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Turkish Children's Creation of New Words in Coining Agent and Instrument Nouns

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Abstract

This study aims to find out the occurrences of innovative word formations in Turkish speaking children. The data was collected from 20 children with similar socio-economic background aged between 3 and 6 years through picture elicitation technique. The children were presented with agent and instrument pictures and requested to denominate them. On the basis of data analysis, it was observed that the findings partially correlate with the assumptions put forward by (Clark, 1981). Moreover, other than conventional lexical innovation strategies, compounding and derivation, the children in the present study made use of three other word formation strategies namely, substitution, made-up words and abbreviation.

Keywords: Lexical Innovation Strategies, Compounding, Derivation, Substitution, Made-up Words, Abbreviation

Introduction

When children start learning new words they exhibit a quite complicated and innovative process that not even the most advanced computer software can manage. From the age of two onwards, they build up their vocabulary storage by adding nine to ten words a day. Previous research studies showed that a normally developing child has about 14000 words in his/her lexicon bank by the age of six. With a simple calculation it could be estimated that a child acquires roughly 3000-4000 words every year that connotes to the "vocabulary spurt" after in all children after a certain period of time.

Keeping this in mind, a very simple question comes into ground. How do the children overcome such an unusual and enormous task? It is an enormous task because assigning meaning to the forms requires certain degree of knowledge of grammar, morphology and syntax. Also, it is impossible to make inferences about the meaning of words without knowledge about the context. Once the children begin to acquire knowledge about the forms and functions of the language, they build hypotheses about the meaning of a word through analysing them into their constituents, assigning meanings to those parts test them through communication with others and develop semantic maps about the conventional use of them.

In the literature, the vocabulary acquisition process of children was tried to be explained with three theoretical models namely, Barrett's multi-route model, Gletman's syntactic bootstrapping hypotheses and Golinkoff's developmental lexical principles framework (as cited in Barett, 2001). In fact, the common ground in all these theoretical models is that the child consults many innovative practices during this demanding process that is also called as "lexical innovation".
Lexical innovation could be described as a special way of inventing a new word to fill in the lexical gaps faced during the communication. Most of the time, those innovations appear as a result of playing with the language. The children may either invent a new vocabulary to meet the demands of the communication, coin synonyms or derive new words by making some changes through affixation to express what they intend to mean. Clark (1981) states that whether they are interpretable or nonsense, lexical innovations are carried out on certain occasions when the intended meaning is expressed by none of the forms in children's vocabulary storage.

Clark (1981) defines lexical innovations as the result of lexical gaps. She discusses lexical gaps in two major headings, namely, momentary or chronic. Momentary gaps occur when the child could not recall the exact word he looks for from the lexicon storage but chronic gaps are the result of lacking an exact word to express the particular meaning. As an example, the child can use plant-man instead of gardener. Both these gaps are not specific to children only because adults can also face with such constraints during communication. However, the lexical productions of adults are legitimate and intelligible while children are observed to produce both legitimate and illegitimate innovations. In this respect, it is possible to claim that children's lexical creativity is far more extensive than adults' because adults have many options in bridging the lexical gaps due to their rich store of lexicon.

Clark and her colleagues (1981, 1982, 1983, 1991, 1993, Clark & Hecht 1982, Becker, 1994) discuss that certain principles guide the children's lexical innovation strategies.

The first principle is the principle of productivity. Productivity principle assumes that more productive word formation devices are acquired earlier than the less productive ones by the children. For instance, children having English as their first language acquire – er suffix earlier than – ist suffix regarding agent nouns as it is more productive.

The second principle is the principle of simplicity. According to this principle simple forms which require the least modification on the base form are easier to acquire for the children. For instance, the typical agent and instrument compounds, the children innovated during the early stages of their lexical development are composed of simple structure of noun or verb + noun as in the example of fire-man.

The third principle is semantic transparency. On the basis of this theory, Clark (1993) indicates that the people interpret and coin new words by relying on roots and affixes that are transparent in meaning. In this sense, a child is expected to produce animal doctor instead of veterinarian because animal doctor is the transparent version of animal doctor. Semantic transparency underlines the dynamic nature of children's lexicon acquisition process because the children constantly map massive numbers of word meanings onto words from their early years and each new word analysed enlarges the lexicon storage potentially available when children construct innovative words (Clark, 1993: 116).

