

THE DEVELOPMENT OF NOUN, VERB AND ADJECTIVE DEFINITIONAL AWARENESS IN GREEK PRESCHOOLERS

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Abstract: The present study empirically investigated the definitions as well as the definitional types chosen by Greek younger and older preschoolers. A definitional task consisting of 16 items (4 concrete nouns, 4 abstract nouns, 4 adjectives and 4 verbs) was used. The aim was to check the ability of Greek preschoolers to provide definitions, to investigate how nouns (concrete vs. abstract), verbs and adjectives compare in definitional style and finally to compare the definitional ability of younger and older preschoolers. Results showed a better performance of both younger and older preschoolers on concrete noun and adjective definitions as well as a clear preference for functional definitions.

1. Introduction

Over the past decades, there has been an increasing interest in how children define words (Anglin 1977, Benelli, Arcuri and Marchesini 1988, Benelli, *et al.* 2006, Marinelli 2009, Marinelli and Johnson 2002, 2004, 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 classroom. Definitional awareness, 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, which rests upon but also goes beyond knowledge of the genre and its characteristics or of the words used and their meanings”. The purpose of the present study was to compare definitions provided by older and younger Greek preschoolers and to investigate how nouns (concrete vs. abstract), verbs and adjectives compare in definitional style.

2. Research background

Research on definitions has focused mainly on four aspects: (1) the formal properties of definitions, (2) the definition strategies used by adults or children of school age, (3) the developmental evolution in definitions and the role of metacognition and, finally, (4) the effect of part of speech on the correctness of form and content of the definition.

2.1 The formal properties of definitions and the role of school

Although definitions, can vary in function of the part of speech of the term to be defined (Marinellie 2010, Marinellie and Johnson 2002, 2004, Watson 1985), they usually establish a relation of semantic equivalence between a term (for example *apple*) and a linguistic expression which contains information about that term (for example 'is a red, sweet fruit'). This semantic equivalence is established by the use of verbs such as 'is', 'means' or 'refers to' in phrases like 'A bed *is* a piece of furniture on which to lie or sleep' or 'Play *means* to engage in an activity for fun'. Among definition' properties, Benelli *et al.* (2006: 72) mentioned that they are sentences "containing the most relevant conceptual information" about a given term and "must not contain the same term it is supposed to explain (the NO-TAUTOLOGY RULE)".

Word definitions can take various forms according to the definitional responses of children and adults. They may include functional terms, descriptive features, examples and classificators. Makau (1990) distinguished *formal* (or true) definitions, which correspond to the form *X is a Y that Z* where Y is the super-ordinate 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 Nippold (1995), there are also descriptive definitions where a term is defined through non essential or accidental characteristics attributed to a special class. For instance 'you sit on that' for 'chair' describes the typical function of a chair, 'a chair is a furniture which has four legs' includes a super-ordinate term, while 'it is wooden and red' describes a particular chair that a child might have in mind.

According to Gutierrez-Glennen 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 in general and that children's formal definition skills were better explained by school rather than home experiences. Actually, in everyday class interactions pupils are frequently asked to be based on their existing lexical knowledge in order to provide definitions for words encountered in texts. This practice cultivates their ability first to manipulate word meaning, second to gain in definitional awareness by realizing the form and content characteristics of definitions and by experimenting on them and finally to formulate definitions. On the other hand, teacher's feedback concerning pupils' definitions as well as teachers' definitions of unknown words in classroom serve as models through which children acquire definitional awareness. The same approach is more or less applied in preschool education. At that age, preschoolers build their vocabulary either by listening to oral definitions of words they do not know relevant to different communicative situations or by guessing or inferring the meaning of unknown words and then making efforts to provide a kind of definition for them. Inferring in that case plays an important role in children's ability to understand definitions of unfamiliar words as Marinellie (2010a) has shown. To sum up, one could claim that during schooling years children get acquainted with definitions through teaching *integrated* mainly into language course and sometimes into other subjects. Furthermore, there is no *explicit* instruction of how to provide definitions. An explicit instruction would include the development of pupils' awareness of their definitional strategies, teacher modelling of definitions, and providing opportunities for practice and self-evaluation. Marinellie (2010b) showed the positive influence of an explicit instruction program on children's definitions.

