TOJELT Turkish Online Journal of English Language Teaching
A Triannual Peer-Reviewed Journal of Research in English Language Teaching
Journal Homepage: http://www.tojelt.com

Year: 2021 Volume: 6 Issue: 2 Pages: 44-65

The Impact of Bilingualism on L1 Vocabulary Size Levels: A Comparison of Turkish Vocabulary Knowledge of Turkish-German Bilinguals with Turkish Monolinguals

Özdenur Ardıç Kıyak[1]

Recommended citation: Ardıç Kıyak, Ö. (2021). The impact of bilingualism on L1 vocabulary size levels: A comparison of Turkish vocabulary knowledge of Turkish-German bilinguals with Turkish monolinguals. *Turkish Online Journal of English Language Teaching (TOJELT), 6*(2), 44-65.

Received:
13 Mar. 2021
Accepted:
30 Apr. 2021

Abstract

A strong vocabulary is required for educational success but research shows that lexical performance is lower for bilingual children compared to monolinguals when their performance in each language is assessed separately. The aim of the present study is to investigate whether bilingualism affects vocabulary size levels by comparing the performance of five Turkish-German bilinguals with five Turkish monolinguals on Turkish Vocabulary Levels Test (VLT) and Productive Vocabulary Levels Test (PVLT) in L1. For this purpose, a quasi-experimental design is planned. It was found that there were large differences between the two groups in terms of both receptive vocabulary (as measured by VLT) and productive vocabulary (as measured by PVLT) scores. The bilingual children scored lower than monolinguals in both tests. The results of the data analyses also showed that there is a statistically significant positive correlation between VLT and PVLT scores of the bilinguals. The results were interpreted to have implications for language instructors and syllabus designers.

Keywords: Turkish-German bilinguals, vocabulary development, vocabulary size, monolinguals, lexical performance.

[1] Turkish National Defense University, Turkish Naval Academy, ozdenurardic@gmail.com
https://orcid.org/0000-0003-0334-0599

Introduction

Words are the fundamental transmitters of meaning (Vermeer, 2001); and as a result of that vocabulary can be regarded as one of the crucial parts of any language. Robust vocabulary knowledge is requisite for academic learning of one as the use of known words shows how academically successful that individual is. Poor vocabulary knowledge restricts the implementation of academic instruction and poor use of vocabulary impedes the development of verbal and written language. Previous studies have illustrated that L2 learners are different from native speakers in both the sizes of their lexicons and in the amount of semantic representations associated with the lexical items (Meara, 1982; Verhallen & Schoonen, 1998). For example, Verhallen and Schoonen (1998) have found that bilinguals' robustness in semantic representations are less than monolinguals. Moreover, it was indicated that word knowledge of bilinguals' mother tongues are undeveloped in comparison with monolinguals (Bialystok, Craik & Luk, 2008). There is no consensus on how many words a L2 learner should know to be a proficient language user in the target language (Topkaraoğlu & Dilman, 2014). However, it is obvious that those who have wide vocabulary size have no difficulty in expressing their ideas because they have more enhanced communicative competence in L2 (Hatch & Brown, 1995). Taking these ideas into account, there is not great amount of information about whether bilingualism plays a role on vocabulary size levels in L1. However, while it is clear that bilingualism impacts L1 vocabulary skills, comparatively little work has been administered focusing on that relationship. Therefore, the present study aims to investigate the relationship between the vocabulary size levels of Turkish-German bilinguals and Turkish monolinguals. Knowing whether bilinguals are more advantageous than monolinguals in terms of L1 vocabulary size is the significance of this research.

Literature Review

Vocabulary Size, Receptive and Productive Vocabulary Knowledge

Nation (2001) defines vocabulary size as how many words an individual knows, and he indicates it encompasses an individual's passive or receptive vocabulary. That's why, it is related to the number of words that L2 learners know, rather than how well learners know these words. There

are a lot of ways to assess language learners' vocabulary sizes based on the frequency count method and one of them is Vocabulary Levels Test (VLT) created by Paul Nation in 1980. It has been broadly used around the world to determine the language learners' vocabulary size levels. With the help of the test, researcher can collect data about how many words learners know from each frequency level.

