3)
Não se aplica (4)

Q56 Se sua criança fala Inglês, quando ela começou a falar essa língua?
quando bebê (1)
com 1 ano (2)
com 2 anos (3)
Não se aplica (4)

Q57 Se sua criança fala outra língua, que não Português ou Inglês:
Que língua? (1)
Ela começou a falar essa língua por volta da idade? (2)

Q58 Que língua(s) a mãe e/ou o pai da criança fala/falou com a criança EM CASA desde o nascimento até hoje?

	Praticamente 100% Inglês (1)	Cerca de 80% Inglês; 20% Português (2)	Cerca de 60% Inglês; 40% Português (3)	Cerca de 50% Inglês; 50% Português (4)	Cerca de 40% Inglês; 60% Português (5)	Cerca de 20% Inglês, 80% Português (6)	Praticamente 100% Português (7)	N/A (8)
Mãe (1)	2	3	4	5	6	7	8	9
Pai (2)	10	11	12	13	14	15	16	17

Q59 Que língua(s) a criança fala/falou com sua mãe e/ou seu pai ANTES de começar a frequentar uma creche? (Se relevante)

	Praticamente 100% Inglês (1)	Cerca de 80% Inglês; 20% Português (2)	Cerca de 60% Inglês; 40% Português (3)	Cerca de 50% Inglês; 50% Português (4)	Cerca de 40% Inglês; 60% Português (5)	Cerca de 20% Inglês, 80% Português (6)	Praticamente 100% Português (7)	N/A (8)
Mãe (1)	18	19	20	21	22	23	24	25
Pai (2)	26	27	28	29	30	31	32	33

Q60 Que língua(s) a criança fala/falou com sua mãe e/ou seu pai DEPOIS de começar a frequentar uma creche? (Se relevante)

	Praticamente 100% Inglês (1)	Cerca de 80% Inglês; 20% Português (2)	Cerca de 60% Inglês; 40% Português (3)	Cerca de 50% Inglês; 50% Português (4)	Cerca de 40% Inglês; 60% Português (5)	Cerca de 20% Inglês, 80% Português (6)	Praticamente 100% Português (7)	N/A (8)
Mãe (1)	34	35	36	37	38	39	40	41
Pai (2)	42	43	44	45	46	47	48	49

Q61 Que língua(s) os/as irmãos/irmãs mais novos(as) e mais velhos(as) falam com a criança? (Se relevante)

	Praticamente 100% Inglês (1)	Cerca de 80% Inglês; 20% Português (2)	Cerca de 60% Inglês; 40% Português (3)	Cerca de 50% Inglês; 50% Português (4)	Cerca de 40% Inglês; 60% Português (5)	Cerca de 20% Inglês, 80% Português (6)	Praticamente 100% Português (7)	N/A (8)
Irmã(os) mais novos(as) com a criança (1)	50	51	52	53	54	55	56	57
Irmã(os) mais velhos(as) com a criança (2)	58	59	60	61	62	63	64	65

Q63 Que língua(s) a criança fala com os/as irmãos/irmãs mais novos e mais velhos? (Se relevante)

	Praticamente 100% Inglês (1)	Cerca de 80% Inglês; 20% Português (2)	Cerca de 60% Inglês; 40% Português (3)	Cerca de 50% Inglês; 50% Português (4)	Cerca de 40% Inglês; 60% Português (5)	Cerca de 20% Inglês, 80% Português (6)	Praticamente 100% Português (7)	N/A (8)
Criança com irmã(os) mais novos(as) (1)	66	67	68	69	70	71	72	73
Criança com irmã(os) mais velhos(as) (2)	74	75	76	77	78	79	80	81

Q64 Há algum(a) outro(a) adulto(a) importante (avós, tios, tias, etc…) com quem a criança tenha contato frequente?
82 Sim (1)
83 Não (2)

Q65 Se sim, responda às perguntas a seguir:

