Athens Institute for Education and Research
ATINER

ATINER's Conference Paper Series
LNG2013-0711

The Usage of Turkish Grammatical Morphemes by Learners of Turkish as a Second Language

Esra Altunkol
Instructor
The University of Cukurova
Turkey

Berna Balci
Instructor
The University of Cukurova
Turkey

An Introduction to
ATINER's Conference Paper Series

ATINER started to publish this conference papers series in 2012. It includes only the papers submitted for publication after they were presented at one of the conferences organized by our Institute every year. The papers published in the series have not been refereed and are published as they were submitted by the author. The series serves two purposes. First, we want to disseminate the information as fast as possible. Second, by doing so, the authors can receive comments useful to revise their papers before they are considered for publication in one of ATINER's books, following our standard procedures of a blind review.

Dr. Gregory T. Papanikos
President
Athens Institute for Education and Research

The Usage of Turkish Grammatical Morphemes by Learners of Turkish as a Second Language

Esra Altunkol
Instructor
The University of Cukurova
Turkey

Berna Balci
Instructor
The University of Cukurova
Turkey

Abstract

In Turkish, new words are mostly formed through adding certain suffixes to the root of a word. The usage of grammatical morphology in first language acquisition by Turkish children has been studied by various scholars. However, as a second language Turkish needs more scholarly attention since it has long been considered as a less commonly taught language. The case still being the same, though, teaching Turkish as a second language has seen a rise in the recent years. For this reason, the aim of this study is to investigate the use of Turkish case marking (accusative, locative, dative, ablative), plural marking and possessive marking by learners of Turkish from different language backgrounds and ages at two different levels. The participants of this study were chosen from the students attending the Turkish as a Foreign Language Course offered by Çukurova University. At the beginning of the course, the level of the learners was determined via a placement test administered by the School of Foreign Languages in Çukurova University, Turkey. For the purposes of this study, four free writing tasks were given to the learners in each level in a period of two months. At the end of the study, the usage of the morphemes under investigation by the two groups was described and compared and the results were discussed with reference to the previous research in Turkish FLA and SLA.

Keywords:

Corresponding Author:

Introduction

The field of SLA has seen a myriad of studies focusing on the acquisition order of grammatical morphemes in English by both children and adults (Dulay and Burt, 1973, 1974; Larsen-Freeman, 1975; Goldschneider and deKeyser, 2001 among others). While such studies have contributed a great deal to the field, we believe that less commonly taught and typologically diverse languages should also be investigated in terms of the acquisition of grammatical morphemes. Turkish, particularly, deserves scholarly attention for it is an agglutinative language with a very rich inflectional system. Tense, aspect, modality, number, possession and many other notions are marked on the verb or noun.

Possessive marking

In Turkish, there are possessive pronouns which modify nouns coming after them. These pronouns are derived from personal pronouns with the attachment of the genitive suffix -(n)In. Turkish has genitive-possessive constructions to express possession. For example;

(1) *benim   araba-m*
    my   car-poss.1st.sg
    'my car'

In this example, the possessive pronoun *benim* modifies the noun *araba* (car) and is the possessor in this construction while *araba* is the possessed. In most cases, the possessor is omitted if it is a possessive pronoun since the possession is already marked on the possessed. As Turkish is a pro-drop language which allows null subjects, not only possessive pronouns but all pronouns can be omitted. However, they can be kept for pragmatic reasons such as adding emphasis. On the other hand, sometimes the genitive-possessive construction has a noun as the possessor. In these cases, the possessor cannot be omitted.

(2) *Ali-nin   kalem-i*
    Ali-gen   pen-poss.3rd.sg
    'Ali's pen'

In this study, we only looked for the obligatory possessive marker on the possessed element. The genitive suffix was not taken into consideration as it has several functions other than its typical function as possession.

