

# Research Paper: Comparing Perception of Antonymy Between Persian-Speaking Educable Children With Intellectual Disabilities and Typically Developing Children



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**Citation:** Ahangar AA, Mazaheri M, Soltani Nezhad M. Comparing Perception of Antonymy Between Persian-Speaking Educable Children With Intellectual Disabilities and Typically Developing Children. Journal of Modern Rehabilitation. 2017; 11(4):219-230.



## Article info:

Received: 11 Apr 2017

Accepted: 08 Aug 2017

## Keywords:

Perception, Antonymy, Typically developing children, Educable children with intellectual disabilities, Persian-speaking

## ABSTRACT

**Introduction:** Antonymy is a key feature of everyday conversation, mental organization of words and discourse. It is also known that the most important characteristic of children with intellectual disabilities is language delay. Therefore, such children may have difficulties in the perception of antonymy. The purpose of this paper is to provide a comparative study of the perception of various types of antonymy between Typically Developing (TD) and educable Persian-speaking children with intellectual disabilities. Specifically, whether the perception of various types of antonymy is similar in these two groups of children. This research may offer clues for the necessity of the investigation of antonymy to help perceive the semantic knowledge by children with intellectual disabilities because the semantic knowledge is in turn vital for language comprehension.

**Materials and Methods:** The study subjects included 15 TD children between 6 to 8 years of age and 15 educable children with intellectual disabilities with mental age of 6 to 8 years. Data were collected via a researcher-made test of perception of antonymy. A total of 30 questions were used to compare the perception of antonymy in terms of simple, gradable, reverse, converse, open and close taxonomy antonyms. Each question included three words.

**Results:** Except for the gradable antonymy subcategory, the perception of various types of antonymy between two groups of children showed a significant difference ( $P < 0.05$ ).

**Conclusion:** The research findings indicated that children with intellectual disabilities had difficulties with antonymy perception.

## 1. Introduction

In accordance with Saeed's definition [1], antonymy relation occurs between words that are opposites in meaning. In this

study, antonymy is used as a general term for all sub-categories of oppositeness. However, based on Kreidler [2] and Lyons' [3] opinions, two words can be called opposites if they have a common ground; for example, the antonym words short/tall have the measure of tallness as

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their common ground. The categorization pattern for antonymy based on Lyons [3] and Cruse's [4] viewpoints grouped into contradiction, contrariety and converseness. In the present study, the recent categorization of antonymy by Saeed [1] was chosen as the fundamental theoretical concept. For him, categories of antonymy encompass simple antonyms, gradable antonyms, reverses antonyms, converses, and taxonomic sisters or compatibility.

Based on Saeed's [1] opinion, in simple or complementary antonyms opposition, the negative of one of the two opposite words implies the positive of the other. For example, "dead" implies "not alive". In this respect, Reimer [5] agrees with Kreidler [2] in that there is no midpoint between two opposite words in binary or non-gradable antonyms. According to Saeed [1], gradable antonymy is another kind of opposition that is a relationship between adjectives with some major characteristics. First of all, there are intermediate terms between gradable antonyms. For example, there is an intermediate word between the words "cold" and "hot," i.e., "tepid." Secondly, the terms are usually relative; so, a "thick pencil" is thinner than a "thin girl." The third characteristic is that, in some terms, one term is more basic and common than the other one, i.e., it is more natural to ask of something. For instance, regarding the pair "long/short," question 1 is more natural than question 2: 1. How long is it?; and 2. How short is it?

As Saeed [1] holds, a reverse relationship exists between terms where one term describes a movement in one direction and the other refers to the movement in the opposite direction. He illustrates this relationship with the verbs "come/go." Saeed [1] defines converses as a relationship between two entities from alternative viewpoints. An example can be seen in pairs such as "employer/employee" and "own/belong to." In addition, Murphy's [6] definition of this type of antonymy maintains that if X is p to Y, then Y is q to X. Such examples embrace verbs like "give" and "receive", in which each member describes the same relation and acts from a different perspective. In other words, if X gives Y to Z, it entails Z receives Y from X. In Saeed's [1] opinion, the term antonym is sometimes used for describing words which are at the same level in a taxonomy. The color adjectives "red /orange /yellow/green/blue/purple/brown" in English can be taken as examples. He divides this relationship into closed and open taxonomies. Open taxonomy includes such types of words like the taste of ice-cream which can be extended. Closed taxonomy consists of words such as the days of the week; we can't easily add another day to the week without changing the whole system. For Cruse [4] and Lobner [7], taxonomies are