Q66 Adulto 1 Por favor, especifique a relação deste adulto com sua criança:

Q67 Adulto 1 Qual(is) língua(s) essa pessoa fala com sua criança?
84 Sempre Inglês (1)
85 Sempre Português (2)
86 Às vezes Inglês, às vezes Português (3)
87 Outra (4) _____

Q68 Adulto 1 Com que frequência sua criança vê essa pessoa?
88 Todos os dias (1)
89 Pelo menos uma vez por semana (2)
90 Cerca de uma vez por mês (3)
91 Duas ou três vezes por ano (4)
92 Com menos frequência (5)

Q70 Adulto 2 Por favor, especifique a relação deste adulto com sua criança:

Q71 Adulto 2 Qual(is) língua(s) essa pessoa fala com sua criança?
93 Sempre Inglês (1)
94 Sempre Português (2)
95 Às vezes Inglês, às vezes Português (3)
96 Outra (4) _____

Q69 Adulto 2 Com que frequência sua criança vê essa pessoa?
97 Todos os dias (1)
98 Pelo menos uma vez por semana (2)
99 Cerca de uma vez por mês (3)
100 Duas ou três vezes por ano (4)
101 Com menos frequência (5)

Q72 Com quem a criança passa a maior parte do dia?
102 Mãe (1)
103 Pai (2)
104 Avós (3)
105 Babá (4)
106 Outro (5) _____

Q73 Creche

Outras línguas? Por favor, especifique:

Q74 Com amigos
No geral, qual é a língua que sua criança fala com os amigos(as)?

	Praticamente 100% Inglês (1)	Cerca de 80% Inglês; 20% Português (2)	Cerca de 60% Inglês; 40% Português (3)	Cerca de 50% Inglês; 50% Português (4)	Cerca de 40% Inglês; 60% Português (5)	Cerca de 20% Inglês, 80% Português (6)	Praticamente 100% Português (7)	N/A (8)
Com amigos(as) (1)	107	108	109	110	111	112	113	114

Q75 Com amigos(as) Outras línguas? Por favor, especifique:

Q76 Informações gerais
Por favor, indique o nível de escolaridade completo pela MÃE da criança:
115Ensino Fundamental (Primeiro Grau) (1)
116Ensino Médio (Segundo Grau) (2)
117Ensino Superior (Universidade) (3)
118Ensino de Pós-Graduação (4)
119Nenhuma das alternativas (5)

Q77 Por favor, indique em que país ou região a mãe da criança nasceu?

Q78 Qual é a ocupação/profissão da mãe? (Se aposentada ou se não estiver trabalhando, qual foi a última ocupação antes de se aposentar ou parar de trabalhar?)

Q79 Por favor, indique o nível de escolaridade completo pelo PAI da criança:
120Ensino Fundamental (Primeiro Grau) (1)
121Ensino Médio (Segundo Grau) (2)
122Ensino Superior (Universidade) (3)
123Ensino de Pós-Graduação (4)
124Nenhuma das alternativas (5)

Q80 Por favor, indique em que país ou região o pai da criança nasceu?

Q81 Qual é a ocupação/profissão do pai? (Se aposentado ou se não estiver trabalhando, qual foi a última ocupação antes de se aposentar ou parar de trabalhar?)

Q82 Informações sobre a saúde da criança.

Q83 A sua criança nasceu antes dos 9 meses?
125Sim (1)
126Não (2)

Q82 Você tem alguma preocupação em relação à linguagem de sua criança? (Se você responder "sim", por favor, dê uma breve explicação.)
127Sim (1) _____
128Não (2)

Q84 Sua criança já foi submetida à terapia de fala ou de linguagem? (Se você responder "sim", por favor, dê uma breve explicação.)
129Sim (1) _____
130Não (2)

Q85 Sua criança já teve que ser tratada por algum problema de audição? (Se você responder "sim", por favor, dê uma breve explicação.)
131Sim (1) _____
132Não (2)

Q83 Com que idade sua criança falou a primeira palavra?

