



**Republic of Turkey
Burdur Mehmet Akif Ersoy University
Graduate School of Educational Science
Department of Foreign Language Education
English Language Teaching M.A. Program**

**THE ACCESSIBILITY OF THE DEPTH OF TURKISH RELATIVE
CLAUSES BY TURKISH MONOLINGUAL CHILDREN
FROM 2 TO 9 YEARS OF AGE**

**Ergül YAVUZ
A Master's Thesis**

**Thesis Supervisor
Prof. Dr. Mehmet ÖZCAN**

Burdur, 2019

**Republic of Turkey
Burdur Mehmet Akif Ersoy University
Graduate School of Educational Science
Department of Foreign Language Education
English Language Teaching M.A. Program**

**THE ACCESSIBILITY OF THE DEPTH OF TURKISH RELATIVE
CLAUSES BY TURKISH MONOLINGUAL CHILDREN
FROM 2 TO 9 YEARS OF AGE**

**Ergül YAVUZ
A Master's Thesis**

**Thesis Supervisor
Prof. Dr. Mehmet ÖZCAN**

Burdur, 2019



**MAKÜ EĞİTİM BİLİMLERİ
ENSTİTÜSÜ**

YÜKSEK LİSANS JÜRİ ONAY FORMU

M.A.K.Ü Eğitim Bilimleri Enstitüsü Yönetim Kurulu'nun 17.09.2019 tarih ve 2019-305/7 sayılı kararıyla oluşturulan jüri tarafından 03.10.2019 tarihinde tez savunma sınavı yapılan Ergül YAVUZ'ın **THE ACCESSIBILITY OF THE DEPTH OF TURKISH RELATIVE CLAUSES BY TURKISH MONOLINGUAL CHILDREN FROM 2 TO 9 YEARS OF AGE ((Bağ Yapılı Cümlelerin Edinim Süreçlerinin 2-9 Yaş Arası Türkçe Tekdilli Çocuklarda Yaşa ve Bağ Yapı Derinliğine Göre Belirlenmesi)** başlıklı tez çalışması Yabancı Diller Eğitimi Anabilim Dalında YÜKSEK LİSANS tezi olarak kabul edilmiştir.

JÜRİ

İmza

ÜYE : Prof. Dr. Mehmet ÖZCAN
(Tez Danışmanı)

ÜYE : Doç. Dr. Nazlı BAYKAL

ÜYE : Doç. Dr. Ferit KILIÇKAYA

ONAY

MAKÜ Eğitim Bilimleri Enstitüsü Yönetim Kurulu'nun/...../..... tarih ve/..... sayılı kararı.

İMZA/MÜHÜR

BİLDİRİM

Tez yazma sürecinde bilimsel ve etik ilkelere uyduğumu, yararlandığım tüm kaynakları kaynak gösterme ilkelerine uygun olarak kaynakçada belirttiğimi ve bu bölümler dışındaki tüm ifadelerin şahsıma ait olduğunu taahhüt edip, tezimin kaynak göstermek koşuluyla aşağıda belirttiğim şekilde fotokopi ile çoğaltılmasına izin veriyorum.

- Tezimin tamamı her yerden erişime açılabilir.
- Tezim sadece Mehmet Akif Ersoy Üniversitesi yerleşkelerinden erişime açılabilir.
- Tezimin 3 yıl süreyle erişime açılmasını istemiyorum. Bu sürenin sonunda uzatma için başvuruda bulunmadığım takdirde, tezimin/raporumun tamamı her yerden erişime açılabilir.

Ergül YAVUZ

.../.../2019

DEDICATION

I would first like to thank my thesis advisor Prof. Mehmet Özcan for his patience and guidance throughout the whole study. I would also like to thank to Assoc. Prof. Dr. Ferit Kılıçkaya and Assoc. Prof. Dr. Mustafa Şevik for their contributions to the study.

I must express my very profound gratitude to my family for providing me with unfailing support and continuous encouragement throughout my study and through the process of researching and writing this thesis. This accomplishment would not have been possible without them.

Thank you.

**The Accessibility of the Depth of Turkish Relative Clauses by Turkish Monolingual
Children From 2 to 9 Years of Age**

(Master Thesis)

Ergül YAVUZ

ABSTRACT

This study investigates the comprehension and production of Relative Clauses (henceforward RC) structures by monolingual Turkish speaking children from 2 to 9-year-olds. Participants of this study were 150 children, and 10 adults took part in the study as the normative group. The aim of this study is to reveal the order and depth of RCs in children's development and to find out the most complex structure of RCs children can comprehend or produce within the determined age groups.

This is a descriptive study and the data were obtained from participants concerning their current status. A piloting was conducted before the real experiment to check the feasibility of the study. As the data collection tools, pictures were presented to participants for each depth together with a relevant scenario. All responses were video/audio recorded and the recorded data were transcribed on a word document.

Results showed that children can comprehend RC structures as early as 2-year-old and they start producing RCs at the age of 3 and the rate of production increased with the age. The production of RCs stabilized between ages 6 to 8. Lastly, at the age of 9, the proportion of RC production decreased suddenly. The findings of this study confirm that comprehension and production of RCs require cognitive maturity, knowledge of usage of the language and time to internalize that knowledge.

Key Words : Comprehension, depth of relative clauses, production, Turkish language

Page Number: 86

Supervisor: Prof. Mehmet Özcan

**Bağ Yapılı Cümlelerin Edinim Süreçlerinin 2-9 Yaş Arası Türkçe Tekdilli
Çocuklarda Yaşa ve Bağ Yapı Derinliğine Göre Belirlenmesi**

(Yüksek Lisans Tezi)

Ergül YAVUZ

ÖZ

Bu çalışma, 2-9 yaş arası çocukların bağıl yapıları anlama ve üretmelerini araştırmaktadır. Toplamda, 150 çocuk ve 10 yetişkin çalışmaya katılmıştır. Çalışmanın hedefi, çocukların dil gelişiminde bağıl cümleleri hangi yaşta ve hangi derinlikte anlayıp ürettiklerini ortaya çıkarmaktır.

Tanımlayıcı olan bu çalışmada veriler katılımcıların içinde buldukları yaşları göz önünde tutularak toplanmıştır. Asıl çalışmaya başlamadan önce geçerliği kontrol etmek için ön deneme yapılmıştır. Veri toplama aracı olarak her bir derinlik için farklı resimler kullanılmıştır. Bu resimler konuya uygun bir senaryo ile sunulmuştur. Deneme sesli ve görüntülü kayıt edilmiş, bütün cevaplar Word belgesine yazılmıştır.

Çalışma sonunda 2 yaş çocukların bağıl yapıları anlayabildikleri, 3 yaşından itibaren de üretmeye başladıkları görülmüştür. İstendik bağıl cümle üretiminin 4 yaşta ortaya çıktığı ve yaşla birlikte arttığı gözlemlenmiştir. Bağıl cümle üretimi 6 yaşta her derinlikte kaydedilmiş, 7 ve 8 yaş gruplarında ise 6 yaş verilerine yakın sonuçlar bulunmuştur. Son olarak bağıl cümle üretiminde, 9 yaş grubunda beklenmedik bir düşüş saptanmıştır. Bu düşüşün sebepleri arasında düşünce akışının kontrolünün olgunlaşmaması gösterilebilir. Öyle görünmektedir ki, bağıl cümle işleme ve üretimi zihinsel olgunluk ve bilgi ile birleşip bir süreç içerisinde gelişmektedir.

Anahtar Kelimeler: Anlama, bağıl yapı derinliği, Türk dili, üretme

Sayfa Sayısı: 86

Danışman: Prof. Dr. Mehmet Özcan

TABLE OF CONTENTS

BİLDİRİM.....	i
DEDICATION.....	ii
ABSTRACT.....	iii
ÖZ.....	İv
TABLE OF CONTENTS.....	v
LIST OF ABBREVIATIONS.....	vii
LIST OF TABLES	x
LIST OF FIGURES	xi
CHAPTER I.....	1
INTRODUCTION.....	1
1.1. Background to Study.....	1
1.2. The Statement of the Problem.....	4
1.3. The Purpose of the Study.....	5
1.4. The Significance of the Study	5
1.6. Limitations.....	6
CHAPTER II.....	7
LITERATURE REVIEW.....	7
CHAPTER III.....	15
METHODOLOGY.....	15
3.1. Research Design	15
3.2. Research Questions.....	16
3.3. Data Collection Instruments.....	16
3.4. Participants.....	19
3.5. Experimental Test Procedure.....	21

3.5. 1. Sample Protocol.....	22
3.6. Scoring and Coding.....	22
3.7. Data Analysis.....	25
CHAPTER IV.....	26
FINDINGS.....	26
4.1. Age 2.....	27
4.2. Age 3.....	28
4.3. Age 4.....	31
4.4. Age 5.....	34
4.5. Age 6.....	39
4.6. Age 7.....	43
4.7. Age 8.....	46
4.8. Age 9.....	47
4.9. Adults.....	49
4.10. Distribution of Comprehension and Production of RCs.....	50
CHAPTER V.....	56
DISCUSSION, CONCLUSION AND RECOMMENDATIONS.....	56
5.1. Discussion and Conclusion	56
5.2. Recommendations.....	66
REFERENCES.....	67
APPENDICES.....	74
Appendix-1.....	75
CURRICULUM VITAE.....	89
GENİŞLETİLMİŞ TÜRKÇE ÖZET.....	90

LIST OF ABBREVIATIONS

Abl.	Ablative
Acc.	Accusative
Adj.	Adjective
Act. Nom.	action nominal
Aor.	Aorist
Buf.	Buffer
Caus.	Causative
Comp.	Comparative
Comps.	Comparison
Dat.	Dative
Fac. Nom.	factive nominal
Fut.	Future
Fut.Subj.	future subject
Acc.	Accusative
Imp.	Imperative
Loc.	Locative
N	Noun
Neg.	Negation
Neg.Aor.	negative aorist
Nom.	Nominative
NC	Noun clause

NP	noun phrase
ObjP	object participle
Opt.	optative
Pass.	Passive
Pass. Part.	passive participle
Past	Past
pl.	plural
Poss.Pr.	possessive pronoun
PP	post-positional phrase
PPart	past participle
Part.	participle
Pr.Prog.	present progressive
Prog.	Progressive
Rep.Past	reported past
SbjP	subject participle
V	Verb
o	empty element
1.pl.	first person plural
1.sg.	first person singular
2.pl.	second person plural
2.pl.Imp.	second person plural imperative
2.sg.	second person singular

2.sg.Imp.	second person singular imperative
3.pl.	third person plural
3.pl.Imp.	third person plural imperative
3.pl. sg.	third person singular
3.sg.Imp.	third person singular imperative



LIST OF TABLES

<u>Tables</u>	<u>Page</u>
Tablo 1. Profile Of The Participants For Piloting	19
Tablo 2. Distribution Of The Correct Answers Of Participants For The Piloting..	20
Tablo 3. Participant Information For Each Groups.....	21
Tablo 4. Distribution Of The Acquisition Of RC Structures İn Each Age Group..	52
Tablo 5. Distribution Of The Proportion Of The Production Of Expected RC Structures İn Each Age Group.....	53

LIST OF FIGURES

<u>Figures</u>	<u>Page</u>
Figure 1. Sample Picture For The Depth 1.....	18
Figure 2. Sample Picture For The Depth 1.....	18
Figure 3. The Distribution of All Answers by All Participants.....	27
Figure 4. The Distribution of The Answers by 2-Year-Old Participants.....	28
Figure 5. The Distribution of The Answers by 3-Year-Old Participants.....	30
Figure 6. The Distribution of The Answers by 4-Year-Old Participants.....	34
Figure 7. The Distribution of The Answers by 5-Year-Old Participants.....	38
Figure 8. The Distribution of The Answers by 6-Year-Old Participants.....	42
Figure 9. The Distribution of The Answers by 7-Year-Old Participants.....	45
Figure 10. The Distribution of The Answers by 8-Year-Old Participants.....	47
Figure 11. The Distribution of The Answers by 9-Year-Old Participants.....	48
Figure 12. The Distribution of The Answers by Adults.....	50

CHAPTER I

INTRODUCTION

This chapter includes background information about the study, the statement of the problem, purpose of the study, significance of the study and limitations.

1.1. Background to Study

Language processing is influenced by nested structures, in particular relative clauses (RC); they are complex structures which modify and give either essential information or clearance about the noun. “Relative clauses seem to be essential for the linguistic expression of complex concepts, and it comes as no surprise that practically every language uses relativization in one way or another” (de Vries, 2013, p.3). Turkish and English differ in terms of word order in a sentence and the structure of RCs. Regarding the RCs, Turkish is a head final language; modifiers precede the noun; whereas English is a head initial language; nouns precede the modifiers. In English; there are two types of RCs; defining and non-defining (Kornfilt, 1997). Defining RCs are used when the information is necessary for the discrimination or identification of the meant entity in a sentence. On the other hand non-defining relatives are not really essential for the sentence. They can be omitted from the sentence without changing the meaning, since they provide some extra information about the entity being mentioned.

(1) Defining RC: The drivers who knew about the flood took the alternative route.

(2) Non-defining RC: The drivers, who knew about the flood, took the alternative route.

In (1), RC is crucial to understand the exact meaning; in this sentence there are some other drivers beside the ones who knew about the flood. In (2), if RC is removed, the sentence would be “The drivers took the alternative route”; so the function of the RC in (2) is to provide extra information.

Turkish and English RCs differ in terms of structural properties of these languages. Regarding relativization, English is a head-initial language and to construct an RC, it

requires relative pronoun complementizer such as; *who, what, that, which* and *whom*. Contrary to English, Turkish is a head-final language (Kornfilt, 1997) and there is no wh-element or complementizer such as *whom, what* or *when*. RCs immediately succeed the noun and modify the noun with the participle attached to describe words. For example;

(3) Yürü-yen çocuk

Walk SubjP. child

The child who is walking

(4) burada sat-ıl-an kalem-ler

here sell-Pass Part.-SubjP. pencil-Pl

the pencils which are sold here

(5) ev sahib-i-n-in kork-tuğ-um köpeğ-i

landlord-3.sg.-Buf.-Gen. fear-ObjP.-1sg. Poss. dog-3sg.Poss.

the landlord's dog, which I'm afraid of (Göksel and Kerslake, 2005,p.

386).

Turkish “exhibits a more complex pattern in terms of the form of relative clauses, the kinds of predication they can express, and their stacking possibilities” (Larson and Takahashi, 2018, p.5). “The most obvious generalization is that when the head noun is the subject of the underlying sentence, a construction of the *-(y)An* type appears, (3),(4) while if the head noun is not the subject, a construction of the *-DIK* type appears (5)” (Underhill, 1972, p. 88).

-(y)An participle: It is not inflected by a person or case. It is a verb form consisted of a verb and the *-(y)An* participle. Past and present times represented by the same morpheme in Turkish. This participle reflects the aspect of the verb. Aspect is a grammatical category associated with verbs that express a temporal view of the event or state expressed by the verb (Glossary of Linguistic Terms). This participle occurs in a sentence as a subject or possessor of some constituents.

(6) Subject: Burada yaz-ıl-an kitap-lar

Here writePass.-SubjP. book-Pl

The books which are written here

(7) Possessor: Arkasında çocuk ol-an kadın

Behind child be-SubjP. woman

The woman behind whom there is a child

-DIK participle: This participle mostly refers to past events or ongoing situations. It has accusative-possessive construction.

(8) Kızı-m-in oku-duğu okul

Daughter-Pos.1.sg.-Gen. study-ObjP. school

The school in which my daughter is studying

-(y)AcAk participle: This participle has identical structural properties with the *-DIK* participle. However *-(y)AcAk* participle mostly refers to present or future situations.

(9) Gel-ecek misafir-ler

Come-FutP. visitor-Pl

The visitors who are going to come

As it is demonstrated, there are two types of RC participles in Turkish. Subject participle; *-(y)An* and object participles: *-DIK* and *-(y)AcAk*. They are also called subject participle and non-subject participles, respectively.

Semantically, RCs are divided into two categories; restrictive and non-restrictive RCs (Kornfilt, 1997). Restrictive RCs indicate a limitation of the noun which they modify, on the other hand, non-restrictive RCs add new but omissible information to identify the modified noun. Kornfilt states that “There is no formal distinction between restrictive and nonrestrictive relative clauses in Turkish” (Kornfilt, 1997, p.61).

(10)Restrictive: Sel-den haber-i ol-an sürücü-ler, diğer yol-dan git-ti-ler

flood-Abl.know-Acc.be-SubjP.driver-pl.Alternative road-Abl.go-Past.-pl.

The drivers, who knew the flood, took the alternative road.

(11)Non-restrictive: Sel-den haber-i ol-an sürücü-ler diğer yol-dan git-ti-ler

flood-Abl. know-Acc. be-SubjP. driver-pl. other road-Abl. go-Past.-pl.

The drivers who knew the flood took the alternative road.

In the restrictive sentence (10), the meaning is that only the drivers who knew the flood took the alternative road. However, in the non-restrictive sentence (11) the meaning encompass all the drivers. The distinction between restrictive and non-restrictive is not clear in Turkish. Unlike English, there is no morphological or punctual difference and context is necessary for the clear meaning.

There is one specific type of RC in Turkish which is called “Headless RC”. “These are constructions where the head noun that a relative clause modifies is omitted from the sentence because the referent of the relative clause is either clear from [the] previous mention, or is essentially self-identifying” (Göksel and Kerslake, 2005, p.389)

(12) Kitap oku-y-an-lar-a imren-i-yor-um.

Book read-Buf.-SubjP.-Pl-Dat admire-Buf.-Pr.Prog. 1.sg Poss.Pr.

I admire people who read book.

Properties of RCs are important for understanding the implied meaning. Many researches have been done on RCs; however, to fully understand the depth of RCs, more research is needed.

1.2. The Statement of the Problem

This study mainly focuses on the accessibility of ten different RC structures by children from 2 to 9 years of age. The aim of this research is to find answers to the following questions.

1- What is the depth of comprehending and producing RCs by monolingual Turkish speaking children at different ages?

2- What is the accessibility of each RC structure by monolingual Turkish speaking children at different age?

3- What is the most complex structure of RC children can comprehend within the pre-determined age groups?

1.3. The Purpose of the Study

This present study aims to enlighten the sequence of the comprehension and production of some of the RC structures by children from 2 to 9 years of ages.

1.4. The Significance of the Study

Constructions of RCs require cognitive ability and language competency to comprehend and produce these complex structures. Children need to combine particular meaning with the grammatical form of the RC. Their understandings and productions reflect their language and cognitive development. “Relative clauses constitute a network of related constructions that children acquire in a piecemeal bottom-up way, starting with relative clauses that are only little different from simple sentences which are gradually extended into more complex grammatical patterns” (Tomasello and Diesel, 2005). Investigating understanding and production of RCs would give a deeper insight into the language acquisition and cognitive development.

As it has been revealed in the literature review, there have been studies investigated RCs and their acquisition by children. Each of these studies is concerned with different aspects of RCs. Some of the studies investigated the strategies and mechanisms of processing of Turkish RCs. Researchers discovered that Turkish language enables speakers to use similar or simpler other structures. Children avoid using complex structures of RCs in Turkish. Previous researchers also investigated the disagreement between subject and object RCs, and focused on the reasons behind this disagreement.

