A TEACHING INTERVENTION FOR IMPROVING DEFINITIONAL SKILLS IN UPPER ELEMENTARY STUDENTS

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ABSTRACT

This study discusses the importance of learning to define a word. It provides a brief background on the metalinguistic nature of definitions, on the contribution of definitional skills to school success and proposes teaching methods for improving definitional skills. The teaching methods were implemented in an intervention program, which took place in a Greek public school. The sample consisted of 24 typically developed students, who were attending the sixth grade of an Elementary school in Greece. The class was divided into 4 groups. The intervention was implemented by the investigator in three sessions of about 20 minutes for each activity. These separate teaching units involved 3 activities that were related to the production of definitions. The activities used words based on the studies of Gavriilidou (2011, 2015) and Dourou (2019). The words belonged to different categories (*N*= 16 words, 8 nouns, 4 verbs, 4 adjectives / 6 simple, 2 derivatives and 8 compounds / 4 concrete nouns and 4 abstract nouns). The findings showed that teaching intervention was effective and the students used more types in order to define words. A closer inspection of intervention data revealed that students provided more extended definitions using more vocabulary and avoiding repetitions or tautologies. The results of teaching intervention could be useful not only for the improvement of typically developed students in regular classrooms but also for students with learning difficulties or students who are taught Greek as a second language.

Keywords: Definitional skills, Elementary education, students, intervention, activities.

INTRODUCTION

During the school–age years, one of the main developmental tasks of children is to learn language. From the late preschool years onwards, language becomes an important tool for children to develop concepts and understand the world. At the same time, children learn to translate implicit concepts into words. This latter skill becomes more noticeable during the school years, when children are required to give definitions of various concepts.

During the process of defining a word, an individual needs not only to retrieve the necessary and sufficient properties of a concept, but also to retrieve relevant vocabulary from the lexicon and to construct an appropriate frame to convey the information. These processes, from searching for implicit representations to explicitly defining representations and finally verbally reporting, involve various kinds of linguistic skills (Wehren, De Lisi, & Arnold, 1981). For example, vocabulary knowledge of the superordinate terms of nouns (e.g., “fruit”), adjectives to describe the entity (e.g., “sour, and yellow in colour” to describe the entity of a “lemon”), and the appropriate syntactic frame used to convey the definitional responses are needed. Knowledge of different relations related to the object to be defined, including part–whole relations and inclusion, and knowledge of the salient features that can distinguish the object from other class members in the same category must all be employed (Bialystok & Majumder,

1998). Given the involvement of this lexical knowledge, definition skills have been considered that have validity in tapping one's lexical-semantic knowledge in later years (Dockrell, Messer, George, & Ralli, 2003; Purser, Thomas, Snoxall, Mareschal, & Karmiloff-Smith, 2011).

LITERATURE REVIEW

The metalinguistic nature of definitions

The definition of words can be considered to have metalinguistic nature (Snow 1990, Wehren, De Lisi, & Arnold 1981). It contributes a precondition for the development of metalinguistic skills and for the acquisition of metacognitive awareness. The metalinguistic skills are skills that are developed not only in oral speech, but significantly affect the acquisition of written language (Chomsky 1978).

All types of definition do not reflect high levels of language proficiency. For example, extensive answers require the referential use of language to describe the characteristics of objects or events (McGhee-Bidlack 1991), while metalinguistic definitions require the self-referential use of language to explain language itself, to clarify features of its content, to reach the semantic core of a linguistic element, with the help of other linguistic expressions. In addition, the shift from the simplest forms of definition to the development of complete answers requires not only a good knowledge of the concept to be defined, but also, above all, an awareness of what definition is and what its use is (Watson 1985).