Vocabulary knowledge has been divided into two different categories: receptive and productive vocabulary. Nation (1990) has defined receptive or passive vocabulary as "the ability to recognize a word and recall its meaning when it is encountered" (p.5). According to Nation (1990) receptive or passive vocabulary are words which are at first learned, comprehended and expanded in one's memory through reading and listening. Moreover, productive vocabulary which is also known as active vocabulary indicating the ability to retrieve the needed vocabulary from memory by using them at appropriate time and in appropriate situations (Nation, 1990; Fan, 2000). Nation (2001) further explains that productive or active vocabulary is the process of retrieving (receptive/passive knowledge) and producing the appropriate written or spoken language form to reach its meaning. It involves knowing how to pronounce the word, how to write and spell it and how to use it in correct grammatical patterns. Essentially it is believed that vocabulary knowledge is gained throughout development of a learner. From this perspective, the receptive knowledge of a word is a necessity for productive knowledge. Gallego and Llanch (2009) found learners improve their receptive vocabulary size constantly over time. Briefly it has been concluded that learners develop receptive vocabulary before productive vocabulary. Even though the transferring of one type of knowledge to the other is not certain, it has been observed that a large receptive vocabulary is prerequisite for the productive knowledge (Milton, 2009).

The Interaction between L1 and L2 Vocabulary

Hypotheses on how two languages in one bilingual individual are interrelated are puzzling. Most of them claimed that the languages are connected and can promote each other (Hamers & Blanc, 2000). One of the common theories about this idea is originated from the interdependence hypothesis proposed by Cummins (1981, 1991, 2000). It postulates that the two languages are

linked and that it is advantageous to have a strong base in L1 while learning L2. According to Cummins (2008), for bilingual development to be successful, maintenance of the L1 has great importance in avoiding the negative effects from high exposure to the L2. The hypothesis assumes that two languages share and build upon a common base of language skills, which can be developed through high-level L1skills and sufficient exposure to the L2. This common linguistic basis makes conceptual, metalinguistic, pragmatic and phonological knowledge accessible to both language systems (Cummins, 2008).

Rinker, Budde-Spengler and Sachse (2016) investigated lexical development of 24 to 36-month-old children in their first language (L1) Turkish and second language (L2) German. In the results, children showed more tendency towards Turkish in the number of lexical items they used. This can be due to the more frequent exposure to Turkish and higher quality of the input. Also, parents indicated a higher and better use of the Turkish language for themselves as the dominant language is Turkish in their families, which brings strong dominance of Turkish found in children.

Grøver, Lawrence and Rydland (2018) conducted a study aiming to examine whether five-year-old children with varying first language (L1) vocabulary skills benefitted from second-language (L2) teacher-led group talk and peer-play talk when acquiring L2 vocabulary in preschool contexts. Analysis of the data demonstrated that there is a strong positive correlation between the children's receptive vocabulary in Turkish and Norwegian. Furthermore, the data indicated that there is no relationship between teacher-led talk exposure and the children's L2 vocabulary at age five, there was a correlation between their age-five vocabulary and talk exposure in peer-play. Also, it was indicated in the study that the correlations between maternal education and either of the language measures at age five were not significant.

Effects of Bilingualism on Vocabulary Development

In relation to the benefits and drawbacks of bilingualism, various views have been uttered by investigators in the field. Early studies proposed same negative outcomes (Anastasi & Cordova, 1953; Darcy, 1953; Printer & Keller, 1922; Saer, 1923). In these studies, it was proposed that bilingual children went through academic hindrance, had a lower IQ and were unable to cope with the demands of a normal social environment when compared with monolingual children. In addition

to that, Jesperson (1922) stated that brain effort decrease the capability to learn other things as it is needed to overcome two languages instead of one. According to Lambert and Tucker (1972), a bilingual person's cognitive capacity is inadequate and less efficient. Also, Printer and Keller (1922) claimed linguistic impediment is possible in bilinguals. Moreover, Mattes and Omark (1984) reported that bilinguals are inclined to stuttering.

