

WORD DEFINITION IN ADULTS WITH LOW EDUCATIONAL AND HIGH EDUCATIONAL LEVEL

Chrisa Dourou

^a Postdoctoral Researcher, Democritus University of Thrace, Komotene 69100, Greece

ABSTRACT

The purpose of this study is to expand the current literature on word definitions, to empirically investigate the definitional skills and the preferred definition types of adults with low educational (LE) and high educational (HE) level and to check the effect of grammatical categories, morphological and semantic characteristics of words in content and form of definitions. The sample consists of 50 monolingual individuals (native Greek speakers), who were asked to define 16 words (8 nouns, 4 verbs, and 4 adjectives) orally. Definitions were scored on a five-point scale along a continuum that reflects the developmental path of the definitions. The findings indicated that definitions tend to conform to the conventional rules of Aristotelian format so that adults with university education outperform adults without university education. The results also confirmed the important roles of metalinguistic ability and educational level in producing well-structured formal definitions. This study provides a more complete picture of the development of definitional skills.

Keywords: definition ability; adults; definitional skills; education; oral language

1. Introduction

Word definition is a metalinguistic skill: it is related to the meaning in language and it is the most suitable language function to talk about the meaning of a word. Over the course of several decades, researchers who have an interest in meaning acquisition, word and metalinguistic knowledge have revealed interesting information about how language users define words (e.g., Al-Issa 1969; Anglin 1977; Johnson and Anglin 1995; Litowitz 1977; Markowitz and Franz 1988; McGhee-Bidlack 1991; Storck and Looft 1973; Swartz and Hall 1972; Watson 1985; Werner and Kaplan 1963; Nippold et al., 1999; Marinellie & Johnson 2003). Developmental approaches focus on the manner in which word definition develops in children, adolescents and adults (Nippold, 2016). Typically, in developmental studies the participant is asked to explicitly explain the meaning of words presented in isolation, out of contexts of use. In classical Greece, definition was used in the context of public debates as an activity to allow discussants to reflect on concepts, explain them clearly to the attendees of the debate, and to ultimately demonstrate their thesis. In the context of dictionaries, definitions are regarded as a means to help language learners in their learning process. In the context of specialized written discourse definitions are used as structural units that allow the writer to organize the discourse. Regarding the linguistic framework in which definition operates, while lexicographic definitions do not transcend the limits of the sentence; expository text definitions usually operate at the level of the paragraph, and in classical Greece, the definition operates at a much broader framework, that is, the discourse in its spoken modality in the genre of the debate (Gandia, 2016).

1.1. Literature review / Theoretical background

Different studies have reported the inclusion of superordinate terms (percentage higher than 80%) in the majority of adult definitions (Storck & Looft, 1973; Wehren et al., 1981; McGhee-Bidlack, 1991). Moreover, most adults' definitions of nouns conform to the 'conventional linguistic form' (an X is a Y that Z). This finding is usually interpreted by the effect of literacy and schooling in the shaping of adults' definitional formal skills. This effect is usually understood in terms of the high exposure to the use of definitions in specialized written discourse that adults experience in their cultural contexts (Watson & Olson, 1987; Iris, Litowitz, & Evens, 1988; Snow, 1990; Watson, 1985; Keil, 1985). Most participants in these studies were middle-class adults from university contexts (Anglin, 1977; Wehren et al., 1981; Benelli et al., 1988; McGhee-Bidlack, 1991; Benelli et al., 2006), a context which regularly require the production of formal definitions.

