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Turkish Heritage Speakers in Germany: Vocabulary Knowledge in German and Turkish

Abstract:

In the present chapter, first, the migration background of Turkish heritage speakers in Germany will be described. Secondly, the available literature on Turkish heritage speakers with a focus on vocabulary will be discussed. Finally, the results of a recent study on heritage speakers will be presented. The present study supports the findings of previous studies which aim to answer the question whether there is a vocabulary gap in bilinguals, such that bilinguals have smaller vocabularies than monolinguals. A deficit or gap is attested for bilinguals in a number of studies when they are compared with monolingual control groups (for a detailed overview see Thordardottir 2011). However, this gap seems to be an artefact of the methodology since bilinguals use their two languages in different domains (Grosjean 1982, 2001, 2015) and almost never develop a vocabulary in both of their languages that is comparable to monolinguals. We therefore need to include both languages in an investigation of a potential bilingual vocabulary gap. However, even when both languages are investigated, a deficit in vocabulary knowledge, especially productive vocabulary is attested in many studies (for a detailed discussion see Daller and Ongun, 2017). Because the literature presents somewhat inconclusive results, in this study, we wanted to test whether or not the productive vocabulary of a bilingual individual group also shows a gap when compared to monolingual controls. The present study is based on picture descriptions of 23 heritage speakers and two control groups for German (n=18) and Turkish (n=30). We take both languages into account to obtain a fine-grained picture of the bilingual

proficiency of the heritage speakers in our sample. A vocabulary gap can be identified for Turkish but not for German. When the children's total conceptual vocabulary (Pearson, Fernández and Oller, 1993) is considered, however, there is no vocabulary gap for this group of bilinguals.

1. Introduction

Although several European countries received Turkish labour migration through agreements with Turkey in the 1960s, the migration to Germany is characteristically different from others given that huge numbers of migrants who moved between both countries in both directions. The first recruitment agreement (Anwerbevereinbarung) between Turkey and Germany was signed 1961 but only after a revision of this agreement in 1964 did a substantial number of Turkish migrants come to Germany. Initially the recruitment of Turkish workers was seen as a temporary measure. The mainly male guest workers (Gastarbeiter) were expected to work in Germany for a certain period and to go back to their country of origin afterwards. However, this did not happen. It was in the interest of many Turkish work migrants to stay in Germany, but it was also in the interest of the German companies to keep those workers that had been trained on the job and not to replace them with new unskilled immigrants. The economic decline in Germany in the 1970s led to a discontinuation of labour recruitment in 1973. Nevertheless, the Turkish resident population increased after this date due to births and family reunions (for an overview see Daller 1999 and Daller & Treffers-Daller 2014). If we identify a heritage speaker as somebody who grew up in a linguistic environment where the first language is a minority language (Bayram and Wright, 2018), then the turning point towards heritage speakers in the Turkish migration process lies around 1980 where the number of female immigrants reached almost 40% of the Turkish population in Germany and the situation changed from the single male guest worker to families

with a migration background (Daller and Treffers-Daller, 2014). Identifying the number of Turkish heritage speakers in Germany now is not easy since the migration between these countries is a complex issue with migrants moving between the countries in both directions either temporarily or on a permanent basis (see Daller 1999, Daller 2005, Daller and Treffers-Daller 2014). In 2016 around 2.7 million out of 82 million citizens in Germany had a Turkish migration background (Statistisches Bundesamt 2017). This includes people who moved Turkey as the first generation and children from mixed couples with only one Turkish parent. Some Turkish heritage speakers in Germany are already the 4th generation immigrants, but still use Turkish in their everyday life (Daller & Treffers-Daller 2014). The nationality of these speakers is not a reliable indicator of their linguistic background as since 1990, the naturalisation of foreign nationals has been facilitated and almost 800.000 Turkish nationals obtained German citizenship between 1982 and 2013 (see Daller and Treffers-Daller 2014). Identifying the number of Turkish heritage speakers in Germany is also complicated by the fact that around 500.000 immigrants from Turkey have Kurdish as their first language (Antwort der Bundesregierung 2000).

The change of the ratio of female to male Turkish immigrants over time is a clear indication for the change from single male guest workers to Turkish families and thus children who grow up as Turkish heritage speakers in Germany. Figure 1 shows the growth of female immigrants with a Turkish background over time. The number of male immigrants is the reverse picture.