The research focusing on accessibility of RCs was initiated by Keenan and Comrie (1977). They studied on 50 languages and tried to build a universal hierarchy for the comprehension and production of relative constructions. They proposed a graphic and placed easier RCs on higher position and harder RCs on the lower positions. Positions of the graph is called as “depth”. They opened the way to organize hierarchically the depth of RCs in particular languages. Since every language is unique, Turkish has its own nature of utilizing the RCs. This research differs from the previous researches in terms of investigating the comprehension and production of RCs in Turkish.

1.5. Limitations

RCs are nested and complicated structures and many factors involve in the comprehension and production of these structures. Apart from all the variables, this study mainly focused on the accessibility of different depths of RC structures, because of the necessity of the restrain the pivot of the study.

Another important consideration is that this study is designed to canalize participants to produce RC structures, therefore some of the results may not represent natural data. Lastly, because of the settings of the study, it is possible for participants to hesitate when they are answering. Further investigations are needed to confirm the findings.

CHAPTER II

LITERATURE REVIEW

Comprehension and production of RC constructions give significant clues about the learning process of a language. Although a number of studies were held on development of comprehension and production of RC structures, most of them focused on European languages primarily, English and German (Diessel and Tomasello, 2005; Brandt, Kidd, Lieven and Tomasello 2009). There are also several studies conducted on RCs in Turkish to provide a full understanding of these structures. In Turkish, these studies are mostly descriptive and mainly focused on either comprehension (Slobin, 1982; 1986; Kornfilt et al.2012) or production (Sarilar and Küntay, 2011) of the RCs by foregrounding semantic (Bulut, 2012), syntactic (Paluluoğlu, 2017) or morphologic (Altinkamış and Altan, 2016) properties of these structures. There are mainly three types of RC studies in Turkish; first group interested in revealing language properties of Turkish by examining the RC structures (Slobin, 1982; 1986; Kornfilt et al.2012; Özge at al., 2015). Other group focused on applicability of comprehension and production hypotheses in Turkish (Ketrez, 2007; Kahraman, 2015). The third group compared Turkish RCs with those exist in other languages to discover differences among the languages (Yas, 2012; Kahraman at al., 2010).

The first study about Turkish RCs is carried out by Slobin (1982). He conducted a descriptive study on Turkish monolingual preschoolers and English monolingual preschoolers. The aim of the study was to investigate the comprehension of RCs. He asked double structures to 4-year-old children and acted out with toy animals and tested the comprehension of the RCs. He found that while English speaking children can interpret meaning of the sentences, Turkish speaking children failed to understand whole meaning. He concluded that Turkish RCs are harder on comprehension than English RCs.

In 1986, Slobin carried out another research on RCs of Turkish and English. Fifty-seven American and 57 Turkish children took part in the study and their age was between 1; 0 and 4; 8. Slobin engaged them in a conversation and extracted RCs from their everyday

language. He found that Turkish speaking children use RCs less than half of the number comparing to their American counterparts. In his study, he also acted-out with toy animals and presented RC structures to Turkish children and checked their understanding. He concluded that native speakers of Turkish can process the RCs after age of 5. In his research, he composed complex structures with double RCs which are not easy for children to conceive the whole meaning. Children may have trouble with understanding complex sentences including more than one RC.

Most of the RC studies in Turkish refer to Slobin's studies (1982; 1986). Slobin proposed that "the mastery of relative clauses in Turkish must take place later than 4; 8 (1986, p. 277). In his research he investigated the acquisition of the relatives by children via sentences which contain object and subject RCs. The following sentence is one of the examples from his experiment.

(13) *Lama zürafa-yı it-en kurt-u ısır-sın*

Let the lhama bite the wolf that pushed the giraffe (Slobin, 1986, p.282).

Since the sentences were complex in Slobin's study, Sarılar and Küntay (2011) focused on easier type of RCs. They presented "Hani...ya" structure and motivated children to use that structure. Fifteen monolingual children took part in the study. The mean age was 36 months. They observed and analyzed production of RC structures. This study identified that Turkish learners are facing with difficulties while processing RCs; however, if they can produce simple construction, they can understand the meaning of the RCs.

In another study, Kornfilt et al. (2012) examined the acquisition patterns of RCs of Turkish monolingual children. Their aim was to confirm the asymmetry of subject and object RCs and find out the reasons for the differences via investigated production experiment. Twenty Turkish speaking children participated in the study at the age of 4; 1 and 6; 2 and randomly chosen pictures were presented to participants. After each picture was presented the child, a related question was asked to check the comprehension of RC. The result revealed that "Turkish speaking children are able to produce both subject and object relative clauses at much younger ages than generally claimed in the literature" (Kornfilt et al., 2012, p, 300).

Bulut (2012) held a descriptive study and investigated asymmetry between subject and object RCs by eye-tracking study. All participants were undergraduate students. He built 6 hypotheses to investigate this asymmetry. Eye movements of participants were recorded while they were reading sentences with subject and object RCs. After reading, they answered comprehension questions. Results of the comprehension questions showed that object RC processing can be a disadvantage in Turkish and object RC can elevate the reading time due to the relatively long/short distance between the parts of the sentence. The study revealed that there are some other factors that can affect the comprehension of RCs such as canonicity, structural distance hypothesis (Gibson, 2000), syntactic structures, working memory demands (Tomasello, 2000), frequency and word order (Ekmekçi, 1986).

Semantic features of Turkish RCs were examined by Kırkıcı (2004). He held a descriptive study and investigated attachment ambiguities in sentences of Turkish. He focused on processing of RCs which are followed by complex structures. For example:

(14)Şoför, şehir merkezinde oturan profesörün yanındaki sekreteri gördü.

The Driver saw the secretary who was alongside the professor who stays in the city center. (p. 6)

His aim was to discover how Turkish native speakers resolve the ambiguities as given example above. He especially focused on two complex RC structures; an RC with accusative suffix and an RC followed by a post-positional phrases. Forty-eight adult native speakers of Turkish took part in the experiment. The sentence comprehension of the participants were investigated via a questionnaire. The result of the study revealed that processing these types of ambiguities is influenced by many factors such as; presence of pre/post-position of RCs, syntactic or locality based constraints. Besides these factors, he found that semantic features of the language highly influence the sentence comprehension and ambiguity resolution.

In her master's thesis, Yumrutaş (2009) studied the acquisition of Turkish RCs by monolingual Turkish speaking children. Forty-eight children took part in the study whose age range was between 3;03 and 8;02. Various types of RCs were investigated including

semantic and syntactic positions such as; oblique, direct and indirect objects. In a sentence, if the verb acts upon a noun, it is called direct object, the recipient of the action is indirect object, and if the object follows a preposition it turns into an oblique object. The findings showed that there is a big asymmetry in performance of subject RCs and non-subject RCs. All the children performed better on subject RC. A number of children produced resumptives while uttering non-subject RCs. It is claimed that *-(y)an* is the default RC participle because of the morphological and syntactical convenience.

Beside semantic studies, there are some other studies which analyzed syntactic properties of RC structures. Çağrı (2009) held a descriptive study and proposed that most of the RCs in Turkish can be rated as Minimal in terms of syntactic properties. In his research, he analyzed Minimality in Turkish. ‘kamyon geçen köprü’: ‘the bridge that trucks go on’ is actually

- (15) Ø *üzer-in-den* kamyon *geç-en* köprü
 on-Gen.-Abl. truck pass-SubjP. bridge
 the bridge that trucks go on top of’ (p, 368).

Subject RC helps to form the meaning of non-subject RC by reducing the number of the words in the sentence. The sentences which he analyzed were composed of RC structures. As a result, he was able to explain acceptability of subject relatives to form the non-subject relatives by Minimality. Although his study is mainly linguistic, it is related to production of the RC structures.

A recent study was held by Paluluoğlu (2017) on Turkish RCs. She focused on differences in syntactic processing of RCs. She also studied memory-load interferences of Turkish RCs via a self-paced reading experiment. During the experiment, all participants read the given text and their processing of RC were measured to find which RC slows down the reading. The result indicated that “object RCs are harder to process than subject RCs in Turkish suggesting that subject RCs are less complex” (p. 45). Their memory-loads were also checked by asking them to memorize some set of words. Participants tried to memorize the given words while reading simpler structures and complex structures together in the text. It was found that recall was higher for simpler sentences.

Along the same line, a study was held by Altinkamış and Altan in 2016 to investigate the acquisition of RCs in Turkish. They adapted usage-based account (Tomasello, 2000) and

suggested that acquisition process is strongly relied on exposure to and experience of a language. They underline the importance of input to form the language. It was a corpus based experiment. They searched 3 databases and analyzed 170 recordings of natural mother-child talk. They underlined the presence of other structures such as -ki or –DAKI constructions which are functionally similar to RCs. They claim that these structures are morphologically less complex than RCs are.

In another study, Ketrez (2007) examined the acquisition of RCs in Turkish and held a descriptive study. She particularly paid attention to relation to Parallel Function Hypothesis (Sheldon 1974), and Accessibility Hierarchy (Keenan and Comrie, 1977) in Turkish RCs. The Parallel Function Hypothesis suggests that it is easier to understand the meaning if head and gap have the same syntactic roles. For example:

(16) The dog that jumps over the pig bumps into the lion (parallel function)

(17) The lion that the horse bumps into jumps over the giraffe (non-parallel function).

According to Parallel Function Hypothesis the sentence (16) is easier to understand because the parts of the RC have same function. Both of them are subjects of the sentence. However, in the sentence (17) they have different functions. In (17), the lion is both a subject (bumps) and an object (the horse bumps the lion).

To investigate the Parallel Function Hypothesis, Ketrez collected data using the story; *Frog, where are you?* She also included TV news programs and adult speech to her study. She found that in terms of Accessibility Hierarchy and Parallel Function Hypothesis, adult speech order and children's speech order had common results, and subject RCs were higher in ranking than object RCs.

In one of the early studies, Kenaan and Comrie (1977) argue that languages vary in terms of their RC structures and this variation is not incidental rather relativizability of the structures is dependent on position of each part of a sentence. They analyzed fifty languages and built a hierarchy regarding their accessibility. It is as follows;

Accessibility Hierarchy (AH) SU > DO > LO > OBL > GEN > OCOMP

*SU:subject, DO:direct object, LO: indirect object, OBL: oblique case GEN: genitive, OCOMP: object of comparison (Keenan and Comrie, 1977, p. 66).

Based on these two hypotheses Ketrez built a hierarchy and concluded that “While AH seems to be a stronger and a more dominant strategy in the relative clause production and use frequency in Turkish, Parallel Function also has an essential and explanatory role in the production preference of some relative clauses” (Ketrez, 2007, p. 21).

Kahraman (2015) aimed to reveal processing difficulties of RCs when appropriate context is provided. He prepared 24 sentences including subject RCs or object RCs within a theme. Thirty-five university students took part in the study. Sentences were presented on a computer monitor word by word. After each sentence, participant’s comprehension was checked by a yes/no question. The result of the study showed that participants read subject nouns faster in neutral context; on the other hand they read object RCs faster when the appropriated context is provided. Kahraman (2015) suggests that difficulty in processing object RCs does not arise from the shortage of the context; however, this difficulty might be driven from structural distance between head and the modifier.

A significant analysis and discussion on the subject was held by Özge (2010). She performed a descriptive research to reveal the strategies and mechanisms of processing of Turkish RCs. Turkish monolingual and English Turkish bilingual children took part in the study with the age gap between 5 and 8. The study investigated the strategies and mechanisms that are used by children to acquire and produce the language. She has done series of experiments with the children, and confirmed that there is an asymmetry between subject and object RCs. She analyzed underlying reasons for this asymmetry and pointed out some of the strategies, mechanisms and hypotheses such as Accessibility Hierarchy and Filler-Gap Hypothesis (Pablos, 2008). According to Filler-Gap Hypothesis, when displacing the elements or changing their positions, relevant cues disappear and sentence interpretation decremented.

Real-time processing of RCs might be essential to understand the processing of these structures. Özge et al., (2015) investigated incremental processing of RCs in Turkish with the young (age: 5 to 8) and adult speakers of Turkish. It was a self-paced listening experiment including both object and subject RCs. The items were presented on a laptop.

Participants pressed the button for the next item. Time between each button-press was recorded. Participants answered comprehension questions in each level and their responses were gathered and analyzed. The findings revealed that children and adults showed similar patterns in that when they hear first word of the clause they use probabilistical strategy and predict the meaning. Both groups processed subject RCs easier than object RCs.

Some of the studies compared Turkish RCs with other languages. Yas (2012) examined German RCs, English RCs and Turkish RCs and their production in his doctoral dissertation. He studied with English monolingual, German monolingual and bilingual and Turkish monolingual and bilingual adults. He focused on typological difficulties of these three languages in terms of comprehension and production of RCs. His study revealed that English RCs are not easy for all groups. There are quite a lot of differences among these three languages from the point of RC acquisition. However what is common among them is that all the speakers of these languages avoid using RCs, especially non-subject RCs.

In one of the comparative studies, Kahraman et al. (2010) investigated Filler Gap Dependencies (Gibson, 2000) between Japanese and Turkish. Filler is the relativizer of the noun and gap refers to distance between relativizer and the head; the distance between head and filler determines the prediction of upcoming information about the noun with no delay (Hawkins, 1999). This hypothesis proposes that words are performed one at a time and every word is structurally integrated with one another. Both languages have similar word order. According to Ekmekçi (1986) word order has semantic and pragmatic impacts on acquisition of the language. The major difference between these two languages is that, unlike Japanese, Turkish has case markers. The study revealed that this existence prepares the participant for forthcoming RC in the sentence and while processing the RCs, expectations differ because of the asymmetry between subjects and object RCs.

All of these studies revealed syntactic, semantic or morphological properties of Turkish RCs. Some of them tested hypotheses regarding linguistic properties of language; and others compared Turkish with other languages; however, none of them focused on the depth of RC structures and the accessibility of this depth by children at different ages.

CHAPTER III METHODOLOGY

This study focuses on how different age groups from 2 to 9 comprehend and produce RCs as a reaction to the prompts. Ten different depths of RCs were examined to understand at which age group children can comprehend and produce the aforementioned RC structures.

3.1. Research Design

As the research method, quasi-experimental design was used. A comparison group took part in the study. The data were analyzed qualitatively; however, quantitative analysis was also done to support the qualitative analysis. Qualitative research is type of research which “is based on descriptive data that does not make (regular) use of statistical procedures” (Mackey and Gass, 2016, p. 217). It provides descriptive holistic and naturalistic data in preferably smaller groups in their natural settings. Descriptive study researchers work with fewer participants intensively; therefore, the number of participants of this study was sufficient to determine the depth of RC production and accessibility among the same and different age groups.

In this study, picture-cued elicitation task was used. Comprehension and production of RC structures in Turkish were explored via pictures. While designing the pictures, the semantic properties of RCs in Turkish were considered. Every picture is designed to investigate a depth of RC construction. Turkish has following RC structures .

-Subject items: *-An, -DIK, -(y)AcAk*

-Object items: *-An, -DIK, -(y)AcAk*

-Direct Objects

-Indirect Objects

-Auxiliary *-ol*

-Passive constructions: *-Il, -In*

For the purpose of this study, children were oriented to use RC constructions by presenting them relevant pictures together with a relevant scenario. The questions and the scenario

did not include any RC structures to not to dictate children to use similar expressions. One of the considerations of the study was to lead children produce RC structures naturally.

3.2 Research Questions

This study mainly focuses on the accessibility of ten different RC structures by children from 2 to 9 years of age. The aim of this research is to find answers to the following questions.

1- What is the depth of comprehending and producing RCs by monolingual Turkish speaking children at different ages?

2- What is the accessibility of each RC structure by monolingual Turkish speaking children at different age?

3- What is the most complex structure of RC children can comprehend within the pre-determined age groups?

3.3.Data Collection Instruments

Complexity of RC structures differs in terms of accessing and producing them. This study tried to juxtapose the hierarchical conditions of RC structure from more complex to less complex, regarding their accessibility. The following items are examples of the RCs in Turkish. The first line of the items represents the type of RC and its function in the clause. Second line is the example of Turkish structure of that type. Third line is morphological analysis of the given Turkish RC and the last line is the semantic translation of that RC. Since it is not a verbatim translation “a” is added to the sentence which is not common in Turkish but highly used in English.

(1) [Subject, Factive Nominal]

Kırmızı şapka-lı çocuk

Red hat-Pos. child

The boy with a red hat

(2) [Subject, Action Nominal]

Yürü-y-en kadın
 Walk-Buf.-SbjP woman
 The woman who is walking

- (3) [Future Subject, Passive]

Oku-n-acak kitap-lar
 read-Pass-Fut book-pl
 The books which are going to be read

- (4) [Comparative, Subject]

Uzun ol-an çocuk
 Tall be-SbjP child
 The child who is tall

- (5) [Possessive, Factive Nominal]

Saç-ı beyaz ol-an adam
 Hair-3.sg white be-SbjP man
 The man whose hair is white

- (6) [Dative, Indirect Object]

[kendi-si-n-e] Kitap ver-diği-m oğlan
 [self-3.sg-Buf.-Dat] book give-ObjP-1.sg boy
 The boy whom I gave book (to)

- (7) [Direct Object]

Yol-da gör-düğü-m adam
 Road-Loc see- ObjP-1.sg man
 The man whom I saw on the street

- (8) [Accusative, Indirect Object]

Kalem-i-n-i kullan-dığı-m kız-
 Pen-3.sg.-Buf.-Acc. use- ObjP-1.sg girl
 The girl whose pen I used

- (9) [Ablative, Agent]

Araba-sı-n-dan in-en adam
 Car-3.sg.-Buf.-Abl. Get out-SbjP man
 The man who gets out of his car

(10) [Subject of Comparison]

Kendi-si-n-den uzun ol-duđu-m çocuk

self-3.sg-Buf.-Abl tall be- ObjP-1.sg child

The boy than whom I am taller.

Functions of the morphemes of the “kalemini” in depth (8) Acc.-Ind. Obj. has been on debate by the linguists (Başdaş, 2014). This word could be analyzed morphologically in two different ways as follows;

a.Kalem-i-n-i

Pen-3.sg.-Buf.-Acc.

b.Kalem-in-i

Pen-Gen.-3.sg.

Since there is not a consensus regarding the morphological analysis of this morpheme, it will be treated as it is in the Kornfilt’s convention (1997).

Applied parts of the study were conducted in two phases. First phase was piloting. A number of pictures, regarding the related item, were presented to the participants to determine best possible picture which serves to produce the expected answer from the participants. The pictures which did not serve our purpose were eliminated based on answers of the piloting group. For example; for the depth (1) Sub. Fac. Nom., two pictures of a toddler were taken. In the first following picture (Fig.1), the toddler without a hat was sitting on a bank and for the second picture (Fig.2) the toddler with a hat was climbing up the stairs of a school.