Q84 Quem respondeu a este questionário? Qual sua relação com a criança?

Q86 Muito obrigada pelo seu tempo e pela sua colaboração!

Appendix 3

Translation Equivalents – Cognates

	Translation Equivalents		
	Cognates		
		Portuguese	**English**
	Sound Effects		
1		grrrrrrr	grrrr
2		miau	meow
3		muu	moo
4		qua qua / quen quen	quack-quack
	Animals		
5		elefante	elephant
6		girafa	giraffe
7		leão	lion
8		pinguin	penguin
9		zebra	zebra
	Vehicles		
10		carro	car
11		helicóptero	helicopter
12		trator	tractor
13		trem	train
	Toys		
14		bola	ball
	Clothing		
15		bota	boots
16		botão	button
17		pijamas	pajamas
18		short	shorts
19		suéter	sweater
	Body parts		
20		pênis	penis

21		vagina	vagina
	Food/drink		
22		banana	banana
23		café	coffee
24		cereal	cereal
25		chocolate	chocolate
26		coca-cola	coke
27		geléia	jelly
28		hambúrguer	hamburger
29		iogurte	yogurt
30		laranja	orange
31		pizza	pizza
32		pudim	pudding
33		sal	salt
34		sanduíche	sandwich
35		sopa	soup
36		vitamina	vitamin
	Places to go		
37		circo	circus
38		escola	school
39		parque	park
	Outside things		
40		flor	flower
	Furniture and rooms		
41		garagem	garage
42		tv	tv
	Household items		
43		papel	paper
44		planta	plant
45		prato	plate
46		telefone	telephone
	Games/routines		

47		alô	hello
48		não	no
	People		
49		polícia	police
	Action Words		
50		dançar	dance

Appendix 4

Non-problematic non-cognates Translation Equivalents

	Translation Equivalents		
	Non-Cognates		
		Portuguese	**English**
	Sound effects		
1		ai!	ouch
2		au-au!	woof woof
3		cocorocococó	cockadoodledoo
4		méééé	baa baa
	Animals		
5		abelha	bee
6		bicho	animal
7		borboleta	butterfly
8		burro	donkey
9		cachorro	dog
10		carneiro	lamb
11		cavalo	horse
12		coelho	bunny
13		formiga	ant
14		galo	rooster
15		gato	cat
16		jacaré	alligator
17		lobo	wolf
18		macaco	monkey
19		passarinho	bird
20		pato	duck
21		peixe	fish
22		peru	turkey
23		porco	pig
24		rato	mouse
25		sapo	frog
26		tartaruga	turtle
27		urso	bear

28		vaca	cow
	Vehicles		
29		avião	airplane
30		barco	boat
31		caminhão	truck
32		carrinho de bebê	stroller
33		carro de bombeiro	firetruck
34		moto	motorcycle
35		ônibus	bus
	Toys		
36		boneca	doll
37		brinquedo	toy
38		caneta	pen
39		cola	glue
40		lápis (de cor)	pencil
41		livro	book
42		massa	play dough
	Clothing		
43		babador	bib
44		calça	pants
45		camisa/camiseta	shirt
46		casaco	coat
47		chapéu	hat
48		chinelo/sandália	slipper
49		cinto	belt
50		colar	necklace
51		fralda	diaper
52		meia	sock
53		relógio (de pulso)	watch
54		sapato	shoe
55		tênis	sneaker
56		vestido	dress
	Body parts		
57		barriga	tummy

58		boca	mouth
59		bochecha	cheek
60		braço	arm
61		bumbum	buttocks/bottom
62		cabeça	head
63		cabelo	hair
64		dente	tooth
65		joelho	knee
66		língua	tongue
67		mão	hand
68		nariz	nose
69		olho	eye
70		ombro	shoulder
71		pé	feet
72		perna	leg
73		queixo	chin
74		rosto	face
75		umbigo	belly button
	Food and Drink		
76		água	water
77		batata	potato
78		biscoito	cookie
79		bolacha	cracker
80		bolo	cake
81		carne	meat
82		cenoura	carrots
83		chiclete	gum
84		comida	food
85		doce	candy
86		feijão	beans
87		galinha	chicken
88		gelo	ice
89		leite	milk
90		maçã	apple
91		manteiga	butter
92		milho	corn
93		morango	strawberry