2.2 *The definition strategies used by children*

Recent literature on children's definitions investigated the hypothesis that different definition strategies can suit concepts of different kinds, by yielding different types of conceptual information (Borghi and Caramelli 2003, Caramelli, Borghi and Setti 2006). Furthermore it was claimed that when children's knowledge domains become more detailed and complex, children can develop more complex definition strategies. In these studies it was found that object concept nouns elicited definitions by inclusion (e.g. *box* – a container) and by function/purpose. Part concept nouns (e.g., *number*), like object concept nouns, elicited definitions of the function/purpose type at all the considered age levels. Nominal kind concept nouns elicited definitions by cause/effect or tautology (e.g., *Carnival* – party which consists of wearing masks; *season* – there are four seasons) or definitions by generic reference (e.g., *joy* – when some people are happy about something). Location concept nouns elicited definitions by inclusion. Finally, event concept nouns elicited association (e.g., *party* – when there is a party there is joy overall) and definitions by cause/effect (e.g., *party* – meeting of friends to enjoy themselves and dance) at all age levels.

2.3 *The developmental evolution in definitions and the role of metacognition*

Children's definitions are often deficient compared 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 (Benelli, Arcuri and Marchesini, 1988, Davidson, Kline and Snow 1986, Johnson and Anglin 1995, Marinellie and Johnson 2004, Snow 1990). The 'has-type definitions' (for instance, the answer 'a chair has four legs' in a question 'what is a chair?') normally precede the 'is-type' ('a chair is a piece of furniture which has four legs'). The descriptions of specific use of the terms to be defined (for example, 'we eat on a table') also precede the statements about category belonging and appearance characteristics (for example, 'a table is furniture/an object made of wood where...'). Watson (1985), studying the definitions of five, seven, and ten year-olds noticed a better ability to define superordinate nouns.

Nippold (1995) claimed that children demonstrate significant qualitative changes in their definitional skills during school years. Preschoolers tend to use functional definitions based on evident perceptual characteristics, descriptive attributes and personal information (Anglin 1977, Benelli, Arcuri and Marchesini, 1988, Wehren, de Lisi and Arnold 1981). With age children start using unspecific terms such as 'a thing' or 'something' instead of a more specific superordinate term in combination with functional and descriptive attributes (Snow *et al.* 1989). Later on they make use of superordinate category terms.

According to previous literature, the changes in children's definitional skills stem from either changes in the organization of the conceptual lexicon or are due to a greater metalinguistic awareness. Concerning the first issue, Skwarchuk and Anglin (1997) investigated developmental changes in the expression of superordinates in children's word definitions and found that superordination increased significantly and changed qualitatively with age. The authors claimed that these results could be accounted for by increases in the size or changes in the organization of the mental lexicon with grade, children's increasing awareness that superordinates are conventionally used in definitions, and the differential organization of concepts in the mental lexicon for different kinds of words. It is reported, however, that children often know the super-ordinate terms but fail to use them in definitions (Watson 1985). This

may happen because young children fail to manipulate both meaning of a word and the form of definitions. This observation led researchers to hypothesize that definitional skills require metalinguistic awareness. As far as the metalinguistic awareness is concerned, McGhee-Bidlack (1991) claimed that formulating definitions requires metalinguistic abilities in the sense that a speaker can use two words (a super-ordinate term and basic level term) for the same referent. Watson (1985) on the other hand had shown that providing word definitions is a metalinguistic task (reflection on the meaning of words) and a communicative (speaker's intention to achieve relevance) task. In the same line, Wehren, de Lisi and Arnold (1981) defended the position that making true definitions requires knowledge of the word to be defined but also knowledge of the characteristics of the definitional genre. No empirical data supported the above mentioned theoretical viewpoint. It was only Benelli *et al.* (2006: 93) who empirically investigated the relation between the definitional ability and the metalinguistic awareness and found that "mastering formal definitional requirements (i.e., semantic equivalence, absence of tautology, correct and complete syntactic structure in the form of 'definitional copula plus categorical term with specifications') is clearly a metalinguistic task".