Figure 1. Sample picture for the depth 1



Figure 2. Sample picture for the depth 1

Participants were asked to answer the question “Which toddler is going to school?”. It was assumed that participants would define the toddler by his appearance and answer the given question as “the one who has a red hat”. Instead they defined the toddler by his action. Participant “5; 06 f” answered the question as

(18) Bu otur-u-yor otur-an git-me-z

This sit-Buf.-Prog. sit- SbjP go-Neg.-Aor.

This is sitting; one who sits does not go

An adult participant [32;02 f] defined the toddler by his action and said

(19) Merdiven-den çık-an

Stair-Abl climb-SbjP

The one who climbs up the stairs

Because of the irrelevant answers, all of the pictures used in this study were revised several times for modification.

3.4 Participants

The piloting phase was carried out by 18 participants. They were divided into two groups; study group and normative group. The study group consists 8 children aging from 4;03 to 7;07 and normative group is made up of 10 adults aging from 18;05 to 36;10.

Table 1.

Profile of the Participants for Piloting

Groups	n	Age	Mean	Standard Deviation
Children	8	4.3-7.7	6.4	1,31
Adults	10	18.5-36.10	24.3	8.15

Table 1 demonstrates the profile of the participants in the piloting. Since the aim of the piloting stage is to increase the reliability and validity of the study, only correct responses of the participants were taken into consideration.

Table 2.

Distribution of the Correct Answers of Participants for the Piloting

Item	Children (out of 8)	Adults (out of 10)
1. Kırmızı şapkalı çocuk The boy with a red hat	7	10
2. Yürüyen kadın The woman who is walking	6	9
3. Okunacak kitaplar The books which are going to be read	4	5
4. Uzun olan çocuk The child who is tall	4	10
5. Saçı beyaz olan adam The man whose hair is White	5	1
6. [kendi-sin-e] Kitap ver-diği-m oğlan The boy whom I gave book (to)	7	6
7. Yolda gördüğüm adam The man whom I saw on the street	7	7
8. Kalemimi kullandığım kız The girl whose pen I used	7	1
9. Arabasından inen adam The man who gets out from his car	6	6
10. Kendisinden uzun olduğum çocuk The boy whom I am taller than (him)	3	9

Table 2 demonstrates the correct expected answers of children and adults regarding each depth of RC structures. The adults produced high proportion of correct expected answers for each depth except the depth (3) Fut. Pass. RC.

Second phase was the experimental stage. For this stage, research permission (no18164406, 03/10/2018) were obtained from Turkish Ministry of Education Branch Office in Isparta. All the children were chosen randomly from a public elementary school and a preschool. The total of 150 children (age range 2;01 to 9;08) took part in this study.

Table 3.

Participant Information for Each Groups

Groups	n	Age range	Mean	Standard Deviation
Age 2	15	2.1-2.11	2.5	0.39
Age 3	15	3.2-3.11	3.6	0.32
Age 4	20	4.1-4.11	4.5	0.3
Age 5	20	5.1-5.11	5.5	0.32
Age 6	20	6.0-6.11	6.5	0.37
Age 7	20	7.1-7.08	7.5	0.30
Age 8	20	8.1-8.11	8.5	0.28
Age 9	20	9.0-9.8	9.2	0.26

Participant information for each group was given in Table 3. Participants were divided into 8 different age groups. The number of children was not enough for the groups containing 2 and 3-year-old children. For this reason 15 students were involved instead of 20 in 2 and 3-year-old children's group. All the other groups except for 2 and 3 had 20 participants.

3.5 Experimental Test Procedure

All of the participants were investigated in terms of their comprehension and production of RCs. In particular, for older children (5-9 years) producing of RCs; and for younger children (3-5 years) acquisition of the given scenario by pointing to relevant picture was considered preferentially.

Children were tested one by one in a quiet room of their school. A smart phone was mounted on a tripod to record videos. Before the experiment, children were informed about the procedure of the test. During the experiment, colored pictures and scenario were presented to the child and relevant questions were asked. All the questions were directed to children in Turkish. The same word order was uttered every time to every child to

reduce any impact driven from word choices of the researcher. If the child responded to the question with the expected answer, then the next item was presented. If the child did not understand the question, the prompt question was asked only once again. If there was no production of any kind of RC structures, then a new question which includes expected RC structure was directed to the child. This latter question was directed to participant to check the understanding of the relevant RC structure.

Since the pace and attention span are different for every individual, the test lasted approximately 5-10 minutes per child. At the end of the trial, children were awarded with a sticker.

3.5.1 Sample protocol

Scenario of depth(1): Bak buradaki çocuklardan biri ders çalışıyor

Look! One of the children in the picture is studying.

Prompt question : Sence hangisi ders çalışıyordu?

Which one is studying?"

Correct answer : Kırmızı şapkalı (olan)

The child who has a red hat

Question with RC (asked if the child did not produce any RC structures) :

Burda kırmızı şapkalı olan çocuk hangisi?

Here, which child is with a red hat?

3.6. Scoring and Coding

All responses were video/audio recorded and the recorded data were transcribed on a word document. Based on children's responses, all the answers were classified into four groups as follows;

A: the participant produced relevant answers.

B: the participant responded to the question with an RC structure, but this structure is not relevant to the expected answer.

C: the participant understood the scenario and question and pointed to the relevant picture, but s/he did not produce any RC constructions.

D: the participant did not understand the scenario and the prompt question.

The categories A and B are related to the production of RC structures, while C and D categories are related to the comprehension of these structures. If the child responded to the prompt question with the expected answer, even though the answer includes telegraphic mistakes, it was still included to the category A. Letter B represents RC production other than the expected answers. This category includes any type of RC structures produced by children. Example for category A; Depth (2) Subject, Action Nominal, Participant (7; 00 f):

Expected answer: Yürüyen kadın.

The woman who is walking.

Participant's answer: Yolda geçen

(The woman) who is passing on the street.

Even though this response is not exactly what was expected, it was still coded by letter A because of the semantic and syntactic resemblance to the target answer. Example for category B; the depth (9) Ablative Agent,

Prompt question: Hangi adam evine gelmiştir?

Which man might have arrived his house?

Expected answer: Arabasından inen

The one who gets out from his car

Participant (5; 02 f):şu erkek olan .

That one who is a man.

Although the participant did not produce the expected RC structure, she generated an answer that is proper to the given instruction. Her answer was coded with letter B. That answer serves the similar function as the expected RC but, in this particular case, instead of ablative form, the participant chose the factive nominal form of RC which is more

common and simple form of the RC constructions. These findings will be evaluated in the discussion section.

Letter C represents any answers which shows the understanding of the question with RC. For example; the depth (8) Accusative, Indirect Object;

Scenario: Bu kız ders çalışıyor ve sana da kalem lazım. Senin kalemi istediğini onun da sana verdiğini farz edelim.

This girl is studying and you need a pen. Let's assume you asked for her pen and she lent it to you.

Prompt question: Bu resimde kimi hatırlıyorsun? O kimdi?

In this picture, whom do you remember? Who is she?

Expected answer: Kalemini kullandığım kız

The girl whose pen I used

Question with RC: Kalemini kullandığın kız burda var mı

Is the girl whose pen you used here?

Participant (6; 03 f): kalem veriyo ya... o abla

she is giving her pen ... that girl

In this answer, the participant did not use any RC structures instead she generated a conjoined clause. Since she understood the RC in the question, her answer was coded with letter C.

If the child did not understand the prompt question and RC question, it is coded with letter D.

3.7. Data Analysis

All codes have been gathered in an excel file. Each type of codes has been calculated. Based on the number of the codes, graphics were created for each depth of RCs and for each age group.

In the study, ages 2 and 3 have 15 participants in each age group. Since there are 10 different RC depths presented to participants, expected response was 150 for the each age groups of 2 and 3. All the other age groups, from 4 to 9, have 20 participants in each age group. The expected response for each age group is 200. Ten adults took part in the normative group. In total, 1600 responses were recorded and analyzed through out the whole study. The proportional values of the responses were calculated. Based on the number of participants and expected responses graphics were created for each group and in general separately. The findings and discussion will be handled in the following section.

CHAPTER IV

FINDINGS

This section is dedicated to the analysis of the data obtained from 2 to 9-year-olds. In this section, general findings and findings of each groups were presented separately. While presenting the findings, qualitative and quantitative data were analyzed together. For the age groups of 2 and 3, 15 participants involved the study for each group, and for the age groups of 4 to 9, 20 participants participated in the groups. There was also a normative group included 10 adults. Since there are 10 different depths, expected responses were 150 for ages 2 and 3, 200 for ages 4 to 9 in each groups, and 100 for the normative group. In total 1500 answers were obtained and analyzed throughout the whole study.

Concerning the comprehension and production of RCs, Figure 3. demonstrates the total responses of all age groups and adults. As it was expected, as early as 2 years of age, children succeeded on the understanding most of the RC structures but they did not produce any RC structures. The first RC production was observed at the age of 3; 04. The proportion of the expected RC production increased by age. At the age of 9, there was a decrease on the production of the expected RC structures while production of RC structures other than expected was increased.

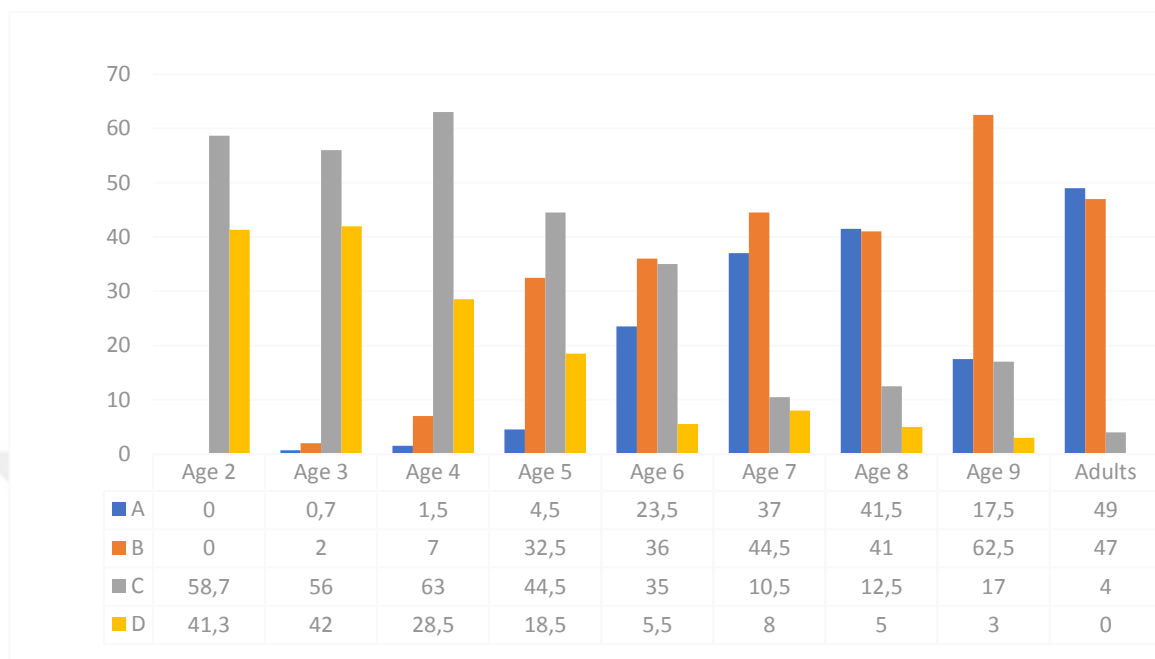


Figure 3. The distribution of all answers by all participants.

A: expected correct answer

B: answer with an RC structure other than the expected one

C: no RC production but understands the RC structure

D: no understanding

As it is seen in the Figure 3, the answers of the normative group are similar to those of age 7 and 8.

4.1 Age 2

The data reveal that 2-year-olds could listen and understand some of the RC structures. On the other hand, they were not prolific in RC production. They produced simple pointing words such as; here and there, but they did not produce any RC structures.

As it is demonstrated in the Figure 4, most of the 2-year-old participants responded the RC questions by showing the right picture which indicates that they understood the question and the particular depth regarding this question. For every depth, a number of participants responded the RC questions except for the depth (10) Subj. of Comps.

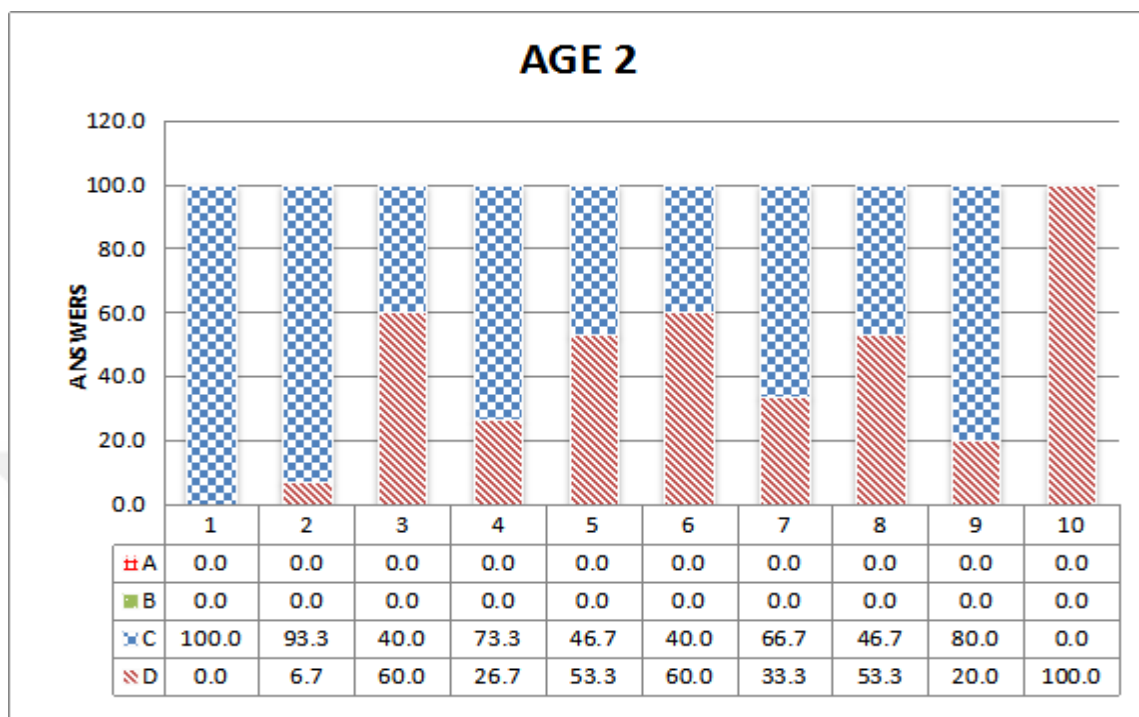


Figure 4. The distribution of the answers by 2-year-old participants

A: expected correct answer

B: answer with an RC structure other than the expected one

C: no RC production but understands the RC structure

D: no understanding

The responses of the participants demonstrate that 2-year-old children could understand first two depths better than all the other depths. While the depths (3) Fut. Pas., (5) Poss. Fac. Nom., (6) Dat. Ind. Obj. and (8) Acc. Ind. Obj. were harder for them to access, the depths (4) Comp. Subj., (7) Dir. Obj. and (9) Abl. Agent were easier for this age group.

4.2 Age 3

Language production is strongly connected with the cognitive maturity of the children. As they grow older, their language skills improve and they become more productive. First RC production was observed in this age group. Even though only one child produced an expected answer and only 3 RC structures were generated out of 150 answers, it was a starting point for children to utilize speaking skill and produce RC structures. For

example; for the depth (2) Subj.-Act. Nom. RC structure, the prompt question was “Hangi kadın okula gidiyor?” “Which woman is going to school?”. Participant (3;05 m) responded the question as;

(20) Şu...araba-lı kardeş gid-i-yor
That...car-Pos. brother go-Buf.-Prog.

That .. brother who has car is going.

Although this answer had an RC structure, it was not semantically relevant to the expected answer; “Yürüyen kadın” “woman who is walking”. The answer supposed to be Subject-Action Nominal RC structure; however, this answer was Subject-Factive Nominal. Thus it was accepted as an RC structure other than expected and it was placed in category B.

Subject of Comparison is assumed to be the hardest structure for children to access thus it was placed as the depth (10). As it is illustrated in Figure 5, a 3-year-old participant was able to produce an RC structure close to the expected RC structure. Participant (3;04 m) responded the prompt question as;

(21) uzun ol-an çocuk pasta-y-a bak-ı-yor.
long be-SubjP. Child cake-Buf.-Dat. look-Buf.-Prog.
(the) child, who is tall, is looking at the cake.

This answer was not exactly what was expected; the expected answer was;

(22) Kendi-sin-den uzun ol-duğu-m çocuğ-un
self-3.sg-Abl tall be- ObjP-1.sg child-Gen.
The boy than whom I am taller.

Parametrically, Turkish language allows speakers to construct complex RC structures such as full form of Subject of Comparison. Even though language permits to the construction of this structure, the usage of these structures might be limited in the spoken language. In the study, full form of Subject of Comparison RC structure was not observed. Instead, participants used the practical form of this depth. In the given example, participant (3;04 m) produced minimal form of the expected RC structure which was “kısa olan; (the one) who is short” or “uzun olan; (the one) who is tall”. Although it was not exactly the

same as the expected RC, it was accepted as the expected RC and placed in category A because of the semantic and syntactic relevance to the expected answer. This answer was first expected RC structure which was produced by a 3 year old child. This response was an indication that this age group could understand practical form of the Subject of Comparison RC structure. This finding, related with the youngest age group who can produce RC structures, may render some indications that 3-year-old children might start using proper RC structures.

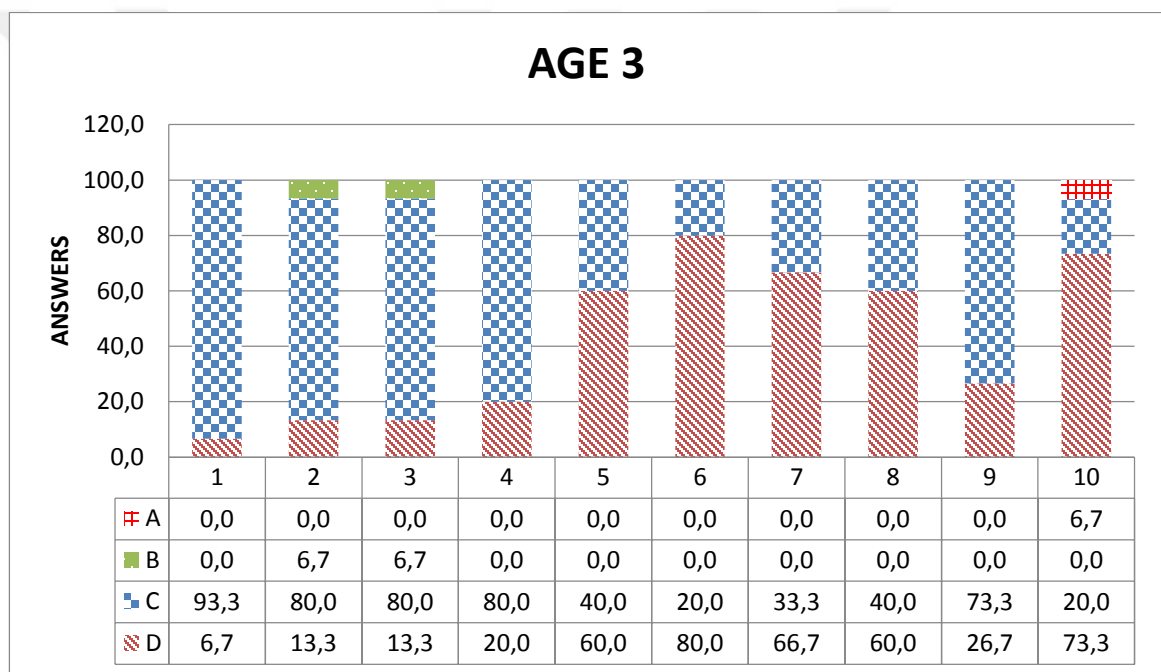


Figure 5. The distribution of the answers by 3-year-old participants

A: expected correct answer

B: answer with an RC structure other than the expected one

C: no RC production but understands the RC structure

D: no understanding

Most of the children responded the RC questions by showing the right picture. They were able to understand the RC questions for the first four depths and the depth (9) Abl. Agent RC structure. The depth (6) Dat. Ind. Obj. had the lowest proportion (20%) of understanding the RC structure while the depth (1) Subj. Fac. Nom. had highest proportion (93.3%) in terms of understanding the RC question.