It is generally accepted that definitional skills increase with age development and are associated with formal teaching and a fragmentary and objective attitude towards language and its properties (Snow 1990, Dourou 2019) More specifically, the production of definition requires metalinguistic skills, because it is based on the perception that the definition of a concept transmits specific semantic content (Watson 1995) and has syntactic structure. Also, one of the key components of metalinguistic awareness is syntactic awareness, which has been defined as the child's emerging ability to reflect the internal grammatical structure of sentences (Tunmer et al. 1984). Research has shown that much of syntactic awareness develops from late preschool to early school age (Tunmer et al. 1984; van Kleck 1994), so it is the suitable age to teach strategies in order to improve definitional skills.

However, the question that arises is what form can be verbal productions taken by young children in the early stages of schooling when they are asked to define words? What are the required skills for successful word definitions and how is the teaching of word definition achieved in school? All the above questions will be answered in the following chapters.

The definitional skills of Upper Elementary students

Research has studied how students define words aged from 6 to 12 years old as well as how different types of definition change within this age range (Wolman & Barker 1965, Al-Issa 1969, Swartz & Hall 1972, Wilson 1975, Litowitz 1977, Nelson 1978, Watson 1985, Davidson, Kline & Snow 1986, Benelli et al. 1988, Snow 1990, McGhee-Bidlack 1991, Johnson & Anglin 1995, Dourou 2019a,b).

Al-Issa (1969) reports that both functional and specific definitions decrease with age development. These findings were also supported by Swartz and Hall (1972) who argued that functional definitions are the first definitions of children, dominating from the age of 5 to the age of 9. During this period, the functional definitions are slowly decreasing, while the abstract definitions are increasing. After the age of 11, abstract definitions are used more often than the other two types.

Litowitz (1977) claimed that after 5 years old, children began to use the non-specific categorical term, *something* or *a thing* (*bicycle*: is something that has two wheels). The age of 7 years is the landmark in the development of word definition skills. As children get older, there was a tendency to include in their definitions more than one characteristic and the use of more strategies on the concept they define. They produced more precise definitions, used more specific categorical terms in combination with functional or descriptive features.

Marinellie & Johnson (2004) examined the definitional skills of 30 classmates who attended to Upper Elementary School. They observed their verbal utterances in adjectives definitions had a developmental advance from concrete and functional to more abstract. In addition, speakers very often use negation when they define adjectives (Marinellie & Johnson 2004).

Dourou[1] (2019a, 2019b), who studied the definitional ability of 36 Upper Elementary students, claimed that the definitional ability depends on the age development and also on the characteristics of defined words. Developmentally appropriate definitions (i.e., definitions that children typically use according to word characteristics) for Upper Elementary students, aged 9 to 11, are summarized in Table 1.

Content and form of definitions	**Grammatical Categories**	**Word Structure**	**Semantic Characteristics**
Semantic Content	For **nouns** they tend to combine different types of definitions	For **simple/derivative words,** they use Association/Result and Action or Functional definitions.	For **concrete nouns**, they prefer Class Specific categories and combine superordinate terms with other descriptive attributes
	For **adjectives** they prefer Tautology and Association/Result/ Action.		
	For **verbs** they they prefer Tautology or combine different definition types	For **compounds,** they use Tautology or combine different types of definitions	For **abstract nouns**, they use functional definitions or Association/Result and Action
Syntactic Structure	For **nouns**, they use Partial Aristotelian form. For **adjectives and verbs** they use Phrase or Simple Clause.	For **simple/derivative words and compounds,** they use Phrase or Simple Clause.	For **concrete nouns**, they use Partial Aristotelian form. For **abstract nouns**, they use Phrase/Simple Clause

Table 1. Definitional skills for Upper Elementary Students

METHODOLOGY

Teaching Intervention

The teaching intervention took place in a class of a public school in Alexandroupolis, Evros prefecture (Greece). The number of the sample was 24 typically developed students and they studied at 6th grade of Elementary school. The intervention was implemented by the investigator in four sessions of about 20 minutes for each activity. These separate teaching units involved activities, where used 16 words (Dourou 2019b). These words depict grammatical categories (8 nouns, 4 verbs and 4 adjectives), semantic characteristics (8 concrete