2.4 The effect of part of speech on the correctness of definitions

Definitions have been studied mainly by asking children to define nouns. Less is known about abstract noun, verb and adjective definitions compared to noun definitions. Benelli *et al.* (2006) found that adjectives and nouns were better defined than verbs were. However, in her study she calculated concrete and abstract nouns in the same category. Caramelli, Borghi and Setti (2006) found that the definitions of concrete nouns were formulated with the use of inclusion and function/purpose, while abstract noun definitions were based on tautology, association, and cause/effect. Johnson and Anglin (1995) found that it was easier for pupils to produce conventional syntactic forms for nouns than for other parts of speech, because, according to the authors, a noun is more likely to activate a super-ordinate term or a synonym. 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). Markowitz and Franz (1988) claimed that verb and adjective definitions are more variable in form than noun definitions. Finally, McGhee-Bidlack (1991) found that concrete nouns were easier to define than abstract nouns for children aged 10 and 14 years old. She concluded that «ordinary dictionary definitions are mature adult definitions» (p. 425).

2.5 Gender differences

There is an increasing interest in how men and women differentiate in language use. A number of scholars have argued against the existence of significant differences in language use of females and males (Weatherall 2002). For others, gender differences in language use are found in phonological development (Norrelgen, Lacerda and Forssberg 2000), use of politeness, questions tags, intensifiers, hedges, directives, negations (Holmes 1995, Mehl and Pennebaker 2003, Mulac and Lundell 1986). As far as lexical knowledge is concerned, Newman, Groom, Handelman and Pennebaker (2008) found that women use more words related to psychological and social processes while men refer more to object properties and impersonal topics. Moreover,

women refer to positive emotion more often than do men (Mehl and Pennebaker 2003, Mulac, Studley and Blau 1990). Finally, men use more words in total (Dovidio, Brown, Heltman, Ellyson, and Keating, 1988) but women perform longer sentences (Mulac and Lundell, 1994). Literature, on the other hand, on children's ability to define words does not report any sex differences (Benelli et al 2006). However, previous literature on gender differences has to be taken seriously under consideration not only in order to avoid the inclusion of gender-bound semantic classes in the definitional task, but also because a number of issues, for instance the length of sentence in females and males, remain unanswered, and it is probable that the length of sentence may influence the type of definitions chosen by males or females.

Therefore, it is generally admitted that definitional skills increase with cognitive maturity and depend, on the one hand, on metalinguistic abilities and on the other on schooling experiences. Part of speech has also an effect on children's definitions.

3. Purpose and rationale

The purpose of the present investigation was to study the correctness of definitions as well as the definitional types chosen by Greek preschoolers. According to the literature on developmental changes in children's definitions (Benelli et al 1988, Benelli et al 2006, Nippold 1995) we expected that preschoolers in total would provide erroneous definitions in a high percentage and their productions would be mainly functional definitions.

The second aim was to study how nouns (concrete vs. abstract), verbs and adjectives compare in definitional style. We expected a better performance in concrete noun and adjective definitions compared to abstract noun and verb definitions according to the previous literature on part of speech effect in children's definitions (Benelli et al 2006, Caramelli et al 2006, Johnson and Anglin 1995, Johnson and Marinellie 2003, Markowitz and Franz 1988, McGhee-Bidlack 1991).

