

The development of word definitions in Greek preschoolers

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1 Introduction

Over the past decades, there has been an increasing interest on how children define words (Anglin 1977, Benelli 1988, Benelli *et al.* 2006, Marinellie 2009, Nippold 2007, Nippold *et al.* 1999, Snow *et al.* 1989, Watson 1985, 1995). Children attending school are often required to manipulate word meanings and use their lexical knowledge to provide word definitions for words they read or hear in the classroom. Providing word definitions in general requires word knowledge and use of appropriate semantic features (Gutierrez-Glellen and DeCurtis 1999), knowledge of the definitional genre (Markowitz and Franz 1988), as well as metacognitive awareness and metalinguistic abilities. According to Snow (1990: 699) “giving definitions is a specific skill, i.e. a performance which requires practice to achieve fluency and consistency, that rests upon, but also goes beyond knowledge of the genre and its characteristics or of the words used and their meanings”.

2 Research background

Word definitions can take various forms according to the definitional responses of children and adults. They may include functional terms, descriptive features, examples and classifiers. Makau (1990) distinguished *formal* (or true) definitions, which correspond to the form *X is a Y that Z* where *Y* is the superordinate term and *Z* is at least one characteristic of the targeted word *X*, from *informal* definitions, where a term is defined in relation to a specific event (often called functional definitions) or through a synonym, an antonym (semantic definitions) or an example. According to other scholars, there are also descriptive definitions, where a term is defined through non essential characteristics attributed to a special class.

According to Gutierrez-Glellen and DeCurtis (1999), formal definitions are cultivated in school environment to develop new vocabulary. Snow (1990) found that school exposure was significantly related to children’s performance on definition tasks and that children’s formal definition skills were better explained by school rather than home experiences.

Children’s definitions are often deficient comparing with definitions provided by adults. Investigations have found that, from preschool age to adolescence and adulthood, definitions of nouns develop from functional and concrete to more abstract and conceptual. Nippold (1995) claimed that children demonstrate significant qualitative changes in their definitional skills during school years. Preschoolers tend to use functional definitions. With age they start using

unspecific terms such as ‘a thing’ or ‘something’ instead of a more specific super-ordinate term. Later they make use of superordinate category terms. These developmental changes could be attributed either to changes in the organization of the conceptual lexicon (Skwarchuk and Anglin 1997) or to a greater metalinguistic awareness in the sense that one can use two words, a super-ordinate term and basic level term, for a referent (McGhee-Bidlack 1991). It is reported, however, (Watson 1995) that children often know the super-ordinate terms, but fail to use them in definitions. This may happen because young children fail to manipulate both meaning of a word and the form of definitions. Comparatively recent research (Watson 1995) has shown that providing word definitions is a metalinguistic task—a reflection on the meaning of words—and a communicative—speaker’s intention to achieve relevance—task. This model could explain changes in children’s definition skills.

Definitions have been studied mainly by asking children to define nouns. Less is known, however, about verb and adjective definitions compared to noun definitions. Markowitz and Franz (1988) claimed that verb and adjective definitions are more variable in form than noun definitions. Johnson and Marinellie (2003) observed that the content of adjective definitions generally followed a developmental course from concrete and functional to more abstract, that word frequency had a robust influence on adjective definitions and that development progresses differently for high- and low-frequency words (see also Marinellie and Chan 2006). Johnson and Anglin (1995) found that it was easier for students to produce conventional syntactic forms for nouns than for other speech parts, because a noun is more likely to activate a super-ordinate term or a synonym. Even from a developmental point of view, children acquire verbs later than nouns.

3 Purpose and rationale

The purpose of the present investigation was to trace the definitional types chosen by preschoolers and to investigate the effect of factors such as gender and age on the total score in nouns (concrete or abstract), verbs and adjectives. We also studied how nouns (concrete vs. abstract), verbs and adjectives compare in definitional style.