Özkara (2014) investigated the development of vocabulary set consists of 6-year-old Russian-Turkish bilingual students and 6-year-old Turkish monolingual students to make a comparison of Turkish vocabulary knowledge of monolingual and bilingual children and it was revealed that Turkish vocabulary size of monolingual students is broader than Turkish vocabularies of Russian–Turkish bilingual students.

In a study done by Akoğlu and Yağmur (2016), whether there is a gap between first-language skills (lexical, cognitive concepts, textual, syntactic and phonological) of bilingual children growing up in the Netherlands and monolingual Turkish children growing up in Turkey was investigated. The results of this paper showed that Turkish immigrant children lag behind in their first language cognitive concepts, lexical, syntactic, and textual skills compared to monolingual Turkish speakers.

Oppositely, studies conducted in 1970's and 1980's indicated bilingualism affects the cognitive and social development of bilinguals positively (Bialystock, 1986; Cummins, 1976). Furthermore, Baker (2006) claimed that bilinguals have a lot of cognitive benefits compared to monolinguals, even though these advantages rely on the level of language proficiency (Cummins, 1979). Correspondingly, Cummins (1978, 2000) proposed that a child's second language competence is related to his/her first language competence to a certain degree. Furthermore, he mentioned that proficiency in four main skills in the first (L1) or the second language (L2) have a positive effect on cognitive development.

Bialystock (1986) indicated that bilinguals are better in solving metalinguistic problems as they are better at controlling of the linguistic processing than monolinguals. Based on a large body

of research, Matlin (1994) had showed that bilinguals gain more experience in their native language.

Kassaian and Esmae'li (2011) administered a study aiming at investigating the relationship between bilinguality of foreign language learners and the breadth of their vocabulary knowledge and word reading skills in third language (L3) by comparing the performance of bilingual EFL students with monolingual EFL students on vocabulary knowledge test and word reading skill test. It was figured out that there is a positive significant correlation between the bilinguality of the participants and the size of their vocabulary knowledge in L3. In other words, the bilinguals outperformed their monolingual counterparts having broader vocabulary size. Also, positive significance correlation between word reading skill and bilinguality of the subjects was obtained since bilingual subjects are better at word reading skills than monolinguals.

Current Study

In Germany today, 25–30% of all children grow up with more than one language at home (Chilla, Rothweiler, and Babur 2010). Children of Turkish descent who grow up in Germany form one of the largest groups with a bilingual background. Overall, the status of Turkish is still relatively high among this immigration group and a recent survey shows that 75% of families with a migration background use their heritage language together with German at home (Bundesministerium für Familie, Senioren, Frauen und Jugend (BMFSFJ) [German Federal Ministry for Families, Senior Citizens, Women, and Youth] 2010). Thus, it is of interest to examine how both first language (L1) Turkish and second language (L2) German develop and relate to each other.

Previous studies have shown that the input their children receive is indeed predominantly in Turkish (Rinker et al., 2016). However, little is known about their L1 and L2 competencies and the predictors that promote bilinguals' language development in both languages.

There are also some studies investigating the language skills of Turkish–German bilinguals in their L1, but such studies are limited with regard to specific language levels, and in particular to (receptive) vocabulary (Willard et al., 2015). Since bilinguals have special phonological acquisition, knowledge of what skills constitutes bilinguality is generally limited (Albrecht, 2017).

This requires the understanding of vocabulary development because of the fact that no study to date has comprehensively examined Turkish-German bilinguals' skills in their L1.

Research on breadth of vocabulary in L1 of bilinguals is scarce compared to vocabulary breadth studies about L2 or L3. Therefore, the aim of the study is to investigate whether bilingualism affects vocabulary size levels by comparing the performance of Turkish-German bilinguals with Turkish monolingual students on Turkish vocabulary levels test in L1. For this purpose, a quasi experimental design is planned. In order to examine the relationship between bilinguality and the breadth of vocabulary knowledge (how many words a learner knows), the following hypotheses are addressed in this study:

• $H_0 : \mu_{bilinguals} = \mu_{monolinguals}$ (There is no statistically significant difference between the Turkish Vocabulary Test scores of the experimental and control groups.)