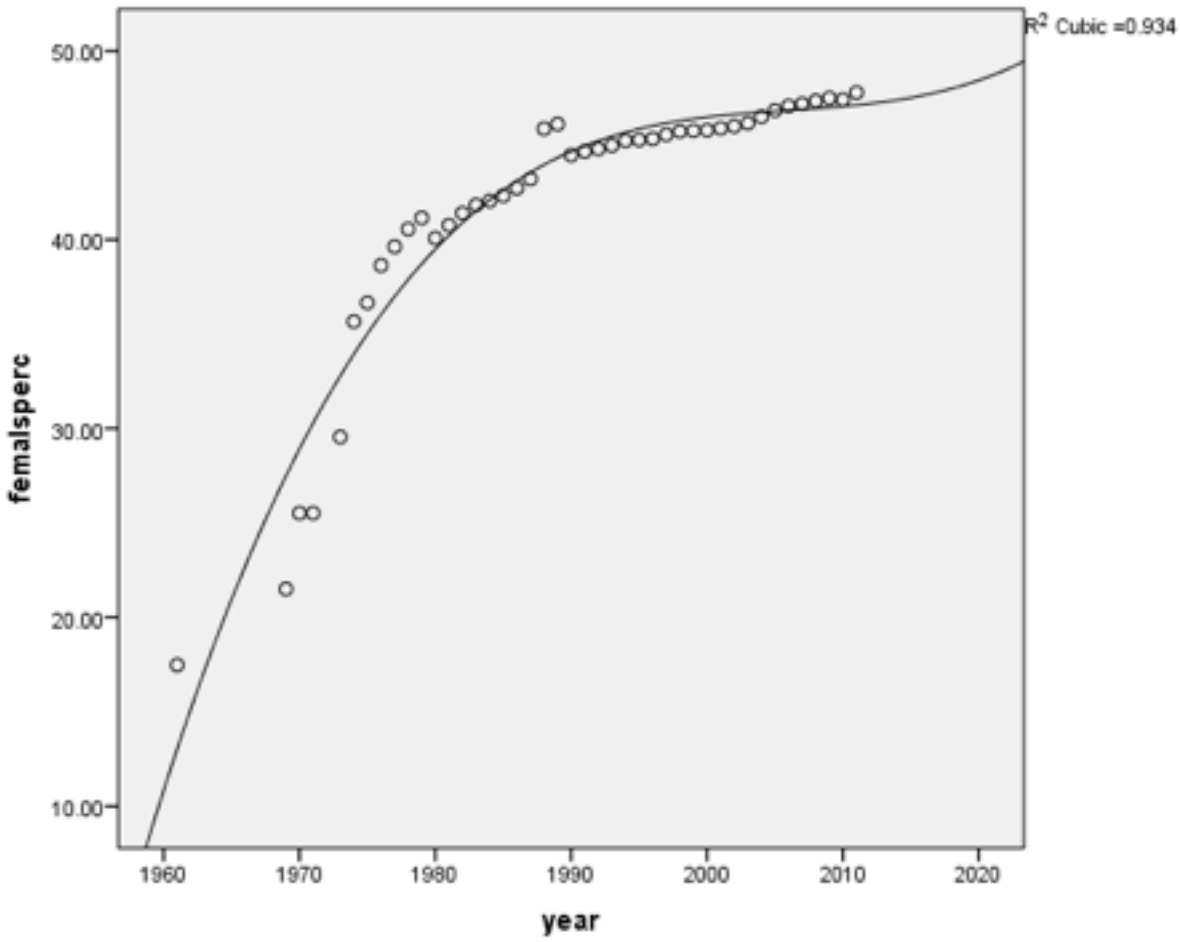

Figure 1

Percentage of female immigrants in the Turkish population in Germany (Daller and Treffers-Daller 2014: 190)

This development is also reflected in the fact that the number of Turkish nationals under the age of 18 rose constantly until around 1980 where it reached a certain plateau (Figure 2).

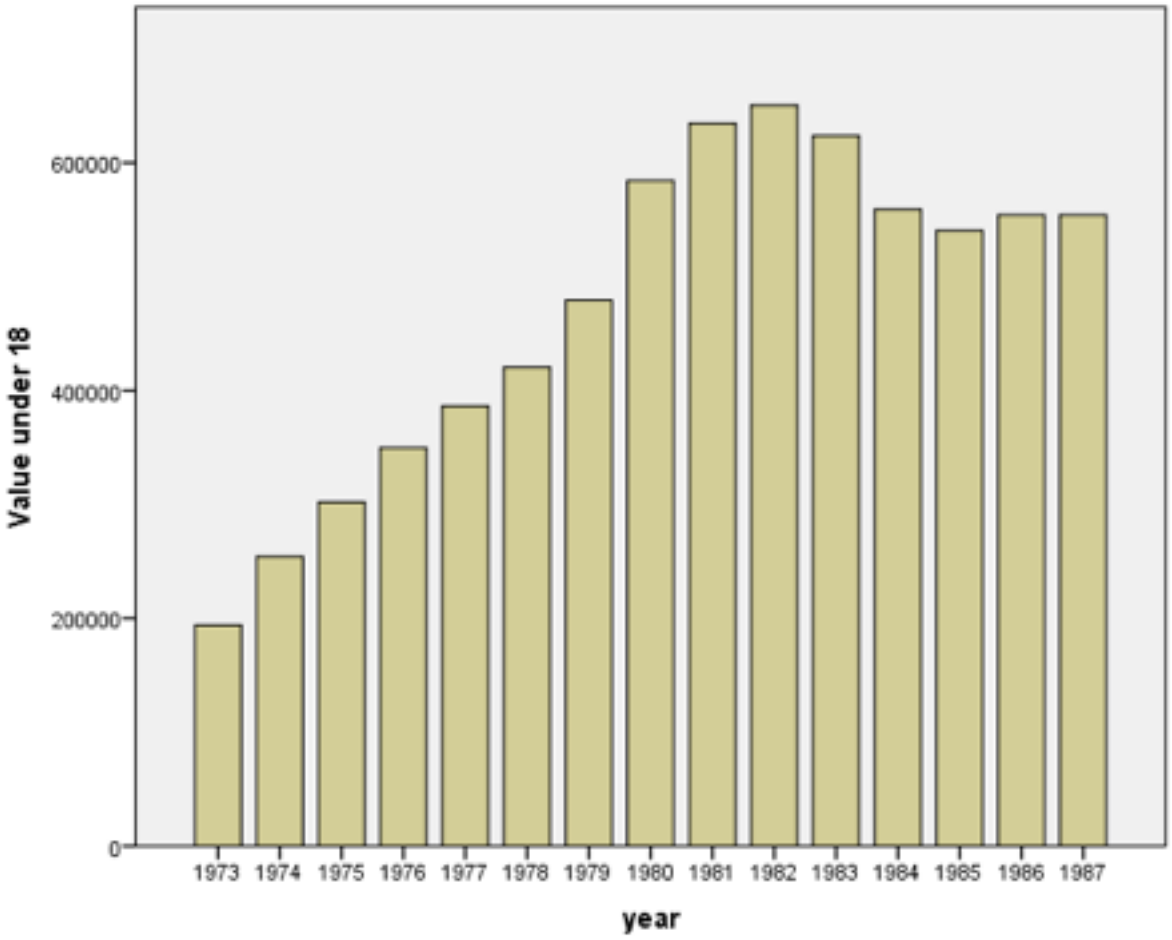

Figure 2

Turkish nationals in Germany under the age of 18 (Daller and Treffers-Daller 2014: 192)

