

The Lexicon of Bilingual Children in Israel

A Proposal for a Doctoral Thesis in Linguistics

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1. Introduction

The language of bilingual toddlers has long been a great source of interest in research (e.g., Hart and Risley, 1995; Junker & Stockman, 2002). Language performance of bilinguals is affected by several variables that are either directly or indirectly related to language. The former includes parameters such as age of onset, frequency of exposure to each language, and amount of exposure to each language, whereas the latter includes background variables which are the environment of the child such as parents' education and occupation, birth order, family size etc. (e.g., Armon-Lotem et al., 2011; Genesee et al., 2004; Paradis, 2010). All these parameters will be discussed in the following sections.

In this work, a multicultural questionnaire is designed and used by parents to report on their bilingual child's language, based on the MacArthur-Bates Communicative Inventory-Words and Sentences (MCDI-WS) (Fenson et al., 1991) and on its adaptation to Hebrew (Maital, Dromi, Sagi, & Bornstein, 2000). The multicultural version of the HCIDI was designed following parents' surveys in four different communities that showed which additional concepts parents deemed to be necessary in order to capture the knowledge of their children in the home language. It is not necessarily loan words but other concepts that are culturally adequate. The outcome will be a multicultural rather than a multilingual version, as parents will fill it in Hebrew. In addition, there will be an investigation of the effect of numerous background variables as well as language exposure patterns on vocabulary development of young children ages 24-48 months. A full description of the tool is presented in subsection 4.2.

2. Literature review

2.1 The Bilingual Lexicon

The bilingual lexicon has long been investigated in literature (e.g., Hart and Risley, 1995; Junker & Stockman, 2002). Since the bilingual lexicon consists of words in two languages, the number of words in one language might be smaller in comparison to the vocabulary of monolingual peers (e.g., Hoff, 2012; Keith & Nicoladis, 2012). Yet, there is often an overlap in concepts in the two languages of bilinguals (Core, Hoff, Rumiche & Señor, 2013). While the total vocabulary might have more words than monolinguals have, the conceptual vocabulary, which includes concepts from both languages, is usually similar to the vocabulary of monolinguals (Armon-Lotem & Ohana, 2016).

Since not only one, but two lexicons, have to be acquired, there are various parameters which take part in the process of vocabulary acquisition. First and foremost, the amount of exposure which is received in each language greatly influence vocabulary size in both languages (e.g., Armon-Lotem, Walters & Gagarina, 2011; Chondrogianni & Marinis, 2011). Many bilinguals are exposed to one of their languages more than the other, depending on their environment (Genesee et al., 2004; Paradis, 2010). Bilinguals who receive major exposure to one of their languages can reach vocabulary level similar to that of monolingual speakers of that language (Junker & Stockman, 2002).

Language status has a major influence over vocabulary size; for example, English being a lingua franca and Hebrew being the official language in Israel are both considered to have high prestige and therefore are expected to support balanced bilingualism. Language status is also influenced by the education system. Apart from the extensive language exposure children receive in school, both parents and children are highly motivated to be proficient in the language used by the education system in order to succeed academically. Therefore, bilinguals mastering a language which is used in the education system, show high language skills comparable to that of monolingual speakers of that language (Junker & Stockman, 2002).

2.2 Demographic Variables and Vocabulary

The effect of socioeconomic status (hence SES) over language development and vocabulary growth has been discussed in depth in the literature (e.g., Armon-Lotem, Walters & Gagarina, 2011; Dollaghan et al., 2016). Previous research suggests that SES can be defined by parental education (e.g., Eriksson, 2016). Most studies found strong links between SES and vocabulary levels. This is explained by the differences in the quality and quantity of child-directed speech of children from low and high SES because of the strong influence of parents over children's language (Hoff, 2003, 2006; Hart and Risley, 1995). Children from high SES receive more adult input in general and the quantity as well as the quality of interaction with their parents is better since parents are more sensitive and adjusted to their children's needs (e.g., Arriaga, Fenson, Cronan & Pethick, 1998; Fernald, Marchman & Weisleder, 2013). Moreover, there is variance in the amount of leisure time parents from different SES spend with their children, in addition to the stress and anxiety involved in different people's life, all which affect the amount and quality of interaction (Hoff et al., 2002). Only a few studies found small to no correlations between SES and vocabulary levels (e.g., Bates et al., 1994; Maital et al., 2000), but this was due to the homogeneity of populations under investigation (Eriksson, 2016; Hoff, 2003).

