Dialect Speakers in SLA Research: The Influence of Various Factors on Vocabulary

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Preface

When I started this school year I could not have imagined going into a fantastic internship which gave me the opportunity to work with what I am absolutely passionate about. The data used for this research is part of a larger dataset, which is part of a longitudinal research into the cognitive advantages of multilingualism in children. I would like to take this opportunity and thank a few persons. I would like to thank my supervisor Claartje Levelt for her constructive feedback, and my internship supervisor Leonie Cornips for her support of my independent research. I would like to thank Kirsten van den Heuij and Saskia Lensink for thinking along with me and helping with the statistics. I would also like to thank my friends and family, in particular Monique de Jong for being critical of my work and being confident of what I was doing when I doubted myself. Lastly I would like to thank Sam.

Abstract
Aspects of the acquisition of one or more languages are influenced by many variables, e.g. age of acquisition, quality and quantity of input, social economic status, and the presence of older siblings. The influence of these factors has been investigated in monolingual learners, adult second language learners, less in child second language learners, and not at all in young bidialectal speakers. This study investigated how various factors influenced vocabulary scores of bidialectal children from Limburg, the Netherlands. Results show that input quantity and age of acquisition are significant predictors of vocabulary scores, but in a different manner than in traditional bilinguals. Other significant predictors are mother fluency and socioeconomic status. The specific situation of bidialectal speakers in the Netherlands might be of influence on their language acquisition, making it different from traditional bilingual language acquisition.

Keywords: child second language acquisition; dialect; vocabulary; bidialectal acquisition

Introduction

Research has shown that many variables influence different aspects of the bilingual experience (see Unsworth, 2016 for a review). No child shares the same experience when learning a language, since many factors mold and form such an experience. Examples of these factors are the age of acquisition, quality and quantity of input, the social economic status of the child, whether the child has older siblings or not etcetera. These factors have been extensively investigated in monolingual first language learners, and adult second language learners (Dornyei & Skehan, 2003; Hoff, 2006), but less in child second language learners (Paradis, 2011), though the number of studies has increased in the last years (Unsworth, 2016). Even less is known about the effects of such factors in bidialectal children, children who acquire a dialect next to another language. As a dialect is related to the standard variety, this type of language acquisition shows a different development than 'traditional' child second language acquisition in areas such as the acquisition of Dutch gender and vocabulary development (Cornips, 2014). Knowledge of the influence of these factors on acquisition could be used in education and by care providers to interpret evaluations of academic achievement, to advice parents in their language use at home, or to give advice to schools about the language of instruction (Paradis, Genesee & Crago, 2011). Especially in young dialect speakers in the Netherlands this information could be crucial in both school and home situations. In addition, this knowledge is also of influence on theories of language acquisition that emphasize the role of input amongst other factors (Paradis, 2011).

Effects of these factors can be observed in different aspects of the bilingual experience, e.g. vocabulary (Thordardottir, 2011), verbal morphology (Paradis, 2011), morphosyntax (Unsworth, 2016), and grammatical gender (Gathercole & Môn Thomas, 2009) among others. Especially vocabulary is frequently investigated as it is easy to test, and relationships between vocabulary and other factors are often clear and straightforward. For example, amount of language input is known to positively influence language development and vocabulary (Hart & Risley, 1995; Hoff, 2003). As bilinguals

have to spread their time learning a language over two languages, therefore receiving less input per language, they show low vocabulary scores for their separate languages, relative to monolingual peers (Thordardottir, 2011). This makes vocabulary a suitable factor to study the influence of the aforementioned factors on.

The current research wants to investigate how the factors quantity and quality of input, socioeconomic status, presence of older siblings, age of acquisition and length of onset predict variation in the Dutch vocabulary rates of bidialectal speakers, and whether these influence vocabulary similarly as in bilingual children. Relationships between these factors and vocabulary have been reported extensively in the literature. The present research also asks whether bidialectal children show low vocabulary scores in one of their languages, comparable to bilingual children. The results to these questions will make it possible to observe the similarities and differences between bidialectal and bilingual vocabulary acquisition.

Input Quantity

Each child acquiring and learning a language needs input from others to acquire this language. Without input, a language cannot be learned (Gass, 2013). Quantity of input stands in direct relation to the linguistic skills that a child acquires (Pearson, Fernández, Lewedeg & Oller, 1997). Pearson et al. (1997) plotted the percentage of all words known in each language of the bilingual child, against estimates of language input, and found an exceptionally high positive correlation between the two variables (r=.82). Thus, the more input that is provided in a language, the higher the number of words a child knows in that language. However, children who are learning two languages simply cannot devote as much attention to each of their languages, compared to if they were only learning one languages (Thordardottir, 2011). By definition, bilingual children therefore receive less input in each of their languages than monolinguals do in their single language (Genesee, 2010), which influences the size of their vocabularies in the two languages. Though a bilingual's vocabulary in one language is smaller than that of a monolingual, bilinguals' added vocabulary in the two languages is, on average, larger (Pearson, Fernandez & Oller, 1993).

A number of studies have found that vocabulary is correlated with the number of words that monolingual children hear, as there is a strong positive association between the size of the vocabulary of children and the number of words addressed to them by their caretakers (Hart & Risley, 1995; Hoff, 2003; Pearson et al., 1997; Pearson, 2007). In bilingual children, the amount of language input is also known to strongly influence the rate of language development (Thordardottir, 2011; Pearson, 2007). Several sources suggest that the rate of vocabulary learning (absolute number of words) in bilinguals is proportional to the amount of exposure per language (Hammer, Davison, Lawrence & Miccio., 2008; Patterson, 2002; Oller & Eilers, 2002; Scheele, Leseman & Mayo, 2010). As home is an important place of input, variation in home language input can affect the rate by which children acquire a vocabulary in each of their languages (Paradis, 2009, 2010; Paradis, Nicoladis, Crago & Genesee, 2010). In Paradis (2009) English-French children

were tested on an English receptive vocabulary task[1]. Children who received mainly English, or balanced French-English input at home scored significantly higher (mean scores 100-110) than children with mainly French input (mean scores 70-90). Next to home language variation, the language spoken at school also impacts vocabulary acquisition (Gathercole & Môn Thomas, 2009). In young minority language speakers, e.g. English-Welsh speakers, variation in the L1 and L2 at home and school impacts the dominant language (Gathercole & Môn Thomas, 2009; Oller & Eilers, 2002). In Gathercole and Môn Thomas (2009) variation in home language plays the most important role in English vocabulary at age 4; however, at age 9 this role has shifted to variation in school language. Lastly, the presence of older siblings has also been observed to influence vocabulary in bilingual children; toddlers with older siblings are more advanced in the societal language than toddlers with younger or no siblings (Bridges & Hoff, 2010). In this 2010 study, Spanish-English toddlers with older school-aged siblings were exposed to more English input which was related to higher vocabulary scores in English.