Accusative Case Marking

In Turkish, case assigners are verbs, adjectives and postpositions. The accusative case in Turkish, indicated by the suffix -(y)I, is the only case which can sometimes be non-obligatory. It is obligatory only when a specific, definite thing or person is the object of the verb which is either described in some detail

or has been previously mentioned. The accusative case has several functions. These functions are given below:

(3) *Doktor   hasta-yı   tedavi ed-iyor.*
    Doctor   patient-acc   treat-Pr.Prog   (Definitizing)
    'The doctor is treating the patient.'
(4) *Doktor   hasta-lar-ı   tedavi ed-er.*
    Doctor   patient-plu-acc   treat-aor   (Generic)
     'The doctor treats patients.'
(5) *Doktor   Sevgi-yi   tedavi et-ti.*
    Doctor   Sevgi-acc   treat-past   (Syntactic)
    'The doctor treated Sevgi.'
(6) *Merdiven-i   çık-tı.*
    Stairs-acc   climb-past   (Completeness)
    'He/She/It climbed up the stairs'

                                          (Yavuz, Balcı and Turan, 2000)

Locative Case Marking
    The locative case in Turkish, indicated by the suffix -DA, is added to nominal elements such as nouns, pronouns and adjectives to locate a person or an object in time and place. It can roughly be translated as 'in, on, at' in English. Following are some examples;

(7) *ev-de*
    house-loc
    'at home'
(8) *masa-da*
    table-loc
    'on the table'
(9) *yedi-de*
     seven-loc
    'at seven'

Dative Case Marking
    In Turkish, it is obligatory to mark the indirect objects of ditransitive verbs with the dative case, which is indicated by -(y)A. The dative case in Turkish can signal transference or directionality as illustrated in the following examples;

(10) *Kitab-ı   Zeynep-e   ver-di-m.*
     Book-acc   Zeynep-dat give-past-1st.sg   (Transference)
     'I gave the book to Zeynep.'
 (11) *Kitab-ı   Ankara-ya   yolla-dı-m.*
      Book-acc Ankara-dat   send-past-1st.sg   (Directionality)
     'I sent the book to Ankara.'

(Yavuz, Balcı and Turan, 2000)

As mentioned earlier, some postpositions require the preceding nouns to have a certain case. Following is an example for dative case;

(12) *Sabah-a   kadar   çalış-tı-k.*
   Morning-dat   until   work-past-3rd.pl
   'We worked/studied until morning.'

Ablative Case Marking
   The ablative case in Turkish, indicated by -DAn, signals notions such as source, departure, units of a set, part of a whole, comparison, reason, cause etc. Here are some examples for some of these functions;
   (13) *Ahmet Hasan-dan uzun.*
      Ahmet Hasan-abl   tall   (Comparison)
      'Ahmet is taller than Hasan'
   (14) *Adana-dan   gel-di-k.*
      Adana-abl   come-past-1st.pl   (Source)
      'We came from Adana'
   (15) *Heyecan-dan   uyu-ma-dı-m.*
      Excitement-abl   sleep-neg-past-1st.sg   (Reason)
      'I didn't sleep from excitement'

Plural Marking
   In Turkish, plurality is expressed with the attachment of the suffix -lAr to the nouns. The basic meaning of this suffix is to refer to more than one item from the class indicated;

   (16) *boş   oda-lar*
      empty room-plu
      'vacant rooms'

(Göksel and Kerslake, 2005)

English has nouns which must always take the plural marker -s (e.g. glasses) and these nouns can sometimes be separable pairs (e.g. shoes) while others can be a whole unit which cannot be separated (e.g. trousers) (Bond, 2001). However, Turkish does not have noun categories which must always take the plural marker.
   Nouns do not take the plural marker when they are modified by a number;

   (17) beş   kitap
      five   book
      'five books'

In some cases, the plural marking can be non-obligatory as illustrated in the following examples;

(18) kimi   zaman
    some   time
   'sometimes'
(19) kimi   zaman-lar
    some   time-plu
   'sometimes'

There is no difference in the meanings of (18) and (19). For the purposes of this study, we only focused on the usage of plural marker in obligatory contexts.

The acquisition of morphological inflections in Turkish as a first language has been studied by many scholars (Ekmekçi, 1979; Küntay and Slobin, 1999; Küntay and Slobin, 2002; Göksun, Küntay and Naigles, 2008; Sofu, 1989; Sofu, 1995 and Altınkamış-Türkay, 2005) and it has been found that Turkish children acquire Turkish morphology relatively easily and rapidly due to its 'remarkable regularity and transparency' (Aksu-Koç and Slobin, 1985).

One of these studies, Sofu 1989, is particularly important for our study. In her study, Sofu investigated the acquisition of case markers in Turkish with the aim of finding out the acquisition order of these markers in first language. The results of her study confirmed that Turkish children acquire case markers effectively at an early age although the full mastery takes some more time. Of all the cases she studied, she found the accusative case to emerge the latest compared to the other cases she studied. In contrast to the dative and ablative cases which seemed to appear early but were not used productively until later, the accusative case was used productively after its first appearance.