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nouns and 8 abstract nouns) and word structure (6 simple words, 2 derivatives and 8 compounds). Of the 16 words, 10 were identified through the Textbooks of the Modern Greek Language of Elementary School and the remaining was included from Gavriilidou's (2015) research. More specifically, the 16 words that were chosen a) from the school textbooks were *erotisi 'question,' taksiði 'journey,' iʎovasilema 'sunrise,' makrozoia 'longevity,' tiropita 'cheese pie,' maçeropiruno 'cutlery,' aspromavros 'black-and-white,' ɣlikoksinos 'sweet-sour,' aniɣoklino 'open and close,'* and *siɣotraɣuðo 'hum'* and b) from Gavriilidou's (2015) survey were *milo 'apple,' poðilato 'bicycle,' eksipnos 'intelligent,' astios 'funny,' diavazo 'read,'* and *xorevo 'dance.'*

Materials and Procedure

All sessions of the teaching intervention were delivered through 4 groups in the classroom. Each group included 6 students, consisting of both girls and boys. Each group was trained in the production of word definitions via 3 educational activities which were constructed by the investigator and had graded-difficulty. In addition, the first two activities focused on the improvement of definitional skills through cooperative process, while the last focused on the improvement of definitional skills through individual process. In the first two activities, students would have to collaborate in order to provide definitions for grammatical categories of words, such as nouns, verbs and adjectives. In the third activity, students would have to provide individually definitions for word structure (simple/derivatives and compounds) and semantic characteristics (concrete and abstract nouns).

Activity 1

The first activity was related to *semantic maps*. It was given four semantic maps to students (one to each group) that had in the centre the target word in order to be defined by each group of students. Each semantic map included, also, related and not related words to target word. The aim of the activity was students to develop connections among words and to product definitions of each target word. For example, by writing an example, a description, a synonym, a class-specific definition or by combining all these types, students must deeply process the target word (Figures 1-4). The target words, that were used, belonged to the grammatical categories of nouns and verbs.