Input Quality

Input of higher quality provides more support for vocabulary development than lower quality input (e.g. Cartmill, Armstrong, Gleitman, Goldin-Meadow, Medina & Trueswel, 2013). Quality of input rests on many factors that vary for each child. Depending on the age of the child, research suggests that hearing a language from several different speakers is more supportive of language development than having the same amount of exposure from a single speaker (Place & Hoff, 2011). In this study, the English receptive vocabulary of 2-year-old English-Spanish speakers could be predicted from the relative amount of exposure, the number of different speakers and the percentage of native input that they received (amount of variance explained: R^2 = 29%). This latter factor, the fluency of the speaker providing input is another example of input quality. Bilinguals are most likely exposed to input from both native and non-native speakers of a language, more so than monolinguals. Place and Hoff (2011) found that the proportion of native input in both languages was a significant predictor of the bilingual children's vocabulary, even after controlling for input quantity. Non-native speech may not be as effective for language acquisition as native speech, but the question why this is so remains unanswered. It is suggested that parents talking to their child in their native language use a more diverse or richer vocabulary than when addressing their child in their second language (Hoff, Welsh, Place & Ribot, 2014).

A study that looked into lexical richness in maternal speech found that the richer the input, the more extensive the vocabulary development over a course of a year (Demir-Vegter, Aarts & Kurvers, 2014). Lexical richness in both spoken and written text was defined as the ratio of different words (diversity), the proportion of content words to function words (density) and the proportion of infrequent, complex, specific vocabulary (sophistication). Children were tested at age three and age four, and there were significant correlations between these variables and their vocabulary scores. In another

[1] PPVT; M = 100, SD = 15 (Dunn & Dunn, 1981)

study that defined input quality as referential transparency, i.e. "how clearly word meaning can be inferred from the immediate extralinguistic context", it was found that differences in quality correlated with the size of the children's vocabulary (Cartmill et al, 2013). Children that received input from parents with a greater referential transparency had larger vocabularies. Even after controlling for differences in input quantity, this effect was still found.

SES

SES stands for socioeconomic status, the social standing class of an individual. For children SES is often measured as a combination of their parent's education, income and occupation. The role of SES has been well established as an important predictor of children's vocabulary scores (Hoff & Naigles, 2002; Hoff, 2003; Naigles & Hoff-Ginsberg, 1998). High SES is of positive influence on the quantity and quality of input that children receive (Hoff, Laursen & Tardif, 2002; Hoff, 2003; Pan, Rowe, Singer & Snow, 2005). Children living in a high SES environment, compared to children in a low SES environment, in general receive more language input (Hart & Risley, 1995), and receive more language input that stimulates language development (Hoff & Naigles, 2002). SES predicts language development quite robustly, especially vocabulary in monolinguals (Hoff, 2006). Children from lower SES backgrounds usually have lower levels of receptive and expressive vocabulary than children from higher SES backgrounds (Hart & Risley, 1995; Qi, Kaiser, Milan & Hancock, 2006). On a receptive vocabulary task, the difference in scores between children in medium versus low SES groups can be up to 1 standard deviation (Qi et al., 2006). In bilingual children the findings are similar (Calvo & Bialystok, 2014). Calvo and Bialystok (2014) looked at middle class and working class monolinguals and observed a general effect of SES in both bilinguals and monolinguals on a receptive vocabulary task. Children from middle class families (M = 101.26, SD = 10.26) scored significantly higher than children from working class families (M = 96.91, SD = 11.22), regardless of language preference. Language development is also positively influenced by higher maternal education in bilingual children and L2 children (Golberg, Paradis & Crago, 2008; Bohman, Bedore, Peña, Mendez-Perez & Gillam, 2010). Golberg et al. (2008) found that children whose mother had post-secondary education had larger vocabularies than children of mothers with only secondary education. Paradis (2009) has found that bilingual children whose mothers hold a university degree have larger vocabulary in both languages regardless of whether the language the mother used most often with the child was the language tested. Potentially, there is a quality of language input factor in maternal speech that influences language development.

Age

Vocabulary is, not surprisingly, positively influenced by age; the older the child, the larger the vocabulary. In a second language, vocabulary is dependent on age related factors like length of exposure and the age of onset; L2 proficiency is generally assumed to correlate with the length of exposure (LOE) to the second language (Unsworth, Hulk & Marinis, 2011). Length of exposure is therefore sometimes used to indicate the amount input

quantity. For simultaneous bilinguals (L2), length of exposure is equal in both languages. For successive bilinguals (cL2), length of exposure for the second language can be much shorter than for their first language.

The difficulty for L2 and cL2 speakers is trying to 'catch up' in the second language with their monolingual peers, who have only been exposed to this language (Golberg, Paradis & Crago, 2006). Cummins (2000) describes it as attempting to hit a moving target. Children have to catch up with their peers, but at the same time these peers are learning new words as well. Cognitive maturity is one factor that aids in accomplishing this goal; this is reached with age. A positive association between age of onset and rate of acquisition exists (Chondrogianni & Marinis, 2011). An older child L2 learner, acquires a lexicon more easily than a younger one; an L2 onset in middle childhood (around age 5;0) even seems to be advantageous for vocabulary building (Golberg, Paradis & Crago, 2008). However, a recent paper by Unsworth (2016) found that there were no differences between age of onset before four years, and age of onset after four years on a vocabulary task, indicating that age of onset might be less important than thought.

The main findings for the discussed factors are as follows: quantity of input is positively linked to vocabulary; more input leads to higher vocabulary scores. Input of higher quality, e.g. more speakers, more native input, is also of positive influence and thus leads to higher vocabulary scores. SES has a positive influence when it is high, as more input is provided that is of higher quality. Finally, the older the child, the higher the vocabulary scores.

Sociolinguistic background of the participants

Summarized, many factors influence the bilingual experience. There is not one way of acquiring a second language. This section will describe the sociolinguistic background and acquisition pattern of the speakers that are involved in the current research, as well as discuss bidialectal acquisition.

Dialects

The speakers involved in this research are bidialectal: people who speak a standard language together with a "distinct but related dialect" (Pohl in Beardsmore, 1986; Cornips & Hulk, 2006). The term dialect is used in many different ways, and depending on context it can have a completely different meaning. In general, it is a language variety, which is roofed by a structurally related standard variety (Hinskens & Taeldeman, 2013). Without a standard, there can be no dialect (Auer, 2005). It is a language system that is found within defined territorial boundaries – either local, regional or otherwise defined (Auer, 2010). Dialects are mainly used, or only used, for oral communication.

Dialects seldom exist anymore in complete isolation (Hinskens & Taeldeman, 2013). Speakers of dialect are therefore almost always bi-or multilingual. Consequently, the bidialectal children that participated in this research, are all at least passively bilingual. From parents' reports it can be concluded that all of them understand the dialect.