4 Method

4.1 Participants

The participants in this study were 38 (N=38) randomly chosen preschoolers aged 50–77 months (Mean 66.5, Standard deviation 6.01) attending in kindergartens of Kavala and Komotini (Greece) from February to April 2008. The sample consisted of 19 boys and 19 girls.

GENDER	AGE	N
BOY	Older class of preschoolers	16
	Younger class of preschoolers	3
	TOTAL	19
GIRL	Older class of preschoolers	14
	Younger class of preschoolers	5
	Total	19
Total		38

Table I: *Distribution of subjects across gender and age groups*

4.2 Instrumentation and procedure

The definitions task consisted of 16 items to be defined. The distribution of items across speech parts is presented in Table II.

SPEECH PARTS	N
CONCRETE NOUNS	4
ABSTRACT NOUNS	4
VERBS	4
ADJECTIVES	4
TOTAL	16

Table II: *Distribution of items across speech parts*

Since there is no word frequency corpus for Greek, we tried to select words that they were familiar to the participants. The selected words were ‘Mickey Mouse’, ‘dad’, ‘apple’, ‘bicycle’, ‘city’, ‘love’, ‘punishment’, ‘war’, ‘play’, ‘dance’, ‘read’, ‘write’, ‘clever’, ‘funny’, ‘grumbler’, ‘restless’. These words are frequently used in children’s everyday speech or school interaction. For nouns, the investigator asked ‘What is an X’. For verbs and adjectives, the investigator asked ‘What does X mean’.

4.3 Scoring and reliability

For data coding, the coding procedure of Marinellie and Johnson (2002, 2004) was adopted. Definitions were evaluated for their content and scored on a five-point scale along a continuum that agrees with the developmental progression proposed in previous literature on definition. Low level responses included function, concrete and association. Mid-level responses were relation, class non specific and synonym. High-level responses included combination of the previous and formal definitions, which presented an appropriate super-ordinate term and specific attributes. The highest possible score for each category (nouns, verbs, adjectives) was 20 points (4 words for each category with the maximum of 5 points per word. Scoring is displayed in Table III.

Interjudge reliability of coding was calculated for all responses given by 8 subjects (4 older preschoolers and 4 younger preschoolers). This was referring to 20% of the data. Any identically coded response was considered an agreement. The two judges were the investigator and a graduate student of the preschool education department. The investigator's grade was hidden from the student. The percent of agreement was calculated dividing the number of responses coded identically by the total number of responses coded (128 definitions). Interjudge agreement was 87,5% (more precisely 95% for concrete nouns, 83% for abstract nouns, 85% for verbs and 87% for adjectives). For abstract nouns, the coding of categories 'class specific' and 'class non-specific' was problematic. To resolve this problem, a list of acceptable answers was established. The second judge recoded the data using that list. The second coding of abstract nouns resulted in 93%. For all other cases the investigator made the final decisions.

Content Category	Concrete Noun	Abstract Noun	Adjective	Verb	Points
Error	<i>apple</i> : "vitamins"		<i>funny</i> : "bad children"	<i>write</i> : "words"	0
Function	<i>apple</i> : "we eat it"			<i>read</i> : "a fairytale"	1
Concrete Example	<i>apple</i> : "red"	<i>punishment</i> : "when we make noise and don't listen to our parents"			1
Association		<i>war</i> : "guns"			1
Class non specific	<i>apple</i> : "a fruit"				2
Semantic		<i>love</i> : "έρωτας"	<i>restless</i> : "agitated"		3
Descriptive			<i>restless</i> : "someone who doesn't sit down and doesn't listen"	<i>dance</i> : "swing with the music and have fun"	4
Combination	<i>apple</i> : "a fruit that is red"				5
Referential/ Aristotelian	<i>bike</i> : "mean of transport, it has tires, bell, seat"			<i>read</i> : "to look at words and understand their meanings"	5