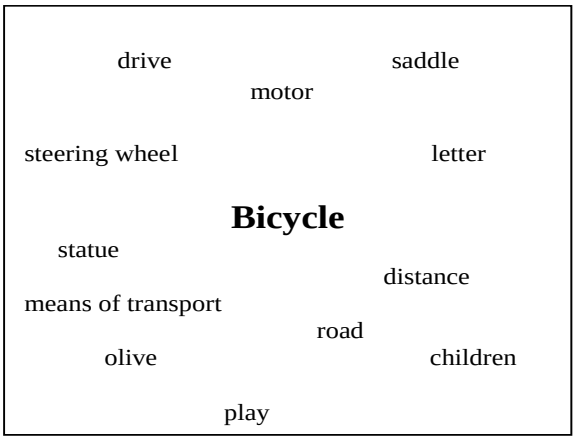

Figure 1. Semantic map of *bicycle*

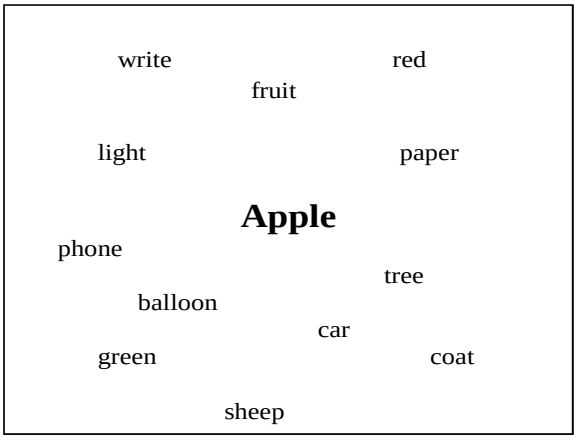

Figure 2. Semantic map of *apple*

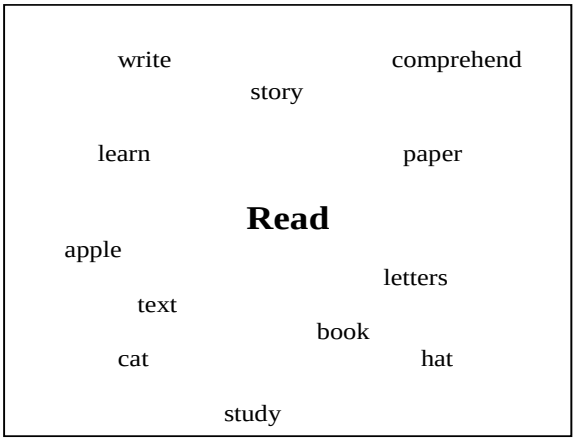

Figure 3. Semantic map of *read*

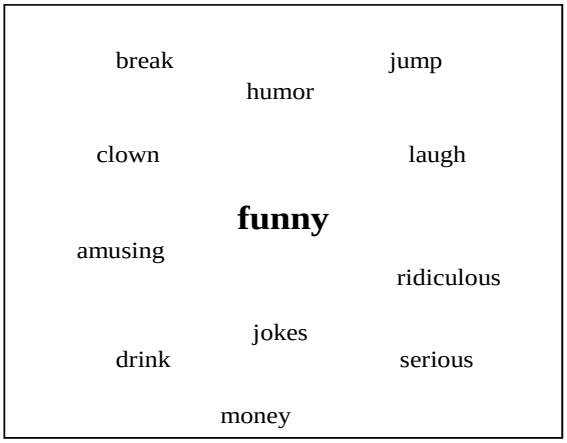

Figure 4. Semantic map of *funny*

Activity 2

The second activity was called *Four square table*. The investigator gave 4 tables (one for each group) in order to fill the four squares and to provide definitions. The target words, that were used, were nouns, verbs and adjectives.

Target word journey	**Examples**
Definition	**Non –examples**

Figure 5. Table of *journey*

Target word clever	**Examples**
Definition	**Non –examples**

Figure 6. Table of *clever*

Target word question	**Examples**
Definition	**Non –examples**

Figure 7. Table of *question*

Target word dance	**Examples**
Definition	**Non –examples**

Figure 8. Table of *dance*

Activity 3

The third activity was called *Guess Cards.* The Guess Card included 1 target word (e.g. *apple*) and 3 relevant words (e.g. *fruit, red, round*) with the concept of the target word. A student from each group held a guess card, but the front of it was turned to the other students in the same group. In other words, he did not see what was written on the card. The other students were asked to describe the target word to their classmate without using the relevant words. In this activity used compound and abstract words.

Figure 9. Guess Card of *sunrise*

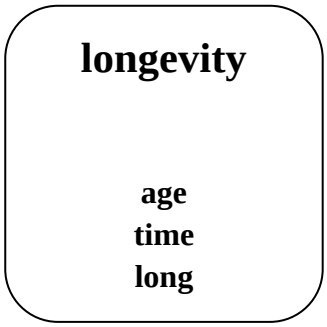

Figure 10. Guess Card of *longevity*

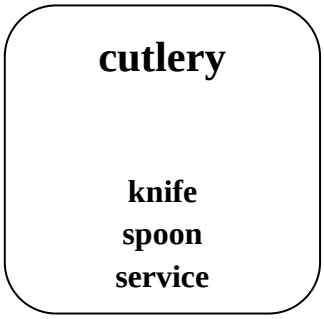

Figure 11. Guess Card of *cutlery*

Figure 12. Guess Card of *hum*

RESULTS

The answers of each activity were analyzed to look at the effects on definitional skills using different activities. In the first activity (semantic maps), the given responses for nouns and verbs belonged to different types of definitions (descriptive, functional, class-specific, combination, association, self-reference, example, synonym). This means that the students used more types in order to define noun and verbs. For adjectives, students used many common definition types (association, synonym, self-reference). The verbal definition productions by each group are presented in Tables 2-5.