Figure 1 and Figure 2 illustrate that since around 1980 a considerable number of bilingual speakers with a Turkish background grew up as heritage speakers in Germany. As mentioned earlier the exact number of these speakers is difficult to estimate, but it is clear that there are several 100.000 heritage speakers. If we assume that those who were 18 years in 1980 are now parents or grandparents, the conclusion can be drawn that the present generation is already the third or in some cases the fourth generation of Turkish immigrants in Germany.

The aim of the present study is to measure the bilingual vocabulary of these heritage speakers in both languages. We give an overview on previous studies and investigate whether there is a "bilingual gap" in vocabulary knowledge of heritage speakers when compared with monolingual peers and whether such a "gap" actually exists when both languages are taken into account. In the present study we present data from a study with 23 heritage speakers in Germany (age range 11 – 13), who attended a "Hauptschule" (lower secondary education in Germany[1]). The participants described a picture story "Frog where are you" (Meyer 1969) in Turkish and German. Their descriptions were then compared with a monolingual control group in Turkey (n = 30) from a similar age and educational level and a monolingual control group (n = 18) from a "Hauptschule" in Germany. The results indicate that when both vocabularies of the heritage speakers are taken into account no "bilingual gap" exists. However, the vocabulary in Turkish is smaller than that of the control group and more general words are used, such as "thing" (şey) where the more specific words seems to be missing. The methodology and the findings are presented in chapter 3 and 4.

[1] Terminology according to the International Standard Classification of Education (UNESCO)

2. Previous studies the language proficiency of Turkish heritage speakers

Most authors studying heritage languages agree that there are differences between the language of heritage speakers and the language spoken in the home country of the heritage speakers. Whether this difference is a deficit or not is very much under discussion: Montrul and Bowles (2009), for example, assume that differences in the grammar may result from "incomplete acquisition" of the heritage language. However, Pires & Rothman (2009) argue that the use of this term is not appropriate, because some of the grammatical structures under investigation may not have been in the input to heritage speakers, and acquiring these is therefore not an option. For this reason, Pires and Rothman propose the term "missing input competence divergence" to describe the characteristics of heritage speakers' grammars.

A careful comparison of heritage speakers with returnees, that is heritage speakers who returned to the country where their parents were born, can sometimes shed new light on the source of grammatical structures and the specific competence of heritage speakers. An example is Treffers-Daller, Daller, Furman and Rothman (2016). They investigated differences in the grammatical system of heritage speakers who live in Germany (n = 49), heritage speakers who returned to Turkey (returnees; n = 48) and monolingual speakers in Turkey (n = 68). One of the questions of this study was whether the grammatical structures present in the heritage language change in the direction of the monolingual norm after return to the home country. The phenomenon that Treffers-Daller et al. (2016) investigate is the use of the light verb *-yap* "to do/make" that many Turkish heritage speakers in Europe use instead of more specific verbs. Heritage speakers more often use *fotoğraf yapmak* "to do/make a picture", for example, instead of *fotoğraf çekmek* "to take a picture". The study also shows that Turkish heritage speakers in Germany overuse *yap-* instead of *et-* "do/make" in complex predicates such as *kavga yap-* "to

fight", where speakers of Turkish in Turkey prefer *kavga et-* "to fight". Adult speakers who had been exposed to the monolingual environment after return for more than seven years, however, were no longer distinguishable from monolingual speakers and therefore had overcome the challenge of acquiring collocational vocabulary knowledge as used in Turkey in late adolescence. The authors argue that it is possible for heritage speakers to converge towards the monolingual norm even after puberty, which is in clear contrast with second language learners who normally do not reach target language norms after a certain age.

Studies that investigate the vocabulary knowledge of heritage speakers in both languages are very scarce. It is especially difficult to get insights into the Turkish vocabulary knowledge of heritage speakers since they use it in their everyday life but this use cannot be measured against any norms because they do not exist. However, a unique situation arises when these heritage speakers return to their home country and are suddenly confronted with monolingual norms, e.g. at schools or universities. Many returnees say that their Turkish vocabulary is not sufficient for schools or universities in Turkey and that this is the reason for problems in their academic career. A period of two years is often mentioned before they feel comfortable with their Turkish vocabulary knowledge (Daller & Yıldız, 1995). Studies that focus on the vocabulary sizes in both language do not exist. There are, however, studies that use measures (the C-test format) that can be seen as a proxy for general language proficiency (Eckes & Grotjahn (2006) and vocabulary knowledge. The studies discussed below focus on *both* languages of the heritage speakers, which is not always the case in other studies, but necessary to cover the unique concept of bilingual proficiency.