special types of classification in which subordinates are not just arbitrary in subordinates, but hyponyms that denote sub-kinds. In other words, subsets of the superordinate term or subordinate terms are in contrasting relation with each other. This means that a subordinate term, for example "cat" which is a subordinate term from the class of "animals," has a contrasting relationship with other words from the same set such as "mouse."

According to American Association on Mental Retardation [8], mental retardation is "a disability characterized by significant limitations both in intellectual functioning and in adaptive behavior as expressed in conceptual, social, and practical adaptive skills." The disability appears before age 18. These children have an IQ of less than 70 [9, 10]. Mylany Far [11] classifies intellectually disabled children, in terms of education, into two groups of educable and trainable children. Consequently, educable intellectually disabled individuals have an IQ score between 50 and 70-75 (nowadays, schools use the score 70 more frequently, whereas they used 75 in the past) and trainable individuals have an IQ of 25-50. As said by Roelveland and Zielhuis [12], children with intellectual disabilities account for 3% of school children. In addition, individuals with mild (educable) intellectual disabilities comprise 90% of the total population of the intellectual disabled children [13]. According to Peter [14], the most important characteristic of children with intellectual disabilities is their delayed appearance of speech. Common areas of weakness include abstract vocabulary, relational terms like before/after, idioms and in depth knowledge of verbs. Nevertheless, individuals with intellectual disabilities apply normal strategies for the perception of sentences and organizing their lexicon and extending their vocabulary [15].

The normal strategy based upon theory of semantic feature proposes that the meaning of a word consists of a set of necessary and invariant semantic features. The general features will be referred to as superordinate and subordinate categories. According to this theory, the child acquires the meanings of word by first acquiring the more general superordinate term [16]. In addition, the semantic memory (context free repository of knowledge about concepts, words, and non-words symbols) is a network of interrelated conceptual nodes linked together by the labeled pathway that specifies particular relations between nodes. Semantic knowledge influences language comprehension in a similar way for persons with and without mental retardation of the same chronological age [17]. In addition, children acquire word meaning through fast-mapping. It occurs when a child encounters a novel word. When the child hears the sentence bring

me a beige one not blue one, he or she could realize that beige is an English word that refers to a color. Thus by contrasting a novel term with a well-known term, one can provide enormous amount of information about the meaning of a new word [18].

As far as 'antonymy' is concerned, it is acquired in early childhood; it is also a key feature of everyday conversation, mental organization of words and discourse [4, 19, 20]. Then, generally speaking, it is necessary to study antonymy in intellectually disabled children since this semantic relation is interrelated with new word learning. Thus knowing the differences or similarities of antonymy perception between TD (typically developing) and intellectual disabled children can help teachers and speech therapies in focusing on antonymy to teach new words to these children. However, few studies have focused on antonymy perception in educable intellectually disabled children's speech in English and, to the best of authors' knowledge, no such studies have been conducted in Persian in children with intellectual disabilities. This may suggest hints for the necessity of the investigation of antonymy to aid the comprehension of semantic knowledge in children with intellectual disabilities because the semantic knowledge is crucial for the perception of language as a whole. Considering the weakness of acquiring language in educable intellectual disabled children, the purpose of this research is to examine the perception of various antonyms between the groups of TD and educable intellectual disabled Persian-speaking children. In this regard, the research hypothesis is that there is a significant difference in the perception of antonymy between the TD children and educable children with intellectual disabilities who speak Persian. Some studies have been carried out on antonymy in TD children and semantic knowledge in children with intellectual disabilities which are listed below.

Previous research on the acquisition of antonymy in TD children can be divided into metalinguistic studies and discourse studies.