The dialect of Limburg in the Netherlands

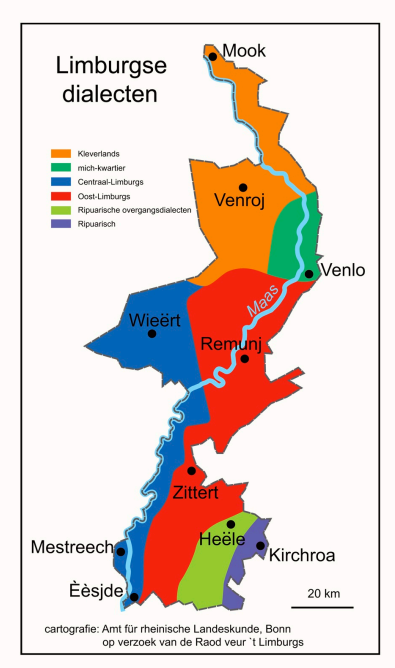

Figure 1: Map of the Limburgian dialects

The treatment of dialects can differ per country. In the Netherlands, Dutch is the official language, and over 15 million people in the country are native speakers. Next to Dutch, several regional varieties are spoken by smaller groups of people. Around 900.000 people or 75% of the inhabitants in the region called Limburg speak a Limburgian dialect (Driessen, 2006). The dialects of Limburg are considered to be endangered languages (UNESCO, 2010). In 1997, the European Charter for Regional Languages or Languages of Minorities, extended minor recognition to the regional languages of Limburg. This means that the Dutch state formally recognizes the Limburgian dialect and its varieties as a minority language. However, the state does not financially support the Limburg varieties.

There are around five varieties of the Limburgian dialect (in the Netherlands) that can be distinguished on the basis of isoglosses: East Limburg dialects, Central Limburg dialects, West Limburg dialects, a transitional zone between Brabantic and West Limburg dialects and a transitional zone between Ripuarian and Limburg dialects. As Limburgian is spoken in a transition area where both Low Franconian and West Franconian languages are spoken, these varieties have had the chance to form. Participants in this research speak dialect varieties from Middle and East Limburgian (Figure 1).

No speaker of the Limburgian dialect is truly monolingual, as a variety of the societal language is spoken in addition or passive knowledge of the dialect is present (Cornips, 2014). Though many speakers have acquired the dialect as a first language, others acquire it as their second language, e.g. immigrants. It is quite easy to mix the dialect with standard Dutch, making it an integral part of everyday speech for most speakers in Limburg. Speakers can use a range of varieties along a continuum from the standard language to the dialect depending on the context. The children involved in this research have either grown up acquiring both Dutch and Limburgian from birth onwards, or have started to more exposure to Dutch after 12 months.

At school, the child bidialectal speaker is often put into a difficult situation concerning their languages. Teachers discourage the child from speaking the dialect (Ramaut, 1995; Swanenberg, Vanhooren & Mottart, 2010; Kroon & Vallen, 2004), as there is no consensus about the effects of speaking a dialect on the child's academic performance. Some research has shown negative effects on academic performance (Kraaykamp, 2005; Yao, Ohinata & van Ours, 2015), whereas others report positive or no effects at all (Kroon & Vallen, 2004; Nieuwenhof, van der Slik & Driess in Kroon & Vallen, 2004). This has an effect on children's perception about the way they speak, and can influence their language scores.

Bidialectal acquisition

After defining the sociolinguistic situation of the speakers in Limburg, the question that remains is whether bidialectal acquisition is similar to bilingual acquisition. A lot of children growing up in a bidialectal area acquire Dutch in addition to the local dialect from birth onwards (2L1), or from school age onwards (cL2). However, these children rarely experience the one-parent, one-language setting that bilingual children often experience, and the input that bidialectal children receive in both the societal language and the dialect varies extensively with context and source (Cornips, 2014). As speech in this area is of the intermediate type[2] (Auer, 2005), making mixing the languages easy, it can be unclear for children what type of input they are receiving. In traditional bilinguals the distribution in input is often clearer. Input outside the home for bidialectals thus often consists of a mix of Dutch and Limburgian, which causes even predominantly Dutch speakers to have passive knowledge of the other variety as well (Cornips, 2014).

Therefore, it is questioned to what extent bidialectal acquisition is the same as bilingual acquisition. Cornips (2014) asked this question in a recent article, presenting acquisition data from monolingual, bilingual, and bidialectal children and adults. Bilingual, bidialectal, and monolingual children were tested on a Dutch vocabulary task: PPVT-NL (Dunn, Dunn & Schlichting, 2005). This is a receptive vocabulary task that is used as a general indicator of children's proficiency in Dutch. The average score is 100, with a standard deviation of 15. The PPVT-NL was used to see whether these groups behaved similarly on vocabulary acquisition, a general indicator of the overall linguistic development (Unsworth & Hulk, 2010). According to their scores on the PPVT-NL, children were classified into three groups: low, mean, and high scores. Most of the bilingual children (69%) were in the low group (children with scores of 95 or lower), compared to only 15% of the bidialectal children. In the high group (children with scores of 108 or higher), there was a large part of the bidialectal children (45%), compared to only 6% of the bilingual children. This difference in distribution indicates that bidialectals are dissimilar from bilinguals in terms of vocabulary development. Bidialectal children seem to have much higher vocabulary scores than bilingual children. This leads to the hypothesis that the factors that are at play in second language acquisition have different effects on vocabulary in bidialectals.

Heritage language speakers

To hypothesize further about the developmental stages in bidialectal acquisition, it is interesting to find groups of speakers that are similar to bidialectal speakers and compare them. For example, bidialectal speakers can be compared to heritage language speakers in several ways, even though literature on this topic is sparse. Heritage language speakers are persons that are raised in homes where a language other than the societal language is spoken, and who are (to some degree) bilingual in the societal language and the heritage language (Montrul, 2012; Valdés, 2005). They are children of immigrants either

[2] The standard variety and the dialect are closely related to each other, there is no clear separation between the two.

born in the host country, or they have arrived as immigrant children in the host country during childhood (Montrul, 2012). The heritage language is an immigrant language, e.g. Spanish in the United States, or Arabic in France. Due to the upbringing of these children, they are exposed to the heritage language and the societal language from birth or childhood onwards. By the time they reach adulthood, the heritage language has become their non-dominant and weaker language, making their situation different from traditional bilinguals.

The heritage language speaker shows a lot of similarities with the bidialectal speaker. Both grow up being exposed to the heritage language or dialect, and start being regularly exposed to the societal language from school age onwards. Exposure to the societal language can happen before school age in both types of speakers, e.g. in stores, through media etcetera. What is different between the two types of speakers, is that dialect speakers possess the ability to use their dialect outside of the home much more than heritage speakers. Especially in the case of Limburgian, as it is a language that is used by the community surrounding the home of the child as well. Though heritage language speakers often live in communities where the opportunity to use their heritage language outside of the home is present, they use it less, especially later in life, than the majority language (Montrul, 2012). For a heritage speaker the heritage language is the first language, which later in life becomes the secondary language because it is the minority language (Montrul, 2012). For bidialectal speakers the dialect is often the first language too, but despite the fact that it is also a minority language in the country, the dialect can be either the primary or the secondary language in their life.