2.3 Developmental Variables and Vocabulary

Little is known about the impact of developmental variables such as birth order, family history of language delay as well as parental concern for language impairment (O'Tool et al., 2016) and there is a need for more research in that area. However, from the existing research in that field, there are some interesting findings.

Previous research suggests that parental concern and family history of language difficulties could indicate lower levels of vocabulary as well as language delay. In a study that was conducted with Maltese-English speaking bilinguals, high incidence of family

history of speech and language difficulties was an indicator of lower vocabulary levels (O'Tool et al., 2016). In another study that was conducted by Armon-Lotem and Ohana (2016), parental concern combined together with lower levels of vocabulary in both production and comprehension domains, raised a possibility for language delay, which later on was found to be the case.

2.4 Validation and Advantages of the CDI

Previous research tested the reliability and validity of parent reports by comparing them with direct measure of children's vocabulary. It has been found that parent reports are valid in assessing language skills of children (e.g., Camaioni & Longobardi, 1995; Dale, 1991; Hansen et al., 2017). These researchers found correlations between parent reports and direct measures of children's vocabulary. Additionally, using parent reports shows that parents are able to distinguish production from comprehension, a finding which enhances the precision and internal validity of the CDI (Armon-Lotem & Ohana, 2016).

Moreover, parent reports have several advantages over laboratory testing of children's vocabulary levels. First, parent reports give a broader and more representative assessment of children's vocabulary than a time-limited laboratory assessment could give since parents observe their children in a variety of situations and contexts (Fenson et al., 2000a; Miller, Sedey & Miolo, 1995). Second, parent reports are more accurate since children's performance is not affected by an external observer which often makes them feel intimidated and shy when being tested in a lab (e.g., Eriksson, 2016; Heilmann et al., 2005). Besides, since CDI offers a checklist, all parents are presented with the same vocabulary list, a fact which reduces differences in reporting styles and strengthens the validity of these reports (e.g., Dale, 1991; Fenson et al., 1994). Third, parental questionnaires allow researchers and clinicians to learn about languages which they do not necessarily know (Junker & Stockman, 2002). In addition to that, parent reports allow

clinicians to have access to much larger samples relatively easily and in low costs, than individual testing can do (e.g., Dale, 1991; Dale, Bates, Reznick & Morisset, 1989). Finally, despite being an indirect measure of language skills, parent reports have been found to be a valid tool in assessing the language of both monolinguals and bilinguals by a massive amount of research (e.g., Armon-Lotem & Ohana, 2016; Heilmann et al., 2005).

One of the disadvantages of the CDI is that the checklist is very long and that parents' literacy can be an obstacle in completing this form. In those cases, a personal interview might be needed with the parents, which is both time consuming and requires greater arrangements than merely fulfilling a questionnaire by parents (Feldman et al., 2000; Fenson et al., 1994, 2000a). Additionally, it might be a problem for parents to report on their children abilities in the societal language. Very often, most of their communication with parents is done in the home language, and the parents might not even have sufficient knowledge in the society language to assess their children's vocabulary in that language (Meir, 2018).

3. Research Questions and Hypotheses

The proposed research aims to describe the vocabularies of bilingual children ages 2-4 years from different language communities, in order to examine the effect of both environmental and innate variables over vocabulary development, as well as to create language norms for bilingual children in Israel.

3.1 Research Questions

1. What is the composition of the vocabulary of bilingual children?
2. What is the impact of the prestige of the home language on children's vocabulary size?

What is the effect of the amount of exposure to the home language on children's

vocabulary level in the societal language as well as on children's conceptual vocabulary?