The research undertaken by Luria (1976), with peasants in Uzbekistan, presents an exception to this pattern. Luria found that unschooled adults defined common nouns in terms of perceptual or functional features, and some made no attempt at all to define words, instead, they 'framed' the *definiendum* into a 'little story' in which the noun *definiendum* was involved. Adults began to attend literacy classes and to include a low level of specificity hyperonym ('something that,' 'a thing that') equivalent to what 6-year-old children would do, starting by introducing broad categorical terms, that in time (and with practice in schooling and literacy), would become proper superordinate terms. Thus, Luria's results confirmed previous interpretations as to the crucial effect of literacy and schooling in developing formal definitional skills. In the same line, Walker (2001) studied the relationship between literacy/schooling and formal noun definitions in adults of low income rural (range: 24 to 70 years) and urban (range: 20 to 64 years) American contexts. Walker asked the two group of adults to define four object nouns (e.g., *cigarette*, *trailer*, *taxi*, and *computer*), and four social nouns (e.g., *husband*, *farmer*, *dentist*, and *policeman*). Her results indicated that 80% of the urban group adults included superordinate terms in their definitions while the percentage for the rural group was 36%. The proportion of definitions with the 'formal' form (a statement of equivalence, NP1 = NP2, inclusion of the superordinate, and criterial information was 69% for the urban adults while the percentage of 'formal' definitions among rural adults was only 13%.

A more recent study conducted by Benelli, Belacchi, Gini and Lucangeli (2006) documented a better performance by highly educated adults of normative Aristotelian definitions (i.e. "metalinguistic definitions"), which according to them would be "answers explicitly stating the linguistic-grammatical category of the "definiendum," for example 'innocent (definiendum) is the opposite of guilty.' Adults of a middle SES with low (i.e. middle school certificate) and high (i.e. high school or university diploma) educational levels (aged 24-31; n=80) defined four concrete and four abstract nouns (e.g., 'clown', 'donkey', 'ability', 'kindness'); four concrete and four abstract adjectives (e.g., 'blonde', 'round', 'contagious', 'innocent'); and four concrete and four abstract verbs (e.g., to burn, to join, to frustrate, to think). Scoring on adult's definitions, according to Benelli et al. (2006), was determined in terms of increments of morphosyntactic complexity (e.g., a preposition added to a single word; the introduction of non-conjugated verbs; the use of conjugated verbs, etc.).

Benelli et al.'s (2006) findings in relation to the significant differences between LE and HE in the semantic components of definition (categorical term + discriminating specifications), it seems safely to assume that the syntactic dimension of the definition is less permeable to changes as a function of literacy and schooling, compared to the semantic one. Finally, the category noun is the morphological category that strictly follows the formal definitional

structure (an X is a Y that Z) and the formal semantic requirements (i.e. inclusion of a superordinate term and 'criterial information' or definitional features).

In sum, there seems to be a lack of agreement as to how grammatical, morphological category and level of abstraction of the words to be defined affect syntactic and semantic dimensions of adults' word definitions. In order to further explore and shed some light to the adult-like way of defining concrete and abstract nouns, adjectives and verbs in this study, we felt the need to draw a comparison between the two different dimensions of definitions (syntactic and semantic) taking into account both variables: morphological category and level of abstraction of the words.

1.2. Nouns, Verbs and Adjectives: A Comparison of Definitional Style

As an "index of human competencies" (Nippold, 1998, p. 43), defining words requires both linguistic and metalinguistic skills. Essentially, defining a word requires an individual to reflect on the lexicon and state explicitly what is known implicitly (Watson, 1985).

Definition has been studied by asking individuals to explain meanings of nouns (e.g., "What is a hat?"). Generally, investigations have found that from early childhood to adolescence and adulthood, definitions of nouns develop from functional and concrete to more abstract and conceptual (e.g., Al-Issa, 1969; Storck & Looft, 1973; Werner & Kaplan, 1963). Researchers have found that definitional skill progresses slowly, with improvements in both content (meaning) and form (syntactic structure) during the school-age and adolescent years (e.g., Johnson & Anglin, 1995; Nippold et al., 1999).

In one small study, Markowitz and Franz (1988) found that verb and adjective definitions are more variable in form than noun definitions, but verbs may have a mature (i.e., conventional) definitional form similar to nouns. Johnson and Anglin (1995) found that children were more successful in expressing word content than in using conventional definitional form. Conventional form is present when a definition contains the syntactic form of the word being defined (e.g., a noun phrase for a noun). Specifically, Johnson and Anglin found that it was easier for school-age children to produce conventional syntactic forms for nouns than for other parts of speech, such as verbs or adjectives.