Metalinguistic studies use Opposite game to assess perception of antonymy in children. The present research makes use of such an approach, as well. Using metalinguistic approach, Kreezer and Dallenbach [21] dealt with the study of learning the opposition relation. A total of 100 kindergarten children (43 females and 57 males) with chronological age of 5-7 years participated in their study. In this research, adjectival antonyms were used. Children knew the opposite of the words they were asked only if they were able to name the antonym or use the negative of the word. Findings of this study demonstrat-

ed that children under age 6 could not understand the opposition relation. Further, Clark (1972) studied acquisition of antonymy in two semantic fields. Thirty children (4-5.5 years old) played a word game in which they had to respond to the experimenter's word with its opposite. The pairs used were dimensional and spatio-temporal terms. The research concluded that children at this age range could understand antonymy in simple words [22].

Phillips and Pexman [23] investigated the age at which children started to learn the concept of opposition. A total of 204 children between 3 and 5 years of age participated in their research. To test children's understanding of opposition, researchers used color images including animal pictures which showed the concept of opposites. This study demonstrated that children could understand the concept of opposites at ages 4 and 5.

Discourse studies evaluated the perception of antonymy in discourse. These studies showed that children produced antonymy in everyday speech. Jones [19] used four modes of language (adult-produced writing, adult produced speech, child-produced writing, and child-produced speech) to compare antonymy used in these four domains. Results showed that children used antonyms at age 4. Murphy and Jones [20] examined antonyms in children's directed speech. This study was based on the corpus of American English speech and participants were five children aged 2 to 5 years. In this work, the frequency of antonym co-occurrence in participants' turns was investigated. It was found that children knew and used antonyms at ages 4 and 5. Hence, while metalinguistic task showed children's antonymy perception age at about 4-5 years, discourse studies displayed children's use of antonymy in every day speech at 2 years of age.

Duchan and Erickson [24] investigated understanding of some structural semantic relations such as possessive, locative relations, agent-object, and actor-action relations in verbal context between the children with intellectual disabilities and TD children. In this study, children with moderate to severe intellectual disabilities with the chronological age of 4-9 years were asked some questions. The subjects were asked to manipulate various familiar objects in response to verbal stimuli. Phrases included the semantic relations of possessive, locative relations, agent-object and actor-action. The researchers found no significant difference between the performance of TD children and children with intellectual disabilities.

Chapman and Nation [25] studied patterns of language behavior in 41 educable children with intellectual disabilities. A total of 12 language tasks assessing compre-

hension, formulation and repetition at the semantic, syntactic, and phonologic aspects of language were given to the children. The results displayed that the deficit in these levels may be hierarchical. If the semantic level was deficient then syntactic and phonologic levels were low. Syntactic levels subsumed phonological problems. Only phonological levels might be singly deficient.

Davies, Sperber, and McCauley [26] examined intelligence-related differences in semantic processing speed. They compared common object description speed between 20 educable adults with intellectual disabilities and 21 normal adults. For this comparison, they utilized 36 photos in 10 categories (animals, buildings, furniture, fruits, vegetables, musical instrument, clothing, insects, vehicles, and toys). Participants with intellectual disabilities demonstrated a slower performance compared to the normal participants in describing objects. Therefore, the researchers concluded that the individuals with intellectual disabilities had difficulties in semantic categorization.

Megalakaki and Yazbek [27] explored the use of categorization activities in TD children and children with intellectual disabilities. Participants were 30 mild intellectual disabled and 6 normal children. In this study, three knowledge domains (animals, plants and artifacts) were studied in terms of classification (taxonomic and thematic). Six items were selected for each domain and participants were asked to choose the correct answer by matching. Results revealed that children with intellectual disabilities performed similar to normal children with regard to thematic categories, but had difficulty in taxonomic categories.