3. What variables affect the vocabulary of bilingual children? What is the effect of demographic variables (such as parental education) on vocabulary size of bilinguals? What is the effect of child's developmental variables (risk factors such as parental concern, family history etc.) on the vocabulary bilinguals? What is the effect of language exposure patterns over children's vocabulary size?
4. How reliable is the design of reporting two languages using multicultural questionnaire in one language, compared to using two monolingual questionnaires?

3.2 Hypotheses

1. The composition of bilinguals' vocabularies is expected to be in direct relation to exposure to each language. Children who are more exposed to one language, as reported by parents, are expected to be dominant in that language and have higher vocabulary in that language. In addition, books and TV time are expected to have a major influence over the vocabulary of children (e.g., Armon-Lotem & Ohana, 2016; Hoff & Tian, 2005).
2. The more prestigious a language is the higher vocabulary children would have in that language (Armon-Lotem & Ohana, 2016; Junker & Stockman, 2002). And thus, English speaking children are expected to have the highest vocabulary levels followed by French and Russian, with the least vocabulary levels expected in the Amharic population. English being a lingua franca has the highest prestige, (Armon-Lotem & Ohana, 2016), French and Russian have great supporting communities in Israel which encourage maintenance of their home language but speakers of these languages are also integrated into the societal language and culture (Armon-Lotem et al., 2014). Finally, Amharic has a relatively low status in Israel, and parents find it more important to enhance children's

Hebrew, the societal language, even at the expense of their Amharic (Stavans, Olshtain & Goldzweig, 2009).

3. Vocabulary size of children to parents with higher education levels is expected to be larger than the vocabulary of children to parents with lower education levels (e.g., Fernald, Marchman & Weisleder 2013; Hoff, 2003; Hoff & Tian, 2005).

Children to parents who are concerned about their language are more likely to have lower vocabulary in comparison to the rest of the children. Additionally, children who have family history of learning difficulties are expected to have lower vocabulary than those without reported family history (Armon-Lotem & Ohana, 2016; O'Tool et al., 2016).

4. The multicultural questionnaire is expected to show similar results to two monolingual questionnaires, as the multicultural questionnaire will be designed to include concepts from the different questionnaires which are culturally unique to the different languages.

4. Methods of Analysis

4.1 Participants

Data will be collected from at least 400 participants, using proportional stratified sampling technique to ensure appropriate representation of the different languages (speaking Hebrew in addition to English, Russian, French and Amharic) ages 24-48 months. Originally, the MB-CDI and the H-CDI were geared for monolinguals ages 24-36 months. However, since used with bilinguals in the present study, data will be collected from children ages 24-48 months to capture the possibility that one of the languages is acquired later (Hoff, Quinn & Giguere, 2018). The data will be collected from a large population but the analysis will be done in smaller age brackets. All children will be defined as either early sequential bilinguals (Armon-Lotem et al., 2011) as they are exposed to both languages before the

age of three or simultaneous bilinguals since they are exposed to both languages from birth as their parent chose the one parent one language policy. Any level of language exposure will be included so either children with home language dominant, society language dominant, or home-society languages balanced exposure pattern will participate in the study, as long as they have at least six months of exposure to Hebrew, the society language. This cutoff point of at least six months exposure to the society language is based on previous studies with bilinguals (e.g., O'Toole et al., 2016).

4.2 Materials and Methods

Vocabulary of children in both languages will be reported by parents using the Hebrew multicultural questionnaire that was developed specifically for this research. Background information such as parents' education and occupation, birth order, family size etc., will be obtained by a background questionnaire that parents fill out, once they completed the language questionnaire. The Hebrew multicultural questionnaire (<http://goo.gl/WPKLZz>) used in the present study was created by using the original "Hebrew Communicative Development Inventory" (hence, HCDI-WS) (Maital et al., 2000) and adding cultural words that children tend to use from English, French, Russian, and Amharic. This questionnaire is novel and different from other language tools used so far since parents fill out one multicultural questionnaire in Hebrew while in fact, they report on two languages; Hebrew and the home language (See Appendix I).

For each word on the questionnaire parents indicate whether their child uses this word in Hebrew and or in the home language. Therefore, using the HCDI-WS, which was originally created for monolinguals, as it is, could result in deficient reports of children's vocabulary since some cultural words, that children use specifically in the language used at home, are missing on that questionnaire. For this reason, culture-specific words that

children use in other languages (such as peanut butter) were added to the HCIDI-WS in order to create a questionnaire which will fully reflect bilingual children's vocabulary.