1.3. Aims and Hypotheses

The purpose of the present investigation is to study definitional skills in adults with LE and HE level and preferred definition types and how these differentiate according to various parameters (concrete/abstract nouns, simple/derivative and compound words, verbs, noun, and adjectives). We administered a definitional task to measure the definitional performance of the participants.

The current study aims to shed light on the effect of education level with part of speech and the morphological and semantic characteristics of words to the content and form of definitions. Taking into consideration previous literature on the development of definitional skills, we expected that educated adults showed a higher degree of definitional skills as compared to adults without educational level.

Our second aim is to examine the preferred definition types per age group. According to literature (Storck & Looft, 1973; Wehren et al., 1981; McGhee-Bidlack, 1991; Benelli et al., 2006), we expect to observe differences to the types of definition per age group.

2. Method

2.1. Sample / Participants

The experimental group included 50 adults (23 males and 27 females) from the district of Alexandroupolis (Evros, Greece). The mean age of adults was 53 years and 4 months, and they were exposed to the same curriculum. The group included 25 adults with low educational level (LE) and 25 adults with high educational level (HE).

2.2. Stimuli and Procedures

The data collection tool includes sixteen (16) words, of which eight (8) are nouns, four (4) verbs and four (4) adjectives. Of the sixteen (16) words, ten (10) were identified through the Textbooks of the Modern Greek Language of Elementary School, Junior and Senior High School.

Specifically, these books were selected and after being transcribed into text files (txt), the AntConc 3.5.0 programme was used to create word frequency lists for the words contained in these manuals. Some of the words that emerged were difficult to define, whereas others were more easily defined. Therefore, from the school textbooks, 10 words were selected, and the remaining words were from Gavriilidou's most recent research (2015).

The sixteen (16) words that were chosen a) from the school textbooks were *erotisi* 'question,' *taksiði* 'journey,' *iáovasilema* 'sunrise,' *makrozoia* 'longevity,' *tiropita* 'cheese pie,' *maçeropiruno* 'cutlery,' *aspromavros* 'black-and-white,' *γλικoksinos* 'sweet-sour,' *aniyoklino* 'open and close,' and *siyotrayuðo* 'hum' and b) from Gavriilidou's (2015) survey were *milo* 'apple,' *poðilato* 'bicycle,' *eksipnos* 'intelligent,' *astios* 'funny,' *diavazo* 'read,' and *xorevo* 'dance.'

From these words, eight (8) are nouns, four (4) are simple Greek words (*milo* 'apple,' *taksiði* 'journey,' *erotisi* 'question,' and *poðilato* 'bicycle,') and four (4) are compound Greek words (*tiropita* 'cheese pie,' *maçeropiruno* 'cutlery,' *iáovasilema* 'sunrise,' and *makrozoia* 'longevity'). Additionally, of these eight (8) nouns, four (4) are concrete (*milo* 'apple,' *poðilato* 'bicycle,' *tiropita* 'cheese pie,' and *maçeropiruno* 'cutlery') and four (4) are abstract (*makrozoia* 'longevity,' *iáovasilema* 'sunset,' *taksiði* 'journey,' and *erotisi* 'question'). From the words to be defined, four (4) are verbs, of which two (2) are simple words or derivatives in Greek (*diavazo* 'read' and *xorevo* 'dance'), and two (2) are compounds (*aniyoklino* 'open and close' and *siyotrayuðo* 'hum.'). Finally, the words include four (4) adjectives, two (2) of which are simple (*eksipnos* 'clever' and *astios* 'funny') and two (2) of which are compounds (*aspromavros* 'black-and-white' and *γλικoksinos* 'sweet-sour') (Dourou, 2019).