94		ovo	egg
95		pão	bread
96		peixe	fish
97		picolé	popsicle
98		pipoca	popcorn
99		pirulito	lollipop
100		queijo	cheese
101		sorvete	ice cream
102		suco	juice
103		torrada	toast
104		uva	grapes
	Places to go		
105		casa	house
106		fazenda	farm
107		festa	party
108		floresta	woods
109		igreja	church
110		loja	store
111		posto (de gasolina)	gas station
112		praia	beach
113		trabalho	work
114		zoológico	zoo
	Outside things		
115		árvore	tree
116		balanço	swing
117		bandeira	flag
118		calçada/passeio	sidewalk
119		céu	sky
120		chuva	rain
121		escorregador(eira)	slide
122		grama	grass
123		lua	moon
124		mangueira	hose
125		nuvem	cloud
126		pá	shovel
127		piscina	pool

128		rua	street
129		sol	sun
130		telhado	roof
	Furniture and rooms		
131		banco	bench
132		banheira	bathtub
133		banheiro	bathroom
134		berço	crib
135		cadeira	chair
136		cama	bed
137		chuveiro	shower
138		cozinha	kitchen
139		fogão	stove
140		gaveta	drawer
141		geladeira	refrigerator
142		guarda-roupa	closet
143		janela	window
144		máquina de lavar	washing machine
145		mesa	table
146		penico	potty
147		pia	sink
148		porta	door
149		sala	living room
150		varanda	porch
	Small household items		
151		balde	bucket
152		bolsa	purse
153		caixa	box
154		chave	keys
155		cobertor/coberta	blanket
156		colher	spoon
157		copo	glass
158		dinheiro	money
159		escova	brush
160		escova de dente	toothbrush
161		faca	knife

162		garfo	fork
163		garrafa	bottle
164		guardanapo	napkin
165		lata	can
166		mamadeira	bottle
167		martelo	hammer
168		pente	comb
169		quadro	picture
170		relógio	clock
171		remédio	medicine
172		retrato/foto	picture
173		sabão/sabonete	soap
174		tesoura	scissors
175		toalha	towel
176		vassoura	broom
177		xícara	cup
	Games and Routines		
178		almoço/comida	lunch
179		banho	bath
180		cala a boca	shh/shush
181		jantar	dinner
182		lanche/merenda	snack
183		obrigado	thank you
184		oi/olá	hi/hello
185		por favor	please
186		tchau	bye
187		vira!	turn around
188		vou te pegar!	gonna get you
	People		
189		amiga/amigo	friend
190		babá	babysitter
191		nome da babá	babysitter's name
192		neném	baby
193		pai/papai	daddy
194		palhaço	clown
195		professora	teacher

196		o próprio nome	child's own name
	Words about time		
197		agora	now
198		amanhã	tomorrow
199		de noite	tonight
200		depois	after
201		de dia	day
202		hoje	today
203		depressa/rápido	fast
	Prepositions and Locations		
204		aí	there
205		alí	there
206		aqui	here
207		atrás	behind
208		dentro	inside/in
209		do lado	beside
210		embaixo	under
211		fora	out
212		lá	over there
213		mais	more
214		perto	next to
215		também	too
216		tudo	all
217		com	with
218		de	of
219		em	in/at
	Action words		
220		abrir	open
221		acabar	finish
222		ajudar	help
223		andar	walk
224		beber	drink
225		beijar	kiss
226		brincar	play
227		cair	fall