Second First-Language Acquisition

Later-learned languages do not necessarily remain L2s, they can also become L1s later in life. Late L1 acquisition regularly happens in the case of deaf children who are born to hearing parents, who often learn sign language, their L1, somewhat later in life (Ramirez, Lieberman & Mayberry, 2012). Research has not really explored this phenomenon in young speakers, but there are studies that have looked at later language acquisition in international adoptees (Pollock, Price & Fulmer, 2003). Children who are internationally adopted acquired their first language in their country of origin, but when they are adopted to another country they become (mostly) monolingual speakers of a different language. As these children had already begun to acquire a language from birth, this type of language acquisition is characterized as 'second first-language acquisition' (Roberts, Pollock, Krakow & Price, 2005). The young bidialectal speakers that participate in the present study will probably experience the same development to some extent. They learn the dialect at home as their first language, but this does not remain their first language; at some point their first language will be the societal language that they acquire in school.

The consequences for the late(r) L1 of this type of acquisition are not well known, and research has shown conflicting results. Pollock et al. (2003) found adoption had a negative influence on vocabulary acquisition, but Roberts et al. (2005) found that children adopted from China adapt fairly quickly scored within the normal range. What makes these children different from the participants in the present research is that the

bidialectal children already come into contact with the societal language, because they live in a bidialectal area, whereas adopted children only get to hear the 'second' language when they arrive in their new country.

The current research

In conclusion, bidialectal acquisition differs from bilingual acquisition in terms of vocabulary development, and shows similarities with both acquisition in heritage language speakers, and second-first language acquisition. Nevertheless, based on the information about the bidialectal speakers, it is most likely that there is a lot of variance in the language acquisition experience of each speaker. There is not one pattern that describes bilingual acquisition. Therefore, it seems wise to look at individual differences within a group of speakers, based on the factors that have formed this experience.

The bidialectal acquisition of receptive vocabulary differs from bilingual acquisition of receptive vocabulary. For bilinguals age, input quantity and quality, SES, and the presence of older siblings is known to be of influence on their vocabulary scores, however in bidialectals there is no information available on the influence of these factors. The current research will therefore examine the impact of individual difference factors on bidialectal children's acquisition of Dutch vocabulary. The main question is: How do the factors quantity and quality of input, socioeconomic status, presence of older siblings, age of acquisition and length of onset predict variation in the Dutch vocabulary rates of bidialectal speakers? These results will be compared to those of traditional bilinguals. Another question asked, is whether bidialectal vocabulary acquisition is similar to bilingual vocabulary acquisition, and if this can be observed in vocabulary scores.

Method

Participants

The participants[3] in this study (n=195), are children between the ages of four and nine years, who have been exposed to Dutch and the Limburgian dialect from birth or an early age onwards. Eleven children were raised bilingually in other languages in addition to the dialect. The sociolinguistic background of the participants is extensively described in section 2. All participants were reported to understand the dialect. Descriptive statistics are reported in Table 1.

[3] The data used in this thesis is part of the VIDI project Cognitive Development in Emerging Bilingualism by Elma Blom. Part of the data collection was done by the author of the thesis under supervision of Leonie Cornips.

Table 1: Descriptive statistics of the Limburgian children of their age in months, socio-economic status and PPVT-NL score. The first column shows the number of children of which the variables have been measured. Not all information was provided for each child.

	N	M	SD	Range (Min-Max)
Age in months	195	79.38	11.79	54.0-112.0
SES	173	6.78	1.50	1-9
PPVT-NL	195	108.09	11.00	79.0-134.0

Task

The PPVT-III-NL is a standardized vocabulary test that is used as a general indicator of children's proficiency in the receptive vocabulary of Dutch (Dunn & Dunn, 1981). The test consists of 204 items of increasing complexity. The child is presented with four images on a screen, and has to choose the image that best represents the meaning of the word named by the experimenter. Each test consists of sets of twelve words.

Raw scores are calculated and then converted to a standard score, based on age and grade. The mean score of the test is 100, with a standard deviation of 15 (Dunn, Dunn & Schlichting, 2005). Scores from 85 to 115 are thus considered average (1 SD). Anything within 70-85 or 115-130 is respectively considered moderately low or high (2 SD). Scores below 70 or above 130 are considered extremely low or high. The mean PPVT score of our group of participants was 108.09 (SD = 11.00, range = 79-134).

Procedure

The PPVT was administered by an experimenter, in a quiet room if available. The experimenter presented four images on a computer screen, and read a stimulus word out loud. The child was then asked to indicate which of the four pictures corresponds to the word. Based on the age of the child, a starting set was chosen that corresponded to the level of knowledge that a child should have at that age. The number of incorrect responses in the first set determined whether the task was continued, or whether an easier set was started. When 75% or more of the responses are incorrect, the task was halted.

Data was collected at 8 different primary schools. All parents gave consent and were provided with information about the research, as well as the procedure that would be followed. Children were tested both in standard Dutch and in the dialect in the same session, by a native speaker of both languages. As the current research was part of a larger research, each child completed five tasks, one of which was the PPVT. All tasks were always conducted in the same order. Part of these test sessions were recorded.

Parents completed a questionnaire about the language behavior of the child: Questionnaire for parents of Bilingual Children (henceforth PABiQ, COST Action IS0804, 2011). This questionnaire is based on the ALEQ (Paradis, 2011) and the ALDeQ (Paradis, Emmerzael & Sorenson Duncan, 2010). Most of these were answered by telephone (n = 102), the rest was filled out in person (n = 71).

Variables

SES

SES is measured by using the PaBiQ. Just as in comparable research by Blom, Küntay, Messer, Verhagen, & Leseman (2014) SES is measured based on paternal and maternal education. Through a nine point Likert scale, parents are asked to indicate what type of education they had. A score of 1 means no education, whereas a score of 9 means a university degree (see appendix for a complete list). These scores are added up, and averaged.

Input Quantity

Quantity of input was also measured by using the PaBiQ. For the quantity of input it was chosen to specifically look at the input a child receives at home, as the home remains the most important place of input for children. Quantity of input at home was measured by the number of speakers of Dutch or Limburgian around the child in the home, e.g. mother, father, babysitter, grandparents, and siblings. Parents are asked to report which language is used at home by these speakers, and in what frequency, ranging from 0 'never' to 4 'always'. Responses are added up and divided by the maximum score for the number of speakers, which gives a value between 0 and 1. The higher this value, the more input in Dutch or Limburgian the child receives at home. A value of 0 means that the child receives no input at all in that language in the home. Two variables were included, input home Dutch and input home Limburgs, which will be called INPUTHOMED and INPUTHOMEL respectively.

Input Quality

For the quality of input two separate measures were used. Both were measured using the PaBiQ. For the first measure of quality input, the level of fluency of the parents in the Dutch language was looked at. Parents were asked to report their level of Dutch on a scale of 0 'a few words' to 5 'native'. These values were used as two separate variables, mother's and father's level were reported separately (these variables are called MOTFLU and FATFLU).

For the second measure of quality of input it was chosen to look at linguistic richness in Dutch and Limburgian (respectively RICHD and RICHL). This variable is made up of the frequency of language activities that a child participates in every week (reading, watching TV, and telling stories), the language he or she speaks with friends, and the language he or she speaks with family (and family friends). Responses to these questions are added up, and divided by the maximum score. This gives a value between 0 and 1. The higher this value, the richer the language input from the speaker a child receives input from.