A study that had been carried out with 50 heritage speakers (returnees) and 23 learners of German as a foreign language at a high school in Istanbul (Daller & Yıldız 1995) showed that the C-test results in Turkish and German of both groups are almost an exact mirror image of each other. The heritage speakers were much better in German than the foreign language learners, which is the expected outcome. For Turkish, however, the heritage speakers had statistically significant lower scores than their monolingual class mates even 1.6 years after return on average. A similar study carried out by the same authors (Daller & Yıldız 1995) with returnee students who had been back in Turkey for more than eight years did not reveal any significant differences with the monolingual peers. Somewhere between 1.6 to eight years of exposure to the monolingual environment the students' performance is within the range of that of monolinguals performance. Again, this is an indication that heritage speakers have the potential to perform within the range found among monolinguals, which distinguishes them clearly from foreign language learners. One has to bear in mind that although there was no significant difference between the mean scores of the heritage and monolingual speakers after 8 years, the variation (standard deviation) in the scores of the heritage speakers was much larger than that of the monolingual group. This means that not all heritage speakers reach high levels of performance (for a detailed overview see Daller 1999). A similar picture was found in a study with returned heritage speakers and monolinguals in 2003 (Daller, van Hout and Treffers-Daller (2003) where C-tests in Turkish and German had been used. Again the variation in the scores of the heritage speakers was much larger than the variation among monolingual speakers.

Another study using Turkish-German bilinguals who just returned to Turkey is Daller, Yıldız, De Jong, Kan and Başbağı (2011). They investigate a group of 60 bilinguals (average age 16.58)

who had just been back to Turkey for about one year. The control group in this study consists of 55 monolingual Turkish secondary school students (average age 15.35), who learned German as an L2, and never left Turkey apart from for holidays. Both groups were students at a college where parts of the curriculum are taught in German (the so-called Anadolu Lisesi). Again a C-test was used in both languages as a proxy for general language proficiency and vocabulary knowledge. In line with the expectations the heritage speakers show higher scores in German but also lower scores in Turkish when compared to the control group. The results are presented in Figure 3 and Figure 4.

Figure 3 and 4 C-test scores for heritage speakers (returnees) and control group in German and Turkish

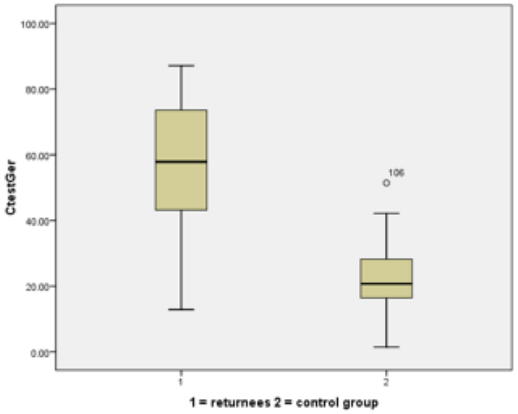

Figure 3

C-test scores for German

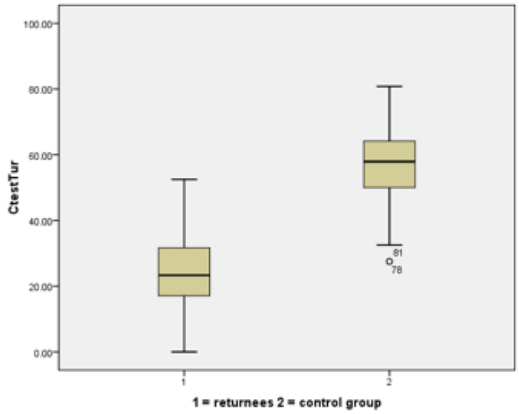

Figure 4

C-test scores for Turkish

Source: Daller et al. (2011)

Both differences are statistically significant (German: t = 13.342, df = 90.519 p < .001, equal

variance not assumed; for Turkish: $t = 15.223$, $df = 114$, $p < .001$, equal variance assumed).

Daller et al. (2011) also analyzed picture descriptions produced by both groups. They found that the control group clearly produced more words in Turkish than in German, which is an indication that Turkish is their dominant language. For the heritage speakers the results are the opposite. German is still their dominant language one year after arrival in a Turkish monolingual environment. They produce significantly longer descriptions in German than in Turkish.

A recent study which focuses on the vocabulary of Turkish heritage speakers is Daller and Ongun (2017). The bilinguals in this study are Turkish-English bilinguals who grew up in the UK. The authors stress all parents of the 100 successive bilingual children (age 7 – 11) have a middle class background, and at least one parent has a university degree. The socio-economic status of the parents and especially the educational level of the mother are an important factor for the development of literacy and vocabulary in the heritage language (Willard et al. (2015). Therefore, the findings of Daller and Ongun (2017) might not be generalizable to bilingual settings where the parents are from a working-class background. However, the principal question about the relation between L1 and L2 vocabulary is similar to that in other studies. The participants in Daller and Ongun's study grew up from birth in a typical heritage environment where English is the dominant language and input in Turkish comes only from their parents or friends. Daller and Ongun (2017) measure the receptive and the productive vocabulary of the heritage speakers in both languages. The receptive vocabulary is measured with a yes-no format, where the participants have to indicate whether or not they know a certain word. This format (X-lex, see Meara and Milton 2003) can be used with any language as long as frequency lists for the vocabulary of these languages are available. In order to avoid guessing or even cheating, pseudo-words are included and a candidate is marked down if they say that they know a pseudo-word.

The maximal possible score with this test format is 5000. Figure 5 shows the development of the receptive vocabulary of the heritage speakers.