In Greek educational system there are two separate classes of preschool education; younger preschoolers, aged 4;6-5;6 whose attendance at kindergarten is optional and older preschoolers aged 5;6-6;6 whose attendance is compulsory. Younger and older preschoolers coexist in the same classes, interact with each other and follow exactly the same curriculum. In the existing literature (Benelli et al 1988) these two age groups make part of a wider group including children aged 4;7 to 6;0. However there is, to my knowledge, no data comparing the performance of younger and older preschoolers. Consequently, the third aim was to examine age related differences between younger and older preschoolers. We predicted better mean scores and lower error percentage for older preschoolers.

The final aim was to investigate the effect of gender on the total score in nouns (concrete or abstract), verbs and adjectives. Although no significant differences in definitional skills of boys and girls were found in previous research (Benelli et al 2006) the question of gender differences in language use remains open. According to previous literature (Mulac and Lundell, 1986; Mulac, Wiemann, Widenmann, and Gibson, 1988) which found that women come out as the wordier gender both in writing and speaking we expected that females would provide more complete definitions than males.

The research questions we posted were the following:

R.Q. 1: *What definitional type do preschoolers prefer?*

R.Q. 2: *What is the score of correct definitions of preschoolers participating in a definitional task?*

R.Q. 3: *Are there any differences in the scores of preschoolers when they define words according to the semantic category and the part of speech of the defined word?*

R.Q. 4: *Are there any differences in the scores of younger and older preschoolers when they define words?*

R. Q.5: *Are there any gender differences in the scores of preschoolers when they define words?*

4. Method

4.1 Participants

The participants in this study were 52 (N=52) preschoolers aged 4;2-6;5, selected through stratified sampling from randomly selected kindergartens of Kavala and Komotini (Greece). The sample consisted of 25 boys and 27 girls.

Table 1: *Distribution of subjects across gender and age groups*

GENDER	AGE	N
BOY	Older class of preschoolers	16
	Younger class of preschoolers	9
	TOTAL	25
GIRL	Older class of preschoolers	14
	Younger class of preschoolers	13
	Total	27
	Total	52

The participants were all Greek native speakers. All experimental procedures were approved by the Institutional Review Board for investigations involving human subjects. Written informed consent was obtained from the legal guardians of the participants before they were allowed to participate in the study. None of the participants had been diagnosed with linguistic problems.

4.2 Instrumentation and procedure

The definitions task consisted of 16 items (4 concrete nouns, 4 abstract nouns, 4 verbs and 4 adjectives) to be defined.

Since there is no word frequency corpus for Greek, we conducted a pre-survey in Greek kindergartens in order to establish a list of the 500 more frequent words in everyday class interactions by sending a questionnaire to be filled in by teachers in kindergarten. Teachers had to tick 500 words –out of the 800 words included in the questionnaire– they thought they used more in classroom activities. They also had to provide a list of 20 words that they often used in classroom but which were not included in the list of 800 words of the questionnaire. The selected words belonged to the list of items that were reported to be most frequently used in class, were familiar to the participants and did not include terms that would be more familiar to one gender than the other. There was also an effort to include nouns belonging to as many as possible different *classes of objects* (Gross 1994), that is semantic classes presenting homogeneous syntactic behaviour. The selected words were ‘cartoon’, ‘dad’, ‘apple’, ‘bicycle’, ‘city’, ‘love’, ‘punishment’, ‘war’, ‘play’, ‘dance’, ‘read’, ‘write’, ‘clever’, ‘funny’, ‘grumbler’, ‘restless’. Each word was distributed in one of

the following classes of objects according to the criteria of Gross (1994): humans, family relations, food, means of transport, locatives, emotions, actions. None of the selected words were compounds. For nouns, the investigator asked ‘What is an X=stimulus word’. For verbs and adjectives, the investigator asked ‘What does X=stimulus word mean’.

Children were tested individually and orally in their kindergarten. The concrete nouns, abstract nouns, adjectives and verbs were interspersed between them in five random orders and each child was randomly assigned to an order. The definitions were audio-recorded and then transcribed.

4.3 Scoring and reliability

For data coding, the coding procedure of Marinellie and Johnson (2002, 2004) was adopted. Definitions were evaluated 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 (concrete nouns, abstract nouns, verbs, adjectives) was 20 points (4 words for each category with the maximum of 5 points per word. Scoring is displayed in Table II.