• $H_1 : \mu_{bilinguals} \neq \mu_{monolinguals}$ (There is a statistically significant difference between the Turkish Vocabulary Test scores of the experimental and control groups.)

Methodology

Research Design

The current study was conducted through quantitative research methods based on the tests which are Turkish Placement Test (TPT), Vocabulary Levels Test (VLT) and Productive Vocabulary Levels Test (PVLT). This quasi-experimental research which is carried out in current study provides a quantitative or numeric description of a population by studying a sample of that population (Creswell, 2014). It uses measurable data to explicate facts and reveal patterns in research. Depending on the sample results, the researcher generalizes or makes claims about the population. In this context, whether being a bilingual would affect the vocabulary size levels of the children in L1 is put forward. For the purposes of this study, quantitative research approaches were used in the data collection and analysis processes demonstrating several statistical procedures employed.

Setting and Participants

The sampling of the study includes 5 bilinguals (the experimental group) and 5 monolinguals (the control group) from state schools in İstanbul and Batman. Sampling design of the target population was decided as purposive sampling. During the time of data collection, all participants were attending their classes in 2018-2019 fall semester. The bilingual group consists of 3 females and 2 males from different state schools in İstanbul. They were between 9-14 years old. They all were born in Germany and they have been exposed to Turkish and German from birth. According to the mothers, they are all simultaneous bilinguals in German and Turkish. However, their dominant language is Turkish. The monolingual group was recruited from a state secondary school in Batman and they are 3rd graders (9-year-old) including 4 females and 1 male in the academic year of 2018–2019. The participants in both groups are homogeneous in terms of socioeconomic level and they were all normally developing children. Table 1 shows genders and ages of the participants at both data collection points.

Table 1. Gender and Age (Years; Months) of Participants

Groups	***Gender***	**Age**
Monolingual 1	Female	9; 9
Monolingual 2	Female	9; 5
Monolingual 3	Female	9; 8
Monolingual 4	Female	9; 6
Monolingual 5	Male	9; 1
	Average	9; 5
Bilingual 1	Female	14; 1
Bilingual 2	Female	10; 9

Bilingual 3	Female	11; 11
Bilingual 4	Male	9; 5
Bilingual 5	Male	12; 2
	Average	11; 5

Instruments

Three instruments are used in the present study. These are as follows:

Turkish Placement Test (TPT)

Turkish Placement Test (TPT) is a reliable test of Turkish language proficiency developed by Dil Öğretim Merkezi (Dilmer) which helps language teachers find a person's level of Turkish. The test can be used for learners of all levels and all ages. It takes approximately 30 minutes to administer and all the questions in the test are in multiple-choice format. In the test, there are 50 items and each of them is scored as 2 points when item was correctly answered. The total scores obtained by the children can be ranged between 0 and 100. The children who scored above 80 are considered as the speakers of Turkish who have A2 level of Turkish language proficiency.

Vocabulary Levels Test (VLT)

The second instrument used in this study to examine the students' general vocabulary size levels in Turkish was literally translated form of Vocabulary Levels Test (VLT) which was designed by Paul Nation (1993) in order to measure language learners' vocabulary sizes and validated by Schmitt, and Clapham (2001). The reliability of the different levels ranged from .92 to .95. It is one of the widely used tests in vocabulary studies and it is divided into five levels, including the 2000-, 3000-, academic, 5000-, and 10,000- word levels. There are ten items consisting of six words and three definitions at each level in it. The VLT only tests content words and not function words. The definitions are written using words from the previous vocabulary size

level, and the words in each group belong to the same part of speech. The test-takers were asked to match the three definitions with three of the six words by writing the corresponding number of the word beside its definition. Instructions were given to the participants in their L1 and test procedures were exemplified by the researcher.