As for the principle of conventionality and contrast, Clark (1993) expresses that both principles impose certain restrictions on the children regarding the choice of words when they

are trying to fill the lexical gaps. In this sense, conventionality refers to the one to one match of the all the words in a language with their meanings that is shared by the speakers of it. In this sense, every word has a conventional meaning. Contrast implies that any word in the lexicon has contrasts with other words in meaning. Clark (1993) claims that the children make use of these principles from a very a young age when they are innovating new lexical forms.

In accordance with these principles, three-word formation strategies are applied by the children, compounding, derivation and conversion namely, during the word formation process.

According to Quirk (Quirk et al., 1985), compounding is the most prevalent and also productive word formation device in English. Clark (1980) presents that children compound nouns to express the agent of an action as in the example of fix-man or the instrument of an action as in the example of blow-machine. In relation with the principle of simplicity, children tend to prefer zero compounds, compounds without affixation, like Noun-Verb + Man-Thing before compounds constructed with prefixes or suffixes.

Derivation is the second basic lexical innovation strategy. The children innovate new words and vocabularies through adding prefixes and suffixes to the base word. Conversion, , the subcategory of derivation, which is also named as zero-derivation is reassigning the base of a word to a new part of speech with no change in form as in the example of *table* and *to table*. The children transform the verbs into nouns or vice versa. When the children grow up mentally, they use conversion strategy for more complicated structures like adjectives and adverbs

The children fill the chronic gaps in their lexicon by employing certain word formation strategies mentioned above during language development that contributes to the lexical development of children. According to Clark (1998), children make use of compounding and conversion strategies from the age of 1;6 and onwards and employ other strategies on the basis of the principles.

Literature

Perhaps, one of the earliest studies regarding lexical innovation in children was conducted by Clark (1982) who collected data in three languages, English, French and German. The data consisted of 224 denominal verbs accumulated through the researcher's own records of 2 and 3 years old children. At the end of the study it was observed that the children speaking the three languages displayed similar patterns of innovation and their innovation strategies followed a rule. On the basis of the principle of simplicity, the children used conversion strategy for creating denominal verbs as they lacked conventional verb forms

In her longitudinal study, Becker (1994) investigated the spontaneous lexical innovations of a native English speaking, middle class American boy during the pre-school period (from, 2;4 to 5;0). The recorded speech included the conversations of the child with his parents at home. The results indicated that the child produced a great number of innovations during the study and the findings were consistent with Clark's study in which she categorized the innovations under three headings, namely, agent nouns, instrument nouns and contrastive compounds. It was also observed that the child made use of various types of word formation devices and the most common used device was compounding.

Similarly, Swan (2000) observed the lexical development and overgeneralizations of an American boy from middle class and recorded his spontaneous conversations in naturalistic

settings from 30 to 56 months and additionally from 63 to 71 months and analysed the data using mean length utterance (MLU) which measures the linguistic productivity in children. She found out that the child's early lexical development followed a pattern from simple to complex which was quite consistent with Clark's principle of simplicity. During the first five months, the child's lexical productions were formed using the simple strategies. However, the innovations were composed of using more complex strategies in the last nine months.

In another study Clark and Hecht (1982) examined the use of suffix –er in creating agent and instrument nouns. The researchers collected data from 48 children whose age range differs from three to six years old. They observed that all the children comprehended the use of –er suffix and could identify the base verb and suffix. However, when it came to production certain differences found. The youngest participants could not use the –er suffix consistently and they relied heavily on simple compounds when innovating agent nouns and they preferred to use familiar words when forming instrument nouns. However, the oldest participants used the suffix consistently for both agents and instrument nouns.

Ekmekci (1988) conducted a study about word coinage strategies in Turkish children on the basis of data collected from a child between the age of 1;3 to 2;7 and the researcher's own longitudinal random observations. She observed that the children exploited many word innovation strategies during their language acquisition process namely, suffixation, contrasting, compounding and reduplication.

In a recent study, Bal and Sofu (2014) investigated the occurrences of lexical innovation in spontaneous speech samples of Turkish speaking children. Aksu's cross sectional data on Child Language Data Exchange System (CHILDES) which were collected in four months interval from 33 children aged between 2;0 and 4;8 were analysed. The researchers found out that children produced lexical innovations in their spontaneous speech and the number of innovative nouns formed by the children is more than the innovative verbs. It was also observed that compounding was the most salient word formation strategy used by the children in the study as it is simpler for creating new words and more productive.