Turkish as a second language has not been as widely studied as in FLA. Yet, there are some studies in the literature focusing on the problems encountered and mistakes made by learners of Turkish (Akdoğan 1993; Güven, 2007; Candaş Karababa, 2009). In the recent years, though, since Turkish as a foreign language has started to attract more students, the field calls for more attention. For this reason, in this study we investigate the usage of grammatical morphemes attached to nouns in Turkish. Our main purpose is to describe and compare the usage of possessive, case (accusative, locative, dative, ablative) and plural markers by two levels of students, beginner and intermediate.

Methodology

In this study, we aim to describe and compare the usage of some grammatical morphemes attached to nouns in Turkish (accusative, locative, dative, ablative, possessive and plural). Both qualitative and quantitative descriptions of the results obtained are presented in this section.

Participants

The participants in this study were selected from the students attending an intensive Turkish as a foreign language course at the School of Foreign Languages at Çukurova University. This course was designed to prepare foreign students for their future academic studies at different departments. The course took place for two academic semesters for twenty hours a week. The course was taught by native speakers of Turkish who were English language instructors with previous Turkish teaching experience.

The participants selected for the study were attending two different levels, beginner and intermediate. The beginner group consisted of 32 students coming from different countries mostly from Africa and Middle East. Therefore, participants had various native languages mainly Arabic, Persian, French as well as some other languages spoken in their local communities. Hence, most of the students were multilingual. The intermediate group consisted of 13 students who had previous Turkish learning experience in their home countries.

Data Collection

Data was collected in a period of two months. To collect data, we gave four different free writing tasks to the students for which they had to write a paragraph consisting of 150-200 words. The topics given to the students were in the following order:

Task 1: Tell about your family.
Task 2: Tell about yourself.
Task 3: Write about your culture.
Task 4: Write about university life in your country and in Turkey.

The tasks were chosen based on the grammar items and vocabulary covered previously in the course. The tasks were given at the same time to all levels.

Data Analysis

The correct and incorrect usages of the morphemes under investigation were identified by the researchers. The usage of morphemes were sorted out in the following way: When a student did not use a morpheme in an obligatory context, it was considered as a mistake. When a student used a different grammatical morpheme (e.g. accusative for dative) from the one required, the mistake was counted as a mistake for the required morpheme. Since accusative and plural morphemes are not obligatory in all contexts, the non-existence of these morphemes in non-obligatory contexts were not counted as a mistake. Finally, vowel harmony and other phonological mistakes were not taken into consideration.

Results and Discussion

Table 1 below shows the distribution of correct and incorrect usages of the markers for each task for the beginner level. Table 2 shows the total number of correct and incorrect usages identified in all of the tasks.

Table 1. *Distribution of correct and incorrect usages for each task for the beginner level*

	TASK 1 n=32				TASK 2 n=32				TASK 3 n=32				TASK 4 n=32			
	Correct		Incorrect		Correct		Incorrect		Correct		Incorrect		Correct		Incorrect	
	f	*%*	*f*	*%*	*f*	*%*	*f*	*%*	*f*	*%*	*f*	*%*	*f*	*%*	*f*	*%*
Possessive	423	95	22	4.9	127	87.5	18	12.4	65	63.7	37	36.2	93	83	19	16.9
Accusative	36	42.3	49	57.6	33	40.7	48	59.2	33	32.6	68	67.3	9	20.9	34	79
Locative	207	85.1	36	14.8	160	85.1	28	14.8	175	70.5	73	29.4	338	83.6	66	16.3
Dative	45	63.3	26	36.6	64	64	36	36	54	58.6	38	41.3	43	68.2	20	31.7
Ablative	31	79.4	8	20.5	51	86.4	8	13.5	47	75.8	15	24.1	63	88.7	8	11.2
Plural	194	91.5	18	8.4	90	84.1	17	15.8	274	88.1	37	11.8	301	90.6	31	9.3

Table 2. *Distribution of correct and incorrect usages for all tasks for the beginner level*