Original 5000 Vocabulary Levels Test was translated into Turkish and reviewed by two independent translators to make sure that translation was accurate. The 60 words at the fifth 1000 level were grouped into blocks of six words according to part of speech. The words in each block were then checked to make sure that they were not similar in form or related in meaning. In the fifth 1000 Turkish Vocabulary Levels Test, the children were expected to match three Turkish definitions among six vocabulary words, and each correct match was scored as 33.33 points. For example, if she scores 24 out of 30, that means, she knows 800 words out of 1000 at this level. For example, if one of the participants' scores is 24 out of 30, that means s/he knows 800 words and 200 words are not known at this level. In the test, the total scores obtained by the children can range between 0 and 1000. 30 minutes were given to the children to complete the test.

The Productive Vocabulary Levels Test

Productive vocabulary ability is not a yes/no phenomenon, but indicates degrees of knowledge. It is a test of controlled-productive vocabulary which is modeled on the Vocabulary Levels Test (Nation, 1990). The first letters of the target item are given in a meaningful sentence and, the test takers are asked to complete the word. We use the term 'controlled productive ability' for the ability to use a word in an unconstrained context such as a sentence-writing task, or in a constrained context such as a fill-in task where a sentence context is provided and the missing target word is requested. Since the 5000 word level is on the boundary of high and low- frequency words, 18 items of the 5000 word levels were chosen. Original 5000 Productive Vocabulary Levels Test was translated into Turkish (PVLT) and reviewed by two independent translators to make sure that translation was accurate. The grading was done as correct/incorrect for each item. Minor spelling mistakes were not marked as incorrect, and grammatical mistakes were also ignored. Each learner was given 5,5 scores for the number of correct items. 20 minutes were given to the children to complete the test.

Productive Vocabulary Levels Test (PVLT) reliability based on the KR21 figures was .86 (Laufer & Nation, 1999). This test was implemented due to their practicality and availability. Additionally, these commonly used tests have been proved to have high levels of scalability (Read, 1998).

Data Collection Procedure

The data were collected in two different sessions at the beginning of Fall semester via paper-based tests. Participants were asked to give oral consent before the implementation of the study. The instruments were shown and the purpose and the rules of the were explained to the participants by the researcher. They were told that this is not a formal assessment and the results will only be used for research purposes. The researcher administered the set of tests, including the PVT, VLT, and PVLT respectively and explained how each test should be responded. Also, the principal of the schools were informed about the study by class teachers and oral consent was obtained from class teachers as the tests were implemented during their lessons.

All the participants used the same testing materials. In session 1, the TPT was administered to the participants. The test was used to measure general Turkish level of the bilinguals. In session 2, VLT and PVLT were administered to the both control and experimental groups in order to find out whether bilingualism would make a significant difference between two groups in terms of L1 vocabulary size levels of the participants. After the tests had been gathered, in order to ensure reliability, they were graded by two researchers.

Data Analysis

Walliman (2006) mentions that quantitative data is analyzed thorough numbers and mathematical operations. After the administration of the tests, the results were submitted to entered into SPSS program 20.0 for statistical analyses. In order to explore the relation between the size of L1 vocabulary knowledge of Turkish-German bilinguals and Turkish monolinguals, both descriptive and inferential statistics were used to analyse the data. As the sample is small in this study, it was assumed that there is violation of normality and equal variance assumption. Therefore,

one of the non-parametric tests which is Mann-Whitney U-test was performed to compare group differences. A value of $p<0.05$ in a two-tailed distribution was considered statistically significant.

Results

The data collected from the instruments were shown by means of several statistical analyses in order to explore, describe and interpret results from the sample. Therefore, to arrive intended comparative analyses, several sets of statistical analyses were performed on raw scores using Mann-Whitney U-test on SPSS.

Turkish Placement Test (TPT) Results

At the beginning of the study, in order to determine whether there was a significant difference on general Turkish language proficiency levels of the children, TPT was conducted. Descriptive statistics of the scores of both groups are illustrated in Table 2.

Table 2. TPT Scores of the Children in the Experimental and Control Groups

Groups	***N***	**Range**	**Mean**	**Standard Deviation**	**Variance**
Monolinguals	5	8	97.20	3.033	9.200
Bilinguals	5	2	95.00	.707	.500

The monolinguals scored on average 97.20 points out of 100 (SD=3.033), while the bilingual group scored on average 95.00 points (SD=.707).