Activity	**Verbal definition productions**	**Type of definition**
Semantic maps	*[Bicycle]*: has a steering wheel and a saddle	Descriptive definition
	[Bicycle]: is a means of transport	Class specific definition
	[Bicycle]: is a means of transport with a steering wheel and a saddle	Combination (class specific term & descriptive attributes)
	[Bicycle]: is a means of transport without motor	Combination (class specific term & negation)
	[Bicycle]: is a means of transport for short distances	Combination (class specific term & functional attributes)
	[Bicycle]: I play with it	Functional definition

Table 2. Semantic maps: verbal definition productions of 1st group

Activity	Verbal definition productions	Type of definition
Semantic maps	*[Apple]*: it is bitten on the backside of dad's phone	Association
	[Apple]: it is a fruit	Class specific definition
	[Apple]: it is a red fruit	Combination (class specific term & descriptive attributes)
	[Apple]: it is the fruit of a tree	Formal definition
	[Apple]: it is a fruit and we eat it	Combination (class specific term & functional attributes)
	[Apple]: I don't like apples	Self-reference definition

Table 3. Semantic maps: verbal definition productions of 2nd group

Activity	Verbal definition productions	Type of definition
Semantic maps	*[Read]*: study	Synonym
	[Read]: I read a text	Example
	[Read]: I read a text and I comprehend the meaning	Combination (example & result of action)
	[Read]: I comprehend a book	Association/Result/Action
	[Read]: learn by heart	Synonym
	[Read]: something that I am not usually doing	Self-reference definition

Table 4. Semantic maps: verbal definition productions of 3rd group

Activity	Verbal definition productions	Type of definition
Semantic maps	*[funny]*: amusing	Synonym
	[funny]: my friend John says jokes and we laugh	Association/Result/Action
	[funny]: someone who makes jokes	Association/Result/Action
	[funny]: someone that makes me laugh	Association/Result/Action
	[funny]: like a clown	Association/Result/Action
	[funny]: I am funny	Self-reference definition

Table 5. Semantic maps: verbal definition productions of 4th group

In the second activity (four square tables), the results showed that students used more extended definition combining different types of definition for all grammatical categories of words (nouns, verbs and adjectives). The given responses by each group are presented in Tables 6-9.

Activity	Examples	Non-Examples	Verbal definition productions	Type of definition
Four square table	destination	stay	[journey] : a short or a long destination in another place in order to relax	Formal definition
	means of transport	get tired		
	relax			
	travel			
	place			

Table 6. Four square table: verbal definition productions of 1st group

Activity	Examples	Non-Examples	Verbal definition productions	Type of definition
Four square table	brain	foolish	[clever] : someone who has a smart brain and is good in mathematics	Combination (descriptive attributes & association)
	intelligent	stupid		
	Mathematics	naive		
	smart			
	IQ			

Table 7. Four square table: verbal definition productions of 2nd group

Activity	Examples	Non-Examples	Verbal definition productions	Type of definition
Four square table	ask	answer	[question] : it's a phrase with a question tag at the end	Combination (class specific & descriptive attributes)
	phrase	reply		
	question tag			
	inquiry			

Table 8. Four square table: verbal definition productions of 3rd group

Activity	Examples	Non-Examples	Verbal definition productions	Type of definition
Four square table	move	stand still	[dance] : when you move rhythmically to music	Combination (class specific & descriptive attributes)
	music			
	rhythm			
	body			

Table 9. Four square table: verbal definition productions of 4th group

In the third activity (guess cards), the results showed that for abstract and compound nouns the most common type of definitions was Association/Result/Action, while for concrete functional definition. The given responses by each group are presented in Tables 10-13.