	TOTAL			
Morpheme	Correct		Incorrect	
	f	*%*	*f*	*%*
Possessive	708	88	96	11.9
Accusative	111	35.8	199	64.1
Locative	880	81.2	203	18.7
Dative	206	63.1	120	36.8
Ablative	192	83.1	39	16.8
Plural	859	89.2	103	10.7

The possessive marker seems to be used correctly at a very high rate in the first and second tasks while the correct production seems to decrease remarkably in the third task. The reason behind this might stem from the fact that the first and the second tasks required the participants to write about their family and themselves in which they mostly preferred possessive pronouns such as *benim* and *onun* which might have acted as cues in finding the correct possessive suffix. In the third task, however, the participants wrote about their culture. In this task, they tended to use the possessive marker after nouns which might have made the genitive-possessive construction more complex for them.

When we look at the usage of the accusative case, we see that participants had a very low performance on all tasks. Although the total usage of the accusative case is low on all tasks, it is the lowest on task four.

The locative case is the most productively used case and it is the second most effectively used on all tasks. This might result from the fact that it is the

first taught case which the participants were introduced at the very beginning of the course.

As for the dative case, we can say that although the correct usage outnumbers the incorrect usage on all tasks, it seems that it was not effectively used as the other cases, except the accusative.

Although the ablative case was not used very productively, it was used relatively effectively on all tasks. This might be the result of the fact that in Turkish there are some structures (e.g. comparison) and postpositions (e.g. *-den beri*) which require the use of the ablative case, and the participants had learned these before.

The plural marker, among all the other markers, was the most productively and effectively used morpheme. This might be again due to the early instruction on plural marking. The participants were introduced with the plural marker at a very early stage in the course. It is relatively very easy to mark plurality in Turkish unlike languages like English. The most common incorrect usage of plural marker was adding the plural suffix when a noun was used with a number or a quantifier as it is ungrammatical in Turkish. Following comes from a participant's writing;

(1) *üç   dil-ler
    three   language-plu
    'three languages'
(2) *çok   az   insan-lar
    very few   person-plu
    'very few people'

Overall, Table 2 shows that the least used marker was the accusative with the highest rate of incorrect usage (64.1%). The accusative case is followed by the dative case. Still, compared to the accusative, the participants used this case correctly with a percentage of 63.1 which is still remarkable. Of all the markers, the plural marker was used the most effectively (89.2%) which is followed by the possessive (88%) and ablative (83.1%). The locative case was used the most productively among all the other markers.

The results for the intermediate level are given in Table 3 and Table 4.

Table 3. *Distribution of correct and incorrect usages for each task for the intermediate level*

Morpheme	TASK 1 n=10				TASK 2 n=13				TASK 3 n=13				TASK 4 n=10			
	Correct		Incorrect		Correct		Incorrect		Correct		Incorrect		Correct		Incorrect	
	f	*%*	*f*	*%*	*f*	*%*	*f*	*%*	*f*	*%*	*f*	*%*	*f*	*%*	*f*	*%*
Possessive	120	89.5	14	10.4	73	84.8	13	15.1	13	81	3	18.7	16	88.8	2	11.1
Accusative	22	61	14	38.8	41	55.4	33	44.6	7	43.7	9	56	4	66.6	2	33.3
Locative	48	80	12	20	85	100	0	0	22	73.3	8	26.6	53	94.6	3	5.3
Dative	34	74	12	26	44	67.6	21	32.4	22	78.5	6	21.5	11	73.3	4	26.6
Ablative	20	83.3	4	16.6	33	100	0	0	16	94	1	5.8	10	83.3	2	16.6
Plural	61	92.4	5	7.5	62	92.5	5	7.4	68	95.7	3	4.2	54	96.4	2	3.5

Table 4. *Distribution of correct and incorrect usages for all tasks for the intermediate level*

Morpheme	TOTAL			
	Correct		Incorrect	
	f	*%*	*f*	*%*
Possessive	222	87	32	12.5
Accusative	74	56	58	43.9
Locative	208	90	23	9.9
Dative	111	72	43	27.9
Ablative	79	91.8	7	8.1
Plural	245	94.2	15	5.7

As can be seen in Table 3, the number of incorrect usages for the possessive marker is very low on all tasks. As in the beginner level, the lowest percentage of the correct usage is on task 3.

The intermediate participants performed better on the accusative case. However, the accusative was still the least successfully used marker on all tasks in this level too.