## 2. Materials and Methods

### Participants

The present study is a casual-comparative study. To determine the sample size, power of 80%, the effect size of 0.50, and the alpha level of 0.05 were considered for this study. In addition, using Cohen table for comparing the two groups, 15 people were suggested for each group of the participants. As a result, the participants of the present study were 15 TD children (8 females and 7 males) with the chronological age of 6-8 years from Andisheh and Neshaat ordinary schools and 15 educable children with intellectual disabilities (8 females and 7 males) with the mental age of 6-8 years from Bahar and Payam exceptional schools in Jiroft City in Kerman Province in Iran. All participants were monolingual native speakers of Persian. In order to identify the study participants, i.e., the qualified subjects of the research, convenience

sampling method was used. To this end, two female- and male-only primary schools of Andisheh and Neshat were randomly selected. TD children were in grades 1, 2 and 3 of primary schools and educable children with intellectual disabilities were selected from students of Bahar and Payam schools of exceptional children.

The inclusion criteria for TD group included being monolingual, having normal IQ with chronological age 6-8 years. Also the inclusion criteria for intellectual disabled children involved diagnosed with intellectual mental age between 6-8 years, being monolingual, lacking of cerebral palsy, auditory deficit, autism spectrum disorders, and Down syndrome. The exclusion criteria for both groups encompassed the lack of cooperation of children.

### Procedure

The TD children's IQ was determined using Raven's test. These children obtained the IQ of 100-110. To obtain the educable intellectual disabled children's IQ, their medical files were used (The IQ was measured by Wechsler test). This group of the participants had an IQ range of 50 to 68. Also, Goodenough test was administered to them so that the children with the mental age of 6-8 years could participate in the test. For taking Goodenough test, the children were provided with a pencil and a blank sheet of paper. Then they were asked to make the best possible drawing of the whole figure of a man. When this drawing completed, the children were told to picture a woman, then a picture of himself or herself. The test had no limit time. Correspondingly, the Persian translation of Harris's [28] scoring was used. Harris distinguished 73 items for scoring details, position, and proportion for measuring of conceptual maturity.

A total of 30 questions were used to compare the perception of antonymy. The questionnaire was multidimensional and had 6 factors, each factor had 5 items. Each question comprised three words. For example, the word /særd/ (meaning cold) was said to the child and then the child was asked to determine which member of the pair /gærm//gerd/ (meaning hot/round) was its antonym. Also it was tried to select the word pairs that were semantically different but grammatically identical with the correct answer (that is, both nouns, verbs and adjectives). In order to familiarize the participants with the tests, one of the authors provided them with the necessary explanation before the implementation of each test. At first, one of the authors said to each participant "I will tell you some words, then you tell me the opposite of that word, for example, when I say /sængin/ "heavy" you can say the opposite of it the word /sæbok/ "light"."



Meanwhile, sampling was carried out in a separate room where only one of the authors and one of the participants were present. During the research, the scoring was done by one person to prevent scattering. For each subsets of antonymy, a score of 0 was given where children could not give a correct answer to antonymy pairs and the score of 1 was given to them where they could give the correct answer to antonymy pairs. In this test, the authors attempted to select all the antonym words from the first to third graders' textbooks of primary school. Antonymy test will be presented in appendix. The Cronbach  $\alpha$  coefficient was used to estimate the reliability of the subtests used in this research. The  $\alpha$  value for subtests was 0.83. Moreover, the content validity method was used to analyze the test's validity, as well. In addition, the tests were given to the experts on the subject for consideration valuation and comments. They regarded them appropriate for measuring research variables.

After explaining all the steps, the evaluations, and the purpose of this research, written consent was taken from all children's parents. There was no compulsory participation in the research. In order to compare the mean of antonymy's perception in two groups, the Independent t test was used. To compare the perception of different types of antonymy, multivariate analysis was used. Data were analyzed by SPSS version 19 (SPSS Inc., Chicago, IL). The time of the study was at the beginning of the academic year 2014-2015.

### 3. Results

The two groups of the qualified participants were matched with mental age 6-8 years. Each group consisted of 15 children (8 females and 7 males). These two groups differed from each other with respect to their IQ scores. Accuracy was evaluated between these two groups as well,  $t=25.42$ ,  $P<0.05$ . Table 1 shows the mean of IQ scores in the two groups under study. Table 2 demonstrates descriptive indices of mean and standard deviation of scores in the groups.