Activity	Verbal definition productions	Type of definition
Guess cards	[sunrise]: a romantic moment of the day	Association
	[sunrise]: when it gets dark	Result
	[sunrise]: when the sky is orange and red	Descriptive definition
	[sunrise]: a landscape	Association
	[sunrise]: something that shines a lot	Functional definition

Table 10. Guess card: verbal definition productions of 1st group

Activity	Verbal definition productions	Type of definition
Guess cards	[longevity]: a life-span	Synonym
	[longevity]: when someone lives a lot	Association/Result/Action
	[longevity]: a life that lasts a lot	Formal definition
	[longevity]: like Queen Elizabeth	Association
	[longevity]: a big life	Combination (class specific & descriptive attributes)

Table 11. Guess card: verbal definition productions of 2nd group

Activity	Verbal definition productions	Type of definition
Guess cards	[cutlery]: we eat with it	Functional definition
	[cutlery]: a household utensil	Class specific
	[cutlery]: an iron thing	Descriptive definition
	[cutlery]: we take it, we put it on the plate and eat it	Functional definition
	[cutlery]: we divide our meal into pieces	Functional definition

Table 12. Guess card: verbal definition productions of 3rd group

Activity	Verbal definition productions	Type of definition
Guess cards	[hum]: when someone sings with low voice	Formal definition
	[hum]: a song	Association
	[hum]: sing with closed lips	Combination (Descriptive & Functional definition)
	[hum]: I am embarrassed	Association
	[hum]: speaking in a hushed tone	Combination (Class non specific and description)

Table 13. Guess card: verbal definition productions of 4th group

DISCUSSION

As the results showed, the first activity (semantic maps) helped students to develop connections among words and to use different types in order to provide definitions. According to literature, it is a process that increases learning of vocabulary words (Baumann et al., 2003; Heimlich and Pittleman, 1986). For example, by providing definitions using an example, a relation/action or a result for the concept of the target word, a synonym or an antonym, a class specific term, students must deeply process the target word. They could, also, combine all these strategies in order to provide more extended definitions.

The second activity, four square tables, reinforced the student's ability to find the suitable examples (related to the concept of target word) or non-examples that mean the opposite of the target word. In this way, the students provided a definition using the characteristics and the appropriate attributes of the concept or using negation. In line with the results of other studies (Johnson 2015, Smith et al. 2016), this activity makes the student more creative, as he is asked to find the words associated with the target word on his own, to retrieve the suitable vocabulary of his mental lexicon and to create his own definition. This activity, also, draws on a student's prior knowledge to build connections among new concepts and creates a visual reference by which students learn to compare attributes and examples. More specifically, through the first two activities students were given the opportunity to collaborate, to interact with them, to share vocabulary and, finally, to produce word definitions.

The third activity, guess cards, gave the opportunity to students to describe the defined concept using different types of definitions. In this way, they strengthened their ability to discover new strategies for different categories of words. The aim of this activity was students to produce definitions of compound words without using the tautology or repetition of one or both word components.

CONCLUSIONS

The results of this study are in general agreement with previous studies that provide insight into the importance of definitional skills improvement. Definition of words necessitates the development of skills to be successful with this basic skill of the user of the language being short but very informative. A successful definition should provide enough information to explain the basic meaning of a word and to differentiate the word from other word definitions that may have similar meanings. It also requires a high level of information through a brief description. According to Marinellie & Johnson (2004), the improvement of definitional skills is necessary for both effective oral and written communication, since written definitions contain more categorical / taxonomic meanings while oral definitions contain more terms of characteristic and descriptive elements. In order for each speaker to acquire definition skills so that they are able to give meaning to the basic concepts in order to avoid misunderstandings

and resolve conflicts, the school's contribution to teaching word definition as well as vocabulary development is required.

This article endeavored to convey the importance of improving definitional skills and has presented some concrete methods for educators to facilitate young student's development of definitional skill. Although typical development of definition is a gradual and slow process, the elementary school-age years are a critical time period in the development of definition. An early foundation in definition may aid in the development of language skills and may help promote school success (Marinellie 2001).

The above teaching methods could help educators in assessing, enhancing, and facilitating the definitional abilities not only of typically developed students but also could be applied on students with developmental disabilities. Moreover, they could be useful for students who have Greek as a second language aiming at their vocabulary improvement and their academic achievement.

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