2.3. Procedure

For the scientific needs of this research, a questionnaire was designed and was administered orally by the researcher to each participant, without the presence of other persons during this process. The eight (8) nouns were interspersed with the four (4) verbs and four (4) adjectives in random order, and each participant was randomly assigned to an order. For nouns, the investigator asked 'What is an X?' The article 'an' (or 'a') gives a strong indication to the child that he or she is defining a word from the grammatical class of 'noun' (Katz et al., 1974; Gelman & Taylor, 1984). Use of a natural prompt for nouns would maximize the chance that children would interpret common words with multiple meanings, such as nouns. For each verb, the

investigator asked the child ‘What does X mean’? Use of this natural prompt maximized the chances that the child would interpret these words as verbs. The questionnaire is given orally in order to avoid the risk of copying a definition through the Internet or from a dictionary (electronic or printed). The duration of the research was approximately two months (October-December 2018).

3. Data Analysis

3.1. Scoring of Data: Content

The scoring methodology of Marinellie and Johnson (2002) was adopted for the needs of the present study. Content scoring is displayed in Table 1. Definitions were scored on a five-point scale along a continuum consistent with a developmental progression suggested by the literature on definition. This system for scoring was used in an investigation on the definitional skill of school-age children with specific language impairment. The highest possible noun content score for any participant was 80 points (16 words per participant, with a maximum of 5 points per word).

Table 1. Examples and points for content categories

Content category	Example	Score
Error	<i>milo</i> [apple : ice-cream]	0
Function	<i>tiropita</i> [cheese pie: you eat it]	1
Description	<i>milo</i> [apple: red and round]	1
Present state	<i>erotisi</i> [question: what you are doing now]	1
Example	<i>aniyoklino</i> [open and close: for example, open and close the door]	1
Association or Result or Action	<i>diavazo</i> [read: history]	1
Tautology	<i>γlikosinos</i> [sweet-sour: sweet and sour]	1
Relation-Self-reference	<i>eksipnos</i> [intelligent: that’s me]	2
Class nonspecific	<i>poðilato</i> [bicycle: a thing]	2
Class specific	<i>milo</i> [apple: fruit]	3
Synonym	<i>eksipnos</i> [intelligent: clever]	3
Combination I	<i>milo</i> [apple: a thing that is red and round]	4
Combination II	<i>poðilato</i> [bicycle: means of transport with a steering wheel, saddle and pedal]	5
Lexicographic definition	<i>diavazo</i> [read: look at the words and understand their meaning]	5
Aristotelian definition	<i>erotisi</i> [question: a clause that asks for answers or information]	5

3.2. Scoring of Data: Form

Form scoring for words is displayed in Table 4. Definitions were scored on a five-point scale along a continuum consistent with a developmental progression suggested by the literature on definition. This system for scoring was used in an investigation on the definitional skill of school-age children with specific language impairment (Marinellie & Johnson, 2002). Form

categories included: Nonverbal; Single Word or Article + Word; Phrase, Clause, or Simple Sentence; Transitional; Partial Aristotelian; and Aristotelian. The highest possible form score for any participant was 80 points (16 words per participant, with a maximum of 5 points per word).

Table 2. Examples and points for form categories

Form Category	Example	Score
Nonverbal	Participant demonstrates use of object or points to object	0
Single Word or Article + Word	<i>ikovasilema</i> [sunrise: evening]	1
Phrase, Clause or Simple Sentence	<i>milo</i> [apple: we eat it]	2
Transitional form (use of “something” or “thing” plus modifying clause)	<i>erotisi</i> [question: something that wants to answer]	3
Partial Aristotelian form	<i>milo</i> [apple: a fruit]	4
Aristotelian form	<i>poðilato</i> [bicycle: means of transport with a steering wheel, saddle, pedal and without motor]	5

4. Results

4.1. The effect of education level with part of speech and the morphological and semantic characteristics of words to the content and form of definitions (Q1)

The t-test for independent samples showed that the correlation of the educational level with the part of speech and the morphological and semantic characteristics of words to the content of the answers is statistically significant. More specifically, in research question Q4, findings have shown that adults with university education have statistically significant higher scores than adults without university education in each subgroup.