When Table 3 is observed, no statistically significant difference was found between the total scores the students in the experimental and control groups had from the TPT ($p>0.05$). This situation was interpreted as "the Turkish language proficiency levels of the children in the experimental and control groups were equal to each other."

Table 3. Comparison of the TPT Scores of the Children in the Experimental and Control Groups with Mann-Whitney U-Test

Groups	***N***	**Mean Rank**	**Sum of Ranks**	**U Statistic**	***p***

Monolinguals	5	7.00	35.00	5.000	.108
Bilinguals	5	4.00	20.00		

In order to determine whether being a bilingual has an effect on L1 vocabulary size levels of children, 5000 Turkish Vocabulary Levels Test and 5000 Turkish Productive Vocabulary Test were administered. As a result of Mann-Whitney U-test, it was found there was a statistically significant difference between the total scores of the children in the experimental group and control group.

Vocabulary Levels Test (VLT) Results

Descriptive statistics of both groups' VLT scores showed that the bilinguals scored on average 653.40 points out of 1000 (SD=202.257), while the monolingual group scored on average 973.60 points (SD=14.758) (Table 4). The effect size as measured by Cohen's d was high (Cohen's *d* 2.5). It was interpreted that monolingual participants had higher mean scores in Turkish receptive vocabulary compared to bilingual partners.

Table 4. VLT Scores of the Children in the Experimental and Control Groups

Groups	***N***	**Range**	**Mean**	**Standard Deviation**	**Variance**
Monolinguals	5	500	973.60	14.758	217.800
Bilinguals	5	33	653.40	202.257	40907.800

Table 5 shows that receptive vocabulary levels of monolinguals are significantly better than bilinguals as it was found there is a statistically significant difference between the Turkish receptive vocabulary test scores of the experimental and control groups ($p<.05$). Thus the null hypothesis stating that there is no relationship between the bilinguality of the subjects and the size of their vocabulary knowledge was rejected via receptive vocabulary levels test.

Table 5. Comparison of the VLT Scores of the Children in the Experimental and Control Groups with Mann-Whitney U-Test

Groups	***N***	**Mean Rank**	**Sum of Ranks**	**U Statistic**	***p***
Monolinguals	5	8.00	40.00	.000	.007
Bilinguals	5	3.00	15.00		

Productive Vocabulary Levels Test (PVLT) Results

Descriptive statistics of both groups' PVLT scores showed that the monolinguals scored on average 79.00 points out of 100 (SD=2.236), while the bilingual group scored on average 63.60 points (SD=7.603) (Table 6). The effect size as measured by Cohen's d was huge (Cohen's *d* 3.07). It was interpreted that monolingual participants had higher mean scores in Turkish productive vocabulary compared to bilingual partners.

Table 6. PVLT Scores of the Children in the Experimental and Control Groups

Groups	***N***	**Range**	**Mean**	**Standard Deviation**	**Variance**
Monolinguals	5	5	79.00	2.236	5.000
Bilinguals	5	17	63.60	7.603	57.80

Table 7 shows that productive vocabulary levels of monolinguals are significantly better than bilinguals as the findings indicated there is a statistically significant difference between the Turkish productive vocabulary test scores of the experimental and control groups ($p<.05$). Therefore, the null hypothesis stating that there is no relationship between the bilinguality of the subjects and the size of their vocabulary knowledge was rejected thorough productive vocabulary levels test, too.

Table 7. Comparison of the PVLT Scores of the Children in the Experimental and Control Groups with Mann-Whitney U-Test

Groups	***N***	**Mean Rank**	**Sum of Ranks**	**U Statistic**	***p***
Monolinguals	5	8.00	40.00	.000	.005
Bilinguals	5	3.00	15.00		

The relationship between VLT and PVLT scores of the subjects was investigated using Pearson product-moment correlation coefficient. Table 8 shows the results of the mentioned analysis regarding monolinguals. Table 8 reports that there is not a strong positive correlation between the two variables (r= -.250, n=5, p>.05).