The process of adding cultural-specific words was conducted in several stages and based on several principles. First, English words that were reported to be in use by most of the parents of English-Hebrew bilinguals in the CDI study (Armon-Lotem & Ohana, 2016) were added to the multicultural questionnaire. Second, words from Russian and French that were missing in the Hebrew questionnaire were added in case they were culturally appropriate to Hebrew speaking children growing in Israel. Similarly, words that were not culturally appropriate were excluded from the checklist. Thus, for example, words like *snowman*, *snow* etc. that were in the English, Russian as well as in the French questionnaire were excluded from the Hebrew questionnaire since they are not culturally appropriate to Israel. In addition, all the words that are related to holidays were excluded from the questionnaire since none of them appeared in the HCIDI-WS, so none were added from other languages. For example, just like words as '*menora*' did not exist on the HCIDI-WS, the word '*ashuax*' (fir tree) which appeared on the Russian questionnaire was not added to the Hebrew multicultural questionnaire. And Finally, for Amharic, a few cultural words that children tend to know were suggested by Amharic speakers, and those were added to the questionnaire without any filtering.

4.3 Data Analysis

The data collected will be analyzed by looking at both comprehension and production. Total number of words will be counted for each grammatical category and each semantic category and calculated as a percentage of the total number within that category. This will give the total number of words in each language on its own and in both languages together as well as the percentage of each part of speech in each language separately and in both languages together. This will enable a comparison between the number of words in

each language as well as a comparison between the Hebrew of speakers of several home languages. In addition, total conceptual vocabulary which is constituted from the number of concepts from both languages together will be calculated for each language pair. This will enable a comparison of the total conceptual vocabulary acquired by the various speakers of the different languages.

The next stage would be an investigation of the effect of background variables obtained from the background questionnaire, such as parents' education and occupation and language exposure patterns, upon children's vocabulary. The effect of these variables will be assessed by comparing the background factors with child's vocabulary across the different languages.

And finally, a comparison between the vocabulary of a subset of English-speaking children in the current study and the vocabulary of English-speaking children using a monolingual questionnaire for each language as reported in previous research (Armon-Lotem & Ohana, 2017) will be conducted. This comparison is essential for the validation of the multicultural questionnaire used in the present study.

5. Pilot Results

Pilot data have been collected from 39 bilingual children, ages 24-60 months (Average ages 35.7, 45, and 39 months, for the English, Russian, and French speaking children, respectively). All children are simultaneous bilinguals or early sequential bilinguals who are exposed to Hebrew as the society language as well as to English (N=27), Russian (N=7), and French (N=4) at home. All children were born in Israel, and were all full term besides one child from the English-speaking group that was a twin and was born a little early. That child was the only one from the entire sample that was not combining

two words together by the time of filling up the questionnaire. Additionally, all children besides one from the English-speaking sample, did not have frequent ear infections.

The great majority of parents did not report parental concern regarding their child's development besides two parents from the English-speaking sample and one from the Russian speaking sample. The first child (age 26 months) from the English-speaking sample is the twin that was not combining two words together as was mentioned before, and the second one (age 29 months) is a child whose parents have marked the option that one of the siblings in the family has some

language difficulty or difficulty in reading/writing. The parents of the child (age 27 months) from the Russian speaking sample, point out that the child has started stuttering, in the section of parental concern. Children participating in the pilot come from a medium-high SES, determined based on parents' education and occupation as well as family income. Except for three fathers whose highest level of education is high school graduation, the rest of the children come from families where both parents have academic degree or at least a professional certification. In addition, all parents report that both parents have a job, besides five families where one of the parents is enrolled in academic studies. Furthermore, the great majority of parents report their income is either in the average or above average. Only five parents reported that their family income is below the average. The following analysis of the pilot data demonstrates some of the analyses that will be done for all future participants. However, since the age range is very broad and the number of participants for each language is varied, results will be presented descriptively. Further analyses will be done with a full sample.