The locative case seems to be one of the most effectively used morphemes. On task 2, this case was used correctly 100%. However, there is a decline in the percentage of correct usages in task 3 as in the beginner level. This result, though, cannot be attributed to the whole group performance. Five of the eight mistakes in this case came from one participant. The other participants did not make any mistakes except for three participants who only made one mistake.

The dative case was again the second least successfully used marker as in the beginner level. However, the performance of the intermediate level on the dative case was still better than the beginner level.

The ablative case was used remarkably successfully in this level. Particularly on task 2, all of the ablative case usages were correct. The beginner level was also successful in using this case.

The correct usage of the plural marker in the intermediate level is above 90% on all tasks. Seemingly, the participants do not have a problem in using this marker correctly. The only mistakes observed in the data stem from overgeneralization. That is, few students used plural marker with numbers or quantifiers.

Overall, the most productively and effectively used (94.2%) marker was plural in the intermediate level. It is followed by the ablative (91.8%) and locative (90%) case respectively. The next marker used effectively was the possessive (87%). It was also the most productively used marker after the plural. As in the beginner level, the dative and the accusative cases seem to be the most problematic ones. While the dative case was used correctly 72%, the percentage of the correct accusative usage was only 56. This is remarkable for this level. It suggests that students carry the problems with the usage of this case to the intermediate level.

When both levels are considered, we see the following patterns;

Beginner level: plural>possessive>ablative>locative>dative>accusative
Intermediate level: plural>ablative>locative>possessive>dative>accusative

It can be concluded that participants in both levels have mastered the plural marker. On the other hand, this is not the case for the dative and the accusative case markers which remain problematic even at the intermediate level. This finding is similar to what Sofu (1989) observed in child language. In her study, the accusative case was found to emerge the latest compared to the other cases.

In the second language acquisition, the usage of case markers by foreign students learning Turkish was studied by Akdoğan (1993) and Güven (2007). In her study, Akdoğan (1993) found that the accusative case was the most problematic case of all the cases she investigated. Even at the advanced level, the number of incorrect usages regarding this case was close to the beginner level. Similar to our study, the accusative case was followed by the dative case. Again in line with the results of our study, she found that the ablative and locative cases were the least problematic ones. Likewise, Güven (2007) presented the following order of cases from the most successfully produced to the least:

ablative>locative>dative>accusative

Our results are also in line with Candaş Karababa's (2009) findings. Based on the interviews she had with experienced Turkish as a second language teachers, she found that the most problematic morphemes for foreign students were the accusative and the dative.

As can be seen, the accusative case in Turkish seems to be the most problematic case for foreign learners even at the advanced level. Güven (2007) suggests that the ablative, locative and dative cases are all related to each other in some way indicating being directed to, departing from or being existent somewhere. Therefore, they should be taught successively in order to help students make connections to foster learning. However, the accusative case is different in this sense. It sometimes marks an already definite noun in order to make it the object of the sentence. Therefore, the accusative differs from the other cases and needs special attention in the classroom.

In a very similar study to ours, Özkan (as cited in Candaş Karababa, 2009) collected written data from students and focused on their usage of case markers. Investigating the written production of the students, Özkan identified and categorized the mistake types in the following way:

1) No case marking
2) Overgeneralization
3) Using another case marker instead of the required marker
4) Vowel harmony and consonant assimilation violations
5) Attaching the case marker to the wrong element in the sentence
                                    (translated from Candaş Karababa, 2009, p. 274)

14

Similar types of mistakes were observed in the present study. However, although we also observed the mistake type 4, we did not consider it as a mistake for the purposes of our study. Following are some examples for each mistake type from our study:

1) *Biyoloji   başla-yacağ-ım
   Biology   start-fut-1st.sg
   'I will start (studying) biology'
                                        (No dative case marking)
2) *Sabah   kahvaltı-yı   yap-tı-k
   Morning   breakfast-acc   do-past-1st.pl
   'We had breakfast in the morning'
                                        (Overgeneralization of the accusative)
3) *Orta   Afrika-da   gel-di-m
   Central   Africa-loc   come-past-1st.sg
   'I came from Central Africa'
                                        (Locative case instead of the ablative case)

4) *Kedi-dan   kork-uyor
   Cat-abl   be afraid-Pr.Prog
   'S/he is afraid of cats'
                                        (Vowel Harmony rule violation)
5) başka-lar   fakülte-si
   other-plu   faculty-3rd.sg
   'Other faculties'
                                        (Adding the suffix to the wrong element)