The relationship between VLT and PVLT scores of the bilingual subjects was investigated using Pearson product-moment correlation coefficient and the results were illustrated in Table 9. Table 9 reports that there is a strong positive correlation between the aforementioned variables (r=-.977, p<.05).

Table 8. Correlations Between VLT and PVLT Scores of Monolinguals

		VLT SCORES	PVLT SCORES
VLT SCORES	Pearson Correlation	1	-,250
	Sig. (2-tailed)		,685
	N	5	5
PVLT SCORES	Pearson Correlation	-,250	1
	Sig. (2-tailed)	,685	
	N	5	5

Discussion

This study was conducted to determine whether bilingualism has an effect on vocabulary size levels of the children in their first language (L1). Overall scores in both VLT and PVLT of bilinguals and monolinguals were compared. Further, descriptive and inferential statistics were illustrated based on the results of Mann-Whitney U-test ran by means of SPSS. The results with regard to the overall performance of the bilinguals and monolinguals were considered and it was revealed that there were large differences between the two groups in terms of both receptive vocabulary (as measured by VLT) and productive vocabulary (as measured by PVLT) level sizes. The results pointed out that in their performance on L1 the bilinguals lagged behind their monolingual peers.

With respect to the vocabulary size, previous research indicates that when tested in one language, bilingual children have smaller productive and receptive vocabulary than monolinguals

Table 9. Correlations Between VLT and PVLT Scores of Bilinguals

		VLT SCORES	PVLT SCORES
VLT SCORES	Pearson Correlation	1	,977**
	Sig. (2-tailed)		,004
	N	5	5
PVLT SCORES	Pearson Correlation	,977**	1
	Sig. (2-tailed)	,004	
	N	5	5

**. Correlation is significant at the 0.01 level (2-tailed).

(Pearson et al., 1993; O'Toole et al., 2017), even when tested in their L1 (Pearson et al., 1997; Uccelli and Páez, 2007; Mi˛ekisz, et al., 2017). A smaller vocabulary size for bilingual children in each of their languages compared to that of monolingual peers is generally found in the literature on vocabulary (Oller et al., 2007) as confirmed in the present study. Jesperson (1922) also stated that brain effort decreases the capability to learn other things as it is needed to overcome two languages instead of one. The present study contributes a different perspective to this type of research by demonstrating bilingual children have a smaller vocabulary in L1 than their monolingual peers.

Amount of language exposure in bilingual children has been illustrated to affect breadth of vocabulary in many studies (Elin Thordardottir, 2011; Hoff et al., 2014; Pearson et al., 1997; Pearson et al., 1993). It was first shown in the research conducted by Pearson and colleagues (Pearson et al., 1997; Pearson, Fernandez & Oller, 1993) where they concluded that there is a

relation between expressive vocabulary size in each language and the amount of language input the young child had been exposed to. In another study administered by Elin Thordardottir (2011), a strong and systematic relationship between amount of exposure and performance on receptive and expressive vocabulary size was found. Furthermore, Vermeer (2001) pointed out probability of knowing a word is highly correlated with the input frequency among monolingual and bilingual speakers. As frequency of input has a crucial role in vocabulary acquisition, differences in word knowledge between monolinguals and bilinguals can be originated from differences in the frequency of language contacts. Another finding different from these shows that bilingual children are lack of making up in their L2 vocabulary. So, it will be definitely essential for bilingual children to increase the amount of lexical input in their L2. In the same vein, Haman, Wodniecka, Marecka, Szewczyk, Białecka-Pikul, Otwinowska and Kacprzak (2017) investigated first language (L1) development of Polish-English early migrant bilinguals and they also found that L1 exposure correlated positively with the vocabulary size and phonological processing.

The results are in line with the study done by Özkara (2014) who investigated the development of vocabulary set consists of 6-year-old Russian-Turkish bilingual students and 6-year-old Turkish monolingual students. The findings showed that Turkish vocabulary size of monolingual students is broader than Turkish vocabularies of Russian–Turkish bilingual students. This finding also aligns with the study done by Scheele, Leseman and Mayo (2010) who found out the bilingual Moroccan–Dutch and Turkish–Dutch immigrant children are less proficient in both L1 and L2 compared to monolingual native Dutch children. They claimed at the end of the study that minority-language children experienced far less literate and oral interactions compared to native monolingual children as the input was divided over two languages. In addition to that, in literature it was indicated that word knowledge of bilinguals' mother tongues are undeveloped in comparison with monolinguals (Bialystok, Craik & Luk, 2008).