228		cantar	sing
229		carregar	carry
230		chorar	cry
231		chutar	kick
232		cobrir	cover
233		colocar/botar	put
234		comer	eat
235		comprar	buy
236		consertar	fix
237		correr	run
238		cortar	cut
239		dar	give
240		dormir	sleep
241		empurrar	push
242		esconder (-se)	hide
243		escrever	write
244		esperar	wait
245		fazer	make
246		fechar	close
247		ficar	stay
248		ganhar	get
249		gostar	like
250		jogar	throw
251		lavar	wash
252		ler	read
253		levantar (-se)	stand
254		levar	take
255		limpar	clean
256		morder	bite
257		mostrar	show
258		nadar	swim
259		olhar	look
260		parar	stop
261		pegar	catch
262		pensar	think
263		pular	jump
264		puxar	pull
265		quebrar	break

266		rasgar	rip/tear
267		rir	smile
268		segurar	hold
269		subir	climb
270		ter	have
271		tocar	play
272		tomar	drink
273		trabalhar	work
274		trazer	bring
275		varrer	sweep
276		ver	see
	Helping Verbs		
277		estar	be
278		ir	go
279		podia	could
280		tem (têm)	has/have
281		ter que	have
	Descriptive words		
282		acordado	awake
283		alto	high/loud
284		amarelo	yellow
285		assustado	scared
286		azul	blue
287		branco	white
288		bom	good
289		bonito	pretty
290		cansado	tired
291		cheio	full
292		difícil	hard
293		doente/dodói	sick
294		duro	hard
295		escuro	dark
296		frio	cold
297		grande	big
298		lento/devagar	slow
299		limpo	clean

300		lindo	cute
301		mau	bad
302		melhor	better
303		molhado	wet
304		pesado	heavy
305		preto	black
306		primeiro	first
307		quente	hot
308		quebrado	broken
309		rápido	fast
310		seco	dry
311		sujo	dirty
312		triste	sad
313		vazio	empty
314		velho	old
315		verde	green
316		vermelho	red
	Question words		
317		o que	what
318		por que	why
319		qual	which
320		quando	when
321		quem	who
	Quantifiers and articles		
	Pronouns		
322		a gente	we
323		aquela/aquele	that
324		aquilo	that
325		esse/essa	this
326		eu	I
327		isso	this
328		seu/sua teu/tua	your
329		te	you
330		tu/você	you

	Connecting Words		
331		aí	and then/ so
332		e	and
333		então	so/then
334		mas	but
335		porque	because
336		que	that
337		se	if

Appendix 5

Translation Equivalents – Uncertain: list of words that were considered uncertain in order to be put in the Cognates category.

	Translation Equivalents		
	Uncertain		
		Portuguese	**English**
	Animals		
1		tigre	tiger
	Vehicles		
2		bicicleta	bicycle
3		velotrol/triciclo	tricycle
	Toys		
4		balão/bexiga	balloon
5		bloco/lego	block
	Outside things		
6		estrela	star
7		jardim	garden
	Furniture and rooms		
8		sofá	sofa/couch
	Small household items		
9		jarro/vaso	jar
		luz/lâmpada	light
10		luz/lâmpada	lamp
11		rádio/som	radio
	Games and routines		
12		oi/olá	hi/hello
	Pessoas		
13		mãe/mamãe	mommy
	Action Words		

14		desenhar/pintar	draw/paint
15		sentar (-se)	sit
	Descriptive Words		
16		novo	new
	Prepositions		
17		por	for/by

Appendix 6

List of 'problematic' words that were subtracted from the Total Vocabulary to establish the Total Modified Vocabulary.