Interjudge reliability of coding was calculated for all responses given by 10 subjects (5 older preschoolers and 5 younger preschoolers). This was referring to approximately 20% of data. Any identically coded response was considered an agreement. The two judges were the investigator and a postdoctoral student of the Preschool Education Department of the Democritus University of Thrace Greece. The investigators grade was hidden from the student. The percent of agreement was calculated by dividing the number of responses coded identically by the total number of responses coded (totally 160 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.

Table 2: *Examples and points for different definition Types used in different parts of speech*

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			1

		parents”			
Association		war: “guns”			1
Class non specific	apple: “a fruit”				2
Semantic		love: “love”	restless: agitated”		3
Descriptive			restless: “someone who doesn’t sit down and doesn’t listen”	dance: “swing with the music and have fun”	4
Combination	apple: “a fruit that is red”				5
Formal	bike: “mean of transport, it has tires, bell, seat”			read: “to look at words and understand their meanings”	5

5. Data analysis

Descriptive statistics, such as frequencies, were used to identify the definition types chosen by the subjects as well as the errors committed in children’s definitions.

After data normality was checked, the scores for the definitions provided for abstract nouns, concrete nouns, verbs and adjectives were compared in a 2 (gender) X 2 (age) mixed Anova model.

Comparisons of the mean scores of the definitions provided for concrete nouns and abstract nouns, concrete nouns and verbs, concrete nouns and adjectives, abstract nouns and verbs, abstract nouns and adjectives and finally verbs and adjectives were made using a paired t-Test with alpha set at .001.

6. Results

6.1 Percentage of errors and definitional types

Table III displays the frequency of errors and of the use of various definition types.

Table 3: Frequency of errors/use of different definition categories to each word by all subjects

NOUNS	ERRORS	FUNCTION EXAMPLE	SEMANTIC	DESCRIPTIVE	COMBINATION	FORMAL/TRUE
Cartoon	11	18	0	5	14	4
Daddy	15	18	0	1	11	7
Apple	3	8	0	26	8	7

Bicycle	7	19	0	11	8	7
Town	8	31	3	3	5	2
Love	12	15	20	0	3	2
Punishment	26	20	2	1	3	0
War	19	23	5	3	2	0
Play	5	45	2	0	0	0
Dance	5	41	4	0	2	0
Read	8	42	0	0	2	0
Write	7	42	3	0	0	0
Clever	18	16	0	13	2	3
Funny	8	23	4	8	7	2
Grumbler	9	24	3	5	9	2
Restless	10	21	5	5	9	2
TOTAL	171	406	51	81	85	39
%	20,6	48,7	6,1	9,7	10,2	4,7

The data showed a clear preference for functional definitions (48,7%) for all parts of speech and semantic categories. The percentage of errors was also important (20,6%). On the other hand, true or formal definitions were not frequently used by the preschoolers. Descriptive definitions and combination of definitional types shared almost the same percentage.

6.2 The age and gender effect

The results of the Two-way Anova yielded no significant interaction effect of age and gender on the four dependent variables (concrete nouns: $F(1, 51)=.063$, $p=.803$, $\eta^2=.001$ abstract nouns: $F(1, 51)=.005$, $p=.946$, $\eta^2=.000$, verbs: $F(1, 51)=2.61$, $p=.112$, $\eta^2=.052$, adjectives: $F(1, 51)=.238$, $p=.628$, $\eta^2=.005$). Moreover no significant main effects of age were found for the variables examined (concrete nouns: $F(1, 51)=2.47$, $p=.122$, $\eta^2=.049$, abstract nouns: $F(1, 51)=.600$, $p=.442$, $\eta^2=.012$, verbs: $F(1, 51)=.014$, $p=.907$, $\eta^2=.000$, adjectives: $F(1, 51)=.030$, $p=.863$, $\eta^2=.001$). Finally, no significant effect of gender were found for the four dependent variables (concrete nouns $F(1, 51)=.212$, $p=.647$, $\eta^2=.004$, abstract nouns: $F(1, 51)=.678$, $p=.414$, $\eta^2=.014$, verbs: $F(1, 51)=.930$, $p=.340$, $\eta^2=.919$, adjectives: $F(1, 51)=.006$, $p=.938$, $\eta^2=.000$).