In another study Nwokah and Graves (2009) examined the innovative words created by two English speaking children aged 5 and 6 during a fourteen-week period of weekly play sessions. A hidden voice recorder was placed in the bathroom and their voice was recorded when they were playing during the bath but the children were not informed about the existence of the recording. Each novel word of the children was classified as a single word, a simple compound word, a complex compound word or a pseudo word. The results presented that in more than half of the sessions (25 sessions) both children created innovative words.. Almost all the novel words formed by children were compounds. While the younger children produced equal number of simple and complex compounds (31 simple-31 complex compounds), complex compounds were greater in number compared to simple compounds for the older children (24 simple-43 complex compounds). It was also seen that the number of innovative words in this study was greater in number compared to the reported innovative words in the other studies. This result was attributed to the peer interaction between children in a natural play setting where manipulation and creation of words were the part of both play and language learning process.

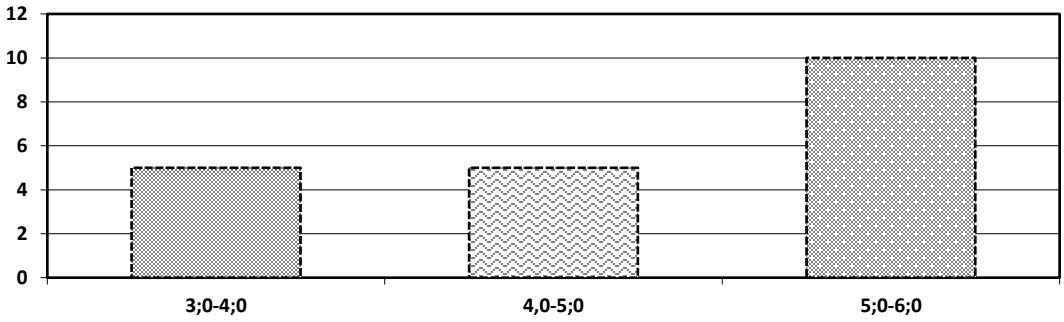
The present study aims to observe lexical innovations of Turkish speaking children and tries to find out which word formation strategy is most widely used when coining agent and instrument nouns.

Methodology

Participants

The data was collected from twenty participants whose age range differs between 3;0-6;0. The participants were selected randomly from two different kindergartens located at the city centre. In this respect, it is possible to indicate that they have similar socio-economic level. The age distribution of the children were displayed in the following figure.

Figure 1. *Age Distribution of the Participants*



Data Collection

The data was collected through photo-elicitation data collection procedure. First, of all the researcher identified the agent and instrument nouns to be asked to the children. The selection was made on the basis of familiarity principle. It was believed that the children would produce more innovative constructions for the concepts that are unfamiliar to them. Therefore, the researcher did not stick to any specific category for the instrument nouns. The words for this category are chosen from variety of areas. However, for the category of agent nouns, the words were chosen from the professions as it was thought that the pictures could clearly display the profession and did not cause misunderstanding with respect to the nouns they refer to. Ten words were selected for the category agent nouns and eight words for the category of instrument nouns. The following table represents the words chosen for each group.

Table 1. *Selected Agent and Instrument Nouns*

AGENT NOUNS	INSTRUMENT NOUNS
1. Butcher	1. Nail Clipper
2. Tailor	2. Tie
3. Baker	3. Motorcycle
4. Veterinary	4. Carboy
5. Barber	5. Fishing Rod
6. Mechanic	6. Lighter
7. Fire Fighter	7. Hair dryer
8. Footballer	
9. Greengrocer	
10. Cook	

Each word was presented to the children first and they were requested to describe the picture in order to make sure that they understood what the picture denotes. Then the researcher asked the relevant questions about each category and noted down the responses on a separate pre-prepared sheet. The application was planned to be recorded at the same time for the purpose of cross-checking but the school directors objected to it as they believed that recording was against the principle of privacy and confidentiality so that the application was not recorded.

Data Analysis

The data was analysed on the basis of Clark's two main category of lexical innovations namely, compounding and derivation. Each category was analysed deeply and word formation devices were identified in coining agent and instrument noun. Also, the data was investigated for the purpose of finding a relationship between age and the use of any word-formation strategies. The innovations that did not belong to any of the categories were discussed separately under the heading of "other" and explained with examples.

Findings

The children produced a great number of innovations in variety of categories. Most of the innovations belonged to the category of compounding and derivation as it was expected. The following table illustrates the number innovations created by the children in coining agent and instrument nouns within the category of compounds and derivation.