Table III: *Examples and points for Content Categories*

5 Data Analysis

Descriptive statistics, such as frequencies, were used to identify the definition types chosen by the subjects. A two-way Anova model was performed with

independent variables: (i) gender (boys, girls) and (ii) age (older preschoolers, younger preschoolers), and dependent variables: the scores of the definitions provided for (i) abstract nouns, (ii) concrete nouns, (iii) verbs and adjectives, in order to check the effect of the factors gender and age to the definitions of different speech parts. Alpha was set at .001. Comparisons of the mean scores of the definitions provided for (i) concrete nouns and abstract nouns, (ii) concrete nouns and verbs, (iii) concrete nouns and adjectives, (iv) abstract nouns and verbs, (v) abstract nouns and adjectives and finally (vi) verbs and adjectives, were made using a paired t-Test with alpha set at .001.

6 Results

Table IV displays the frequency of use of various definition categories.

NOUNS	ERRO RS	FUNCTIO N EXAMPLE	SEMANTI C	DESCRIPTIV E	COMBINATIO N	ARISTOTELIA N
Μίκυ	8	13	0	4	10	3
μπαμπάς	11	13	0	1	8	5
μήλο	2	6	0	19	6	5
ποδήλατο	5	14	0	8	6	5
πόλη	6	23	2	2	4	1
αγάπη	9	11	15	0	2	1
τιμωρία	19	15	1	1	2	0
πόλεμος	14	17	4	2	1	0
παίζω	4	33	1	0	0	0
χορεύω	4	30	3	0	1	0
διαβάζω	6	31	0	0	1	0
γράφω	5	31	2	0	0	0
έξυπνος	13	12	0	10	1	2
αστείος	6	17	3	6	5	1
γκρινιάρης	7	17	2	4	7	1
ζωηρός	7	15	4	4	7	1
TOTAL	126	298	37	61	61	25
%	20,7	49,0	6,1	10,1	10,1	4,0

Table IV: Frequency of use of different definition categories to each word by all subjects

The results of the Two-way Anova showed that there was no significant interaction effect of age and gender on the four dependent variables (concrete nouns: $F=.027$, $p=.871$, abstract nouns: $F=.110$, $p=.742$, verbs: $F=.197$, $p=.660$, adjectives: $F=1.443$, $p=.238$). Moreover no significant main effects of age were found for the variables examined (concrete nouns: $F=1.053$, $p=.312$, abstract nouns: $F=1.43$, $p=.239$, verbs: $F=.000$, $p=.988$, adjectives: $F=.129$, $p=.722$). Finally no significant effect of gender was found for the four dependent variables

(concrete nouns $F=.090$, $p=.756$, abstract nouns: $F=.046$, $p=.832$, verbs: $F=1.23$, $p=.275$, adjectives: $F=.706$, $p=.407$).

Mean scores for concrete noun, abstract noun, verb and adjective definitions are presented in table V.

Part of Speech		Mean	SD
Concrete	Noun	9.26	5.13
definitions			
Abstract Noun definitions		4.32	2.72
Verb definitions		3.82	1.23
Adjective definitions		6.95	4.17

Table V: Mean scores for concrete noun, abstract noun, verb and adjective definitions

The paired t-test analysis showed significant differences for the following pairs: concrete nouns vs abstract nouns ($t=6.55$, $p<.001$), concrete nouns vs verbs ($t=6.74$, $p<.001$), adjectives vs abstract nouns ($t=4.29$, $p<.001$) and adjectives vs verbs ($t=4.62$, $p<.001$). A marginal significance was found for the couple concrete nouns vs adjectives ($t=3.08$, $p<.005$). No significant difference was found for the couple abstract nouns vs verbs ($t=.997$, $p=.325$).