Results of t test for the comparison of the perception of antonymy mean scores among the target groups

Table 1. Some descriptive statistics for the IQ scores

Variable	TD		Intellectual Disability	
	Mean	SD	Mean	SD
IQ	104.40	5.57	59.80	3.87

show that TD group scored significantly better than children with intellectual disabilities (TD children's Mean $\pm$ SD=26.33 $\pm$ 3.69, intellectual disabled children's Mean $\pm$ SD=19.26 $\pm$ 3.88,  $df=28$ ,  $t=5.81$ ,  $P\leq 0.01$ ).

According to the t test results, the obtained value ( $F=0.388$ ) specifies variance homogeneity, uniformity or scattering of the two groups' antonymy perception scores. As a result, the observed difference in the two groups can be due to their means difference. The results of t test are presented in Table 3 ( $t=5.81$ ,  $P\leq 0.01$ ). As a result, we can say that the mean score of the opposition between the two groups is significantly different.

On the whole, there is a significant difference between two study groups with respect to the perception of antonymy. As a result, the mean score of the antonymy between two groups is significantly different. For accurate analysis of dimensions of antonymy, multivariate analysis was used, too. It examines and compares multiple dependent variables that make up and overlap the dimensions of a structure.

Multivariate statistics obtained by children, TD and intellectual disabled, in subcategories of antonymy perception are shown in Table 4 ( $F=17.80$ ,  $P<0.01$ ). The results of the multivariate analysis demonstrate a significant difference between study two groups in relation to the centroid of dependent variables ( $P<0.01$ ,  $F=17.80$ ). Furthermore, results show that group membership accounts for 56% of the variations related to the centroid of dependent variables ( $P\leq 0.01$ ). Table 5 presents results obtained from multivariate analysis for comparing the groups for each individual antonymy subcategories.

The results indicate a significant difference between two groups in subcategories of converse antonymy, reverse antonymy, close and open taxonomy ( $P\leq 0.01$ ). In addition, the difference between two groups in complementary antonym subcategory is significant ( $P\leq 0.01$ ). On the other hand, no significant difference was observed in gradable antonymy subcategory. It can also be said that in terms of Eta square, group membership (being in normal group/exceptional group) has accounted most for converse antonymy subcategory (0.39).

**Table 2.** Mean and standard deviation for two groups

Variable	TD						Intellectual Disability					
	Mean	SD	Kurtosis		Skewness		Mean	SD	Kurtosis		Skewness	
			Statistic	St. Error	Statistic	St. Error			Statistic	St. Error	Statistic	St. Error
Gradable antonyms	4.53	0.99	2.29	1.12	-1.88	0.58	4.00	1.00	-0.91	1.12	-0.49	0.58
Simple antonyms	4.40	1.24	4.00	1.12	-2.18	0.58	3.60	.82	-0.78	1.12	0.94	0.58
Converses	4.66	.48	-1.61	1.12	-0.78	0.58	3.26	1.16	-0.54	1.12	-0.28	0.58
Reverses	4.33	.81	-1.02	1.12	-0.74	0.58	3.06	1.09	10	1.12	0.22	0.58
Close taxonomy	3.93	1.09	-0.91	1.12	-0.59	0.58	2.53	.91	-0.48	1.12	-0.11	0.58
Open taxonomy	4.46	.74	-1.10	1.12	-1.07	0.58	2.80	1.37	-0.21	1.12	-0.54	0.58
Antonymy	26.33	3.69	3.47	1.12	-1.61	0.58	19.26	3.88	-0.36	1.12	-0.76	0.58

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#### 4. Discussion

This study aimed to explore and compare the perception of antonymy between TD and educable intellectual disabled children. To the best of the authors' knowledge, this is the first study investigating the perception of antonymy between TD children and educable children with intellectual disabilities who speak Persian.

As for the hypothesis of the present study, there is a significant difference in the perception of antonymy between TD children and educable children with intellectual disabilities. Results confirmed that the mean of the

performance by children with the intellectual disabilities was lower than that of TD children. Besides, children with intellectual disabilities generally demonstrated a different performance in the perception of antonymy, whereas their performance in gradable antonymy was similar to TD children's performance.