Words from the Translation Equivalents – Non-cognates

	Portuguese	**English**
1	Galinha	Chicken
		Hen
2	Calcinha	Underpants
	Cueca	
3	Dedo	Finger
		Toe
4	Orelha	Ear
	Ouvido	
5	Quintal	Backyard
		Yard
6	Pedra	Rock
		Stone
7	Escada	Stairs
		Ladder
8	Quarto	Bedroom
		Room
9	Almofada	Pillow
	Travesseiro	
10	Lixo/lixeira	Trash
		Garbage
11	Avó/Avô	Grandmother
		Grandfather
12	Irmã/irmão	Sister
		Brother
13	Menino/Menina	Boy
		Girl
14	Tio/tia	Uncle
		Aunt
15	Em cima	On
		On top of
16	Muito	A lot
		Much
17	Outro	Another
		Other
18	Para	To

		For
19	Bater	Bump
		Hit
		Knock
20	Dizer/falar	Say
		Talk
21	Desenhar/pintar	Draw
		Paint
22	Escutar/Ouvir	Listen
		Hear
23	Pequeno	Little
		Tiny
24	Onde	Where
	Cadê	
25	A	The
	O	
	As	
	Os	
26	Um	A/An
	Uma	
27	Ele/ela	He
		She
28	Meu/minha	My
		Mine
29	Me	me
	mim	
30	é	Is
	(es)tá	
31	(es)tamos	Are
	(es)tão	
	são	
32	(es)tou	Am
	sou	
33	pode	Can
	podemos	
	posso	
34	quer	wanna/want to
	querem	
	quero	
35	temos	have
	tenho	
36	Vai	gonna/goingo to
	Vamos	
	Vão	

	vou	

Appendix 7

List of words from the Brazilian-Portuguese version of the CDI with no Translation Equivalent in the English CDI.

No Translation Equivalents		
	Portuguese CDI	**English meaning**
Sound effects		
	bibi	beep
	piu-piu	cheep-cheep
	toc-toc	knock-knock
	trimm	sound of a phone ringing
Animals		
	aranha	spider
	baleia	whale
	barata	cockroach
	boi	bull
	caranguejo	crab
	cobra	snake
	hipopótamo	hippopotamus
	lagartixa	gecko
	mosca	fly
	mosquito	mosquito
	onça	jaguar
	tubarão	shark
Vehicles		
	ambulância	ambulance
	carro de polícia	police car
	navio	ship
	patins	rollerblades
Toys		
	espada	sword
	pião	whipping-top

	tambor	drum
Clothing		
	argola	hoop
	blusa	blouse
	bico/chupeta	pacifier
	bolsa	purse
	boné	cap
	camisola	nightdress
	guarda-chuva	umbrella
	óculos	glasses
	pulseira	bracelet
	roupa	clothing
	saia	skirt
Body		
	cara	face (colloquial)
	cocô	poo
	costas	back
	garganta	throat
	peito	chest/breast
	unha	nail
	xixi	pee
Food and drink		
	açúcar	sugar
	amendoim	peanut
	arroz	rice
	bala	hard candy
	bombom	chocolate candy
	brigadeiro	traditional brazilian dessert for birthdays
	cachorro-quente	hot dog
	goiabada	guava paste
	guaraná	traditional brazilian soda
	macarrão	pasta
	mamão	papaya
	melancia	watermelon

	mingau	porridge
	nescau	nesquick
	salgadinho	salty brazilian fingerfood
	tangerina	tangerine
	torta	pie, cake (birthday cake)
	verdura	greenery
Places to go		
	cinema	movie theater
	clube	club/ recreation center
	feira	fair
	hospital/médico	hospital/doctor
	mercado	market/supermarket
	shopping	mall
Outside things		
	areia	sand
	buraco	hole
	elevador	elevator
	muro	wall
	placa	plaque, (traffic) sign
	planta	plant
	trovão/trovoada	thunder
Furniture and rooms		
	armário	cabinet
	corredor	hall
Small household items		
	computador	computer
	mamadeira	baby bottle
	sacola	bag/ plastic bag
	ventilador	fan
Games and routines		
	achei!	found it
	beijinhos	kisses
	(vamos em)bora?	let's go