More specifically, adults with university education have higher scores in the definition of concrete nouns ($t(48) = 4.10 < p = 0.001$) than the adults without university education, as well as in the definition of abstract nouns ($t(81) = 5.48 < p = 0.005$). Adults with university education also have higher scores in the definition of simple/derivative words ($t(48) = 5.21 < p = 0.05$) and compound words ($t(48) = 6.01 < p = 0.05$) than adults without university education. Finally, adults with university education have higher scores in the definition of verbs ($t(48) = 6.92 < p = 0.05$), in the definition of nouns ($t(48) = 5.21 < p = 0.05$) but also in the definition of adjectives ($t(48) = 4.01 < p = 0.05$). In other words, adults with university education produce fuller in-content definitions relative to adults without university education.

Table 3. The effect of discipline with part of speech, morphological and semantic characteristics of words to the content of definitions

Dependent variables	Discipline	N	Mean	SD	T	df	P
Concrete nouns	Adults with university education	25	13.84	4.52	4.10	48	<0.001
	Adults without university education	25	9.16	3.47			
	Total	50	11.50	4.64			
Abstract nouns	Adults with university education	25	12.48	5.24	5.48	48	<0.05
	Adults without university education	25	5.80	3.11			
	Total	50	9.14	5.43			
Simple/ derivative words	Adults with university education	25	24.76	8.77	5.21	48	<0.05
	Adults without university education	25	14.40	4.68			
	Total	50	19.58	8.70			
Compound words	Adults with university education	25	24.6	8.86	6.01	48	<0.05
	Adults without university education	25	12.6	4.58			
	Total	50	18.60	9.25			
Verbs	Adults with university education	25	11.68	3.99	6.92	48	<0.05
	Adults without university education	25	5.32	2.29			
	Total	50	8.50	4.54			
Nouns	Adults with university education	25	13.16	4.57	5.21	48	<0.05
	Adults without university education	25	7.48	2.99			
	Total	50	10.32	4.78			
Adjectives	Adults with university education	25	11.36	5.16	4.01	48	<0.05
	Adults without university education	25	6.72	2.41			
	Total	50	9.04	4.62			

The t-test for independent samples showed that the educational level with the grammatical categories, the morphological and semantic characteristics of words to the form of the answers is statistically significant. More specifically, in research question Q4, findings have shown that adults with university education have statistically significant higher scores than adults without university education in each subgroup.

More specifically, adults with university education have higher scores in the definition of concrete nouns ($t(48) = 2.75 < p = 0.001$) than the adults without university education, as well as in the definition of abstract nouns ($t(81) = 4.69 < p = 0.001$). Adults with university education also have higher scores in the definition of simple / derivative words ($t(48) = 4.59 < p = 0.001$) and compound words ($t(48) = 3.98 < p = 0.001$) than adults without university education. Finally, adults with university education have higher scores in the definition of verbs ($t(48) = 4.15 < p = 0.001$), in the definition of nouns ($t(48) = 2.79 < p = 0.001$) but also in the definition of adjectives ($t(48) = 2.79 < p = 0.001$). In other words, adults with university education produce fuller in form definitions in relation to adults without university education.