Older siblings

The presence of older siblings was reported by the parents through the PaBiQ (OLDSIB). The number of older siblings was not taken into account.

Age

Even though the PPVT-NL is already corrected for age, age was also taken as a variable in our model (AGE). For a subset analysis, age of exposure (AOE) was drawn from the PaBiQ and length of exposure (LOE) was calculated by subtracting the age of exposure from the age. The AOE and LOE indicate times at which the child started being exposed to Dutch more than before, there was no child that received no Dutch exposure at all before these ages.

Table 2: Predictor variables used for statistical analyses: means, standard deviation and range.

Factor	Mean	SD	Range
AGE (months)	79.08	11.91	50-112
AOE (months)	49.80	17.12	12-90
LOE (months)	29.80	16.04	3-88
INPUTHOMED	.47	.39	0-1
INPUTHOMEL	.51	.34	0-1
RICHD	.67	.20	0-1
RICHL	.32	.20	0-1
OLDERSIB	.49	.5	0-1
SES	6.79	1.49	1-9
MOTFLU	4.42	.61	3-5
FATFLU	4.57	.57	2-5

Analysis

Regression analysis with all participants

Data were analyzed using linear regression. The predictor variables are those that were described in the previous section. One model was run to investigate how these accounted for variation in the outcome variable vocabulary (PPVT-NL). Before the models were run, correlations between variables were calculated, to see whether there were any moderately to strong correlations (r between .5-1.0). There were a few, expected, high correlations (Table 3).

Table 3: Overview of factors showing high correlations (r between .5-1.0).

	INPUTHOMED	INPUTHOMEL	RICHD	RICHL
INPUTHOMED	1			
INPUTHOMEL	-.91**	1		
RICHD	.56**	-.61**	1	
RICHL	-.76**	.79**	-.72**	1

** p<.01

High negative correlations exist between variables that essentially measure the same factors, but in the other language. Input in one language limits input in the other language,

which is why negative correlations exist between INPUTHOME and RICH in Dutch versus Limburgian. High positive correlations exist between INPUTHOME and RICH. INPUTHOME lists the quantity of Dutch used by members of the household, whereas RICH is a compound variable of the times per week a child reads, watches movies, and tells stories, plus how much Dutch or Limburgian it speaks with friends and family. This correlation was thus to be expected, language at home probably influences the language spoken with friends and family, and the other activities in that language. Both variables were left in the analysis.

For the first analysis, all the factors were entered in the regression model. The model was significant ($F(9,133) = 5.391$, $p = .00$), and yielded an R^2 of .22. Factors that had significant coefficients were AGE and SES ($p<.05$). Some factors showed a trend ($p=.05$-$.15$): OLDERSIB, INPUTHOMED, MOTFLU, and others were not significant ($p>.2$): FATFLU, RICHD, RICHL, INPUTHOMEL. After this, stepwise regression procedures were used to find the best fitting model, by first taking out the non-significant factors. By taking out FATFLU and RICHD, the factor OLDSIB did not show a trend towards significance anymore. An interaction between OLDSIB and RICHD was therefore added to the model, which was significant ($p<.05$). The factor MOTFLU was also not significant anymore in this model, neither was SES. A possible interaction between these variables was checked, and found to be significant. This led to the best fitted model ($F(4,152) = 11.11$, $p = .00$), which yielded 21% of the variance. This model included the factors AGE, INPUTHOMED, and interactions between SES and MOTFLU, and OLDSIB and RICH. The results of this model can be found in Table 4.

Table 4: Regression model results for the entire set of participants. Listed are the factors that had the most influence on vocabulary in bidialectal children with their significance. The higher the beta coefficient, the higher the influence of the factor.

Factor	**Unstandardized coefficients**		**Standardized coefficients**		
	B	**St. Error**	**Beta**	**t**	**Sig.**
Constant	127.88	6.91		18.50	.00**
AGE	-.32	.071	-.33	-4.51	.00**
INPUTHOME	-7.20	2.48	-.21	-2.90	.004**
OLDSIB*RICH	4.18	2.31	.13	1.81	.072
SES*MOTFLU	.18	.10	.20	2.75	.007**

$R= .230$, $R^2= .226$, Adjusted $R^2 = .206$, $F(4,152) = 11.11$, $p = .00$
*p<.05
**p<.01

Further exploration of late exposure

To further explore the individual differences between participants, a second analysis with a subgroup of participants of the complete group. These participants were children whose exposure to Dutch increased significantly at least 12 months after birth. This led to the inclusion of the variables AOE and LOE, which were not relevant in the previous

analysis. AGE was not included in this analysis, as the focus should be on the effects of AOE and LOE. Again, in the first analysis all factors were entered in the regression model. This model was significant ($F(10,55) = 2.852$, $p<.01$), and accounted for .22 of the variance. By deleting the non-significant factors (FATFLU, OLDERSIB, RICHD, RICHL, INPUTHOMEL) from the original model, the fit became much better ($F(6,66) = 7.818$, $p < .01$), explaining .32 of the variance. The interactions found in the first model, were not of significance in this model. The results of the second model can be found in Table 5.

Table 5: Regression model results for the subset of participants with a later exposure to Dutch. Listed are the factors that had the most influence on vocabulary in bidialectal children with their significance. The higher the beta coefficient, the higher the influence of the factor.

Factor	**Unstandardized coefficients**		**Standardized coefficients**		
	B	**St. Error**	**Beta**	**t**	**Sig.**
Constant	100.16	13.35		7.50	.00**
SES	1.94	.66	.29	2.94	.004**
MOTFLU	4.38	1.97	.22	2.22	.030*
INPUTHOME	-11.22	3.83	-.30	-2.93	.005**
AOE	-.26	.10	-.40	-2.53	.014*
LOE	-.28	.11	-.41	-2.70	.009**

$R= .601$, $R_2= .372$, Adjusted $R^2 = .3244$, $F(5,66) = 7.818$, $p = .00$
*p<.05
** p<.01

Discussion

The goal of het present study was to investigate the influences of various factors on vocabulary scores in bidialectal children. These factors are known to influence vocabulary scores in bilingual children, but the way they influence vocabulary scores in bidialectal children is unknown. The study looked bidialectal children in the Netherlands who speak the Limburgian dialect. These children all differ in their bilingual experience, but are equal in their bilingual status: all are able to understand the dialect.

Group Analysis

First of all, the findings by Cornips (2014) and Driessen (2006) can be confirmed: bidialectal children in this research score significantly higher on a vocabulary task than other bilinguals. The mean score of the children that participated in the current research ($M = 108.09$) was significantly higher than the average ($M = 100$); $t(194) = 10.27$, $p<.001$. This can most likely be explained by the high number of cognates[4] that Limburg shares with Dutch. On the PPVT-NL children hear Dutch words and have to point to the corresponding picture. When a child hears a word in Dutch, that is similar to a word in Limburgian that he or she knows, he will most likely point to that word instead of making

[4] A cognate is a word that has the same meaning, spelling and pronunciation.

a random guess about the meaning of the word. This also confirms that bidialectal vocabulary acquisition is different from traditional bilingual vocabulary acquisition. Young bilinguals have relatively small vocabularies in both of their languages (compared to the monolingual), but taken together they have a large vocabulary. As there are many cognates in Dutch and the Limburgian dialect, bidialectal children will not have as large of a vocabulary as bilinguals if the vocabularies of the two languages/dialects are taken together.