4.3 Age 4

At the age of 4, participants produced only 3 expected RC structures. The participant (4;03 m) answered the prompt question of depth (4) Comp. Subj. RC structure as;

(23) büyük ol-an
big be-SbjP.
(the one) who is big.

This answer was one of the expected answers produced by this age group. Up to this age, none of the participants produced Comparative-Subject RC structure. This answer was also the first produced expected RC structure. Turkish allows the usage of the words “big” and “tall” interchangeably therefore this answer was semantically regarded as the expected RC structure.

Two other expected RC structures were generated in the last depth; Subject of Comparison. To interpret this depth, a scenario and a picture were presented together before the prompt question was asked. In the scenario, children were told;

Sen bir doğum gününe gitmişsin, pastayı kesen çocuğun doğum günü var. Senin bu çocuktan uzun, bu çocuktan kısa olduğunu düşünelim. (resim ortadan kaldırılır) Sen az önce bir doğum gününe gitmiştin. O doğum günü kimindi?

Let's assume that you attended a birthday party. This child who cuts the cake is the birthday boy. You are taller than this boy and shorter than this boy. (picture is put aside) You were at a birthday party. Whose birthday was it?

They are expected to answer as;

(24) Kendi-sin-den uzun ol-duğu-m çocuk
self-3.sg-Abl tall be- ObjP-1.sg child
The boy than whom I am taller.

Participant (4;03 m);

(25) bir küçük boy-lu çocuğ-un

a small height-Pos. child-CmpM.

a child who has small height.

Participant (4;08 f);

(26)kısa ol-an çocuğ-un

short be-SbjP.child-CmpM.

the child who is short

These answers were practical forms of the expected answer. Instead of using full form of the Subject of Comparison RC structure, participants produced minimal forms of this RC structure.

Eighteen participants (90%) responded the prompt question of depth (10) Subj. of Comps. in the same way as follows;

Researcher: Senden kısa olan çocuk hangisi

Which child is it who is shorter than you?

Participants: Bu (by pointing to the right child)

This (one)

Researcher: Senden uzun olan çocuk hangisi

Which child is it who is taller than you?

Participants: Bu (by pointing to the right child)

This (one)

Their responses indicated that they can understand the basic form of the Subject of Comparison. Only 2 participants (10%) did not point to the right picture. Another RC question was directed to participants who pointed to the right child on the picture to check their understanding for the expected full form of the Subject of Comparison.

(27) Researcher: Senin kendisinden kısa olduđun çocuk hangisi

Which child is the one than whom you are shorter?

Participants: Bu (by pointing to the wrong child)

This (one)

(28) Researcher: Senin kendisinden uzun olduđun çocuk hangisi?

Which child is the one than whom you are taller?

Participants: Bu (by pointing to the wrong child)

This (one)

All of the 4-year-olds failed to point to the expected picture for these questions. Their responses demonstrated that 4-year-old children could understand basic form of the particular depth but they could not understand the full form of the expected RC structure of this depth. Namely they understood practical form but not the structural form of the same depth.

Comparing the ages 2 and 3, the proportion of children who understood the RC structures increased 13% with increasing age. Participant (4;03 m) answered the prompt question of the depth (3) Future Subject-Passive as;

(29) eski (olan)

old (be- SbjP.)

This answer was accepted as an RC structure; however it was not the expected RC structure. Because the expected RC structure was Future Subject- Passive, but this answer was Subject-Factive Nominal. This response was placed to category B because of semantic and syntactic relevance to the expected RC structure.

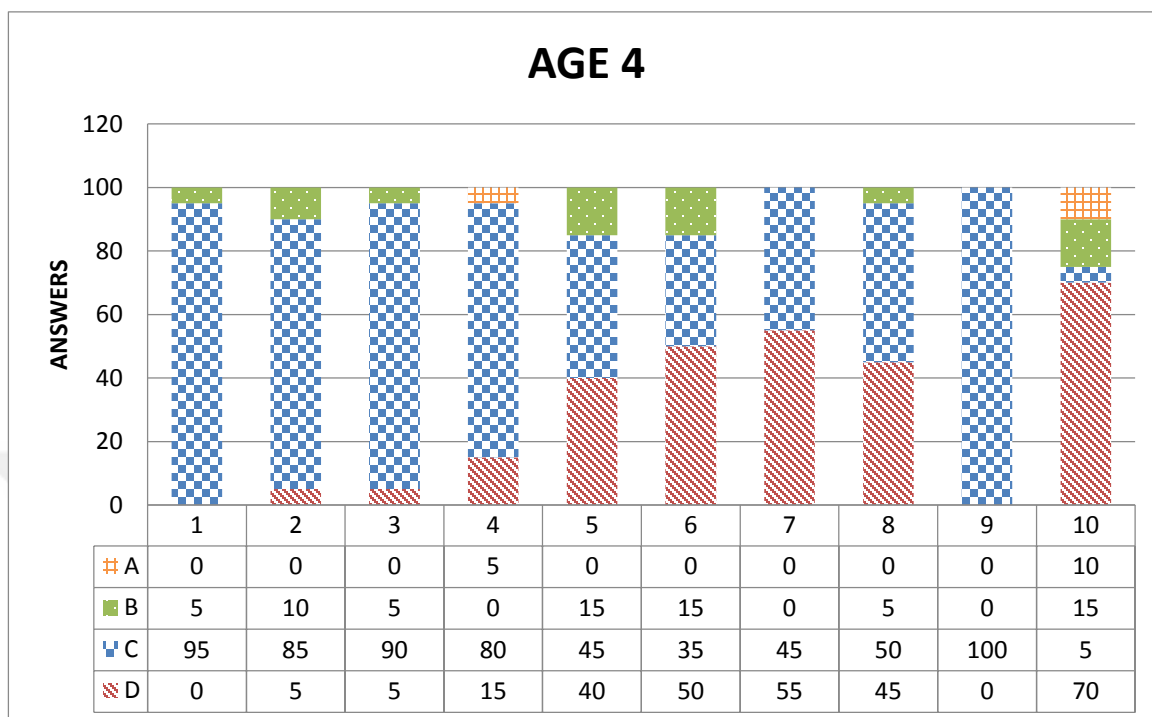


Figure 6. The distribution of the answers by 4-year-old participants

A: expected correct answer

B: answer with an RC structure other than the expected one

C: no RC production but understands the RC structure

D: no understanding

As it is demonstrated in Figure 6, 4-year-olds started to use RC structures for every depth except for the depths (7) Dir. Obj. and (9) Abl. Agent. All of the children understood the depths (1) Subj. Fac. Nom. and (9) Abl. Agent. Even though the depth (10) Subj. of Comps. was the hardest one to access, the highest proportion of RC production recorded in this depth.

4.4 Age 5

Instead of speaking, previous age groups were pointed to the picture; however, the participants of this age group produced words when they answered the questions. For example when they pointed to the picture they uttered the words such as;

(30) (5;03 m): bu ‘this (one)’ uttered for the RC question of depth (5) Poss. Fac. Nom.

(31) (5;07 f): bu çocuk ‘this child’ uttered for the RC question of depth (1) Subj. Fac. Nom.

(32) (5;11 m): yoldaki ‘the one who is on the road’ uttered for the RC question of depth (7) Dir. Obj.

(33) (5;10 m): burdaki ‘the one who is here’ uttered for the RC question of depth (2) Subj. Act. Nom.

The depth 5 interprets the Possessive- Factive Nominal RC structure. The participants were presented a picture and asked “which man is the teacher?”. They were expected to answer as;

(34) Saç-1 beyaz ol-an adam

Hair-3.sg white be-SbjP man

The man whose hair is white

(35) (5; 05 m) şu kırmızı-lı ol-an

that red-Pos. be-SbjP.

that (one) with (a) red hat

(36) (5; 02 m) beyaz saç-lı ol-an

white hair-Pos. be-SbjP.

that (one) who has white hair

Half of the participants of this age group produced similar responses for this depth as given examples. The full form of the depth 5 was Possessive- Factive Nominal and participants were expected to use “whose” structure in their responses. They preferred to produce Subject-Factive Nominal form which was a simpler form of this RC structure. The findings revealed that children, in this age group, prefer to produce simpler form of the Possessive RC structures. Even though this simpler form was structurally different from the expected RC, functionally and semantically it was relevant to the expected RC structure.

It is likely that 5-year-olds are experiencing a struggle when they produce RC structures. Following responses might illustrate that they understood the RC structure but they may not produce the RC structure as expected. For example;

(37) (5; 02 m): kitap.. şu ders yap-ma-sı adam

book.. that do-ANom-3.sg. man

(the) book that man needs to do

This answer indicated that participant (5;02 m) understood the prompt question and tried to utter a response. However his response was not an RC structure nor a full sentence. Cognitively he was able to understand the Dative- Indirect Object RC structure but he could not produce an RC structure related to this depth.

(38)(5;07 f): ders çalış-ma-sı gerek ol-an çocuk

lesson study-ANom-3.sg. need be-SbjP. Child

(the) child who needs to study his lesson

Participant (5;07 f) produced Subject RC structure which was semantically acceptable; however, this answer was not syntactically relevant to Dative- Indirect Object RC structure. This might indicate that participant (5;07 f) preferred to use subject participle instead of object participle.

One of the important findings emerged from the depth (8) Acc. Ind. Obj. When the prompt question "Kalemimi kullandığım kız hangisi?" "Which girl is the one whose pen you used?" directed to participants none of them produced Accusative- Indirect Object RC structure; instead they produced a full sentence (5;08 f), or Subject RC (ex: 5;05 f; 5;10 m).

(39) (5;08 f): çocuk ders çalış-ı-yor-du

child lesson study-Buf.-Pr.Prog.-Past.

(the)child was studying (her) lesson.

(40) (5; 05 f): ödev çalışan kız

homework study-Sbj.P. girl

(the) girl who is doing (her) homework.

(41) (5;10 m):ders çalış-an abla

lesson study-SbjP. sister

(the) sister who needs to study (her) lesson

Participant (5;11 m) produced minimal form of the subject RC. He said: “ ver-en kız” “(the) girl who gives”. This answer is unsatisfactory in terms of semantic and syntactic features of the particular depth. The participant preferred subject RC and did not utter any indirect objects and he avoided using full structure and the indirect object together in one phrase. This answer does not make any sense without context. Since context was given with the scenario, participant (5;11 m) uttered the minimal phrase to answer the question. For this particular age group, all children understood following depths; (1) Subj. Fac. Nom.,(2) Subj. Act. Nom., (3) Fut. Pas.,(4) Comp. Subj. and (9) Abl. Agent. Most of them understood the depths (5) Poss. Fac. Nom. ,(7) Dir. Obj., (8) Acc. Ind. Obj. and (10) Subj. of Comps.. The proportion of children, who did not understand the RC question for the depth (8) Acc. Ind. Obj., was higher than that of the children who understood the RC question for this depth. At the age-5, even though children produced RCs for each depth, expected RC production recorded only on the depth (1) Subj. Fac. Nom., (4) Comp. Subj. and (9) Abl. Agent.

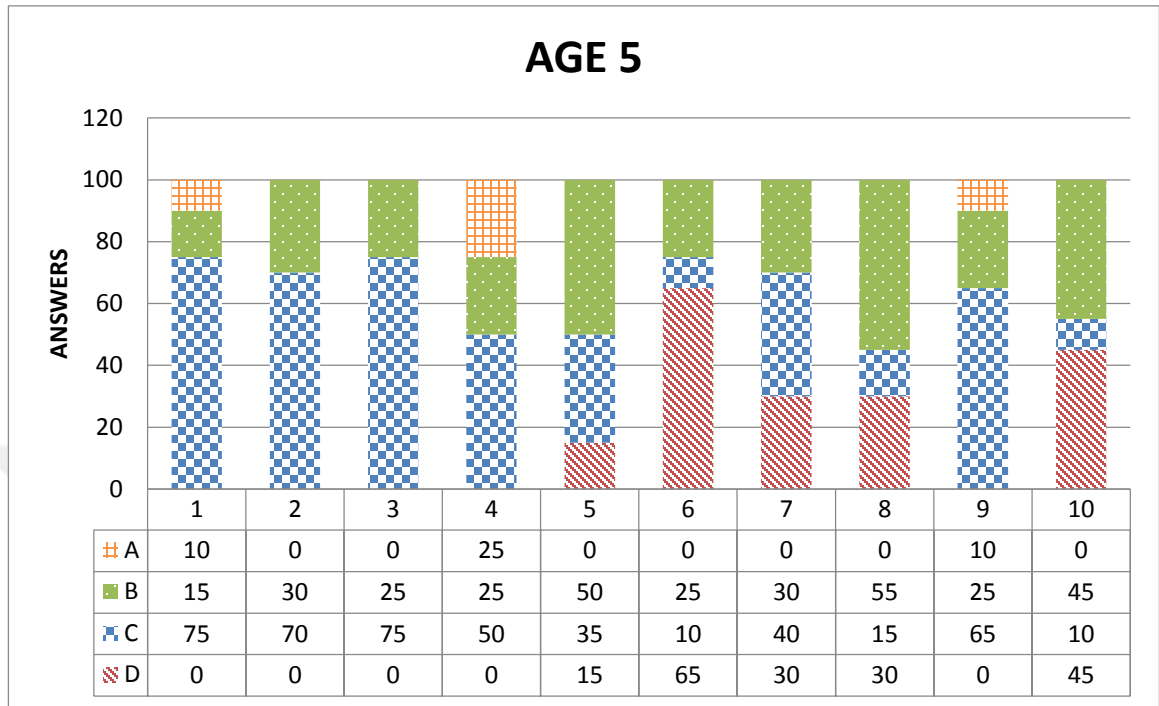


Figure 7. The distribution of the answers by 5-year-old participants

A: expected correct answer

B: answer with an RC structure other than the expected one

C: no RC production but understands the RC structure

D: no understanding

Even though the proportion was low, 5-year-olds started to produce the expected RC structures. As seen in Figure 7, the first expected RC structure was produced for the depth (1) Subj. Fac. Nom., (4) Comp. Subj. and (9) Abl. Agent.

The depth (9) is designed to investigate Ablative-Agent RC structure. Participant (5;03 m) answered the prompt question as;

(42) Araba-dan çık-an

car-Abl. out-SbjP.

(one) who is going out from (the) car

This answer had both Ablative form and agent, thus it was accepted as the expected answer and it was placed in category A.

Comparing the previous ages, the proportion of children who understand the RC structures increased. Children were observed to use RC structures at every depth at the age of 5. All of the children understood the depths (1) Subj. Fac. Nom., (2) Subj. Act. Nom., (3) Fut. Pas., (4) Comp. Subj. and (9) Abl. Agent.

4.5 Age 6

Concerning the RC production, age of 6 is a turning point for children, because at the age 5 expected RC structures were recorded in 3 depths, but for the age 6, expected RC structures were recorded for all 10 depths. While participants were generating RC structures some of them were not confident about their responses. For example; Participant (6;02 m) responded prompt question “Çalışması için kitap verdiği çocuk hangisiydi?” “Which boy is the one whom you gave a book to study?” of depth (6) Dat. Ind. Obj. as;

(43) Ban-a kitap.... ben o-n-a ver-diği-m kişi.....kitap ver-diği-m kişi
I-Dat. book. I he-Buf.-Dat. give-ObjP.-1.sg. person (the)book
give-ObjP.-1.sg. person

To me book... I to him person whom I gave(the) person whom I gave book
(to)

Participant (6;04 f) responded the same question as;

(44) ders çalış-ması için bu adam-dı
lesson study-CmpM. for this man-Past.
this man is for (the) study

As it is seen in the given example, participant (6;04 f) understood the question and tried to make a sentence; however, her response is not proper to consider it as an RC structure or a full sentence. This response indicates that this child is on the transition phase. Her cognitive ability is developed enough to understand prompt question but she is not ready to generate indirect object and dative in one phrase.

The depth 8 is Accusative-Indirect Object RC. The participants answered the prompt questions with high proportion of RC structure (see Figure 8). Only 2 participants (10%) produced the expected RC structure, and 15 participants (75%) produced an RC structure for this depth. Participant (6;03 f) answered the prompt question of depth (8) Acc. Ind. Obj. RC structure as;

(45) Ban-a kalem-i-ni ver-en kız

I-Dat. Pen-3.sg-Acc. give-SbjP. Girl

(The) girl who gave me her pen

Participant (6;07 m) responded the same question as;

(46) Kalem-i-n-i ver-en abla

pen.-3.sg.-Buf.-Acc. give-SbjP. sister

(The) sister who gave me her pen

Most of the participants avoided using indirect objects. Instead, they used direct object together with subject participle. This finding reveals that the participant preferred to produce direct object and subject participle which are semantically relevant to expected answer but syntactically different structures which are easier than to the expected structure.

The depths (6) Dat. Ind. Obj. and (8) Acc. Ind. Obj. were designed to interpret indirect object and dative or accusative forms, respectively, together with object participle. A small proportion of 6-year-olds produced expected answers and most of them produced direct object and subject participles. Some of the 6-year-olds responded the prompt question with a number of sentences. For example; participant (6;07 m) preferred to respond the RC question with a number of broken sentences;

(47) kalem ver-i-yo ya o abla...o...o-nun... çocuk ders çalış-ması gerekli-y-di...o-n-a kitap ver-di

Pen give-Buf.-Prog. YA* she sister...she...her-Gen...child lesson

study-CmpM. need-Buf.-Past. ...he-Buf.-Dat. book give-Past.

She is giving (a) pen YA that sister...she...her...(the) child needed to

study...she gave book to him

*YA is a discourse marker serving to remind the listener of the propositional content embedded (Sarılar and Küntay, 2011 p:2).

Instead of producing an RC structure, participant (6;09 m) also produced short sentences as follows;

(48) O çocuğ-un kalem-i yok-tu. O-n-dan kalem iste-miş-ti. Birisi ver-di.