	cosquinhas	tickles
	cadê?	where is it?
	dá um abraço	give me a hug
	dá um pedaço	give me a piece
	dá susto	scare!
	licença	excuse me
	muito bem!	good job/well done
	nana neném	lullaby song in Portuguese
	saúde!	bless you!
	sono!	sleepy!
	tira	take it off
	tudo bom?	everything good?
People		
	empregada	housekeeper
	madrinha/dinda	godmother
	padrinho/dindo	godfather
	primo/prima	cousin
Words about time		
Prepositions/Locations		
	assim	so/thus/like this
	bem	well
	já	already/now
	na frente	in front of
	outra vez/de novo	again
	pouco	little (quantity)
Action words		
	abaixar	lower/go down
	amarrar	tie
	apagar	erase/turn off
	arrumar	organize
	chover (chovendo)	rain (raining)
	chupar	suck

	deitar	lay down
	dobrar	fold
	doer	hurt/ache
	entrar	go inside/enter
	gritar	scream/yell
	juntar	join/put together
	ligar	turn on/call (on the phone)
	passear	walk around
	pentear-se	comb
	perder	loose
	prender	arrest/aprehend
	procurar	look for/search for
	queimar	burn
	querer	want
	saber	know
	sair	go out/leave
	soltar	let go/release
	tampar	close with a lid
	tirar	take off
	trocar	change/exchange
	vestir-se	get dress
	vir	come
Helping verbs		
Descriptive words		
	bobo	silly
	diferente	different
	feio	ugly
	forte	strong
	fraco	weak
	gordo	fat
	igual	equal/same
	mole	soft/flaccid/opposite of hard
	rasgado	ripped/torn
Question words		

Quantifiers and articles		
Pronouns		
Connecting words		
	ou	or
	por causa de	on account of/because of

Appendix 8

List of words from the English version of the CDI with no Translation Equivalent in the Brazilian-Portuguese CDI.

No Translation Equivalents		
	English CDI	**Portuguese meaning**
Sound effects		
	choo choo	tchu-tchu
	uh oh	o-oh
	vroom	vrum
	yum yum	hummm
Animals		
	deer	cervo
	goose	ganso
	kitty	gatinho
	moose	alce
	owl	coruja
	pony	pônei
	puppy	cachorrinho
	sheep	ovelha
	squirrel	esquilo
	teddybear	urso de pelúcia
	hen	galinha
	bug	inseto
Vehicles		
	sled	trenó
Toys		
	bat	taco
	bubbles	bolhas de sabão
	chalk	giz
	game	jogo
	crayon	giz de cera

	present	presente
	puzzle	quebra-cabeça
	story	estória
Clothing		
	beads	miçangas
	gloves	luvas
	jeans	calça jeans
	jacket	jaqueta
	mittens	luvas de bebê
	scarf	cachecol
	snowsuit	roupa de neve
	tights	meia-calça
	zipper	zíper/fecho
Body parts		
	ankle	tornozelo
	lips	lábios
	owie/boo boo	machucado/dodói
Food and drink		
	applesauce	mingau de maçã
	cheerios	type of cereal
	donut	rosquinha frita
	drink	bebida
	french fries	batata frita
	green beans	vagem
	jello	gelatina
	melon	melão
	muffin	mufin/bolinho
	noodles	massa instantânea
	nuts	nozes
	pancake	panqueca
	peanut butter	manteiga de amendoim
	peas	ervilha
	pickle	pepino em conserva
	potato chip	batata chips
	pretzel	pretzel

	pumpkin	abóbora
	raisin	uva-passa
	soda/pop	refrigerante
	tuna	atum
	vanilla	baunilha
	spaghetti	espaguete
	sauce	molho
Places to go		
	camping	acampamento
	country	interior da cidade/país
	downtown	centro da cidade
	home	lar
	movie	filme
	outside	fora de casa
	picnic	piquenique
	playground	parque infantil
Outside things		
	lawn mower	cortador de grama
	sandbox	caixa de areia
	snow	neve
	snowman	boneco de neve
	sprinkler	borrifador
	stick	pau/pauzinho
	wind	vento
Furniture and rooms		
	basement	porão
	dryer	secadora
	high chair	cadeirão/cadeira alta de criança
	oven	forno
	playpen	cercado
	rocking chair	cadeira de balanço
Small household items		
	basket	cesto
	bowl	tigela