Looking at the regression analysis, vocabulary scores of the total group are relatively strongly predicted by the factors that were measured in the current research. The strongest predictor found in group analysis model was AGE. The chronological age of the child is of negative influence on the PPVT-NL scores, meaning that the older the child is, the lower their scores on the task are. At first glance this might seem like a strange result, as most other research has found a positive effect of age on vocabulary scores (Paradis, 2011; Chondrogianni & Marinis, 2011). There are however a few explanations for this finding. First, the latest version of the PPVT-NL was designed in 2005. It was assessed by COTAN[5] in 2004. COTAN assesses these types of tests every 15 years, the PPVT-NL's renewed assessment should thus be coming up in 3 years. It could be that the validity and reliability of the test is already decreasing. Furthermore, in diagnostics (such as clinicians, speech therapists etcetera) the words that are used in the PPVT-NL are considered to be outdated. To give an example, the Dutch word for marrying, which most children will call *trouwen*, is called *huwen* in the PPVT. This is a word that is rarely used in speech towards children, and will therefore be unfamiliar to them. Next, the degree of difficulty rises quickly on the PPVT. Words that a child encounters in the first set are considerably easier than words in the higher sets. This is logical, however the rate at which the difficulty rises, is questionable. Additionally, the ratio of nouns versus verbs in the PPVT-NL is also disputable. The first sets have a much higher number of nouns, which are, especially if they are novel, easier to identify than verbs (Imai, Li, Haryu, Okada, Hirsh-Pasek, Golinkoff, & Shigematsu, 2008), Lastly, older children take longer to complete the test than younger children, which might lead them to making more mistakes in the later sets. As scores are corrected for age, this could have a negative influence on their final score. All of these factors could explain why older children perform less well on the PPVT-NL than younger children. In future research it is important to either use a different receptive vocabulary task, or to update the current PPVT-NL to a version that is less outdated and deals with the just-mentioned flaws.

Our second strongest predictor of PPVT-NL scores is the input at home in Dutch. In the literature a positive influence of this variable is found; more input at home in a certain language leads to higher vocabulary scores in that language (Paradis, 2011; Jia & Aaronson, 2003). In the current research however, negative influence of INPUTHOMED was found: the more Dutch input a child receives at home (from parents, siblings and babysitter), the lower their score is on the PPVT-NL. This is a result that has not been

[5] COTAN Commisie Testaangelegenheden Nederland (COTAN) assesses psycho-diagnostic instruments that are released in the Netherlands and provided to COTAN for review.

found before, and it might be due to the specific situation that these bidialectal children are in. In the Netherlands, the standard Dutch language plays a central role in the classroom. When children enter school around the age of four, they are discouraged to speak any other language that is not the language of instruction. Teachers believe that disallowing the children to speak their dialect in the classroom will have positive effects on the written and spoken skills in Dutch of their pupils (Van Avermaet, 2010; Cummins, 1980; Grosjean, 1985). Children that are raised in a predominantly Dutch environment, are not exposed to these types of comments from their teachers, and thus feel more confident in their Dutch. Children that are raised in a predominantly Limburg environment, are exposed to these comments, and might therefore feel they have to put in extra effort when tested on their Dutch vocabulary. Children that hear little dialect at home are less conscious of having to speak Dutch well, whereas the child that hears a lot of dialect is conscious of having to improve their Dutch. In a test setting like in the current research, the latter type of children consciously put effort in the task, which leads to them having higher scores than children that receive a lot of Dutch input at home.

The last two significant predictors in this model were an interaction between SES and MOTFLU, and an interaction between OLDERSIB and RICHD. Both of these interactions are not surprising. High SES and high fluency both have a positive effect on PPVT-NL scores. As the mother is more fluent in Dutch, she might provide more input that is of higher quality than input provided by mothers with a low SES and therefore a related low fluency in Dutch. The positive influence of the interaction between RICH and OLDERSIB can also be explained. When a child has older siblings, he or she is most likely to be engaged in more language activities like watching TV, reading a book, and/or telling stories. These are all important in the development of vocabulary. Thus, this interaction also has a positive effect on PPVT-NL scores.

No effect of Limburgian input at home was found, or any influence of Limburgian on the vocabulary scores of these children. As was just explained, in educational settings it is sometimes assumed that speaking the dialect will have negative effects on the acquisition of Dutch vocabulary (Kroon & Vallen, 2004; Yao, Ohinata, & Van Ours, 2015). These results show that Limburgian input does not influence vocabulary scores, in fact being able to understand the dialect might even have positive effects as the scores of bidialectals are higher than those of monolingual Dutch children.

Subset Analysis

In the subset of children with a later age of exposure to Dutch, and therefore shorter length of exposure, it was found more of the variation could be predicted than when taking the group as a whole (R^2 change = .12). The predictors are however roughly the same.

Both LOE and AOE are significant predictors, and both of them are equally strong predictors. AOE negatively predicts PPVT-NL scores, meaning that a higher age of exposure leads to lower vocabulary scores. The children that were thus the latest to be exposed to Dutch have the lowest PPVT-NL scores, which makes sense. These are the children that have had the least amount of exposure to Dutch in their lives. In the current

research, quantity of input in Dutch is not directly related to age of exposure; input quantity is measured in the present day and not during the upbringing of the child. There was no correlation between age of exposure and input quantity, which explains why these children score the lowest on the PPVT-NL.

Surprisingly, the same negative effect of LOE is found, length of exposure. The longer the length of exposure, the lower the vocabulary scores. This result can most likely be explained following a similar argumentation as the one above for the effect of home input in Dutch in the group analysis. The longer a child's length of exposure to Dutch, the more comfortable a child will be speaking Dutch at school, the less teachers will comment on their use of language in school. When length of exposure increases, awareness about one's level of Dutch decreases. A child that has been exposed to Dutch from 12 months onwards will feel less conscious about having to improve their Dutch, than a child whose exposure to Dutch started at 36 months. These latter children also have a higher age of exposure, and are more conscious of having to perform in Dutch, thus scoring higher than children with a low age of exposure and long length of exposure.

Different from the previous analysis, is that both SES and MOTFLU are significant predictors, without an interaction between the two being of influence. This is in line with other literature (Hoff & Naigles, 2002; Hoff, 2003; Paradis, 2009). SES positively predicts vocabulary scores as children in high SES environments are exposed to more input of quality, and often more input on the whole. MOTFLU also significantly predicts PPVT-NL scores, as higher fluency leads to higher vocabulary scores. Mothers whose native language is Dutch probably use a more diverse and richer vocabulary (Hoff, Welsh, Place & Ribot, 2014); creating higher quality input that provides more support for language development.