He child-Gen. pen-3sg. Neg.Exist-Past.. He-Buf.-Abl. Pen want-Rep.Past.-
Past. Someone give-Past.

This child did not have (a) pen. He wanted (a) pen from her. Someone gave.

These last two responses do not have any RC structures; however, both children understood the given scenario and the prompt question. Instead of producing an RC structure, they preferred to produce short sentences. Thus producing short sentences were easier for them than producing the Accusative-Indirect Object RC structure.

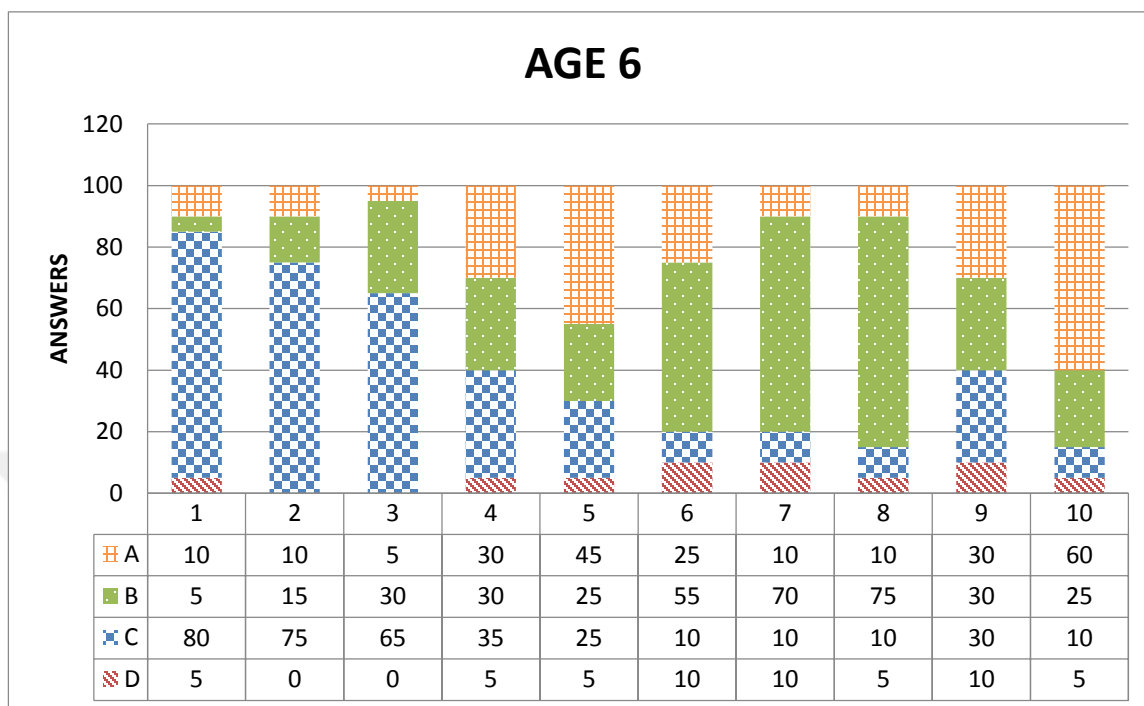


Figure 8. The distribution of the answers by 6-year-old participants

A: expected correct answer

B: answer with an RC structure other than the expected one

C: no RC production but understands the RC structure

D: no understanding

Only 6-year-olds produced expected RC structures in every depth. These findings reveal that children starting from age 6 can produce any depth of RC structures from basic to the most complex. Six-year-old children understood the depths (2) Subj. Act. Nom. and the depth (3) Fut. Pas. better than all the other depths and they were able to produce the most expected RC structure for the depth (10) Subj. of Comps.

The depth (10) Subj. of Comps. requires cognitive ability to compare and distinguish two variables. Participants were given a scenario together with a picture about a birthday party, and they were asked to define birthday boy in the picture. They were expected to say;

(49)Kendi-sin-den uzun ol-duğu-m çocuk
 self-3.sg-Abl tall be- ObjP-1.sg child
 The boy than whom I am taller.

Participant (6;05 f) produced following RC for the prompt question of this depth;

(50) ben-den küçük bi çocuğ-un

I-Abl. short a child-Gen.

A child who is shorter than me

Since this answer has semantic and syntactic relevance to the expected answer, it is placed in category A. Findings indicate that 6-year-old children have cognitive and linguistic ability to produce two variables in one RC structure. Even though the depth (10) Subj. of Comps. was assumed to be the hardest one to access, the highest proportion of RC answers were produced in this depth.

4.6 Age 7

The data reveal that, the proportion of expected RC structure increased with age. In this age group, participants produced 13% more expected RC structures than the previous age did. The participants produced expected RC structures for all the depths except for the depth (8) Acc. Ind. Obj. RC structure. When they answered the prompt questions, instead of showing the picture some of the participants uttered locative words such as;

(51)(7;04 m): kapı taraf-ı-n-da-ki

door side-3sg.-Buf.-Loc.-Rel.Cl.

(the one) who is on the door side

(52)(7;03 f): şu iki çocuğ-un arası-n-da ol-an

that two child-Gen. between-Buf.-Loc. Be-SbjP.

that (one) who is between the two children

Participants also produced longer answers with descriptive words. For example;

(53) (7;04 f):saç-ı yukarı kalk-ık ol-an

hair- up lifted be-SbjP.

(the one) whose hair is lifted up.

(54) (7;02 m):penceres-i filan yıkıl-mış ol-an

window-3.sg. and so on ruined Rep.Past. be-SbjP.

(the) window which is ruined

The answer of the 7-year-olds were different from previous age groups in terms of viewpoint. They focused not only on the prompt question but also on the details in the pictures.

(55)(7;09 m):göz-lük-süz ol-an

Glasses-without be-SbjP.

(the one) who has not glasses

(56)(7;06 f): kıyafet-in-de Türk bayrağ-ı ol-an

dress-3sg.Loc. Turkish flag-3sg. Be-SbjP.

(the one) whose dress has Turkish flag

Both of these participants produced descriptive answers. Their answers are different from previous age groups in terms of focusing outlook of the people in the pictures. Thus they focused not only on the question but also other features in the given pictures.

In this age group, some of the participants started to produce full RC structures. For example; for the depth (1) Subj. Fac. Nom., participant (7;01f) answered as;

(57) şu şapka-lı ol-an çocuk

that hat-Pos. Be-SbjP. Child

that child who is with (a) hat

As it is seen in the examples, 7-year-old children generated the RC structures without hesitation. In this age group, 4 children produced superlative form for the depth (4) Comp. Subj. They were expected to say “uzun olan çocuk” “(the) child who is tall” , but they said;

(58) en büyük ol-an

most big be-SbjP.

(the one) who is biggest

These answers revealed that they were not only able to compare but also put the children in the picture in order by producing comparative words.

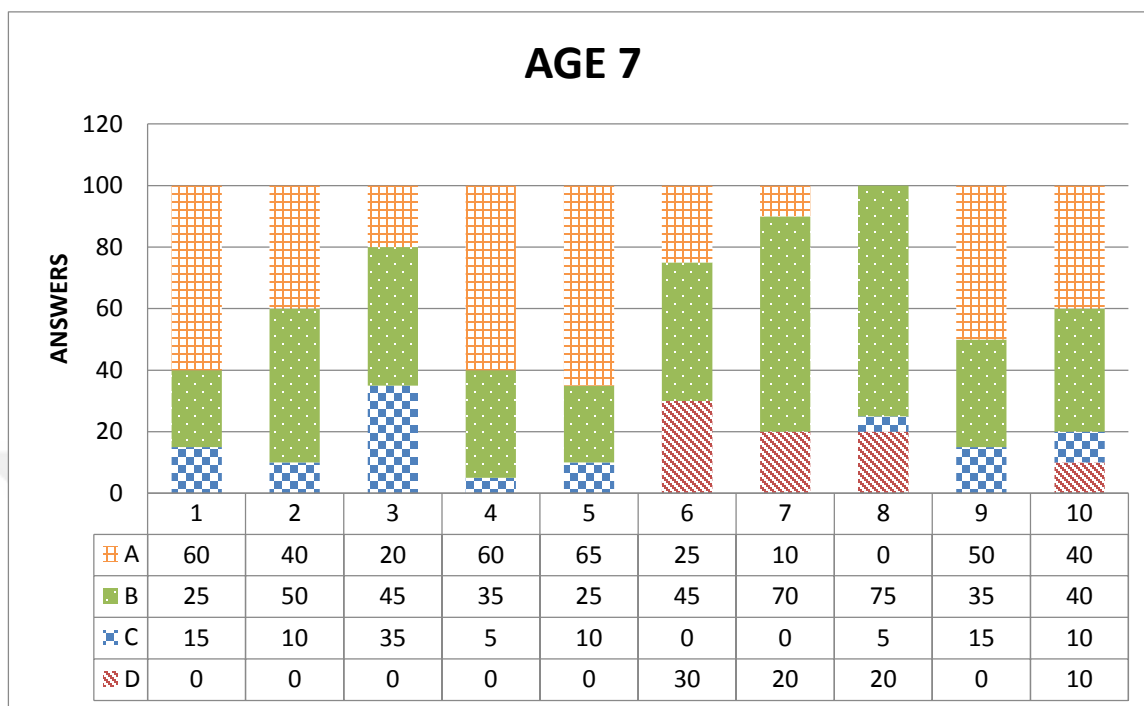


Figure 9. The distribution of the answers by 7-year-old participants

A: expected correct answer

B: answer with an RC structure other than the expected one

C: no RC production but understands the RC structure

D: no understanding

For 7-year-olds, the lowest proportion of expected answer was observed in the depth (7) Dir. Obj. RC structure. Only 2 participants produced expected answer for this depth. Participant (7;05 f) responded the prompt question of this depth as;

(59) yol sor-duđu-m adam

way ask-ObjP.-1.sg man

(the) man whom I asked (the) way.

This answer is syntactically relevant to the expected answer because it has Dir. Obj. RC structure.

Seven-year-old children were able to produce the expected answer for all the depths except for the depth (8) Acc. Ind. Obj. They understood the depths (1) Subj. Fac. Nom., (4) Comp. Subj. and (5) Poss. Fac. Nom. better than the depths (6) Dat. Ind. Obj., (7) Dir. Obj., (8) Acc. Ind. Obj. and (10) Subj. of Comps.. The proportions of production of

expected RCs were higher than those of the previous ages. The depth (6) Dat. Ind. Obj. has the lowest proportion in understanding the RC question.

4.7 Age 8

There were no significant differences between age 7 and 8. All of the depths were produced except for the depth (3) Fut. Pas. RC structure. When pilot studying was held, this depth had lowest proportion of production by adults (3 out of 10). The usage of this depth seems to be uncommon. None of the participants of this age group produced the Fut. Subj. RC structure and they preferred to produce Fac. Subj. Nom. For example Participant (8;04 m) answered the prompt question of depth (3) Fut. Subj. Pas. as follows;

(60) kırık dökük ol-an

broken cracked be-SbjP.

(the one) which is broken and cracked

The participants avoided using Fut. Subj., instead they produced another RC structure which they mastered; Fac. Subj. RC.

As it is demonstrated in Figure 10, 8-year-olds were able to produce expected answer for all the depths except for the depth (3) Fut. Pas. The participants responded the prompt questions and the RC questions which indicates that they understood the given structures. Only a small proportion (15%) of participants did not respond to the depths (6) Dat. Ind. Obj., (7) Dir. Obj., (8) Acc. Ind. Obj. and (10) Subj. of Comps.. Only 3 participants produced expected RC structure for the depth (6) Dat. Ind. Obj. and (8) Acc. Ind. Obj. These two depths include indirect objects which require mastering of the object participles. The proportions of productions of expected RCs were higher than those of the previous ages. The depths (4) Comp. Subj. and (5) Poss. Fac. Nom. had the highest proportions (70%) of expected RC productions.

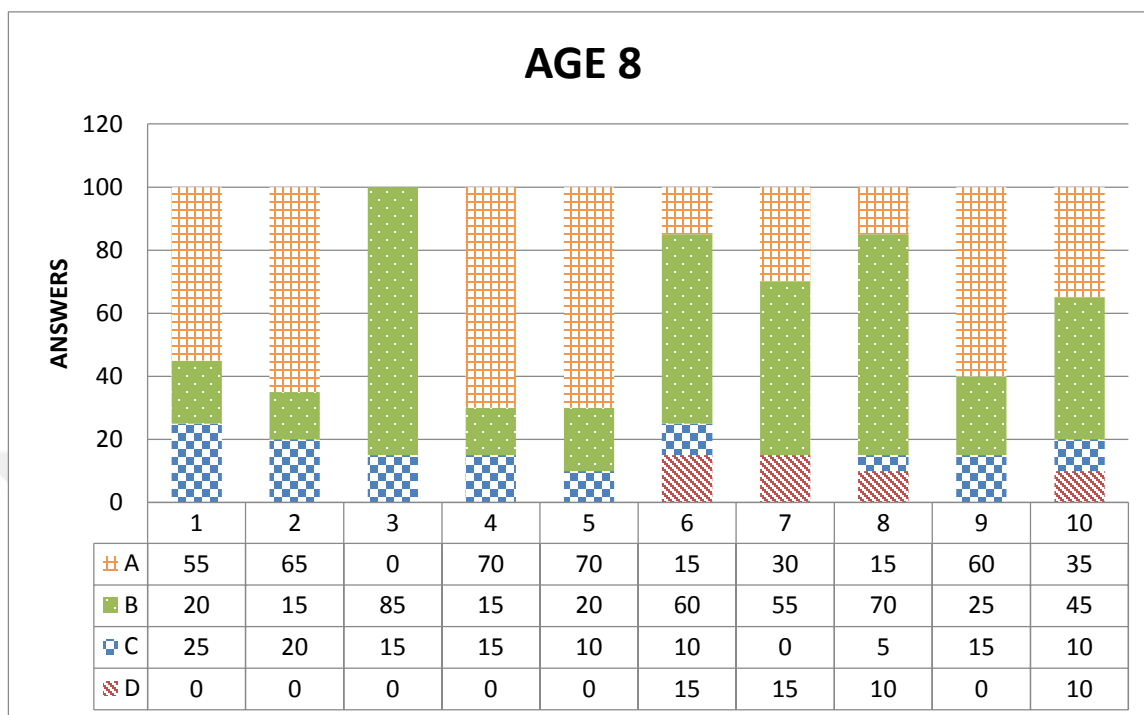


Figure 10. The distribution of the answers by 8-year-old participants

A: expected correct answer

B: answer with an RC structure other than the expected one

C: no RC production but understands the RC structure

D: no understanding

4.8 Age 9

Even though the proportion of RC production increased with age, there is a sudden decrease (24.5%) in the proportion of the production of the expected structures by the age of 9. Regarding the sudden change in the production of RCs, 9-year-old children need to be investigated scrutinizingly. They responded almost all the questions and produced a number of sentences; however, proportion of the expected RC structure was quite low (17.5%). Some of the participants produced several sentences instead of producing expected RC structure. For example; expected RC structure of depth (1) Subj. Fac. Nom. was “şapkalı çocuk” “(the) child with (a) hat”. Participant (8;04 f) responded prompt question as follows:

(61) bu çocuk... şu an ön-ün-de kitap ol-ma-dığı için...oku-ma-dığı
anlaş-ıl-ıyor...

this child...that moment in front of-Gen.-Loc. book be-Neg.ObjP. for read-
Neg.ObjP. understand-Pass.-Prog.

This child...because there is not a book in front of him in that moment ... it
is understood (that) he is not reading

This child produced a number of sentences instead of a short RC structure. Some of the participants preferred to produce easier way of expressing the same meaning. For example the depth 8 is Accusative- Indirect Object. Participants are expected to say “kalemini kullandığım kız; the girl whose pen I used”. Out of 20 responses 9 of them answered the prompt question as “ kalem veren kız; the girl who gave the pen”. They produced subject participle instead of object participle.

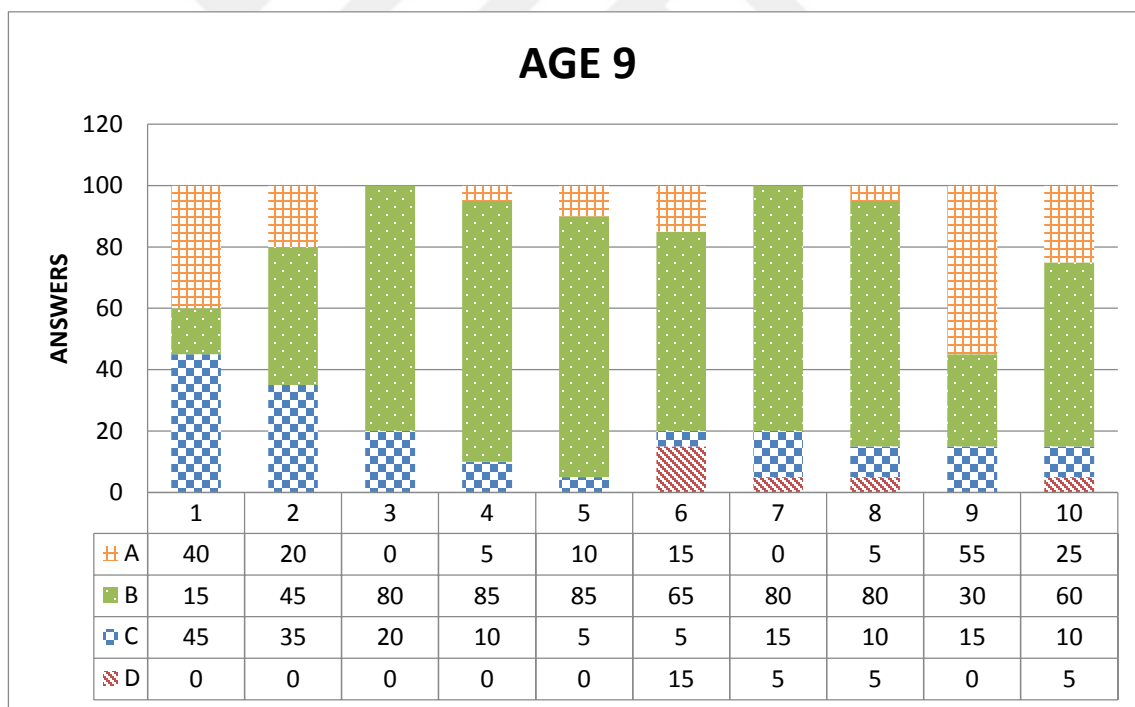


Figure 11. The distribution of the answers by 9-year-old participants

A: expected correct answer

B: answer with an RC structure other than the expected one

C: no RC production but understands the RC structure

D: no understanding

While the proportion of total expected RC production is 41.5% for the age 8, it decreased to 17.5% by the age 9. As it is demonstrated in Figure 11, the participants were able to produce expected answer for all the depths except for the depth (3) Fut. Pas. and (7) Dir. Obj. All participants responded the prompt questions and RC questions which indicated their understanding of particular depths. A small number of participants did not give any responses to the RC questions of the depths (6) Dat. Ind. Obj., (7) Dir. Obj., (8) Acc. Ind. Obj. and (10) Subj. of Comps. The depths (1) Subj. Fac. Nom. and (9) Abl. Agent had the highest proportion of expected RC production. The proportion of expected RC production was the lowest in the depths (4) Comp. Subj. and (8) Acc. Ind. Obj., and the highest in the depth (9) Abl. Agent.