In this regard, TD children can understand the concept of opposition from the ages of 4 and 5 years [20, 23]. Therefore, considering the age of the two study groups, the outcomes of the present research also denoted that they understood the concept of opposites. However,

**Table 3.** Comparing the mean scoring of antonymy perception

T-Test F	Levene's Test for Equality of Variances		T-Test for Equality of Means		
	Sig.	t	df	Sig. (2-tailed)	
Posttest	0.388	0.538	5.81	28	0.01

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**Table 4.** Multivariate analyses for comparing antonymy subcategories in two groups

Effect	Value	F	df	Error df	Sig.	Partial Eta Squared	Observed Power
Pillai's trace	0.561	4.892	6.000	23.000	0.002	0.561	0.964
Wilks' lambda	0.439	4.892	6.000	23.000	0.002	0.561	0.964
Hotelling's trace	1.276	4.892	6.000	23.000	0.002	0.561	0.964
Roy's largest root	1.276	4.892	6.000	23.000	0.002	0.561	0.964

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Table 5. Multivariate analyses for individual dependent variables between two groups

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Group	Gradable antonyms	2.133	1	2.133	2.154	0.153	0.071
	Simple antonyms	4.800	1	4.800	4.308	0.05	0.133
	Converses	14.700	1	14.700	18.485	0.000	0.398
	Reverses	12.033	1	12.033	12.827	0.001	0.314
	Close taxonomy	14.700	1	14.700	14.358	0.001	0.339
	Open taxonomy	20.833	1	20.833	17.090	0.000	0.379

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children with intellectual disabilities develop language belatedly [29, 14].

On the whole, the findings of the present study seem to support the findings of the previously carried out studies about the semantic knowledge and semantic memory in TD children and the ones with intellectual disabilities. Also, the results of this report on the subject of taxonomic sisters as a subset of antonyms are consistent with the results of Davies, Sperber and McCauley [26] study. Davies, Sperber and McCauley [26] who compared the semantic classification between TD children and children with intellectual disabilities by asking them to name pictures of common objects. In this study, children with intellectual disabilities performed more slowly than TD children in describing the superordinate term.

Furthermore, this report is also consistent with the study by Megalakaki and Yazbek [27] who explored semantic memory through categorization methods using comparative selection (taxonomic and thematic) between normal and intellectually disabled children with matched ages. They concluded that children with intellectual disabilities demonstrated a poor performance in taxonomic categorization. In the present study, educable children with intellectual disabilities performed more poorly than TD children.

What's more, the findings of the present investigation, except for gradable antonyms, agree with the studies carried out by Khanbani [29] and Peter [14] on the subject of the delayed linguistic development of intellectually disabled children compared to TD children. In the present study, the delay in learning antonymy was so noticeable that in some cases, such as simple or complementary antonymy, reverses, converses, open taxonomic sisters and close taxonomic sisters, created a significant difference in antonymy comprehension between TD children and

children with intellectual disabilities. Because the children with intellectual disabilities show a considerable delay in language acquisition in school age, teaching antonymy in the rehabilitation programs could help their semantic knowledge in daily life. Besides, antonymy is a key feature for learning a new word, understanding the difficulty of children with intellectual disabilities in antonymy perception can help educators to provide a curriculum- antonymy perception oriented- for these individuals to improve their learning of new words.

The results demonstrated that children with intellectual disabilities had generally some difficulties with antonymy perception. Although the results of the present study did not intervene with the perception of antonymy in children with intellectual disabilities, exploring this language phenomenon is a challenge for future studies. An alternative explanation of the present finding is that children with and without intellectual disabilities have similarity in semantic knowledge, but they can have differences in details of semantic knowledge as the perception of antonymy. The most important limitation of the present study was the lack of a standard test for evaluating antonymy's perception. In order to eliminate this limitation, the authors designed a special test. Another limitation was the lack of new research articles related to the topic of this paper.

## Ethical Considerations

### Compliance with ethical guideline

The study was approved by research committee of the Literature and Humanities Department of Sistan and Baluchistan University (Code: 2276351). Moreover, all parents gave written informed consent for their children's participation.