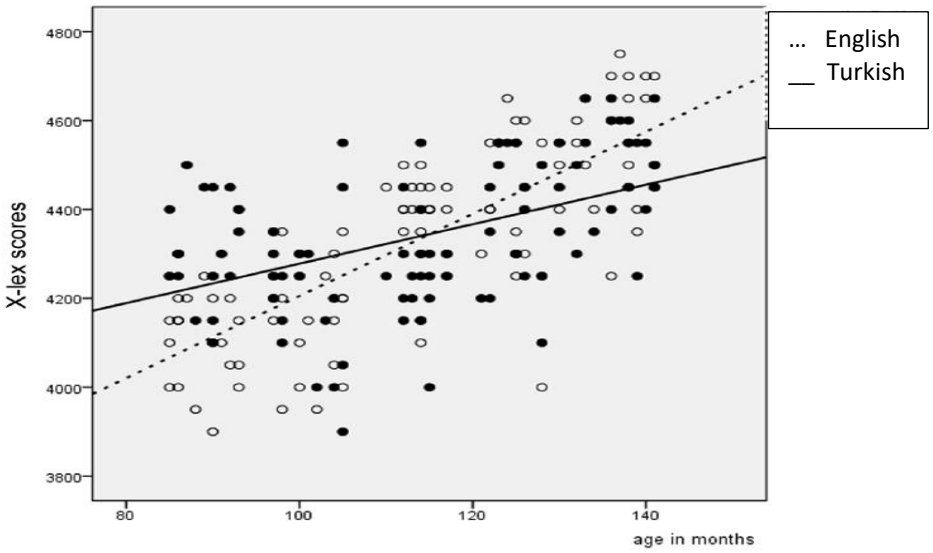

Figure 5

Receptive vocabulary in Turkish and English (Daller and Ongun 2017: 8).

It is clear that younger participants score higher in Turkish at the beginning and increase their vocabulary size with age. At around the age of around 9.5 years (115 months) English takes over, probably because it is the language of schooling. However, both languages increase steadily and the correlation between the two languages is strong and highly significant (r = .611, p < .001). Daller and Ongun (2017) also compare the vocabulary sizes of the heritage speakers with an English and a Turkish monolingual group of matched peers (n = 25 for each group). It is difficult to compare receptive vocabulary knowledge between different languages because of only partial semantic overlap of the items and different frequencies of comparable vocabulary in

different words. Therefore the comparison focuses on productive vocabulary as measured with a verbal fluency test which is widely used in psychological assessment but also in linguistic research on vocabulary knowledge and lexical access (for an overview see Daller and Ongun, 2017: 7). The participants had to name all words that they knew from four categories (clothing, colours, food and body parts). For each category they had two minutes. To avoid priming effects there was a break of two weeks between the recordings in English and Turkish. The results are shown in Figure 6 and 7.

Figure 6 and 7 Productive vocabulary scores for heritage speakers (bilingual group) and control group in Turkish and English

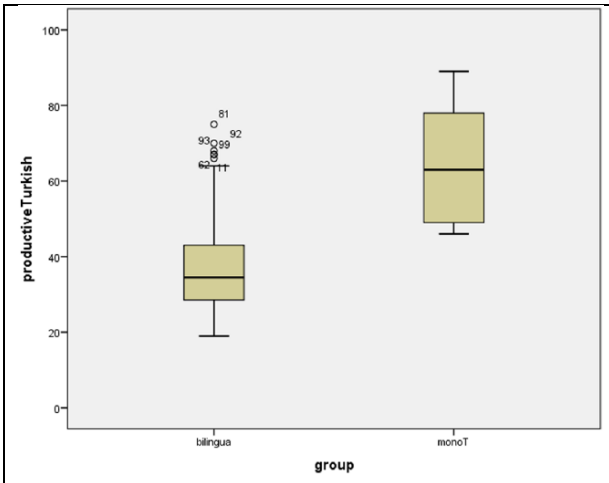

Figure 6

Productive vocabulary for heritage speakers and Turkish monolinguals

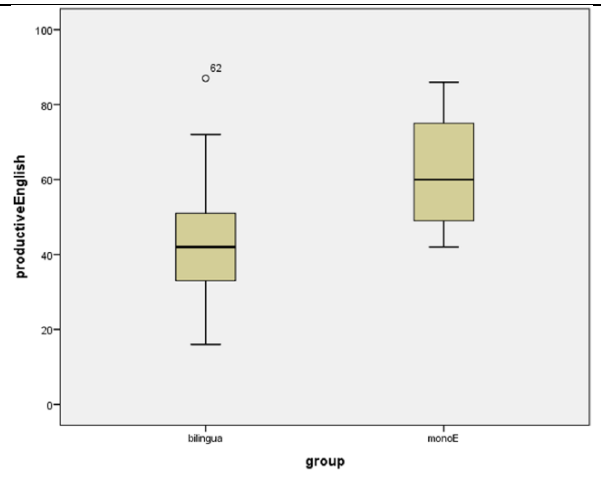

Figure 7

Productive vocabulary for heritage speakers and English monolinguals

It is clear that the bilingual heritage speakers score lower in both languages when compared with matched monolingual peers. The differences are statistically significant for Turkish (t = 9.22, df = 32.670, p < .001; equal variance not assumed) and English (t = 6.484, df = 122, p < .001).

This ‘bilingual gap’ is identified in many studies (Bialystok, Craik, Green, & Gollan, 2009; Bialystok & Feng, 2010; Bialystok, Luk, Peets, & Yang, 2010; for a detailed overview see Daller and Ongun 2017). However, a more appropriate approach for bilinguals is the measurement of the total conceptual vocabulary (TCV) as proposed by Swain (1972) and Pearson, Fernández and Oller (1993). In this approach the vocabulary of a bilingual in both languages is taken together and credit is given if the participant knows a word either in L1 or L2. Words that are known in both languages are counted as one known concept as well as words that are known only in one language regardless which language it is. The TCV is smaller than the vocabulary of L1 and L2 taken together because there is overlap in vocabulary knowledge but it is larger than the vocabulary in each single vocabulary. For monolinguals the total conceptual vocabulary is equal to the vocabulary in their language. Figure 8 shows the total conceptual vocabulary of the heritage speakers in Daller and Ongun’s study compared with the two monolingual control groups.