Conclusion

Taking everything into consideration, we can conclude that:

1) the most successfully produced morphemes are plural and possessive. When only cases are considered, the ablative and locative seem to be correctly used more often than the others. In both levels, the accusative case is the most problematic case. This was also true in other studies investigating case usage by foreign students. What is interesting is, in first language acquisition, too, the accusative case appears the latest in child speech and is used productively after its emergence. Yet, this is not the case in the second language acquisition. Studies have shown that even at the advanced levels, learners cannot use this case productively and effectively. Hence, we suggest that the accusative case should be paid special attention in the classroom. It might be useful to include consciousness raising activities which highlight the target form in order for the structure to be salient for the student.

2) it should also be noted that unlike in first language acquisition, variance is also a factor affecting the results of the present study. Individual differences, resulting from factors such as the native language and the ages of the learners,

and task types might have affected our results. Therefore, further research on Turkish as a second language may provide invaluable insights into the nature of second language acquisition.

3) corpus studies can also be very beneficial in understanding Turkish learner language. Further studies can use learner corpora to arrive at more reliable results.

References

Akdoğan, G. (1993). 'Yabancıların Türkçe öğreniminde ad durumu ve çekim açısından sık rastlanan yanlışlar ve nedenleri.' MA thesis, Ankara University, Ankara.

Aksu-Koç, A. and Slobin, D. I. (1985). 'The acquisition of Turkish.' In D. I. Slobin (ed.), *The crosslinguistic study of language acquisition 1: The Data*, 839-878. New Jersey: Lawrence Erlbaum Associates.

Altınkamış-Türkay, F. (2005). 'Children's early lexicon in terms of noun/verb Dominance.' Ph.D. diss., Çukurova University, Adana.

Bond, F. (2001). 'Determiners and number in English contrasted with Japanese, as exemplified in machine translation.' Ph.D. diss., The University of Queensland, Queensland.

Candaş Karababa, Z. C. (2009). 'Teaching Turkish as a foreign language and problems encountered.' *Ankara University Journal of Faculty of Educational Sciences* 42 (2): 265-277.

Dulay, H. C. and Burt, M. K. (1973). 'Should we teach children syntax?' *Language Learning* 23 (2): 245-258.

Dulay, H. C. and Burt, M. K.. (1974). 'Natural sequences in child second language acquisition.' *Language Learning* 24 (1): 37-53.

Ekmekçi, Ö. (1979). 'Acquisition of Turkish: A longitudinal study on the early language development of a Turkish child.' Ph.D. diss., University of Texas, Austin.

Goldschneider, J. M. and DeKeyser R. M. (2001). 'Explaining the natural order of L2 morpheme acquisition in English: A meta-analysis of multiple determinants.' *Language Learning* 51 (1): 1-50.

Göksel, A. and Kerslake, C. (2005). *Turkish: A comprehensive grammar*. London: Routledge.

Göksun, T., Küntay, A. and Naigles, L. (2008). 'Turkish children use morphosyntactic bootstrapping in interpreting verb meaning.' *Journal of Child Language* 35: 291-323.

Güven, E. (2007). 'Yabancıların Türkçe öğrenirken ad durum eklerinde yaptıkları hataların çözümlenmesi ve bu hataların giderilmesine yönelik öneriler.' MA thesis, Dokuz Eylül University, Izmir.

Küntay, A. and Slobin, D. I. (1999). 'The acquisition of Turkish as a native language: A research review.' *Turkic Languages* 3: 151-188.

Küntay, A. and Slobin, D. I. (2002). 'Putting interaction back into child language: Examples from Turkish.' *Psychology of Language and*

Communication 6: 5-14.

Larsen-Freeman, D. (1975). 'The acquisition of grammatical morphemes by adult ESL students.' *TESOL Quarterly* 9 (4): 409-419.

Sofu, H. (1989). 'Acquisition of case markers in Turkish: A cross-sectional study.' MA thesis, Çukurova University, Adana.

Sofu, H. (1995). 'Acquisition of lexicon in Turkish.' Ph.D. diss., Çukurova University, Adana.

Yavuz, H., Balcı, A. and Turan, Ü. D. (2006). *Turkish phonology, morphology and syntax*. Eskişehir: Anadolu Üniversitesi.