Table 4. The effect of discipline with part of speech, morphological and semantic characteristics of words to the form of definitions

Dependent variables	Discipline	N	Mean	SD	T	df	P
Concrete nouns	Adults with university education	25	13.48	3.34	2.75	48	<0.001
	Adults without university education	25	11.04	2.92			
	Total	50	12.26	3.34			
Abstract nouns	Adults with university education	25	12.16	4.12	4.69	48	<0.001
	Adults without university education	25	7.32	3.07			
	Total	50	9.74	4.36			
Compound words	Adults with university education	25	22.00	6.23	3.98	48	<0.001
	Adults without university education	25	15.96	4.30			
	Total	50	18.98	6.12			
Simple/ derivative words	Adults with university education	25	25.28	6.84	4.59	48	<0.001
	Adults without university education	25	17.92	4.17			
	Total	50	21.60	6.73			
Verbs	Adults with university education	25	11.28	3.76	4.15	48	<0.001
	Adults with university education	25	7.84	1.72			
	Total	50	9.56	3.38			
Adjectives	Adults with university education	25	10.36	3.78	2.79	48	<0.001
	Adults without university education	25	7.68	2.95			
	Total	50	9.02	3.62			
Nouns	Adults with university education	25	12.82	3.17	4.51	48	<0.001
	Adults without university education	25	9.18	2.49			
	Total	50	11.00	3.37			

4.2. Frequency of definition type in content and form (Q2)

The analysis of the data shows that the most common type of content definition is Association/result/action. In the highest preferences of adults with HE level (n = 25) Combination II, Combination I, Class specific and Synonym are also included. In the mid-preferences of the participants, Tautology, Class nonspecific and Lexicographic and Aristotelian definitions are included. Finally, low categories are the Functional and Descriptive definition, Example, Relationship/Self-Reference and Incorrect Answers.

Table 5. Frequency of definition types in content by adults with HE level

Words	Errors	Functional definition	Descriptive definition	Present State	Example	Association / result / action	Tautology	Relation / self-reference	Class nonspecific	Class specific	Synonym	Combination I	Combination II	Lexicographic definition	Aristotelian definition	Total
<i>milo</i>																
[apple]	0	0	0	0	0	3	0	0	0	15	0	0	5	0	2	25
<i>taksiði</i>																
[journey]	0	0	0	0	0	8	0	0	0	2	4	6	1	3	1	25
<i>tiropita</i>																
[cheese pie]	0	0	0	0	0	4	0	0	4	5	0	2	10	0	0	25
<i>poðilato</i>																
[<i>bicycle</i>]	1	0	1	0	0	3	0	0	2	5	0	4	7	0	2	25
<i>maçeropirun</i>																
o [cutlery]	0	1	0	0	0	1	1	0	2	5	0	8	7	0	0	25
<i>erotisi</i>																
[question]	1	1	0	0	0	5	0	0	0	0	8	7	1	0	2	25
<i>iðovasilema</i>																
[sunrise]	0	0	1	0	0	8	0	0	2	1	1	3	7	0	2	25
<i>makrozoia</i>																
[longevity]	0	0	1	0	0	4	1	0	0	0	1	5	4	8	1	25
<i>aniyoklino</i>																
[open and close]	0	0	0	0	1	3	11	0	1	5	0	1	3	0	0	25
<i>aspromavros</i>																
[black-and-white]	1	0	0	0	0	5	6	0	0	4	0	3	5	0	1	25
<i>astios</i>																
[funny]	0	2	0	0	0	6	0	1	0	0	7	1	7	0	1	25
<i>xorevo</i>																
[dance]	0	0	0	0	0	5	0	0	0	3	1	4	9	3	0	25
<i>diavazo</i>																
[read]	0	1	0	0	0	5	0	0	0	2	10	5	1	1	0	25
<i>γlikoksinos</i>																
[sweet-sour]	0	0	0	0	0	5	5	0	0	6	0	2	5	0	2	25
<i>siyotrayuðo</i>																
[hum]	1	0	0	0	0	4	6	0	2	1	5	1	5	0	0	25
<i>eksipnos</i>																
[intelligent]	2	0	0	0	0	4	0	1	0	0	10	4	0	0	4	25
Total	6	5	3	0	1	73	30	2	13	54	47	56	77	15	8	400