4.9 Adults

As the research method, quasi-experimental design was used in this study. This method requires a normative group as the control group. Ten adults took part in this study. Their answers are demonstrated in the Figure 12. All of the adults understood the prompt questions and the RC questions. They produced high proportion of correct expected answers for each depth except for the depth (5) Poss. Fac. Nom. RC, for this particular depth only one adult produced the expected RC. All of the adults produced the expected answer for the depth (1) Subj. Fac. Nom. Only one adult (10%) did not produce the expected RC structure for the depth (2) Subj. Act. Nom., and the depth (10) Subj. of Comp. The depth (3) Fut. Subj. Pass. was produced as expected by 50% of the adults.

As it is seen in the Figure 12, adults understood all the prompt questions. Only two adults for the depth (3) Fut. Subj. Pass. did not produce any RC structures. All adults produced the expected RC for the depth (1) Subj. Fac. Nom. And the depth (4) Comp. Subj. The proportions of the production of the RC structures were high for all the depths.

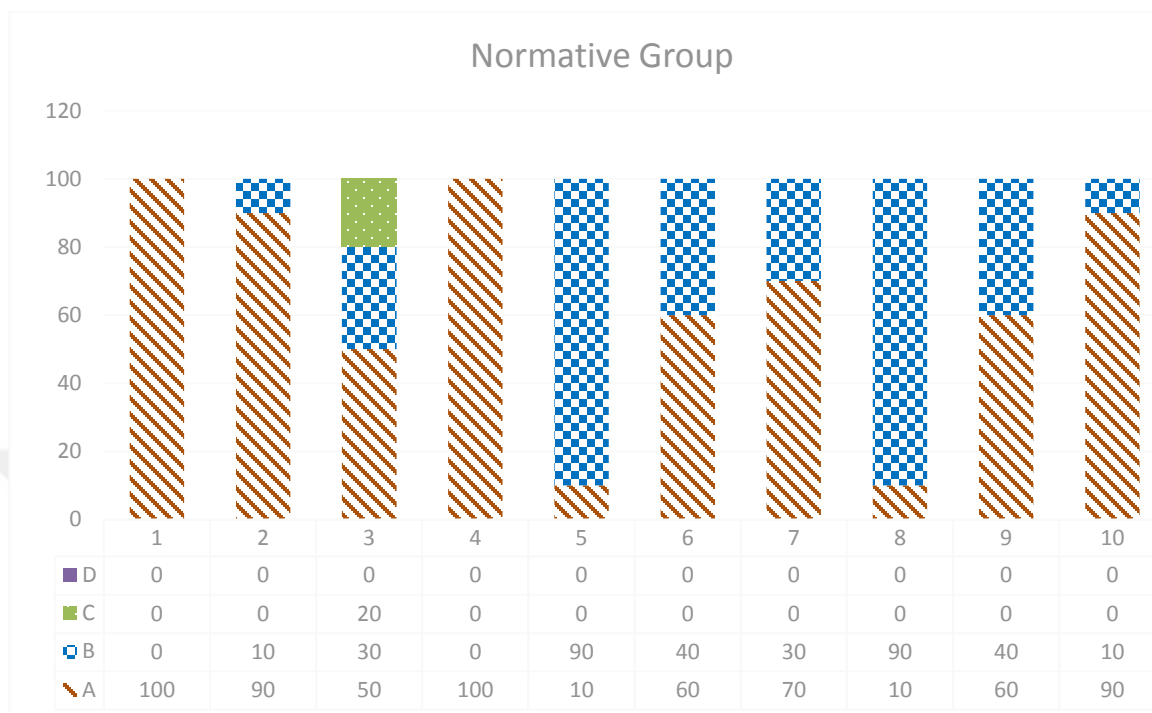


Figure 12. The distribution of the answers by normative group

A: expected correct answer

B: answer with an RC structure other than the expected one

C: no RC production but understands the RC structure

D: no understanding

4.10 Distribution of Comprehension and Production of RCs

Comprehension and production of RC structures require cognitive maturity and knowledge. Children differ in terms of acquiring the RC structures. In fact, not all children comprehend or produce RC structures at the same time. Therefore, revealing the sequence of comprehension and production of RC structures may unveil the hierarchical order of the RC structures in the language development process.

The RC structures are placed in the table based on responses of the participants. Table 4 demonstrates the distribution of the acquisition of RC structures in each age group. The percentages of the acquisition were calculated together with all expected answers, relevant RC productions and any responses that indicate understanding of the particular depth. The calculations of the percentage of the acquisition of the depths were held for each age and

each depth; henceforth every depth is juxtaposed in the table from the highest to lowest percentage of acquisition. If the percentages are the same, aforementioned sequence is kept in the table.

As it is shown in Table 4, acquisition of RC starts as early as 2-year-olds. This is the youngest age in the study. Children can display their understanding of the prompt question at least by pointing to the right picture.

For the age 2, the lowest proportion of understanding the RC structures recorded at the depth (3) Fut. Subj.Pass (40%) and the depth (6) Dat. Ind. Obj. (40%). While all of the 2-year-old children understood the depth (1) Subj. Fac. Nom., none of the 2-year-old gave any responses to the prompt question of the depth (10) Subj. of Comps.

At the age 3, the depth (1) Sub. Fac. Nom. had highest proportion, whereas the depth (10) Subj. of Comps. had the lowest proportion (20%) of acquisition the RC structure. Even though the proportion is low, acquisition of RC structures were observed for all of the depths at the age of 3.

The proportion of acquisition of the RC structure increased at the age of 4. Comparing the age 3, there is a notably increase in the proportion of acquisition of RC structure for each depth.

Considering the proportion of acquisition, there is no striking difference between the ages henceforth. In each age group from 5 to 9-year-olds, almost all children displayed understanding of the prompt question.

As it is expected, percentage of acquisition increases with the age; however, the accessibility of each depth may vary. Children, in all age groups, had higher proportion of understanding of subject RC structures.

Table 4.

Distribution of the Acquisition of RC Structures in Each Age Group.

order	1	2	3	4	5	6	7	8	9	10
/ages										
2	Sbj.Fac.	Sbj.Act.	Abl.	Comp.	Dir. Obj.	Poss.Fac.	Acc.Ind.	Fut.Sbj.	Dat.Ind.	Sbj. of
	Nom	Nom	Agent	Sbj.		Nom	Obj.	Pas	Obj.	Comps
	100%	93.3%	80%	73%	66.7%	46.7%	46.7%	40%	40%	0%
3	Sbj.Fac.	Sbj.Act.	Fut.Sbj.	Comp.	Abl.	Poss.Fac.	Acc.Ind.	Dir. Obj.	Dat.Ind.	Sbj. of
	Nom	Nom	Pas	Sbj.	Agent	Nom	Obj		Obj.	Comps
	93.3%	86.7%	86.7%	80%	73.3%	40%	40%	33.3%	20%	20%
4	Sbj.Fac.	Abl.	Sbj.Act.	Fut.Sbj.	Comp.	Poss.Fac.	Acc.Ind.	Dat.Ind.	Dir. Obj.	Sbj. of
	Nom	Agent	Nom	Pas	Sbj.	Nom.	Obj	Obj.		Comps
	100%	100%	95%	95%	80%	60%	55%	50%	45%	30%
5	Sbj.Fac.	Sbj.Act.	Fut.Sbj.	Poss.Fac	Abl.	Comp.	Acc.Ind.	Dir. Obj.	Sbj. of	Dat.In
	Nom	Nom	Pas	.Nom	Agent	Sbj.	Obj.		Comps.	d.Obj.
	100%	100%	100%	100%	100%	85%	70%	70%	55%	35%
6	Sbj.Act.	Fut.Sbj.	Sbj. Fac.	Comp.	Poss.Fac.	Acc.Ind.	Sbj. of	Dat.Ind.	Dir. Obj.	Abl.
	Nom.	Pas	Nom	Sbj.	Nom	Obj.	Comps.	Obj.		Agent
	100%	100%	95%	95%	95%	95%	95%	90%	90%	90%
7	Sbj.Fac.	Sbj.Act.	Fut.Sbj.	Comp.	Poss.Fac.	Abl.	Sbj. of	Dir. Obj.	Acc.Ind.	Dat.In
	Nom	Nom	Pas	Sbj.	Nom	Agent	Comps.		Obj	d.Obj.
	100%	100%	100%	100%	100%	100%	90%	80%	80%	70%
8	Sbj.Fac.	Sbj.Act.	Fut.Sbj.	Comp.	Poss.Fac.	Abl.	Acc. Ind.	Sbj. of	Dat.Ind.	Dir.
	Nom	Nom	Pas	Sbj.	Nom	Agent	Obj.	Comps.	Obj	Obj.
	100%	100%	100%	100%	100%	100%	90%	90%	85%	85%
9	Sbj.Fac.	Sbj.Act.	Fut.Sbj.	Comp.	Poss.Fac.	Abl.	Dir. Obj.	Acc.Ind.	Sbj. of	Dat.In
	Nom	Nom	Pas	Sbj.	Nom	Agent		Obj.	Comps..	d.Obj.
	100%	100%	100%	100%	100%	100%	95%	95%	95%	85%

Table 5.

Distribution of the Proportion of the Production of Expected RC Structures in Each Age Group.

Order	1	2	3	4	5	6	7	8	9	10
/ages										
2	Sbj.Fac. Nom	Sbj.Act. Nom	Fut.Sbj. Pas	Comp. Sbj.	Poss.Fac. Nom	Dat.Ind. Obj.	Dir. Obj.	Acc.Ind. Obj.	Abl. Agent	Sbj. of Comps
	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3	Sbj.Fac. Nom	Sbj.Act. Nom	Fut.Sbj. Pas	Comp. Sbj.	Poss.Fac. Nom	Dat.Ind. Obj.	Dir. Obj.	Acc.Ind. Obj.	Abl. Agent	Sbj. of Comps
	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4	Sbj. of Comps.	Comp. Sbj.	Sbj.Fac. Nom	Sbj.Act. Nom	Fut.Sbj. Pas	Poss.Fac. Nom	Dat.Ind. Obj.	Dir. Obj.	Acc.Ind. Obj.	Abl. Agent
	10%	5%	0%	0%	0%	0%	0%	0%	0%	0%
5	Comp. Sbj.	Sbj.Fac. Nom	Abl. Agent	Sbj.Act. Nom	Fut.Sbj. Pas	Poss.Fac. Nom	Dat.Ind. Obj.	Dir. Obj.	Acc.Ind. Obj.	Sbj. of Comps
	25%	10%	10%	0%	0%	0%	0%	0%	0%	0%
6	Sbj. of Comps.	Poss.Fac. Nom	Comp. Sbj.	Abl. Agent	Dat.Ind. Obj.	Sbj.Fac. Nom	Sbj.Act. Nom	Dir. Obj.	Acc.Ind. Obj.	Fut.Sbj. . Pas
	60%	45%	30%	30%	25%	10%	10%	10%	10%	5%
7	Poss.Fac. .Nom	Sbj.Fac. Nom	Comp. Sbj.	Abl. Agent	Sbj.Act. Nom	Sbj. of Comps.	Dat.Ind. Obj.	Fut.Sbj. Pas	Dir. Obj.	Acc.In d.Obj.
	65%	60%	60%	50%	40%	40%	25%	20%	10%	0%
8	Comp. Sbj.	Poss.Fac. Nom	Sbj.Act. Nom	Abl. Agent	Sbj.Fac. Nom	Sbj. of Comps.	Dir. Obj.	Dat.Ind. Obj.	Acc.Ind. Obj.	Fut.Sbj. . Pas
	70%	70%	65%	60%	55%	35%	30%	15%	15%	0%
9	Abl. Agent	Sbj.Fac. Nom	Sbj. of Comp.	Sbj.Act. Nom	Dat.Ind. Obj.	Poss. Fac. Nom	Comp. Sbj.	Acc.Ind. Obj.	Fut.Sbj. Pas	Dir. Obj.
	55%	40%	25%	20%	15%	10%	5%	5%	0%	0%

Table 4 presents that subject RCs are easier for children to acquire than the object RCs. Although there is an order, surprisingly Abl. Agent was unstable throughout all ages. It seems that even though children give the correct answers, they did not internalize the depth completely.

Table 5 demonstrates the distribution of the proportion of the production of expected RC structures in each age group. The percentage of the production of expected RCs were placed in the table based on the responses of the participants. The calculations of the percentage of the production of expected RCs were held for each age and each depth, henceforth every depth is juxtaposed in the table from the highest to the lowest percentage of production of expected RCs. If the percentages are the same, aforementioned sequence is kept in the table.

As seen in Table 5, there are no production of any expected RCs at the ages 2 and 3. Although the proportion of RC production is low, first expected RC production was recorded at the age 4. Out of 20 participants only two 4-year-olds produced expected RC structures. At the age of 4, participants produced the depth (10) Subj. of Comps. (10%) and the depth (4) Comp. Subj. (5%). Both of these depths are subject RCs and they require comparative knowledge. At the age 5, only the depth (4) Comp. Subj. (25%), the depth (1) Subj. Fac. Nom. (10%), and the depth (9) Abl. Agent (10%) produced by the participants of this age group.

There is a sharp increase at the age 6. All depths are produced by at least one 6-year-old child. While the depth (10) Subj. of Comps. (60%) had the highest, the depth (3) Fut. Subj. Pass. (5%) had the lowest proportion of RC production for this particular age group.

As it is demonstrated in Table 5, 7-year-olds produced the depth (5) Poss. Fac. Nom. (65%) at the highest proportion and none of the 7-year-olds produced the depth (8) Acc. Ind. Obj. At the age of 7 and 8, there is no significant difference regarding the RC productions, therefore the proportions of the production of RCs were almost stabilized. At the age 8, participants of this age did not produce any RCs for the depth (3) Fut. Subj. Pass. Throughout the all ages the depth (3) Fut. Subj. Pass. had one of the lowest proportion of the production.

Although the proportion of RC production increased with the age, there is an unexpected decrease at the age of 9. This decrease was observed at each RC structures. Nine-year-olds did not produce any expected RCs for the depth (3) Fut. Subj. Pass. and the depth (6) Dat. Ind. Obj. Out of 20 9-year-olds, only one participant produced the depth (8) Acc. Ind. Obj.(5%) and the depth (4) Comp. Subj. (5%). The highest proportion of RC production recorded for the depth (9) Abl. Agent (55%).

In general, children produced subject RCs earlier than the object RCs. There is a gradual increase in the production of RCs with the age; however, at the age 9, production of RCs decreases suddenly.

CHAPTER V

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1. Discussion and Conclusion

The aim of this study is to investigate the acquisition and production of RC structures in Turkish by monolingual Turkish speaking children from 2 to 9 years of ages. The analysis of the data highlights some important findings. Following research questions guided this study.

1- What is the depth of comprehending and producing RCs by monolingual Turkish speaking children at different ages?

Children can acquire their own native language inherently in natural environment starting from early ages. The language development and cognitive development can be predicted from their language production (Ramirez, Lieberman, Mayberry, 2012). Comprehending and producing a language is strongly connected with the cognitive development of the children. Language development and cognitive development are interdependent of each other and they appear at the same time (Vygotsky, 1962; Piaget, 1959; Kamhi and Lee, 1990). However, all the phases of this development do not emerge exactly at the same time. First research question of this study is aimed to enlighten the process of comprehension of language by investigating the RC structures in Turkish to have clearer understanding of the language and cognitive development of the children.

The results of this study indicate that the monolingual Turkish speaking children can understand RC structures as early as 2 years of age. Most of the RC studies focused on the age of 3 to 8 (Diessel and Tomasello, 2005; Brandt, Kidd, Lieven and Tomasello 2009; Slobin, 1982; 1986;). In this study 2-year-olds are included to unveil early comprehension and production of RCs and the youngest participant was (2;01 f).

The findings revealed that as early as 2 years of age, children can understand the RCs; however, they cannot produce RC structures as expected. Sarılar and Küntay (2011) studied on easier type of RCs with the children whose mean age was 36 months. They presented “Hani...ya” structure and motivated children to use that structure. Even though children had difficulties in the formation, they were able to produce RCs. Their finding is

in line with the result of this study. If 3-year-olds can produce RCs, this indicates that they have learned these structures. In this study while 2-year-olds can understand the RCs, first production of RC structures are observed at the age of 3 and it increased with the age.

Almost all of the 2-year-olds responded to prompt questions in the same way; if they understood the question, they pointed to the relevant picture. They performed better in first two depths; Subject- Factive Nominal and Subject- Action Nominal. None of the 2-years-olds gave response to the depth (10) Sub.of Comps. This depth requires knowledge of two variables. Children at this age may not have mastered the variables in the prompt question of this depth. When they distinguish the difference, they might be able to produce expected answers.

The first production of RCs were recorded at the age of 3 and it was the depth (10) Sub.of Comps. Although 3-year-olds have noticeably developed language production abilities, they may not demonstrate their language knowledge and fail to produce RC structures in the way the prompt requires. According to Berman and Slobin (1994), 3-year-olds cannot maintain their attention till the end of the task and lose their attention quickly.

Rate of relative clause production increases as children grow older (Friedmann, Aram and Novogrodsk, 2011). Slobin (1986) claims that “the mastery of relative clauses in Turkish must take place later than 4; 8 (p. 277) and at the age 5 children show similar patterns to adults. Özge at al.,(2015) found that there were no significant differences between 5 to 8-year-olds. Their findings are in parallel with the findings of this study. At the age of 5, the participants produced more RC structures than previous ages but they are still in progress. Because they produced only 9 expected RC structure and 69 any other RC structures out of 150 responses. Until the age of 6 number of expected RC structure was only 13 in total. At the age of 6, this number increased sharply and 47 expected RC structures were produced by this age group. This sudden increase suggests interesting insight into their abilities related to their cognitive and language development.

At the age 6, participants produced expected RC structures from every depth and the proportion of the answers were almost same at the ages 7 and 8. It seems that up to the age 6 the rate of RC production increases with the age and it stabilizes at 7 and 8. Friedmann, Aram and Novogrodsk (2011) found that in Hebrew, development of RC production has similar phases that it stabilizes around the age of 6. This might indicate

that they already mastered syntactic abilities by the age of 6. Nevertheless the language development of children is still in progress and they might still need to develop lexical knowledge.