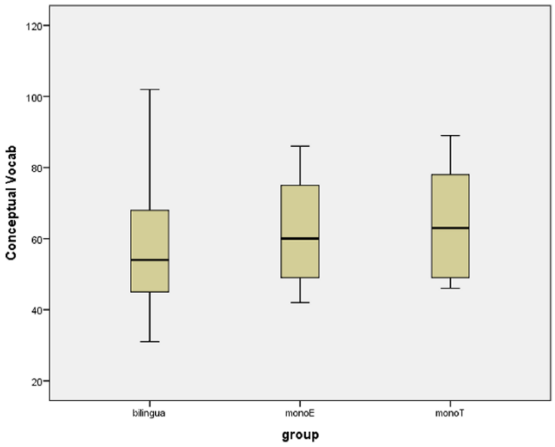

Figure 8
Total conceptual vocabulary of the bilingual heritage speakers and the two monolingual control groups

The differences between the groups are not significant. Daller and Ongun (2017) show that for at least their sample a bilingual disadvantage with regard to vocabulary does not exist when the approach of total conceptual vocabulary is used. Smaller vocabulary scores for bilingual heritage speakers are only an artefact of the methodological approach if each language is compared separately with a monolingual control group, but not when the two languages are taken together

As a summary of the literature we come to the following conclusions: heritage speakers are still clearly dominant in German even one year after return to Turkey (Daller et al. 2011; see Figures 4 and 5). The dominant language of the environment takes over from the heritage language with respect to receptive vocabulary knowledge when the children are around nine years old (Daller and Ongun 2017; see Figure 5). Daller and Ongun (2017) also show that there is a "vocabulary

gap" when heritage speakers are compared with monolingual control groups, but that there is no vocabulary gap when the Total Conceptual Vocabulary is considered (see Figures 6 – 8).

3. Hypotheses

In the present study we aim to find out whether a vocabulary gap can be identified when we compare a whole group of speakers and not individuals and whether this gap disappears similar to the TCV approach when we make group comparisons. Based on the literature summary above, we expect that:

1. Heritage speakers in Germany will be dominant in German
2. A vocabulary gap will be apparent in Turkish when compared to monolingual controls
3. A potential vocabulary gap in German will be smaller than in Turkish
4. A vocabulary gap is not apparent when both languages are taken into account in a group comparison

4. Methodology

4.1 Participants

The research group in the present study consists of 23 heritage speakers of Turkish in the age range of 11 – 13. Two speakers came to Germany at the age of 5 and 21 speakers were born there. All attended German schools at the time of data collection. The control groups consist of peer matched monolinguals from Turkey (n = 30) and Germany (n = 18). All participants attended a "Hauptschule" (basic secondary school) or a similar school in Turkey, and the parents were from a working-class background.

4.2 Measures

The research group described a text free picture story ("Frog, where are you"; Mayer 1969) in Turkish and German. There was a break of two weeks between the recordings in both languages to avoid priming effects. The data collection in Turkish was carried out by a speaker of Turkish and the instructions were given in that language. The data collection in German was carried out by a speaker of German. The control groups described the same story. The picture stories were analysed according to the total number of words used in both languages. We also analysed selected keywords in the picture description (see Table 2). For the key words, sometimes the total number of words used is larger than the sample because some participants use two different words for one description (e.g. "Bienennest" (bee nest) and "Bienenstock" (bee hive) in the same description. In this case we counted both words. If a participant uses the same word more than once, we counted this only once since this does not reveal additional lexical knowledge.

A further measure that we used is the index "D" which is an index of lexical richness developed by Malvern and Richards (see Malvern, Richards, Chipere, & Durán, 2004). Many measures of lexical richness are dependent on text length as speakers/ writers run out of new words the longer they speak/ write and need to repeat words already used increasingly. Therefore the ratio of new words to all words (type-token ratio, TTR) decreases with increasing text length, which makes it difficult to compare text of different lengths. The falling TTR curve with increasing text length can me modelled by a curve. The measure "D" is based on the steepness of this falling curve. Speakers who repeat their words more often show a steeper falling curve than speakers who use a more varied vocabulary. The higher value for "D" is therefore an indication of a larger vocabulary (for an overview on the measurement of lexical richness see: Daller, Milton & Treffers-Daller, 2007).[2]

4.3 Procedure

The data collection for the heritage speakers and for the German control group was carried out in Germany at a school. To avoid priming effects there was a break of two weeks between the recordings in Turkish and German. The data collection for the Turkish monolinguals was carried out at a school in Turkey and for German at a school in Germany. All schools were a "Hauptschule" in Germany or a school of a similar level in Turkey. The interviewer was a speaker of the language that was recorded and the instructions were given in that language. The participants were asked to describe the story to somebody who could not see the story.

[2] It is of course possible to repeat words more often for stylistic purposes, which could result in a low value for "D". This is, however, not normally done in an exam setting where participants know that their texts are evaluated in some form.

5. Results

A first indication of vocabulary size is the number of words that can be produced in a given time. Therefore, we analysed a sub-group of bilingual heritage speakers that produced texts in both languages (n = 10).[3] The results show that the bilinguals use slightly shorter texts in Turkish than in German (mean text length in German: 761.3 token, Std.D. = 205.6; mean text length in Turkish: 629.5, Std.D. = 230.7). However, this relatively small difference does not necessarily mean that the Turkish of this group is weaker as Turkish has a tendency to use fewer words when conveying the same content due to the agglutinating structure of the language. Daller et al. (2011) estimate that any translation from German to Turkish will result in 10% fewer words in the Turkish text. Apart from this argument the difference between the German and Turkish text lengths for the subgroup of heritage speakers is not significant (Wilcoxon Signed Rank Test: p = .093). This comparison does therefore not reveal a dominant language of the bilinguals. A qualitative analysis, however, shows clear differences between the picture descriptions in both languages. Whereas the German descriptions are told with virtually no hesitation markers, there are many hesitations, false starts and apparent word finding problems in Turkish as can be seen from the following examples:

[3] For technical reasons only for this sub-group full transcripts are available in both languages.