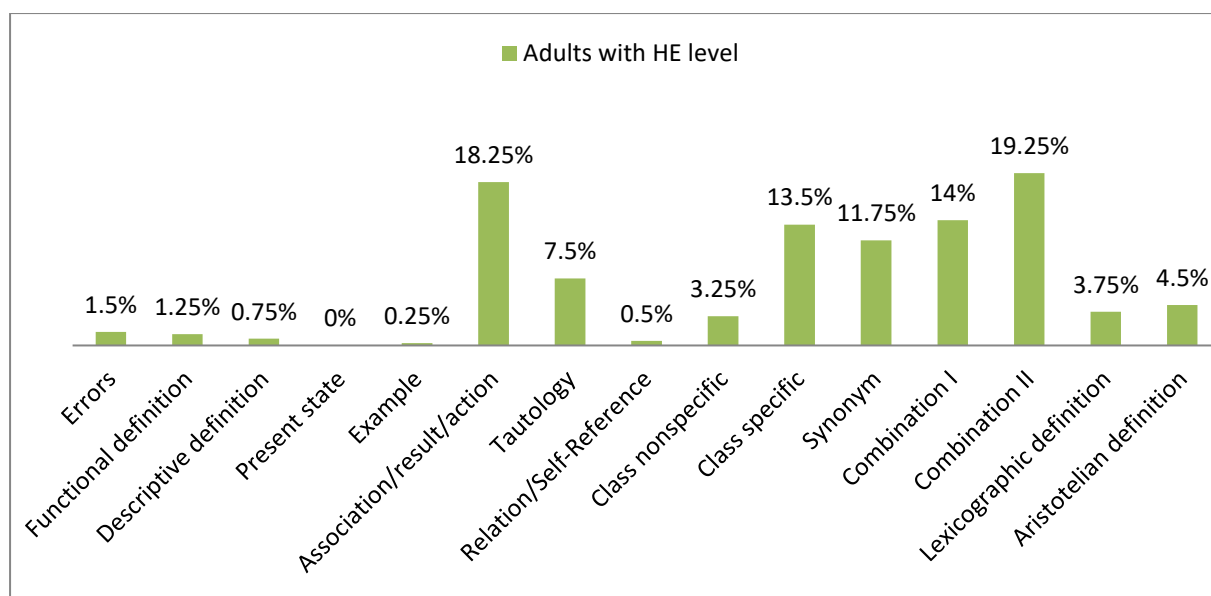


Figure 1. Percentage frequency of definition types in content by adults with HE level

The data analysis suggests that the most common type of definition in form by adults with HE level is the Partial Aristotelian definition, which is followed by the One Word or Article + Word. The category Phrase/Simple Clause is placed in the mid-preferences of the participants in this research. The Transitional form and Aristotelian form of definition is in the last stages. Finally, note that no one of the sample provided nonverbal answers to word definitions.

Table 6. Frequency of definition types in form by adults with HE level

Words	Nonverbal	Single word / Article + Word	Phrase / Simple Clause	Transitional Form	Partial Aristotelian form	Aristotelian Form	Total
milo [apple]	0	1	2	0	20	2	25
taksiði [journey]	0	9	3	0	12	1	25
tirópita [cheese pie]	0	4	1	0	18	2	25
poðílato [bicycle]	0	4	2	0	15	4	25
maçeropiruno [cutlery]	0	7	6	1	11	0	25
erotisi [question]	0	4	3	3	12	3	25
íkovasilema [sunrise]	0	8	3	1	11	2	25
makrozoiá [longevity]	0	3	4	1	16	1	25
aniyoklino [open and close]	0	8	10	0	7	0	25
aspromavros [black-and-white]	0	10	6	3	5	1	25
astios [funny]	0	8	4	9	3	1	25
xorevo [dance]	0	4	3	0	17	1	25
diavazo [read]	0	5	3	1	15	1	25
γlikoksinos [sweet-sour]	0	8	4	4	7	2	25
siyotrayuðo [hum]	0	4	13	0	6	2	25
eksipnos [intelligent]	0	4	2	9	8	2	25
Total	0	91	69	32	183	25	400