### Funding

This article has been extracted from Mohaddeseh Soltani Nezhad's MA thesis in General Linguistics presented at the University of Sistan and Baluchestan.

### Conflict of interest

The authors report no conflict of interest. The authors are responsible for the content and writing of the paper.

### Acknowledgements

Finally, special thanks to Dr Ali Darekordi for his valuable and constructive suggestions with statistics. The authors would like also to appreciate teachers, families and children for assisting us in this study.

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Appendix 1. Antonymy perception test

Antonymy Perception Test		
Gradable antonyms	/særd/ 'cold'	A. /gærm/ 'warm' B. /gærd/ 'dust'
	/pir/ 'old'	A. /dʒædid/ 'new' B. /dʒævan/ 'young'
	/bozorg/ 'big'	A. /kutʃæk/ 'small' B. /kond/ 'slow'
	/kutah/ 'short'	A. /qajæng/ 'pretty' B. /bolænd/ 'tall'
	/xælvæt/ 'uncrowded'	A. /ʃoluq/ 'crowded' B. /ʃirin/ 'sweet'
Simple antonyms	6. /baz/ 'open'	A. /bæste/ 'closed' B. /poخته/ 'cooked'
	7. /rouʃæn/ 'on'	A. /xamuʃ/ 'off' b. /xonæk/ 'cool'
	8. /zæn/ 'woman'	A. /dærd/ 'pain' B. /mærd/ 'man'
	9. /zende/ 'alive'	A. /morde/ 'dead' B. /dide/ 'seen'
	10. /xab/ 'asleep'	A. /bidar/ 'awake' B. /bimar/ 'patient'
Converses	11. /xærid/ 'shopping'	A. /færʃ/ 'carpet' B. /foruʃ/ 'selling'
	12. /zæn/ 'wife'	A. /ʃouhær/ 'husband' B. /ʃæhr/ 'city'
	13. /doctor/ 'doctor'	A. /mæriz/ 'patient' B. /miz/ 'table'
	14. /dad/ 'gave'	A. /gereft/ 'took' B. /gozafʃ/ 'put'
	15. /moæʔllem/ 'teacher'	A. /ʃoqal/ 'jackal' B. /ʃagerd/ 'student'

Antonymy Perception Test		
	16. /gereft/ 'took'	A. /ʔamæd/ 'came' B. /dad/ 'gave'
	17. /ʔaværd/ 'brought'	A. /bord/ 'took' B. /xord/ 'ate'
Reverses	18. /hol dad/ 'pushed'	A. /kaft/ 'planted' B. /kefid/ 'pulled'
	19. /varedʒod/ 'entered'	A. /xaredʒod/ 'exited' B. /xærdʒod/ 'was spent'
	20. /bija/ 'come'	A. /boro/ 'go!' B. /bede/ 'give!'
	21. /ʃænbe/ 'Saturday'	A. /pænbe/ 'cotton' B. /dʒomʔe/ 'Friday'
	22. /muj/ 'mouse'	A. /gorbe/ 'cat' b. /gerye/ 'cry'
Close taxonomy	23. /ru/ 'on'	A. /zeft/ 'ugly' B. /zir/ 'under'
	24. /bala/ 'above'	A. /pajin/ 'below' B. /pak/ 'clean'
	25. /hendevane/ 'watermelon'	A. /xærguʃ/ 'rabbit' B. /xærboze/ 'melon'
	26. /qermez / 'red'	A. /ʔabdar/ 'juicy' B. /ʔabi/ 'blue'
	27. /torʃ/ 'sour'	A. /ʃur/ 'salty' B. /ʃad/ 'happy'
Open taxonomy	28. /prajd/ 'Pride (a car brand)'	A. /sæbæd/ 'basket' B. /Sæmænd/ 'Samand-Car'
	29. /ʃokolati/ 'chocolate color'	A. /miveʔi/ 'fruit-flavored' B. /noqreʔi / 'silver color'
	30. /qormesæbzi/ 'Ghormesabzi-food'	A. /kæbab/ 'Kebab' B. /tæ nab/ 'rope'

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