7 Discussion

The purpose of the present study was to investigate the definitional types chosen by preschoolers and the effect of factors such as gender and age on the total score in nouns (concrete or abstract), verbs and adjectives. It was found that half of the sample gave functional definitions, related to a specific event, person or place. Descriptive definitions and combination of definitional types shared the same percentage (10%). Only 4% of the sample gave Aristotelian definitions. It has to be mentioned that the percentage of erroneous answers came up to 1/5 of the total answers. These results confirm previous studies (Benelli *et al.* 1988, Nippold 1995, Nippold *et al.* 1999), which showed that definitions develop from functional and concrete to more abstract and conceptual from early childhood to adulthood. Children at preschool age not only are not able to provide Aristotelian definitions, but also provide erroneous definitions in a high degree.

No significant effect of gender and age was found in the samples score in concrete nouns, abstract nouns, verbs and adjectives. Gender differences are reported to be found mainly in phonological development (Norrelgen *et al.* 2001) or knowledge of specific semantic classes of vocabulary (Wardhaugh 1998). In this research there was an effort to avoid gender-bound semantic classes in the words to be defined. This could explain the fact that no gender effect was found in this investigation. The lack of age effect could be attributed either to the

representativeness of sample (only 8 of the 38 subjects were younger preschoolers) or to the supposition that younger and older preschoolers form a solid age group with the same linguistic characteristics as far as the definitional skills are concerned. This hypothesis has to be verified with a new sample that will include a balanced proportion of younger and older preschoolers, but also children of school age.

Statistical differences were found between concrete nouns and abstract nouns. This finding agrees with previous research of Nippold *et al.* (1999), who found that abstract noun definitions gradually improve at pre-adolescent and adolescent years and onto adulthood. This result could be attributed to the fact that concrete nouns are more frequent in preschoolers' vocabulary and are believed to be represented in memory as distinct lexical categories with superordinate and subordinate connections to other nouns. On the other hand, abstract nouns are closer to verbs since they refer to actions, emotions or events for which no clear-cut lexical categories have been acquired by children of that age. It is then not surprising that no statistical differences were found between abstract noun and verb definitions. Children had a difficulty in defining them both.

Statistical differences were also found between concrete nouns and verbs. This finding could be explained by the fact that while concrete nouns are represented in memory as distinct lexical categories with superordinate and subordinate connections to other nouns, verbs are thought to be represented by non hierarchical dimensions that include change, intentionality, causality and manner (Miller 1991). This could result in a difficulty to provide a verb definition, since as Johnson and Anglin (1995) had noticed, it was easier for children to provide conventional form definitions for nouns than verbs, because nouns more often lead to activation of a categorical or superordinate term. On the other hand, adult use of nouns is greater than verb use when they talk to children. At the same time practice at school focuses mainly on noun definitions, which especially at that age, may affect children's definitions for verbs.

Furthermore children were able to define concrete nouns better than adjectives. This may be so, because adjectives are less structured and less predictable in meaning than concrete nouns. It also has to be noted that the basic vocabulary preschoolers are expected to learn includes more concrete nouns than adjectives which may result to children's difficulty in defining adjectives.

Finally in our sample, children defined adjectives better than abstract nouns and verbs. This could be attributed to the fact that adjectives describe sensory properties and perceptual appearance of objects or persons, thus it is easier for children to provide an adjective definition than an abstract noun or verb definition for which no clear-cut lexical categories have been acquired by children of that age.

8 Conclusion-Further Investigation

In this paper it was shown that preschoolers of our sample preferred functional definitions, related to a specific event, person or place, then followed the descriptive definitions and the combination of definitional types. The use of Aristotelian definitions was marginal. It was also found that children had a better

performance in providing definitions for concrete nouns, than for adjectives, verbs or abstract nouns. The effect of age to children's definitions has to be verified with a new sample that will include a balanced proportion of younger and older preschoolers, but also children of school age. Future research should also look into the effectiveness of instruction in word definition with students of every age, as well as the impact of word frequency to children's acquisition of definitional skills.

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