Example 1

co- kucuk cocuk (chi(ld) small child)

Example 2

Cag- bağiriyor bağara bağirmak istiyor

ca(ll) screams scr(…) scream want

he wanted to scream

In addition, the bilingual group switches between languages, apparently when word finding problems occur as illustrated in example 3.

Example 3

o zaman suya suya suya springen yapti

then into the water into the water into the water jump did

then he jumped into the water

Example 3 clearly shows a word finding problem in Turkish as after several repetitions of *into the water* only the German word *springen* "jump" is used where the Turkish word *atlamak* "jump" would have been expected. These examples can be seen as an indication of problems with vocabulary knowledge or word access A purely quantitative analysis cannot capture the differences between the two groups.

We also compared the Turkish picture stories of the heritage speakers with those of a peer-matched monolingual control group (same age, same educational level). We used the total number of words and the measure "D" for this analysis. The results are shown in Table 1.

Table 1
Text length and "D"-value for the picture descriptions in Turkish

group	Text length (mean)	St.D.	"D"	St.D.
Heritage (n = 10)	629.5	230.682	78.830	18.8024
Monolinguals (n = 14)[4]	264.79	79.117	67.164	19.3626

Interestingly, the bilingual group produces much longer descriptions than the monolingual group, which would indicate that they are more fluent in Turkish. The difference between the two groups in word length is significant (Mann-Whitney U Test; $p < .001$). However, the D-values do not differ significantly, which indicates that based on a qualitative analysis their displayed lexical richness is not significantly different. The longer texts in Turkish for the heritage speakers are probably due to the many repetitions and false starts (see examples above) which will not lead to a higher value for "D" as there are many repetitions.

[4] Only for a sub-group the full transcription of the stories was available for technical reasons.

A more detailed analysis can be obtained when keywords in the frog story are analysed. Based on a qualitative analysis nine keywords were identified with potential differences between the heritage speakers and monolingual speakers. In total, 30 peer-matched monolingual speakers of Turkish and 18 of German were used, and compared to the data from 23 heritage speakers. The number of instances where a certain word is used is sometimes larger than the sample size or smaller because some speakers used a word more than once in the description of a picture and others skipped the description of the relevant parts (key-words) of certain pictures. It should be noted that this analysis is different from the Total Conceptual Vocabulary approach, as the TCV is about the vocabulary of an individual. Here we focus on the vocabulary used by the group as a whole. However, if a certain word, such as *hayvan* "animal" is used by most members of a group instead of the more precise geyik "deer", conclusions can be drawn about the vocabulary of the individuals.

Table 2 shows the use of these keywords by the heritage speakers in both languages and the monolingual controls.

Table 2

Keywords used by bilingual heritage speakers and monolingual control groups[5]

Keyword	**Turkish mono (n = 30)**	**Heritage Speakers (n = 23)**		**German mono (n = 18)**
		Turkish	**German**	
Call	bağırmak (18)	bağırmak (yell, shout) (27) çağırmak (shout) (17) seslenmek (call) (1)	Rufen (call) (27) Schreien (shout) (17)	Suchen (look for) (7) Rufen (call) (9) Gucken (look) (9) Schreien nach (shout after) (1)
Deer	Geyik (23) Hayvan (animal, 3)	Hayvan (animal) (16) Inek (cow) (1) At (horse) (1)	Reh (deer) (16) Hirsch (deer) (5) Elch (moose/ elk)(4) Stier (bull) (1)	Reh (deer) (10) Elch (Moose/ Elk) (3) Rentier (reindeer) (1), Hirsch (deer) (9)
(Tree) trunk	kütük (trunk) (11)	ağaç (tree) (20) Şey (thing) (1)[6]	(Baum)stamm (trunk) (19) Baum (tree) (2)	Baumstamm (trunk) (14) Baumstumpf (tree

[6] „Şey“ means „thing”, and its use by the heritage speakers can be seen as the lack of knowledge (or the lack of access) of the appropriate word.

			Ast (branch)(2)	stump) (4)
climb	Çıkmak (21) Tırmanmak (6)	Çıkmak (climb, 11) Binmek (mount)(1) Gidiyor (go) (2)	Klettern (climb, 10)gehen (go, 5), steigen (mount) (3) springen (jump) (1) schauen (look) (3)	Klettern (climb) (15), Gehen (go) (1) Steigen (climb) (1)
Beehive	Arı covanı (beehive) (15)	Ari evi (bee house) (19)	Bienennest (bee nest) (13) Bienenhaus (bee house) (6) Bienenstock (bee hive) (4)	Bienenstock (bee hive (11) Bienennest (bee nest) (11) Others (1)[7]
Mole	Köstebek (mole) (19)	Hayvan (animal) (13) Hamster (1) Fare (mouse) (2) Şey (thing) (1)	Maulwurf (mole) (15) Hamster (6) Maus (mouse) (3) Hase (rabbit) (1) Eichhörnchen (squirrel) (1) Stinktier (skunk) (1) Tier (animal) (3)	Hamster (hamster) (2) Maulwurf (mole) (4) Nagetier (rodent) (1) Frettchen (ferret) (1) Maus (mouse) (2) Meerscheinchen (ginea pig) (1) Erdmännchen (meerkat) (1) Tier(4) (animal)

[7] Bienen-bau (bee building) (1), Bienenkorb (bee basket (1), bienenwabe (honeycomb) (1)