Furthermore, correlation results showed that VLT and PVLT scores of bilinguals are correlated highly and positively. This finding is in a similar vein with Thomas' (1988) claim that bilinguals had developed sensitivity to language as a system and therefore, it could be concluded

that the two subskills (receptive and productive vocabulary) might somehow complement each other to form a more scientifically rigorous receptive-productive framework.

Conclusion

Nowadays young children of Turkish descent growing up in Germany nowadays acquire both Turkish and German. Although they show a Turkish dominance, which is likely due to the frequent exposure to Turkish at home as German government supports the families to speak L1 at home until 5 ages, our study illustrates that when tested in their knowledge of L1, bilingual children lag behind their monolingual peers on vocabulary. Their vocabulary in Turkish and in German consists of a largely different conceptual make-up, as evidenced by a very high conceptual count of items across languages. However; upon returning to their home country, many children of Turkish migrants experience educational impediments due to inferior knowledge of their L1, as compared to their monolingual peers. Another reason for that result can be limited available time for literate and oral language interactions and it needs to be divided over two languages, which have to compete for scarce resources for bilinguals.

This study has practical and theoretical implications in language teaching. The results of the current study reported that the German-Turkish bilinguals born in Germany and growing up in Turkey didn't reach the levels of Turkish monolingual peers born and growing up in Turkey. Such "incomplete L1 acquisition" is defined by Montrul (2008), as "a mature linguistic state, the outcome of language acquisition that is not complete (...) in childhood (...), when some specific properties of the language do not have a chance to reach age appropriate levels of proficiency after intense exposure to the L2 begins." (p.21).

Providing extensive and varied high exposure to L1 may promote situations in which bilinguals could practice their production in L1 and it might benefit their development in that language. The other major implication of this study is a need for researchers to determine or create an integrated model of bilingual vocabulary development that can be implemented within the Turkish-German bilingual population or even beyond the other language combinations. Therefore,

this study provides a basis for improving the quality of practices in teaching and expanding L1 vocabulary.

In tandem with the same topic, based on the results of the data analyses, statistically significant positive correlation between VLT scores and PVLT scores of bilinguals was found while they are not correlated strongly in respect to monolinguals. It shows the multidimensionality of word definitions and recommends that the scope of the task is significantly different from the measures of vocabulary size. It might be that the task of word definitions is an academic task based on the context.

All in all, these clues might be used to design better syllabi for the migrant children who return to their home countries and who face language difficulties in their L1. Still, it is important to recognize that although bilingual children may experience special challenges in their vocabulary development, they possess the ability to communicate in two languages early in life. This is a definitive linguistic advantage on their side.

The study is not without its limitations. First, the results would be more generalizable if the experiment was conducted with more students. A study with a larger sample would lead to a more precise empirical basis for examining the relationship between bilinguality and the breadth of vocabulary knowledge. So, the results need to be replicated with a larger sample to be able to conduct robust statistical analyses. Moreover, the present study included bilingual children whose ages range between 9-14 educated in their L1. However, doing similar research on children educated in bilingual programs having the same age would offer different insights.

Second, the language proficiency tests we used were not designed for assessing language skills of bilingual children. Also, the participants have different cultural and educational backgrounds and the tests used in current study don’t provide norms for monolingual and bilingual children.

Third, the present study was not longitudinal. To provide for a stronger basis for causal inferences, a longitudinal design is needed. This study concentrated only on the first-language skills but we need additional insight into first and second-language skills of immigrant Turkish-German bilingual children in Turkey.

Despite the limitations, the present study has provided useful insights about L1 vocabulary size of monolingual and Turkish-German bilingual children in Turkey. The study was mainly quantitative in nature. It would have been useful to obtain more qualitative data to allow for more substantive conclusions about the quantitative data.

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