Descriptive statistics for all 39 children are presented in table 1, Appendix II. Table 1 shows that across all three languages, parents report that children comprehend more words than they produce. This is consistent for both languages spoken by children, i.e., the

society language and the home language. This finding is in line with previous research, showing that parents can distinguish production from comprehension since they report higher vocabulary levels in comprehension than in production (Armon-Lotem & Ohana, 2016). In addition, for each one of the three languages, the numbers of words parent report their children produce in the society language and in the home language are relatively similar, with a slight advantage to the home language. This advantage could be due to better knowledge of parents regarding their child's vocabulary size of the home language in comparison to the society language.

A comparison of the number of words produced in Hebrew by children speaking the three different languages shows that the French speaking children have the highest vocabulary level in Hebrew, followed by the Russian speaking sample, and the English-speaking sample with the lowest vocabulary in Hebrew. The same pattern is revealed in regards to production in the home language. These findings are partially consistent with AoO of Hebrew for each language community, but need further investigation once a full data set is collected. Interestingly, when looking at the conceptual vocabulary, Russian speaking children are reported to have higher vocabulary level than the French speaking children. The English-speaking sample maintains the lowest vocabulary level for conceptual vocabulary as well. The large SDs in both production and comprehension domains and across all languages indicate that there is a great variability in performance of the different individuals. This great variability is in line with findings from previous research (Caselli et al., 1995; Armon-Lotem & Ohana, 2016). Further analyses will be done once a full dataset is collected.

Table 2 in Appendix II presents a comparison between the results of two English-Hebrew bilingual groups: the results obtained from the multicultural questionnaire for a sub-set of children in the present study to the results from the monolingual questionnaires

from previous research (Armon-Lotem & Ohana, 2016). Both groups of participants were matched on SES as all children came from a middle-high SES, and on AoO to Hebrew (M=5.6 and M=5, for the sample of monolingual questionnaires and the multicultural questionnaire, respectively). In addition, both groups were matched on age (M=35 and M=35.7, for the sample of monolingual questionnaires and the multicultural questionnaire, respectively).

A MANOVA performed on the data to examine the differences between the two groups shows that there are no significant differences between the mean number of words in English for both production and comprehension domains, $F(1,64)=.139$, $p=.711$, $\mu^2=.002$ and $F(1,64)=.137$, $p=.712$, $\mu^2=.002$, for production and comprehension, respectively. Similar results, with no significant differences between the two groups, were demonstrated for Hebrew, $F(1,64)=.103$, $p=.749$, $\mu^2=.002$ and $F(1,64)=.038$, $p=.847$, $\mu^2=.001$, for production and comprehension, respectively. These results were consistent even when the analysis performed used age as a covariant.

Similarly, the number of conceptual vocabulary reported to be produced by children in the present study and the number of conceptual vocabulary from previous research were relatively similar. A MANOVA performed on the data shows there are no significant differences between the means of the two samples for the production domain $F(1,64)=.814$, $p=.37$, $\mu^2=.013$. The only significant difference between the vocabularies of the two populations was for conceptual vocabulary in the comprehension domain, $F(1,64)=13.66$, $p<.001$, partial $\mu^2=.176$.

These similarities between the two samples can serve as a validation tool for the method of using a single multicultural questionnaire to report on two languages and need to be further explored once data is collected from a larger sample.

6. Conclusion

This study of bilingual children will contribute to the understanding of the bilingual lexicon in young children. Developing and validating a multicultural questionnaire is a crucial step in creating language norms that can be used as a baseline for comparison of typically developing children as well as an assessment tool for identifying children with language delay. All the analyses presented will be checked with a full dataset in order to ensure a more accurate and reliable representation of the population of bilingual children in Israel.

Several points must be taken into consideration in order to ensure the validity and authenticity of this research. First and foremost, in order to investigate the effect of SES over children's vocabularies, data must be collected from a variety of populations representing different SES. Previous research has mainly focused on medium-high SES (e.g., Eriksson, 2016; Hoff, 2003) and therefore did not fully capture the effect of SES over children's language. This limitation of parental questionnaires is well known; parents from lower SES are less cooperative and less willing to invest time in filling out questionnaires. And thus, the appropriate arrangements must be done in order to enable data collection from lower SES (such as personal interviews) in addition to medium-high SES groups.