(Bee) chase (Bee) sting	Kovalamak (chase) (20)	ışırmak (bite) (8) sokmak (sting) (6) batmak (sting) (2) igne yapmak ("to do sting")[8] (1)	stechen (sting) 13) Beissen (bite) (1)	Verfolgen (chase) (3) Jagen (hunt) (2) Stechen (2) Hinterher fliegen (fly afterwards) (1)
Jar	Kavanoz (jar, 16)	Şişe (bottle, 5) Tas (bowl) (1) Bardak (cup) (2) Kavanoz (jar) (5)[9]	Glas 18	Glas (15) Others (2)[10]
Frog	Kurbağa (27)	Kurbağa (20)	Frosch (21)	Frosch (18)

For Turkish there is a tendency that the monolingual speakers use mainly specific words in their descriptions (e.g. kavanoz "jar" whereas the heritage speakers use more general words that are not entirely appropriate (e.g. Şişe "bottle" to describe the same picture. Another example is the word Köstebek "mole" which is used by all Turkish monolingual speakers, but the heritage speakers either skip the description of this part of the picture or use the more general word animal. None of the heritage speakers uses the specific word arı kovanı "bee hive", but they use ari evi "bee house" instead. This is an existing compound, but arı kovanı is more specific. The

[8] Actually, this means to "give an injection" or to "inject". It can be seen as an example for the overuse of "yap-" (to do) by heritage speakers (see section2) and/or a word findings problem.
[9] küvez , kova (bucket), vitrin (showcase), vazo (vase) (each 1 x)
[10] Topf (pot) (1), Dose (can) (1)

heritage speakers have a tendency to use more general words in Turkish, which is an indication that at least some of them do not know the specific words or do not have access to them during the task.

For German the situation is different. Here the heritage speakers use many specific words similar to the monolingual group, such as Bienstock "bee hive" or Maulwurf "mole". This raises the question whether the heritage speakers as a group know more specific words in German but not in Turkish. As we do not analyse individuals, we cannot say that the heritage speakers have a total conceptual vocabulary that is similar to monolinguals. However, if specific words are known by the group in at least one language, conclusions can be drawn about language dominance, and about vocabulary knowledge in general. In Table 3 we compare the use of specific key-words by heritage speakers when compared with the monolingual control groups. If several words were used, we counted the most frequent use (mode).

Table 3

Key-words used by heritage and by monolingual speakers as a group (No = no speaker of that group used the key-word)

Key-word used by monolingual groups	Same key-word used by heritage speakers in Turkish	Same key-word used by heritage speakers in German
Call	Yes	Yes
Deer	No	Yes
Trunk	No	Yes
Climb	Yes	Yes
Beehive	No	No
Mole	No	Yes
Chase/sting	Yes	Yes
Jar	No	Yes
Frog	Yes	Yes

Table 3 shows that the heritage speakers use specific keywords as the German monolingual group. For Turkish the situation is different. If they had been tested in Turkish only, a vocabulary gap would have been attested. This is, however, not true if we look at both languages. As we do not look at individuals in this analysis, we cannot prove that the individual have a total conceptual vocabulary that is similar to the monolinguals However, Table 3 shows that there is at least an indication that the group does not lack behind the monolingual speakers in German.

6. Discussion and Conclusion

Although the quantitative analysis (see Table 1) does not confirm there is a difference between the vocabulary knowledge of the heritage speakers and Turkish monolinguals, there seem to be clear word finding problems in Turkish as is shown in the more fine-grained qualitative analysis illustrated in examples 1 – 3. This is also confirmed by the analysis of the keywords, where clearly fewer Turkish key words are known when compared to the Turkish monolingual control group.

The analysis of keywords shows that more key words are known in German than in Turkish and that German is the stronger language of the heritage speakers which supports Hypothesis 1 which states that German is the dominant language for the heritage speakers. This is in line with previous research on Turkish returnees from Germany, where even after one year or longer in the Turkish monolingual environment German is still the dominant language of this group. According to Daller & Yıldız (1995) it takes between 1.6 to 8 years in a monolingual environment before the vocabulary gap in Turkish is closed. A finding which also is plausible from the present study. The results of the current study provide support for Hypothesis 2, which states that there is a vocabulary gap in Turkish. In German this gap does only exist marginally

when compared with a peer matched control group. Hypothesis 3 which states that there is also a vocabulary gap in German, albeit smaller than in Turkish, is therefore not confirmed by the findings. When both languages are taken together no vocabulary gap can be found for the group of the heritage speakers, which confirms hypothesis 4. This might be an indication that also for individual speakers there is no vocabulary gap if both languages are taken together which is an indication that the TCV of the heritage speakers is similar to monolinguals, but it is beyond the scope of this study to investigate this in detail.

The heritage speakers do not seem to have a disadvantage in German with regard to vocabulary. Since the participants get schooling in German only a gap in their Turkish vocabulary will not be apparent at school and will not be a disadvantage for them. The vocabulary gap in Turkish would only become apparent if they would move to a Turkish school or university by returning back to Turkey, where clear additional support for vocabulary in Turkish would be necessary for academic success. One outcome of the present study is that there is no vocabulary deficit for the heritage speakers in Germany but that a potential return to Turkey would pose a challenge with regard to vocabulary. However, previous studies on vocabulary (Daller & Yıldız 1995) and collocational knowledge (Treffers-Daller et al. 2016) show that Turkish heritage speakers' performance can be within the range of that of monolinguals, particularly if the heritage speakers return to a monolingual Turkish environment albeit after a certain time of exposure to monolingual Turkish. Our findings clearly show that a combination of quantitative and qualitative methods is necessary to draw a fine-grained picture of bilingual proficiency. We also strongly argue for takeing both languages of the participants into account. One limitation of our study are the small sample sizes, which are due to logistic reasons. Further studies with larger sample sizes are needed.

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