6.2.1 The part of speech effect

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

Table 4: Mean scores for concrete noun, abstract noun, verb and adjective definitions

Part of Speech	Mean	SD
Concrete Noun definitions	8.81	4.93
Abstract Noun definitions	4.90	2.83
Verb definitions	3.79	1.07
Adjective definitions	7.08	3.79

The mean score for concrete noun definitions and adjectives were found, as expected, higher than for abstract nouns and verbs.

The paired t-test analysis showed significant differences for the following pairs: concrete nouns-abstract nouns ($t=5.31$, $p<.001$), concrete nouns-verbs ($t=7.56$, $p<.001$), adjectives-abstract nouns ($t=3.91$, $p<.001$) and adjectives-verbs ($t=6.29$, $p<.001$). No significant difference at the level of .001 was found for the couple abstract nouns-verbs ($t=.251$, $p=.015$) and concrete nouns-adjectives ($t=2.71$, $p=.009$). In other words, the subjects had a better performance in concrete nouns and adjectives compared with abstract nouns, and verbs. Their performance in verb and abstract noun definitions was extremely low.

7. Discussion

7.1 Definitional types

The purpose of the present investigation was to study the correctness of definitions as well as the definitional types chosen by Greek preschoolers. Our hypothesis was that preschoolers in total would provide erroneous definitions in a high percentage and their productions would be mainly functional definitions. Results of the present survey confirm this hypothesis and are also consistent with previous studies (Benelli et al 1988, Benelli et al 2006, Nippold 1995, Nippold et al 1999) which showed that children 4;2-6;0 demonstrate a strong preference for functional definitions. Some scholars (Piaget 1945 cited in Benelli et al 1988) explained this preference in terms of age-specific cognitive skills; according to the authors, children of that age have not yet acquired the class-inclusion rule, and therefore their definitions are functional. For others, preschoolers are able to define words based only on their individual experiences because they are not yet acquainted with the 'socially shared' knowledge (Benelli et al 1988, Watson 1985: 182). More recently, Benelli et al (2006) found that metalinguistic factors also affect the definitional types used by children at different ages. Additionally, one could also observe that preschool teachers have a tendency to use simplified speech when addressing preschoolers and also manipulate semantically and syntactically the definitions of unknown words in classroom in order to make them easier to understand. Consequently preschoolers' linguistic experiences in classroom are not rich in formal or true definitions and therefore the above mentioned teaching practice may have an influence on children's definitions. This is partially confirmed in Benelli et al (2006) who showed that the effects of different educational levels should be separated from the effects of different age stages. Considering, on the other hand, the high number of errors in preschoolers' definitions, it could be suggested that definitional skills begin to emerge at that age, which coincides with the beginning of schooling.

7.2 The effect of part of speech on definitional skills

The second aim was to study how nouns (concrete vs. abstract), verbs and adjectives compare in definitional style. As hypothesized, the sample had a better performance in concrete nouns' and adjectives' definitions compared to abstract nouns' and verbs' definitions. The results confirm Benelli *et al.* (2006) who found that adjectives and nouns were better defined than verbs were and that concrete words were easier to define than abstract words. Furthermore, the results of the present study seem to support Caramelli, Borghi and Setti's (2006) suggestion that children's direct experience of the situations in which the referents of concept nouns occur plays an important role in modeling their definition strategies. The concrete nouns which refer to everyday situations experienced by the children who participated in the study were easily defined while verbs or abstract nouns were difficult to define. The findings of

the study also agree with the results of Marinellie (2010) who found that children tend to have a higher level of familiarity with noun compared to verb definitional form and the ones of McGhee-Bidlack (1991) who found that concrete nouns were easier to define than abstract nouns. They are also consistent with previous research of Nippold et al (1999) who found that abstract noun definitions begin to improve gradually at pre-adolescent and adolescent years and into adulthood but not earlier.