	camera	câmera
	dish	louça
	mop	esfregão
	nail	prego
	penny	moedinha
	tape	fita
	tissue/kleenex	lencinho de papel
	tray	bandeja
	vacuum	aspirador
	walker	andador
Games and routines		
	breakfast	café da manhã
	call (on phone)	ligar/telefonar
	give me five	"bate aqui"
	go potty	fazer cocô
	nap	cochilo
	night night	boa noite
	patty cake	
	peekaboo	
	shopping	fazer compras
	so big	"tão grande"
	this little piggy	
	yes	sim
People		
	child	criança
	cowboy	vaqueiro
	doctor	médico
	fireman	bombeiro
	lady	senhora
	mailman	carteiro
	man	homem
	nurse	enfermeira
	people	pessoas
	person	pessoa
	pet's name	nome do animal de estimação

Words about time		
	before	antes
	later	depois
	morning	manhã
	night	noite
	time	tempo
	yesterday	ontem
Prepositions/Locations		
	about	sobre
	above	acima
	around	ao redor
	away	longe/ausente
	back	de volta
	down	para baixo
	into	para dentro de
	off	for a
	over	sobre/acima
	up	para cima
Action words		
	blow	soprar
	build	construir
	chase	perseguir
	clap	aplaudir
	cook	cozinhar
	drive	dirigir
	drop	derrubar
	dry	secar
	dump	despejar/descarregar
	feed	alimentar
	find	encontrar
	fit	servir
	hate	odiar
	hug	abraçar
	hurry	apressar
	lick	lamber
	love	amar

	pick	escolher
	pour	derramar/despejar
	pretend	fingir
	ride	montar/pegar carona
	shake	sacudir/agitar
	share	dividir/compartilhar
	skate	patinar/andar de skate ou patins
	slide	escorregar (no escorregador)
	spill	derramar/entornar
	splash	espalhar água'
	swing	balançar
	taste	provar
	tickle	fazer cócegas
	touch	encostar
	wake	acordar
	watch	assistir
	wipe	limpar com um paninho
	wish	desejar/pedir
Helping verbs		
	did/did ya	Você fez …?
	do	
	does	
	don't	Não
	gotta/got to	tenho que
	lemme/let me	deixe-me
	need/need to	precisar
	try/try to	tentar
	was	era/estava
	were	era/estava
	will	-ei (verb ending)
	would	-ia (verb ending)
Descriptive words		
	allgone	ido/sumido
	asleep	adormecido
	brown	marrom
	careful	cuidadoso

	fine	bem
	gentle	suave/delicado
	happy	feliz
	hungry	com fome
	hurt	machucado
	last	último
	long	longo/comprido
	mad	bravo/zangado
	naughty	malcriado/desobediente
	nice	legal
	noisy	barulhento
	poor	pobre
	quiet	quieto
	sleepy	sonolento
	soft	macio
	sticky	grudento/pegajoso
	stuck	preso
	thirsty	com sede
	windy	ventoso
	yucky	nojento
Question words		
	how	como
Quantifiers and articles		
	any	qualquer
	each	cada
	every	cada/todos
	more	mais
	much	muito/bastante
	not	não
	none	nenhum
	same	mesmo
	some	algum/alguns
Pronouns		
	her	ela (ACC)
	hers	dela

	him	ele (ACC)
	his	dele
	myself	mim mesmo/a
	our	nosso
	their	deles/delas
	them	eles (ACC)
	these	esses/estes
	they	eles
	those	aqueles/aquelas
	us	nós (ACC)
	yourself	você mesmo/a
Connecting words		