Table 2. *The Number of Innovative Compounds and Derivations*

Age	***Innovation Strategy***			
	Compounding		***Derivation***	
	Agent	*Instrument*	*Agent*	*Instrument*
3;0 - 4;0	6	6	10	3
4;0 - 5;0	2	4	13	1
5;0 - 6;0	16	7	22	0

As can be seen clearly from table that the children produced 41 innovations with respect to compounding and 49 innovative words regarding derivation. The number of innovations in both categories is almost the same for the children aged between 3;0 - 4;0 and 5;0 and 6;0. However the children aged between 4;0 – 5;0 produced far more innovation within the category of derivation. At the same time, it is not possible to talk about a linear correlation between age and the number of innovations except agent nouns in the derivation category. The table also displays that the children produced more innovative words coining agent nouns in both categories.

Compounding

Compounding was the second major innovation in the children's lexical production. Two forms were observed in the production of compound nouns. The first one is Noun + Noun combination and the second one is Noun + Verb combination. The following table shows the number of innovated compounds in both forms.

Table 3. *The Number of Compound Nouns with Different Forms*

Age	Noun-Noun	Noun-Verb
3;0 - 4;0	2	7
4;0 - 5;0	3	3
5;0 - 6;0	7	16

There is a significant increase in the production of noun-verb compounds among the participants aged between 5;0 and 6;0. However, the increase is not linear with the other age groups. The table below presents some examples for both forms.

Table 4. *Examples of Compound Nouns with Different Forms*

Noun – Noun Compounds	Noun-Verb Compounds
1. Hayvan doktoru. (Animal doctor) (3;0-4;0)	1. Su doldurma. (water-fill) (3;0-4;0)
2. Dudak kalemi. (Lip pencil) (4;0 - 5;0)	2. Tırnak çıkartma. (nail-remove) (4;0 - 5;0)
3. Damat atkısı. (Groom scarf) (5;0 - 6;0)	3. Meyve satıcı. (fruit-seller) (5;0 - 6;0)
4. Motor bisiklet. (motor bicycle) (5;0 - 6;0)	4. Saç kesici. (hair-cutter) (5;0 - 6;0)

All the noun-noun compounds are composed of simple noun – noun combination without any suffixation except the one produced by one child who is between the age range of 3;0-4;0. He produced "ekmekçi kişi (bread-er man)" for baker which he derives a new word from the head noun using derivational suffix –çi.

Regarding, noun-verb compounds almost all of the productions were simple noun-verb combinations which the children between 3;0 – 5;0 age range coined agent and instrument nouns with no suffixes by using the bare root of the words used. However, for the children aged between 5;0 – 6;0 years all the innovative productions for the noun – verb category were composed of verbs with derivational suffix –ci with no exceptions. Some examples are given below.

Table 5. *Examples of Innovative Noun-Verb (er) Compounds*

Elbise-diki-ci (dress-stitch-er), meyve-satı-cı (fruit-sell-er), Saç-yapı-cı (hair-make-r), ekmek-satı-cı (bread-sell- er)…

It was also observed that the children aged between 5;0 to 6;0 years mostly used noun-verb form especially to coin agent nouns as it could be inferred from table 2 above as well.

Derivation

It is observable from table 2 that derivation is the most frequently referred word formation strategy used by the children. As mentioned before, there is a steady increase with age in the number of derivatives used to coin agent nouns. Of the 49 innovative words created using derivation, 45 of them developed for the agent nouns. However, regarding 4 instrument nouns, the number of innovated words decreases as the children get older. While the children between 3;0 and 4;0 age range produced 3 instrument nouns using derivation, the children aged between 5;0 and 6;0 produced none.

As Turkish is an agglutinative language, the children derive almost all the new words using suffixation. The most widely used derivative suffix by the children is -cı, ci, -çı, çi, -cu, cü, -çu, çü. Also, the children used some other suffixes such as –en, an, and -ma, me, which are used to create agent and instrument nominal but they were very few in number. The examples about each derivative suffix were given in the following table.

Table 6. *Examples of Derivation*

Derivative Suffix	**3;0 - 4;0**	**4;0 - 5;0**	**5;0 - 6;0**
-cı, -ci	Araba-cı (car maker) Ekmek-çi (bread maker/seller) İğne-ci (needle maker) Yemek-çi (food maker/seller)	Et-ci (meat maker/seller) Sebze-ci (vegetable maker/seller Maç-cı (match maker) Berber-ci (barber maker)	Dikiş-çi (stitch maker) Meyve-ci (fruit maker/seller) Traş-çı (haircut maker) Köpek-çi (dog maker)
-en, -an	Pişir-en (cook-er)	-	-
-ma, -me	Tak-ma (tie-ing)	Bağla-ma (tie-ing)	-

Other Word Formation Strategies

There were three more word-formation strategies that did not belong to any of the categories mentioned above. One of them was described on the basis of Quirk's (Quirk et al. 1985) category of innovation called abbreviation. The other two strategies used by the children fitted in Becker's (1994) categories namely, substitution and made-up words.