Concrete nouns compared to abstract nouns are believed to be represented in memory as distinct lexical categories with super-ordinate and sub-ordinate connections to other nouns (Johnson and Anglin 1995). This mental representation of concrete nouns serves as a pivot in definition productions. On the other hand, super-ordinate terms of the abstract nouns used in the survey (location for the item *city*, emotion for the item *love* action for the item *punishment* and event for the item *war*) are far beyond lexical abilities of preschoolers. Moreover, concrete nouns are more frequent than abstract nouns in every day class interaction in kindergartens and therefore children are more familiar with them.

As far as the comparison of concrete nouns and verbs is concerned, Johnson and Anglin (1995) notice that nouns often lead to activation of a categorical or superordinate term while verbs do not. On the other hand, verbs compared to concrete nouns are thought to be represented by non hierarchical dimensions that include change, intentionality, causality and manner (Miller 1991). These complex semantic relations are difficult to manipulate at preschool age, therefore they may result in a difficulty in providing a verb definition. In addition, adult use of nouns is greater than verb use when addressing children at school and practice at kindergarten focuses mainly on noun definitions. Consequently preschoolers seem to have a greater experience with noun definitions than they do with verbs.

Adjectives compared to verbs and abstract nouns describe sensory properties and perceptual appearance of objects or persons, thus it may be 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.

Finally, the fact that no statistical differences were attested between the definitions provided for abstract nouns and verbs might indicate that given that abstract nouns and verbs are often semantically and morphologically connected to each other (love-to love, punishment-to punish, etc.) they probably generate similar problems in their definitions. Of course the low performance of preschoolers in the definition of abstract nouns and verbs could be attributed to the fact that they usually abstract nouns or verbs refer to situations which are not familiar to children of preschool age who in addition have no access to written speech where abstract nouns or verbs abound.

7.3 The effect of age and gender differences

There was no age effect in the samples score in concrete nouns, abstract nouns, verbs and adjectives. This means that there were no significant differences between the scores of older and younger preschoolers. Our hypothesis was that older preschoolers would have better performance in the definitional task compared to younger preschoolers. It was surprising that this hypothesis was not confirmed by the data of the present study. However, these results are consistent with Benelli et al (2006) who found no statistical differences between the scores of five-year olds and six year olds. The lack of age effect might suggest that one year age difference between preschoolers may not be enough to document growth in word definition and might indicate that younger and older preschoolers form a solid age group with the same

linguistic characteristics as far as the definitional skills are concerned. Moreover, if Benelli et al (2006) are right that the effects of different educational levels should be separated from the effects of different age stages, then this finding might also be due to the fact that Greek younger and older preschoolers follow the same curriculum in Greek kindergartens.

Finally a purpose of the present study was also to investigate gender differences in children's definitional skills. Given that females perform longer sentences than males (Mulac and Lundell, 1994), we hypothesized that girls would produce more true definitions. This was not confirmed in our study. No significant effect of gender was found in the samples score in concrete nouns, abstract nouns, verbs and adjectives. This finding is consistent with the studies of Benelli et al 2006. Results may also indicate that the semantic categories were included in the definitional task were equally accessed by boys and girls.

8. Conclusions – 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 adjectives, verbs or abstract nouns.

In future the effect of different educational systems as well as models of teacher-children interaction in children's ability to define words should be studied. It would also be interesting to investigate how various semantic classes of nouns, adjectives and verbs compare in definitional style. Finally, in order to verify schooling effect on children's definitions, it would be challenging to investigate definitional skills of preschoolers attending kindergarten with the definitional skills of preschoolers of the same age who do not attend school.

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