The most interesting outcome of this study is that there is a decrease in the production of RC structures at the age of 9. Unlike the increase in the production of RC structure at the younger ages, there is a decrease in the production of the expected RC structure by 9-year-olds. It seems that 9-year-olds are experiencing a transition phase related to their cognitive and language development. Berman and Slobin (1994) claim that regarding language production 9-year-olds are maintaining a bridge between 5-years and adults. Sometimes they fall behind the 6 and 7-year-old children in terms of expected RC structures. Piaget (1954) identifies developmental stages and categorizes 9-years-old children in the concrete operation stages which is between 7 and 11 years. Özcan (2005) proposes that during this transition period children develop organized and rational thinking and their responses are not homogeneous. They may have marks from logical thoughts but they may not use these thoughts. In this study it is observed that while some of the 9-year-olds responded the prompt question with expected RC structures (17.5%), most of them produced RC structures other than expected (62.5%) and the others only pointed to the pictures (17%). They produced highest proportion of any other RC structures in wide diversity. Instead of producing the expected RC structures, some of the participants put forward an opinion or some of them focused on the scene. It seems that 9-year-olds are experiencing a transitional phase.

In the same line, Carey at al. (1980) explained this decline with development of brain activities. They investigated the face recognition in children. According to their findings, up to 10-year-old, children's performance are improving and there is a decline till the age of 14, and finally around 16 they attain adult level brain performance. It seems that the decline of the RC production at the age of 9 is part of their developmental progress.

In the normative group, all of the adults understood the prompt questions. It shows that all of the RC structures and prompt questions are comprehensible. This finding was important for the validity and the reliability of the study. When it comes to producing RCs, only half of the adults were able produce RCs as expected. The rest produced RC structures other than expected or they produced a sentence without any RCs in it. The highest proportion

of expected RC production (100%) was observed for the depth (1) Sub. Fac. Nom. And the depth (10) Subj of Comp. This finding is similar with all age groups that children performed better on subjects RCs. None of the adults produced the expected RC for the depth (5) Poss. Fac. Nom. except one adult. This depth was produced by at least one child in per group from 6 to 9-years of children. This finding may indicate that adults prefer not to use the expected RC. Instead they produce definitive sentences for the depth (4) Comp. Subj.

After answering the first research question, the second question is going to be discussed in this part of the discussion. The second question is;

2- What is the accessibility of each RC structure by monolingual Turkish speaking children at different age?

In the study, precedence of production of RC structures are measured to define the accessibility of each depth. There are 6 types of subject RC structures namely; Fac. Nom., Act. Nom., Fut. Subj., Comp., Poss. and Subj. of Comps.; 3 types of object RC structures; Acc. Ind., Dat. Ind. and Dir. Obj.; and an Abl. Agent were measured. In numerous studies, children have performed better on subject RCs and worse on object RCs. (de Villiers et al. 1979; Özge, 2010). The result of this study is consistent with the previous studies that children at early ages are able to produce subject RC structures easier than object RCs. The earliest RC production was observed at the age 3;04 and it was Subj. of Comps. First expected RC structure was observed at the age 5;03 and it was Poss. Sub. These findings might indicate that Turkish speaking children produce subject RCs earlier than object RCs.

Moreover it was observed that when children answer the prompt questions, they prefer to produce easier form of the expected RC, or they produce syntactically different but functionally similar responses. For example; at the age of 8, children were expected to produce Acc. Ind. Obj. RC structure as for the depth 8. Instead, they produced only 3 Acc. Ind. Obj. RCs and 13 Sub. RCs for this particular depth. This result is inline with Slobin (1986), Özge at al., (2009)'s findings that children prefer subject RCs which is easier to produce. For example for the depth (8) Acc. Ind. Obj. participant (5;11 m) produced minimal form of the subject RC. Instead of "Kalemimi kullandığım kız" "The girl whose

pen I used” he said: “ ver-en kız” “(the) girl who gives”. This answer is unsatisfactory in terms of semantic and syntactic features of the particular depth. The participant preferred subject RC and did not utter any indirect objects and he avoided using full structure and indirect object.

The current study found that children performed best around age 6 and their production performance stabilized henceforth. It appeared to be that children have enough knowledge regarding the production of RC structures around the age 6. They also need to obtain cognitive abilities such as Sarilar and Küntay (2011) states that “if children are using relative clause constructions productively, this means that they have learned the needed pairings of form and semantic/discourse function”(p.11). It is possible that language development might have been affected by children’s need of learning how to make connections between lexical items. Slobin (1986) claim that at the age 5 children show similar patterns to adults. It was found that at the age 2, youngest age in this study, children were able to understand RC structures and children performed best on production of RCs at the age 8. Naturally, they have started to comprehend these structures long before the produce.

Although subject RCs are easier for children to understand, semantic and syntactic difference between Fac. Nom. and Act. Nom. might have effected the depths of these RC structures. The findings revealed that 2, 3 and 4-year-old children can understand Sub. Act. Nom. with a couple of exemption while all other age groups understood this RC structure thoroughly.

Future- Passive has been considered as an construction which enables shift the perspective from agent to patient (Gulzow and Gagarina, 2010). In Turkish, passive voices are used more common in writing than speaking. According to Tarzi (1983) passive voices are used 46% in the written language, whereas it is used 4.7% in the spoken language (p. 40). It is found that more than half of the 2-year-olds did not understand the depth (3) Fut. Pas. RC. Children from 3 to 9-year-olds were able to understand this depth with a couple of exemption, while only 6 (5%) and 7 (20%) year old children produced the expected answers. Even though the scenario and the prompt question canalized children and force them to produce Fut. Sub. Pas., the percentage of production was still low in number. For this particular depth, while 8 and 9 year-old children did not produce any expected RC

structures, they were able to produce highest proportion of RC structure other than the expected one. This finding was similar with the normative group. Adults also did not produce this depth thoroughly. It was produced as expected by 50% of the adults. While 20% of adults did not produce any RC structures, 30% of adults produced an RC structure other than expected for the depth (3) Fut. Subj. Pass.

The depth (4) Comp. Sub. requires comparison of the two or more items. Therefore, this depth was assumed to be harder than other subject RCs. The results indicated that 73.3% of 2-year-olds, 80 % of 3 and 4-year-olds and all of the other age groups (except a 6-year-old) can understand this depth. The first expected answer observed at the age 5. The lowest proportion of the expected answer recorded at the age 9; however, 8-year-old children produced more expected RC structures (70%) for this depth than all the other age groups. The following item is Possessive- Factive Nominal. This depth has two nouns embedded in one RC. Na and Huck (1993) explained the connection between the nouns based on pragmatic relation which they call "thematic subordination". Possessive noun is the subordinating noun of the head noun of the RC. In our case "hair" is the subordinating noun of the "man". A picture of four men presented (see app.) the participants and they were asked to define the teacher in the picture. They were expected to answer;

(61) Saç-ı beyaz ol-an adam

Hair-3.sg white be-SbjP man

The man whose hair is white

If they could not produce the expected RC structure, they were asked to show "the man whose hair is white". The findings revealed that, up to age 6, children can not fully comprehend this structure. First expected RC structure observed at the age of 6. Even though the highest proportion of RC structure observed at the age of 9, the percentage of the expected RC structure was low in this age group. In the normative group, 90% of adults did not produce expected RC for the depth (5) Pos. Fac. Nom. They produced simpler form of this structure. For example; participant (22;01 m) answered the prompt question as;

(62) kırmızı tişört-lü

Red t-shirt-Pos.

Who has red t-shirt

This form of the RC structure is commonly used in daily speaking. Even though the prompt question requires “whose” structure to use in the phrase, almost all of the adults preferred to use simpler form, namely “has” structure.

According to Keenan and Comrie, out of six depths, the indirect object position is classified as “the most subtle one on the Accessibility Hierarchy (AH)” (1977: 72). In this study, Dat. Ind. Obj. is placed in the 6th depth. Dat. Ind. Obj. requires cognitive ability to understand direct object and indirect object together in an RC structure, because indirect object completes the meaning of direct object by answering the questions of “*to whom/what or for whom/what*”. There is always a direct object together with an indirect object, therefore this depth has two objects; indirect and direct, respectively. The percentage of production of Dir. Obj. was slightly higher than Dat. Ind. Obj. and it is very close to Acc. Ind. Obj. Since there is no striking difference between production of direct object and indirect object it is possible that when children reach certain level of language and cognitive development they can govern direct or indirect RC structures together.

Ablative form was one of the easiest RC structures for all ages. Out of 150 participants, only 9 children did not understand the prompt question for this depth. It is possible that this depth is one of the early acquired RC structures.

One of the important findings is that in the depth (10) Subj. of Comp. The participants were expected to answer the prompt question as “The boy than whom I am taller”. Instead of full form, they produced a practical form as “who is shorter than me”. This answer is syntactically different but functionally acceptable. Grammatically, Turkish allows users to generate this full form of the depth (10) Subj. of Comp. On the other hand, none of the participants produced this full form. It is likely that this RC is grammatically found in language but it is not used by the speaker of Turkish. This finding is in line with Altinkamiş and Altan’s (2016) finding that “structures which are syntactically and morphologically less complex than relative clauses are common in both child directed speech and in children’s productions”. A possible explanation for this result is that children prefer to produce less complex structures which they have mastered. They opt for staying in the safe zone where they feel confident and comfortable.

It is important to note that, context influences the choice of the full expected form and other forms. For example; participant (5;11 m) produced minimal form of the subject RC.

He said: “ ver-en kız” “(the) girl who gives”. This answer is unsatisfactory in terms of semantic and syntactic features of the particular depth. The participant preferred subject RC and did not utter any indirect objects and he avoided using full structure and indirect object together in one phrase. The reason behind this minimal use might be because of the clarity of the context, and the child may not feel obliged to repeat already known information.

One of the notable findings is about -ki structure. Turkish allows users to produce some other forms which have similar functions with RCs such as; -ki structure. This form is one of the RC related structures in Turkish (Ekmekçi, 1991; Kornfilt et al. 2012), there-withal it is syntactically simpler and provides similar functions. In this study, the youngest age for production of -ki structure is 4;10 and it is used for locative purposes. This structure is widely used in older age groups especially when they point to the picture or describe a person. This study confirms related researches that -ki structure is commonly used by children to compensate full form of RC structures (Erguvanlı, 1980; Altınkamuş et al., 2013).

Along with the comprehension and production of RCs, one of the aims of this study is to find out most complex structure for each age group. Thus, third and the last research question is;

3- What is the most complex structure of RC children can comprehend within the pre-determined age groups?

One of the leading research has been done by Keenan and Comrie (1977). They opened up a field related to RC structures and put forth Accessibility Hierarchy (AH). AH organizes RC structures hierarchically based on their syntactic properties. For example; the RC on the further up is more accessible than those of the further down. According to AH, subject RCs are more accessible than the object RCs in Turkish. One of the aims of this study is to reveal the most complex RC structures in the age groups. In Table 4, the distribution of the acquisition of expected answers, in Table 5, the distribution of the production of each RC structure are demonstrated. The first emergence of RC structures was observed as early as 2 years of age and the production of expected RC structure was

observed at the age 3. These findings are inline with previous findings (Slobin, 1986; Özge at al., 2009; Sarılar and Küntay, 2011).

The first expected RC production was recorded for the Sub.of Comps. This depth is defined as the depth 10 which is assumed to be hardest to produce. Despite the complexity of the depth, children managed to produce easier form of the Sub. Of Comps.

The most complex RC structure differs in the age groups. Regarding comprehension, all adults comprehended all the depths. For the ages 2 and 4 the depth (10) Subj. of Comps., for the age 3 the dept (6) Dat. Ind. Obj. and the depth (10) Subj. of Comps., for the ages 5, 7 and 9 the dept (6) Dat. Ind. Obj., for the age 6 the dept (6) Dat. Ind. Obj., the depth (7) Dir. Obj and the depth (9) Abl. Agent, and for the age 8 (10) Subj. of Comps., for the ages 5, 7 and 9 the dept (6) Dat. Ind. Obj., for the age 6 the dept (6) Dat. Ind. Obj. and the depth (7) Dir. Obj. are the most complex structures for children to comprehend.

Comprehension and production of RC structures are closely tied to cognitive development of the children (Tomasello and Diesel, 2005). There is a binary relation between child's access to the RC and depth of the RC. Therefore, if a child cannot access the depth this implies that the depth is complicated to the child's current cognitive development. This study aimed to reveal the accessibility of different depths of RC structures by examining children's comprehension and production of RC structures at different age groups from 2 to 9. For this particular study 10 levels of RC structures have been directed to children to decide which one is more accessible than the other.

It is found that children at 2-years and early 3-years-old are intelligible to point to relevant picture. At the age of 3 children understood the prompt question and started to produce relevant answers. Even though the proportion of RC production is low, it signals the starting point of RC production and it shows their language abilities regarding use of RC structures in the given context.

Concerning the RC production, age of 6 is a turning point for children, because at the age 5 expected RC structures were recorded in 3 depths, but for the age 6, expected RC structures were recorded for all 10 depths. This finding is an indication that at the age 6 children's speaking ability developed to produce any RC structures. While the participants were generating RC structures, some of them were not confident about their responses.

According to Table 4, acquisition of RC starts as early as 2 years of age. Children can display their understanding of the prompt question at least by pointing to the right picture. None of the 2- year-old children gave response to the prompt question of Sub. of Comps. All the other age groups, at least one child in each age group, displayed understanding of the prompt question; however, the proportion of the correct answers differs based on their age and the depth. As it is expected, percentage of acquisition increases with the age; however, the accessibility of each depth may vary. For example; Abl. Agent is unstable throughout all ages. It seems that even though children give the correct answers they did not internalize the depth. Table 4 presents that subject RCs are easier for children to acquire than the object RCs.

As seen in Table 5, there are no production of any expected RCs at the ages 2 and 3. First expected RC production was recorded at the age 4. The proportion of production increased with the age. In general, children produced subject RCs earlier than the object ones. Regarding subject RCs, Fut. Sub. Pas. RC seems harder than all the other subject RCs. The developmental process do not have sharp changes. “There is a continuum in that the improvement is incremental with increasing age (Özcan, 2018, p: 1498). The study shows that the acquisition and production of RC structures are not an easy process for children; rather it is a developmental process and requires cognitive maturity and knowledge. Children produced subject RCs and Abl. Agent earlier and better than object RCs. The first RC productions were Comp. Sub. and Sub. of Comps. They mainly produced subject RCs first in each age group.

Turkish language permits complex RC structures; however, in daily speaking these structures may not be used by the speakers of Turkish. For example; none of the children produced full form of Subj. of Comps.; they preferred easier form of the same structure. They generally produced -(y)An participle as an “all purpose relativizer”(Yumrutaş, 2009, p.121).

To sum up, the comprehension and production of RCs are related to children’s language and cognitive development. It seems that they are experiencing turning points in this process. First they start understanding RCs structures as early as 2 years of age. Secondly, they start producing RCs before the age of 4 and the rate of production increases with

increasing age. Thirdly, it stabilizes around ages 6 to 8 and lastly, at the age 9 it decreases surprisingly.

This research determines the Turkish monolingual children's accessibility of RCs. Based on the results of the study, Turkish lessons might be rectified and the curriculum of the lessons might include teaching usage of the RC structures which children are ready to achieve. Moreover, the findings could be applied to English lessons to teach these structures. Children's current cognitive level of understanding the depth of RC could be taken into consideration.

5.2. Recommendations

Language development is a process starting from birth and continues life-long. That process is not completely understood yet. Major developments are observed in early stages of life, as the children grow older their language abilities increase (Lust, 2006; Kuhl, 2005). However, it is observed that at the age of 9 there is a sharp decrease regarding the RC production. The reason behind this decrease should be investigated in the further studies.

Furthermore, to have a clear understanding of RC structures, grammatical role of the RCs in the main clause, grammatical categories, word order, morphology, relativization, complementation, or passivization could be investigated.

REFERENCES

- Altınkamaş, F. & Altan, A., (2016). A usage-based approach into the acquisition of relative clauses in Turkish. *Dilbilim Araştırmaları Dergisi*, 1, 69-91. Retrieved from <http://dad.boun.edu.tr/download/article-file/224728>
- Aspect. (2003). In *Glossary of linguistic terms*. Retrieved from <https://glossary.sil.org/term/aspect>
- Berman, R. & Slobin, D. (1994). *Relating Events in Narrative*. New York: Psychology Press. doi:10.4324/9780203773512
- Brandt, S., Kidd, E., Lieven, E. & Tomasello, M. (2009). The discourse bases of relativization: An investigation of young German and English-speaking children's comprehension of relative clauses. *Cognitive Linguistics* 20 (3), 539–570
doi:10.1515/COGL.2009.024
- Bulut, T. (2012). *Processing asymmetry in Turkish subject and object relative clauses*. Master's thesis. Hacettepe University, Ankara. Retrieved from: <https://tez.yok.gov.tr/UlusalTezMerkezi> no:314983
- Carey, S., Diamond, R., & Woods, B. (1980) Development of face recognition- A maturational component? *Developmental Psychology*, 16 (4), 257-269 doi:10.1037/0012-1649.16.4.257
- Çagri, I. (2009) Arguing against subject incorporation in Turkish relative clauses *Lingua*, 119, 359–373. doi:10.1016/j.lingua.2007.10.019
- de Viries, M. (2013). *Relative clauses*. New York, NY: Oxford.

- Diessel, H. & Tomasello, M. (2005). A new look at the acquisition of relative clauses. *Linguistic Society of America*, 81(4), 882-906 doi:1353/lan.2005.0169
- Ekmekçi, F. Ö. (1986). The significance of word order in the acquisition of Turkish. In Dan I. Slobin and Karl Zimmer (Eds.) *Studies in Turkish Linguistics*. Amsterdam/Philadelphia: Benjamins doi:10.1075/tsl.8.15ekm
- Ekmekçi, F. Ö. (1991). Factors governing the acquisition of semantic and syntactic relations. *Ç.U. Journal of Faculty of Education*, 5, 28-42. Retrieved from: https://nanopdf.com/download/factors-governing-the-acquisition-of-semantic-and-syntactic_pdf
- Erguvanlı, E. (1980). A Case of syntactic change: Ki construction in Turkish. *Online in Digital Library for International Research Archive*, Item #2748, Retrieved from: <http://dlir.org/archive/items/show/2748>
- Friedmann, N., Aram, D. & Novogrodsk, R. (2011). Definitions as a window to the acquisition of relative clauses. *Applied Psycholinguistics* 32, 687–710 doi:10.1017/S0142716411000026
- Gibson, E. (2000). *Dependency locality theory: A distance-based theory of linguistic complexity*. Papers from the First Mind Articulation Project Symposium, Cambridge, MA: MIT Press. Retrieved from: http://tedlab.mit.edu/tedlab_website/researchpapers/Gibson_2000_DLT.pdf
- Gulzow, İ. & Gagarina, N. (2010). *Frequency Effects in Language Acquisition: Defining the Limits of Frequency as an Explanatory Concept*. Walter de Gruyter
- Göksel, A. & Kerslake, C. (2005). *Turkish: A comprehensive grammar*. London, New York: Routledge doi:10.2307/23062658

- Hawkins, J.A. (1999) Processing Complexity and Filler-Gap Dependencies across Grammars. *Language*, 75(2) 244-285. Retrieved from: <http://links.jstor.org/sici?sici=0097-8507%28199906%2975%3A2%3C244%3APCAFDA%3E2.0.CO%3B2-9>
- Kahraman, B., Sato, A., Ono, H. & Sakai, H. (2010). Relative clauses processing before the head noun: Evidence for strong forward prediction in Turkish. In H. Maezawa & A. Yokogoshi (Eds.), *Proceedings of the 6th Workshop on Altaic Formal Linguistics. MIT Working Papers in Linguistics 61*, 155-170. Cambridge, MA: MIT Press.
- Kahraman, B (2015). Processing Turkish relative clauses in context. In D. Zeyrek, Ç.S. Şimşek & U. Atas (Eds.) *Ankara Papers in Turkish and Turkic Linguistics. Series Turcologica, 103*, 98-109. Wiesbaden: Harrassowitz Retrieved from: <https://sites.google.com/site/kahramanbpapers/>
- Keenan, E. L. & Comrie, B., (1977). Noun phrase accessibility and universal grammar. *Linguistic inquiry*, 8(1), 63-99. Retrieved from <http://lingo.stanford.edu/sag/L222B/papers/KeenanComrie.pdf>
- Ketrez, N. (2007). Revisiting the Turkish Relatives. *Journal of Turkish Linguistics.1*, 1-22 Retrieved from: https://www.academia.edu/5171891/Journal_of_Turkish_Linguistics_FULL_-Vol_1_Number_1_-_September_2007?auto=download
- Kırkıcı, B. (2004). The processing of relative clause attachment ambiguities in Turkish. *Turkic Languages*, 8, 1-11 Retrieved from: http://turkoloji.cu.edu.tr/DILBILIM/bilal_kirkici_relative_clause.pdf
- Kornfilt, J. (1997). *Turkish*. New York, NY: Roulledge
- Kornfilt, J., Yağmur, K., Hermon, G., Öztürk. Ö. & Yalnız, Y. (2012). Relative clauses in the L1-acquisition of Turkish; in the Szeged Conference: Proceedings of ICTL 15, É.