1. *Abbreviation*: It is word formation process in which a word is shortened by clipping some of its part. There were 8 instances of abbreviation observed in the collected data and all of them were innovated by backward formation. The examples of abbreviation are given in the following table.

Table 7. *Examples of Innovation produced by Abbreviation*

Conventional Form	Abbreviated Form
Motor(siklet) (motorcycle)	Motor (motor)
Veterin(er) (Veterinary)	Veteren (Veterin)
Damacan(a) (carboy)	Damacan (carbo)

2. *Substitution*: It is applied through the substitution of conventional forms with phonologically or semantically related ones when the children are constrained with lexical gap. In fact, substitution was the third most common word-formation device used by the children in the study. There were 20 instances of substitutions and some of the examples were given below.

Table 7. *Examples of Substitution*

Conventional Form	Substituted Form
Olta (Fishing rod)	Balta (Axe) Halka (Ring)
Tamirci (Mechanic)	Söför (Driver)
Çakmak (Lighter)	Mum (Candle) Ateş (Fire)
Damacana (Carboy)	Bidon (Jerry can) Şişe (Bottle)

As it can be inferred from the passage that word *olta (fishing road)* was substituted with the given words on the basis of phonological similarity. The other substitutions were made because of semantic similarity. It was also observed that phonological similarity based substitutions were innovated by the children younger than five years old. All the children aged between 5;0 and 6;0 years used semantically related words instead of conventional use.

3. *Made up Words*: There were 3 instances of made-up words and all of them were innovated by children within 3;0 to 4;0 years of age range.

Table 8. *Examples of Made-up Words*

Conventional Form	Made-Up Form
Kravat (tie)	Bağaç (3;0 to 4;0)
Saç kurutma makinası (hair-dryer)	Kuruk (3;0 to 4;0)
Damacana (carboy)	Gittapon (5;0 to 6;0)

Results and Discussion

The present study provided that Turkish children innovated a considerable amount of words in coining agent and instrument nouns. A total of 120 innovative words were observed in children's production.

The study presents contrary findings to Clark's assumptions concerning the principles of simplicity and productivity. On the basis of these principles, it was expected that the children would produce more innovative compounds formed with simple noun –noun and noun-verb

combinations than derived forms as they are simpler to develop and more productive than derivation. However, it was observed that the number of derivatives in coining agent and instrument nouns are greater in number than compounds. This could be attributed to the productive and most widely used nature of –cı,-ci suffix in Turkish which is used to derive new agent nouns by adding to noun roots. In this respect, it would be misleading to claim that compounding is the most productive and the simplest word formation strategy as the innovations carried out by the children are language specific.

However, with respect to derivatives, it was obtained that the children produced more innovations formed with –cı, ci suffix than –en, an and –ma, me suffixes which provides parallel findings with Clark's principle of productivity. The children in the present study preferred to use –ci, ci suffix as it leads to innovate more words than the other suffixes used by the children.

Also, other than the derivatives used to coin agent nouns, the number of innovative words is not directly proportional with age. It was not observed a significant increase or decrease. The distribution of innovative words in the category of compounding and derivation is rather dispersed. This finding could be explained with unequal distribution of participants in each range or may be attached to the contextual factors such as affective considerations between the participants and the researcher that could have interfered with the children's production of the innovative words.

It was also noted that the participants in each age range produced innovative compounds and derivatives regarding agent and instrument nouns except the ones in 5;0-6;0 who did not innovate any derived instrument noun. This finding could result from the richer store of lexicon existing in this age group who may not be constrained to find the conventional use for the instrument noun asked by the researcher.

Another finding was that the children used other word formation devices other than compounding and derivation, namely made up words, substitution and abbreviation. Most of the innovated words in these three categories were produced by younger children who are between 3;0 – 5;0 age range. This could be explained that younger children are more constrained with lexical constraints because of the lack of adequate number of conventional use.

Finally, this study has limitations because of the number of participants investigated and the number of words researched. Therefore, it is impossible to generalize the findings to all children speaking Turkish.

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