INPUTHOMED shows the same results as in the previous analysis, but the effect is even slightly stronger in the subset analysis. The same explanation can be given for the finding here: children with more exposure to Dutch are less conscious of their level of Dutch, and therefore score lower than children with less exposure to Dutch.

Unlike in the previous analysis, there is no effect of RICHD, OLDERSIB or an interaction between the two. The quality of input only seems to be important in terms of mother fluency. The presence of older siblings does not make a difference in this group of children, most likely because older children do not provide more Dutch input in these families. These children are also less likely to speak Dutch with their friends and family, a measure that was included in the richness of Dutch. This therefore does not have an effect on vocabulary.

Conclusion

The main question of the present research was how do the factors quantity and quality of input, socioeconomic status, presence of older siblings, age of acquisition and length of onset predict variation in the Dutch vocabulary rates of bidialectal speakers? A positive relationship was found between some of these variables and vocabulary: quality of input, socioeconomic status, presence of older siblings all positively influence vocabulary; as these variables increase or improve vocabulary does as well. The other factors quantity

of input, age of acquisition and length of onset all negatively influence vocabulary, as these factors increase the vocabulary scores decrease.

These results are mainly inconsistent with other research that has looked at influences of various factors on vocabulary and that have been reported in this article. Though SES, mother fluency, and the presence of older siblings positively influence vocabulary as in other studies, both age and input at home show the opposite results: they are both of negative influence on vocabulary scores in bidialectal children. These conflicting findings are most likely due to the difference in language acquisition between bilinguals and bidialectals. They show fundamental differences between the two groups; revealing that the sociolinguistic situation is of vast influence on children's vocabulary. Most likely, the relation between Dutch and Limburgian, and the manner in which Limburgian is handled in school situations are of large influence on vocabulary scores in young bidialectals. For future research, it would be interesting to look at heritage speakers and investigate the influence of these factors on their vocabulary. As they probably experience a similar situation in school, i.e. being discouraged to speak the heritage language, with an emphasis on correctly speaking the majority language, the influence of these factors might be the same or similar for heritage speakers and bidialectal speakers. The knowledge acquired in this paper can be used to advice teachers and parents in their language use in school and at home. Especially in Limburg, it can be used to show that Limburgian does not have the negative effect on Dutch writing and speaking skills as it is often thought to have.

References

Auer, P. (2005). Europe's sociolinguistic unity, or: A typology of European dialect/standard constellations. *Perspectives on Variation: Sociolinguistic, Historical, Comparative. Berlin/New York, de Gruyter*, 7-42.

Auer, P. (2010). *Language and Space: An International Handbook of Linguistic Variation. Theories and Methods* (Vol. 1). Walter de Gruyter.

Beardsmore, H. B. (1986). *Bilingualism: basic principles* (Vol. 1). Multilingual Matters.

Blom, E., Küntay, A. C., Messer, M., Verhagen, J., & Leseman, P. (2014). The benefits of being bilingual: Working memory in bilingual Turkish–Dutch children. *Journal of experimental child psychology*, *128*, 105-119.

Bohman, T., Bedore, L., Peña, Mendez-Perez, A., & Gillam, R. (2010). What you hear and what you say: Language performance in Spanish-English bilinguals. *International Journal of Bilingual Education and Bilingualism*, *13*, 325–344.

Bridges, K., & Hoff, E. (2014). Older sibling influences on the language environment and language development of toddlers in bilingual homes. *Applied psycholinguistics*, *35*(02), 225-241.

Calvo, A., & Bialystok, E. (2014). Independent effects of bilingualism and socioeconomic status on language ability and executive functioning. *Cognition*, *130*(3), 278-288.

Cartmill, E. A., Armstrong, 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*, *110*(28), 11278-11283.

Chondrogianni, V., & Marinis, T. (2011). Differential effects of internal and external factors on the development of vocabulary, tense morphology and morphosyntax in successive bilingual children. *Linguistic Approaches to Bilingualism*, *1*(3), 318-345.

Cornips, L. M. (2014). Socio-syntax and variation in acquisition: Problematizing monolingual and bidialectal acquisition. *Linguistic Variation*, *14*(1), 1-25.

Cornips, L. M. E. A., & Hulk, A. (2006). External and internal factors in bilingual and bidialectal language development: Grammatical gender of the Dutch definite determiner. *L2 Acquisition and Creole Genesis. Dialogues*.

COST Action IS0804 .2011. Questionnaire for Parents of Bilingual Children (PaBiQ). http://www.bi-sli.org.

Cummins, J. (2000). *Language, power and pedagogy: Bilingual children in the crossfire.* Clevodon: Multilingual Matters.

Demir-Vegter, S., Aarts, R., & Kurvers, J. (2014). Lexical richness in maternal input and vocabulary development of Turkish preschoolers in the Netherlands. *Journal of psycholinguistic research*, *43*(2), 149-165.

Dörnyei, Z., & Skehan, P. (2003). Individual differences in second language learning. In C.

Driessen, G. 2006. Ontwikkelingen in het gebruik van streektalen en dialecten in de periode 1995–2003. *Toegepaste Taalwetenschap in Artikelen* 75. 103–113. DOI: 10.1075/ ttwia.75.10dri

Dunn, Lloyd M., Leota M. Dunn & Liesbeth Schlichting. 2005. *Peabody picture vocabulary test- III-NL.* Amsterdam, e Netherlands: Pearson.

Gass, S. M. (2013). *Input, interaction, and the second language learner*. Routledge.

Gathercole, V.M., & Môn Thomas, E. (2009). Bilingual first-language development: Dominant language takeover, threatened minority language take-up. *Bilingualism: Language and Cognition, 12*, 213–238.

Genesee, F. (2010). Dual language development in preschool children. *Young English language learners: Current research and emerging directions for practice and policy*, 59-79.

Golberg, H., Paradis, J., & Crago, M. (2008). Lexical acquisition over time in minority first language children learning English as a second language. *Applied Psycholinguistics*, *29*(01), 41-65.

Hammer, C. S., Davison, M. D., Lawrence, F. R., & Miccio, A. W. (2009). The effect of maternal language on bilingual children's vocabulary and emergent literacy development during Head Start and kindergarten. *Scientific Studies of Reading*, *13*(2), 99-121.

Hart, B. & Risley, T. (1995). *Meaningful differences in the everyday experiences of young American children*. Baltimore, MD: Paul Brookes.

Hinskens, F., & Taeldeman, J. (2013). *Dutch*. Berlin: De Gruyter Mouton.

Hoff, E. (2003). Causes and consequences of SES-related differences in parent-to-child speech. In M. Bornstein & R. Bradley (Eds.), *Socioeconomic status, parenting, and child development* (pp. 147–160). Mahwah, NJ: Lawrence Erlbaum.

Hoff, E. (2006). How social contexts support and shape language development. *Developmental Review*, *26*, 55–88.

Hoff, E., Laursen, B., & Tardif, T. (2002). Socioeconomic status and parenting. *Handbook of parenting Volume 2: Biology and ecology of parenting*, *8*(2), 231-52.