- Kincses-Nagy & M. Biacsí (Eds.); *Studia Uralo-Altaica*; Szeged: University of Szeged; 291-301.
- Kuhl, P. K., Conboy, B. T., Padden, D., Nelson, T. & Pruitt, J. (2005). Early speech perception and later language development: Implications for the "critical period." *Language Learning and Development*, 1(3-4), 237-264. doi:10.1207/s15473341lld0103&4_2
- Larson, R. & Takahashi, N. (2002). *Order & interpretation in prenominal relative clauses*. Paper presented at the 2002 annual meeting of the linguistic society of America. San Francisco, CA Retrieved from: <https://semlab5.sbs.sunysb.edu/~rlarson/waf12.pdf>
- Lee, R. N. & Kamhi, A. G. (1990) Metaphoric competence in children with learning disabilities. *Journal of Learning Disabilities*. 23 (8), 476-482 doi:10.1177/002221949002300805
- Lust, B. (2006) *Child language acquisition and growth*. Cambridge
- Mackey, A. & Gass, S.M. (2016). *Second language research: Methodology and design*. NY and London: Routledge
- Na, Y. & Huck, G. (1993). On the status of certain island violations in Korean. *Linguistics and Philosophy* 16(2), 181-229 doi:10.1007/bf00985179
- Özcan, M. (2005). *The emergence of temporal elements in narrative units produced by children from 3 to 9 plus 13*. (Unpublished doctoral dissertation). ODTU. Ankara.
- Özcan, M. (2018). Developmental differences in the construction of concepts by children from 3 to 14-year-olds: perception, language and instruction. *World Academy of Science, Engineering and Technology International Journal of Cognitive and Language Sciences*, 12 (10),1490-1499

- Özge, D. (2010). *Mechanisms and strategies in the processing and acquisition of relative clauses in Turkish monolingual and Turkish-English bilingual children*. Ph.D. dissertation. The Middle East Technical University. Ankara Retrieved from <https://tez.yok.gov.tr/UlusalTezMerkezi/277688>
- Özge, D., Marinis, Z. & Zeyrek, D. (2015). Incremental processing in head-final child language: online comprehension of relative clauses in Turkish speaking children and adults. *Language, Cognition and Neuroscience*, 30 (9), 1230-1243·doi:10.1080/23273798.2014.995108
- Pablos, L. (2008). Filled-gap effects in sentence processing: different accounts compared. *International journal of basque linguistics and philology*, 42 (1), 309- 332. Retrieved from: [http://www.ehu.es/ojs/index.php/ASJU/article/view File/2313/1907](http://www.ehu.es/ojs/index.php/ASJU/article/view/File/2313/1907)
- Paluluoğlu, N. Ş. (2017). *Syntactic processing differences and the effects of memory-load interference for object relative and subject relative clauses in Turkish*. Ph.D. Thesis. University of Yeditepe, İstanbul Retrieved from <https://tez.yok.gov.tr/UlusalTezMerkezi>
- Piaget, J. (1954). *The construction of reality in the child*. New York: Basic Books. doi:10.1037/11168-000
- Piaget, J. (1959). *The language and thought of the child*. NY, US
- Ramirez, N. F., Lieberman, A. M. & Mayberry, R. (2013). The initial stages of first-language acquisition begun in adolescence: when late looks early. *Journal of Child Language*, 40, 391-414 doi:10.1017/S0305000911000535
- Sarılar, A., & Küntay, A. C. (2011). Do young learners pick up on relative clause constructions in referential communication? a training study. In E. Erguvanlı-Taylan & B. Rona (Eds.),

berlin.de/diss/servlets/MCRFileNodeServlet/FUDISS_derivate_000000020349/Dissertation_Yas.pdf

Yumrutaş, N. (2009). *Acquisition of relative clauses in Turkish*. Master's thesis. Boğaziçi University. Retrieved from <https://tez.yok.gov.tr/UlusalTezMerkezi>





APENDIX-1

Test items & materials

1. [Subject, Factive Nominal]

Kırmızı şapkalı çocuk

The boy who has red hat

Prompt question: Hangi çocuk ders çalışıyor?

Which child is studying?

Expected answer: Kırmızı şapkalı çocuk

The boy who has a red hat

Question with RC structure: Kırmızı şapkalı çocuk hangisi?

Which boy is the one who has a red hat?



2.[Subject, Action Nominal]

Yürüyen kadın

The woman who is walking

Prompt question: Hangi kadın okula gidiyor?

Which woman is going to school?

Expected answer: yürüyen kadın

The woman who is walking



2. [Future Subject, Passive]

Okunacak kitaplar

The books which are going to be read

Prompt question: Bu çocuğun ödevi var ve kitap okuması lazım. Sence elindeki kağıtta ne yazıyordur?

This child has homework and he needs to read book. What could be written on the paper which he is holding?

Expected answer: Okunacak kitaplar

The books which is going to be read



If the participants cannot produce target answer, following pictures will be used to check their understanding of the RC item.

Look! There are two houses. What do you think which one is going to collapse?

Bak burda iki ev var. Sence bunlardan hangisi yıkılacak bina?



4.[Comparative, Subject]

Uzun olan çocuk

The child who is tall

Prompt question:Bu resimde abi hangisi?

In this picture, who is older?

Expected answer:uzun boylu olan

The boy who is taller.



5. [Possessive, Factive Nominal]

Saçı beyaz olan adam

The man who has white hair

Prompt question: In this picture, which man could be the teacher?

Bu resimde hangi adam öğretmendir?

Expected answer: The man who has white hair.

Beyaz saçlı (olan) adam



6. [Dative, Indirect Object]

[kendi-sin-e] Kitap ver-diđi-m ođlan

The boy whom I gave book (to)

Scenario: Bu çocuđun ders alıřması lazım ve senin de ona kitap verdiđini farzedelim

This boy needs to study and we assume that you are giving him a book.



Prompt question: Bu resimde kimi hatırlıyorsun? O kimdi?

Do you remember anyone in this picture? Who was he?

Expected answer: [kendisine] Kitap verdiğim oğlan

The boy whom I gave book (to)

*If they cannot produce target answer following question will be asked.

Çalışması için kitap verdiğin çocuk hangisiydi?

Which boy is the one whom you gave a book to study?



7. [Direct Object]

Yolda gördüğüm adam

The man whom I saw on the street

Scenario: Let's assume that you are asking a direction to this man?

Bu adama yol sorduğunu farz edelim



Prompt question: Do you remember this man? Who is he?

Bu adamı hatırlıyor musun? O kim?

Expected answer: yolda gördüğüm adam/ yol sorduğum adam

The man whom I saw on the street/ the man whom I asked the direction

*If they cannot produce target answer following question will be asked.

Can you show me the man whom you saw on the street/ asked the direction?



8. [Accusative, Indirect Object]

Kalemimi kullandığım kız

The girl whose pen I used

Scenario: This girl is studying and you need a pen. Let's assume you asked her pen and she gave it to you.

Bu kız ders çalışıyor ve sana da kalem lazım. Senin kalemi istediğini onun da sana verdiğini farz edelim.



Prompt question: Bu resimde kimi hatırlıyorsun? O kimdi?

In this picture, whom do you remember? Who is she?

Expected answer: Kalemimi kullandığım kızı

The girl whose pen I used

Question with RC: Kalemimi kullandığın kız burda var mı

Is the lady whose pen you used here?



9. [Ablative, Agent]

Arabasından inen adam

The man who gets out from his car

Prompt question: Hangi adam evine gelmiştir?

Which man might arrived his house?

Expected answer: Arabasından inen

The one who gets out from his car



10.[Subject of Comparison]

Kendisinden uzun olduğum çocuk

The boy whom I am taller than him

Scenario: Here is a birthday!. The boy who is holding the knife is birthday boy. Let's assume you are at the party. However you are taller than the birthday boy and shorter than the other boy.

Burda bir doğum günü var. Elinde bıçak tutan çocuk doğum günü çocuğu. Senin de bu partied olduğunu farz edelim. Ama sen doğum günü çocuğundan uzun diğer çocuktan kısasın.

Prompt question: Doğum günü kimindi?

Who was the birthday boy at the party?

Expected answer: Kendisinden uzun olduğum çocuk

The boy whom I am taller than him



CURRICULUM VITAE

Personal Information

Name - Surname: Ergül Yavuz

Date and Place of Birth : 05.02.1979/ Banaz

Education

High School: 1996-Red Crescent Private Nursing High School, İstanbul

University: 2016- Süleyman Demirel University, Educational Department, English Language Teaching

Master: 2019-Mehmet Akif Ersoy University, Graduate School of Educational Science
Department of Foreign Language Education, English Language Teaching M.A.
Program, Burdur

Foreign Languages:

English:Advanced / Yökdil 2016 Spring: 95

Arabic: Intermediate / Yökdil 2018 Spring: 47,5

Scientific Background:

Publications: Yavuz, E., Karakaş, A.(2018) A Comparative Analysis of English Language Teacher Education Programs in Turkey and Malaysia.
Cumhuriyet International Journal of Education 7-3. p.287-306

Presentations:“Comparative Analysis of Feminin Characters of Beowulf and Tepegöz”
The 4th International Language, Culture & Literature Symposium,
Antalya (2018)

Work Experience: 1996-1998 Nurse, Red Crescent Blood Center, Isparta

Contact Information

Phone: 0554 509 75 19

E-mail: ergulyavuz@gmail.com

Address: Batıkent Mah. 261. Cad. No:40 Merkez/Isparta

Date:15.10.2019

GENİŞLETİLMİŞ TÜRKÇE ÖZET

Dilin anlaşılması ve üretilmesi iç içe geçmiş yapılardan özellikle de bağıl cümle yapılarından etkilenir. Bağıl cümleler ismi niteleyen ya da isim hakkında ilave bilgi veren karmaşık yapılardır. Her dilde mevcut olan bu yapılar dilin yapısı hakkında bilgi edinmemizi sağlarlar. Türkçede bağıl cümleler isimden önceki niteleyici kelimenin sonuna gelen ekler vasıtasıyla yapılır. Bağıl cümle üretmek için en fazla kullanılan ekler “-An, dİğI ve AcAk”dır. Bu yapılar cümle içinde en karmaşık yapılar olduğu için hangi yaş grubunda ve ne kadar anlaşılabilirliği merak konusu olmuştur. Çalışmanın hedefi, çocukların dil gelişiminde bağıl cümleleri hangi yaşta ve hangi derinlikte anladıklarını ve ya ürettiklerini ortaya çıkarmaktır.

Türkçe bağıl cümleler ilk olarak 1982 yılında Slobin tarafından incelenmiştir. Slobin okul öncesi çocuklar üzerinde yaptığı araştırmasında Türkçe bağıl cümlelerin beş yaştan sonra tam olarak anlaşılabilirliğini öne sürmüştür. Bağıl cümleler konusunda en önemli çalışmalardan biri Keenan ve Comrie’ye aittir. Bu iki bilim adamı, Türkçenin de olduğu 50 dilde bağıl cümle yapılarını incelemiş ve bağıl cümlelerin konumuna göre anlama ve üretmede zorluk derecesinin değiştiğini öne sürmüşler ve bir çizelge oluşturmuşlardır. Bu çizelgede anlama ve üretme bakımından daha kolay olan daha yukarıda yer almıştır. Derecelendirmeyi ise “derinlik” kelimesi ile ifade etmişlerdir. Keenan ve Comrie’nin (1977) sıralaması bu çalışmadaki bağıl cümleleri oluştururken temel alınmıştır. On bağıl cümle derinliği belirlenmiş ve bu derinliklere uygun cümle yapıları oluşturulmuştur. Her bir derinlik için beklenen anlama ve üretmeye uygun resimler hazırlanmıştır. Veri toplama aracı olarak her bir derinlik için farklı resimler kullanılmıştır. Bu resimler konuya uygun bir senaryo ile sunulmuştur. Kelime seçiminden kaynaklanan yönlendirmeleri engellemek için bütün katılımcılara aynı sözcük diziminde sorular yöneltilmiştir. Hazırlanan görsellerin uygunluğu asıl çalışmaya başlamadan önce ön deneme yapılarak test edilmiştir. Deneme sesli ve görüntülü kayıt edilmiş, bütün cevaplar word belgesine yazılmıştır. Katılımcıların cevapları dört gruba ayrılıp kodlanmıştır. Katılımcı istendik bağıl cümleyi ürettiyse A, istendik bağıl cümle dışında herhangi bir bağıl cümle ürettiyse B, bağıl cümle sorusunu anladığını gösteren herhangi bir cevap veya küçük yaş gruplarında parmakla işaret ettiyse C, hiçbir cevap vermedi ya da anlama işareti

göstermediyse D harfleriyle kodlanmış ve bu şekilde değerlendirilmiştir. Bu çalışmaya, 2-9 yaş arası toplamda 150 çocuk ve 10 yetişkin katılmıştır.

Çalışmada bağıl cümle yapılarıyla ilgili 3 araştırma sorusunun cevabı aranmıştır;

1. Türkçe konuşan tek-dilli farklı yaş gruplarındaki çocuklarda bağıl cümle anlama ve üretme derinliği nedir?

2. Türkçe konuşan tek-dilli farklı yaş gruplarındaki çocuklarda her bir bağıl cümle yapısının ulaşılabilirliği nedir?

Belirlenmiş her bir yaş grubunda çocukların anlama ve üretmede en çok zorlandıkları bağıl cümle yapıları hangileridir?

Genel olarak bütün yaş gruplarında özne konumundaki bağıl cümlelerin daha kolay anlaşıldığı gözlemlenmiştir. Araştırmada 2 yaş çocukların kendilerine sunulan on bağıl yapıdan dokuzunu anlayabildikleri fakat üretemedikleri gözlemlenmiştir. İlk bağıl cümle üretimi 3 yaşta görülmüştür. Sorulara uygun cevaplarda istendik bağıl cümle üretiminin ise 4 yaşta ortaya çıktığı ve yaşla birlikte arttığı gözlemlenmiştir. Bağıl cümle üretimi 6 yaşta her derinlikte kaydedilmiştir. 6 yaşın çocuklar için bir dönüm noktası olduğu ve bu yaşta bağıl cümleleri her derinlikte anlayabildikleri ve üretebildikleri gözlemlenmiştir. 7 ve 8 yaş gruplarında ise 6 yaş verilerine yakın sonuçlar bulunmuştur. 7 ve 8 yaş gruplarının sonuçları yetişkin grubun sonuçlarına en yakın olan gruplardır. Bağıl cümle üretimi yaşla artan bir eğim gösterirken, 9 yaş grubunda beklenmedik bir şekilde düşmüştür. Bir önceki yaş grubunda istendik bağıl cümle üretimi %41.5 iken 9 yaş grubunda bu oran keskin bir şekilde %17.5'e gerilemiştir. 9 yaş grubunda, çocukların bağıl cümle kullanmaktan kaçındıkları ve ya istendik bağıl cümle yerine aynı anlama gelebilecek daha kolay olan bağıl yapıları tercih ettikleri gözlenmiştir. 9 yaş grubunda istendik bağıl cümle oranı %17.5 iken istendik dışında üretilen herhangi bir bağıl cümle oranı %62.5'tir. Bazı 9 yaş grubu çocukların (%17) ise bağıl cümle üretmek yerine iki ayrı kısa cümle kurarak anlamı vermeye çalıştıkları gözlenmiştir. Bu düşüşün ve değişimin sebepleri arasında düşünce akışının kontrolünün olgunlaşmaması, çocukların hata yapma riskine karşı güvenli alanda kalıp uzun veya bağıl cümleler kurmaktan kaçındıkları gösterilebilir. Piaget (1954) gelişim aşamaları içerisinde 9 yaş grubunu "somut işlemler dönemi" içerisinde kabul eder ve bir sonraki dönem olan "soyut işlemler dönemi"ne geçişte bir köprü olarak görür. Dil kullanımında genel olarak bir birliktelik yoktur; bazı cevaplar yetişkin düzeyinde olurken

bazen 6 yaş çocukların gerisinde cevaplar verebilirler. Cevapları mantıklı olsa da ifade etmekte zorlanabilirler (Özcan, 2005). 1980 yılında Carey tarafından yapılan bir çalışma bu gerilemenin beyin gelişimiyle ilgili olduğu, 9 yaşlarında başlayan bu düşüşün 14 yaşa kadar devam ettiği ve 16 yaşta tekrar yetişkin seviyesine ulaştığı kaydedilmiştir. Bu değişim her ne kadar gelişim süreçleriyle açıklansa da bu düşüşün nedenlerini aydınlatma hakkında detaylı çalışmalara ihtiyaç vardır.

Bağlı cümle işleme ve üretimi zihinsel olgunluk ve bilgi ile birleşip bir süreç içerisinde gelişmektedir. Çocukların ürettikleri cümleler bize onların gelişim düzeyleri ile ilgili ipuçları vermektedir. Hangi yaş grubunun dili hangi düzeyde anlama ve üretme becerisine sahip olduğunu bilmek o yaş grubuna uygun ders içerikleri hazırlamada yardımcı olacaktır. Bu çalışmanın sonucuna göre, çocukların zihinsel gelişiminde dili kullanma becerisi önemli yer tutar. Bağlı cümlelerin anlamlandırılması ve kullanımı İngilizce derslerinde “Relative Clauses” başlığı altında öğretildiği gibi Türkçe derslerin müfredatında da yer alması hem ana dilin gelişimine hem yabancı dil öğrenirken yaşanan anlamlandırma zorluklarının azalmasına yardımcı olabilir.