Another limitation to this method is that the questionnaire is in Hebrew, and so parents' level of Hebrew can present an obstacle in filling it out. Consequently, the results might be skewed in a way, as most children come from families with relatively high level of Hebrew and will not fully represent the bilingual population in Israel. Therefore, personal interviews might be needed here as well in order to collect data from parents whose Hebrew might prevent them from filling out a questionnaire on their own. Additionally, receptive vocabulary is sometimes less accurate, yet, due to the bilingual nature of the population this measurement is still part of the assessment as it has been found

that receptive vocabulary can supply important information about children's language knowledge (Armon-Lotem & Ohana, 2016).

Last but not least, the language questionnaire used in the present study is rather long. Filling out the questionnaire requires a considerable effort on the part of parents. This might pose a challenge on data collection. Future studies must therefore focus on creating a short version of the questionnaire, which will be valid in assessing children's vocabulary level, but not less important, would be less demanding and relatively simple to fill out (Fenson et al., 2000a).

7. The structure of the dissertation and research schedule

The dissertation will include three papers, each addressing a research question. The first study, based on the pilot study, exploring the lexicon of English-Hebrew bilingual children compared to other bilingual minorities with a special focus on demonstrating the validity of the new tool for English-Hebrew bilinguals. The second study will examine the composition of the vocabularies of bilingual children and the effect of several home languages over the vocabulary in general and over the societal language (Hebrew) in particular. The third study will look into the effect of demographic variables (such as parental education and occupation), as well as developmental variables (such as family history and parental concern) over the vocabulary size of bilinguals. The dissertation itself will include a general introduction to set the background followed by the three papers and then a general discussion comparing the three papers, and a conclusion focusing on the contribution of the study. Data collection is planned to take 12 to 18 months. The first paper, based on pilot results is expected to be sent to publication in the second year. Further analysis with full data is expected once a larger sample is collected in the second and third year. The next two papers are expected to be done during the fourth year, but writing is expected to start as soon as adequate samples are available from the different populations.

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Appendix I

שפת הבית		עברית		
מבין ואומר	מבין	מבין ואומר	מבין	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	דייסה
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	ופל
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	זיתים
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	חביתה
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	חלב
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	חמאת בוטנים
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	חמוצים/מלפפון חמוץ
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	טונה
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	טוסט
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	טחינה
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	כרוב
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	לבן/פריגורט/מעדן/שמנת
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	לחם
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	לחמניה
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	לפתן/קומפוט/קינוח
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	מים

Appendix II – Pilot results

	Mean Age	Mean Hebrew AoO	Hebrew words		Home language words		Concepts	
			Production Mean (SD)	Comprehension	Production	Comprehension	Production	Comprehension
English (n=28)	35.70 (24-60)	5.63 months	349.61 (243.24)	422.32 (220.29)	354.21 (198.09)	503.64 (121.87)	462.46 (181.17)	529.64 (118.98)
Russian (n=7)	45.00 (27-55)	6.50 months	383.14 (201.98)	496.57 (171.08)	423.00 (224.45)	524.00 (109.76)	508.14 (180.21)	563.00 (100.22)
French (n=4)	39.00 (28-52)	12.00 months	424.00 (211.78)	474.00 (187.03)	445.50 (130.76)	541.25 (90.94)	487.75 (130.85)	555.5 (83.70)

Table 1: Vocabulary production and comprehension for all children (N=39).

Table 2: Results from bilingual and monolingual questionnaires.

	English		Hebrew		Concept	
	Production Mean (SD)	Comprehension	Production	Comprehension	Production	Comprehension
Multicultural Questionnaire	354.21 (198.09)	503.64 (121.87)	349.61 (243.24)	422.32 (220.29)	462.46 (181.17)	529.64 (118.98)
Monolingual Questionnaires	336.08 (193.8)	516.71 (154.37)	333.11 (175.02)	431.16 (149.34)	501.08 (164.65)	648.39 (135.83)