Hoff, E., & Naigles, L. (2002). How children use input to acquire a lexicon. *Child development*, *73*(2), 418-433.

Hoff, E., Welsh, S., Place, S., & Ribot, K. (2014). Properties of dual language input that shape bilingual development and properties of environments that shape dual language input. *Input and experience in bilingual development*, *13*, 119.

Imai, M., Li, L., Haryu, E., Okada, H., Hirsh-Pasek, K., Golinkoff, R. M., & Shigematsu, J. (2008). Novel noun and verb learning in Chinese-, English-, and Japanese-speaking children. *Child development*, *79*(4), 979-1000.

Jia, G., & Aaronson, D. (2003). A longitudinal study of Chinese children and adolescents learning English in the United States. *Applied Psycholinguistics*, *24*, 131–161.

Kraaykamp, G. (2005). Dialect en sociale ongelijkheid. Een empirische studie naar de sociaal-economische gevolgen van het spreken van dialect in de jeugd. *Pedagogische Studiën*, *82*(390-403), 6.

Kroon, S., & Vallen, T. (2004). Dialect en school in Limburg.

Naigles, L. R., & Hoff-Ginsberg, E. (1998). Why are some verbs learned before other verbs? Effects of input frequency and structure on children's early verb use. *Journal of Child Language*, *25*(01), 95-120.

Montrul, S. A. (2012). Is the heritage language like a second language?. *Eurosla Yearbook*, *12*(1), 1-29.

Moseley, Christopher (ed.). 2010. Atlas of the World's Languages in Danger, 3rd edn. Paris, UNESCO Publishing. Online version: **http://www.unesco.org/culture/en/endangeredlanguages/atlas**

Oller, D.K., & Eilers, R.E. (2002). *Language and literacy in bilingual children.* Clevedon, UK: Multilingual Matters.

Pan, B. A., Rowe, M. L., Singer, J. D., & Snow, C. E. (2005). Maternal correlates of growth in toddler vocabulary production in low-income families. *Child development*, *76*(4), 763-782.

Paradis, J. (2009). *Oral language development in French and English and the role of home input factors*. Report for the *Conseil scolaire centre-nord*, Edmonton, Alberta.

Paradis, J. (2010). Bilingual children's acquisition of English verb morphology: Effects of language dominance, structure difficulty, and task type. *Language Learning, 60*, 651–680.

Paradis, J. (2011). The impact of input factors on bilingual development: Quantity versus quality. *Linguistic Approaches to Bilingualism*, *1*(1), 67-70.

Paradis, J., Emmerzael, K., & Duncan, T. S. (2010). Assessment of English language learners: Using parent report on first language development. *Journal of Communication Disorders*, *43*(6), 474-497.

Paradis, J., Nicoladis, E., Crago, M., & Genesee, F. (2011). Bilingual children's acquisition of the past tense: A usage-based approach. *Journal of Child Language*, *38*(03), 554-578.

Patterson, J. (2002). Relationships of expressive vocabulary to frequency of reading and television experience among bilingual toddlers. *Applied Psycholinguistics, 23*, 493–508.

Pearson, B. (2007). Social factors in childhood bilingualism in the United States. *Applied Psycholinguistics, 28*, 399–410.

Pearson, B. Z., Fernández, S. C., Lewedeg, V., & Oller, D. K. (1997). The relation of input factors to lexical learning by bilingual infants. *Applied Psycholinguistics, 18*, 41-58.

Pearson, B. Z., Fernandez, S. C., & Oller, D. K. (1993). Lexical development in bilingual infants and toddlers: Comparison to monolingual norms. *Language learning*, *43*(1), 93-120.

Place, S., & Hoff, E. (2011). Properties of dual language exposure that influence 2-year-olds' bilingual proficiency. *Child development*, *82*(6), 1834-1849.

Pollock, K., Price, J., & Fulmer, K. (2003). Speech–language acquisition in children adopted from China: A longitudinal investigation of two children. *Journal of Multilingual Communication Disorders*, *1*(3), 184-193.

Qi, C. H., Kaiser, A. P., Milan, S., & Hancock, T. (2006). Language performance of low-income African American and European American preschool children on the PPVT–III. *Language, Speech, and Hearing Services in Schools*, *37*(1), 5-16.

Ramaut, G. (1995). Zeg niet *penalty* maar *strafschop*! Moedertaalonderwijs in een meertalige klas. Artikelen van de Tweede Sociolinguïstische Conferentie.

Ramírez, N. F., Lieberman, A. M., & Mayberry, R. I. (2013). The initial stages of first-language acquisition begun in adolescence: when late looks early. *Journal of child language*, *40*(02), 391-414.

Roberts, J. A., Pollock, K. E., Krakow, R., Price, J., Fulmer, K. C., & Wang, P. P. (2005). Language development in preschool-age children adopted from China. *Journal of Speech, Language, and Hearing Research*, *48*(1), 93-107.

Scheele, A., Leseman, P., & Mayo, A. (2010). e home language environment of monolingual and bilingual children and their language proficiency. *Applied Psycholinguistics*, *31*, 117- 140.

Swanenberg, A. P. C., Vanhooren, S., & Mottart, A. (2010). Dialect in het onderwijs? Dat kan platter! In *Vierentwintigste conferentie Het Schoolvak Nederlands*. Academia Press. 151-154.

Thordardottir, E. (2011). The relationship between bilingual exposure and vocabulary development. *International Journal of Bilingualism*, *15*(4), 426-445.

Valdés, G. (2005). Bilingualism, heritage language learners, and SLA research: Opportunities lost or seized? *The Modern Language Journal*, *89*(3), 410-426.

Unsworth, S. & Hulk, A. (2010) L1 acquisition of neuter gender in Dutch: Production and judgement. *Proceedings of Generative Approaches to Language Acquisition 2009*. Cambridge: Cambridge Scholars Publishing.

Unsworth, S. (2016). Early child L2 acquisition: Age or input effects? Neither, or both? *Journal of child language*, 1-27.

Unsworth to appear in Nicoladis, E. & Montanari, S. (Eds.) (forthcoming). *Lifespan perspectives on bilingualism*. (pp. 136-196). Mouton de Gruyter/APA.

Unsworth, S., Hulk, A., & Marinis, T. (2011). Internal and external factors in child second language acquisition: introduction. *Linguistic Approaches to Bilingualism*, *1*(3), 207-212.

Ohinata, A., van Ours, J. C., & Yao, Y. (2016). *The Educational Consequences of Language Proficiency for Young Children* (No. 11183). CEPR Discussion Papers.

Appendix 1 SES

1. No education (primary school, not finished)

2. Primary education (e.g. primary school, special education)

3. Pre-vocational education (vmbo, vbo, lbo, lts, leao, lhno)

4. General secondary education (mavo, vmbo-t, (m)ulo)

5. Secondary vocational education (mbo 2 to 3 years)

6. Secondary vocational education and training (mbo 4 years, mts, meao, bol, bbl)

7. Higher general education and pre-university education (havo, vwo, hbs, mms)

8. Higher professional education (hbo, hts, heao, hhno)

9. Academic education (university)