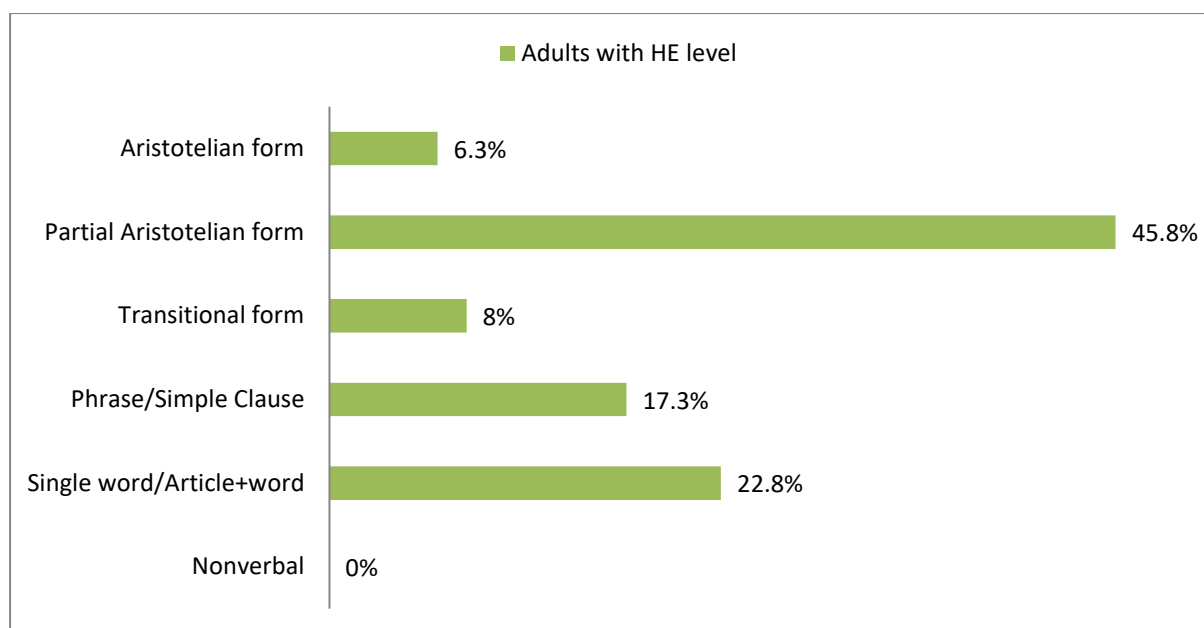


Figure 2. Percentage frequency of definition types in form by adults with HE level

The analysis of the data shows that the most common type of content definition is Association/result/action. In the highest preferences of adults with LE level ($n = 25$) Class specific, Synonym and Incorrect Answers are also included. In the mid-preferences of the participants, the Combination I, Tautology, Functional definition are included as well as the Class nonspecific Answers. Finally, low categories are the Descriptive definition, Example and Relationship/Self-Reference and Combination II.

Table 7. Frequency of definition types in content by adults with LE level

Words	Errors	Functional definition	Descriptive definition	Present State	Example	Association / result / action	Tautology	Relation / self-reference	Class nonspecific	Class specific	Synonym	Combination I	Combination II	Lexicographic definition	Aristotelian definition	Total
<i>nilo</i> [apple]	0	0	0	0	0	2	0	0	0	20	0	1	1	0	1	25
<i>taksiði</i> [journey]	0	1	0	0	0	19	0	0	0	0	3	2	0	0	0	25
<i>tirpita</i> [cheese pie]	2	2	1	0	0	3	0	0	13	2	0	0	2	0	0	25
<i>poðilato</i> [bicycle]	1	3	2	0	0	6	0	0	1	7	0	3	2	0	0	25
<i>maçeropirun</i> o [cutlery]	1	5	0	0	0	4	2	0	5	1	0	6	0	0	1	25
<i>erotisi</i> [question]	4	10	0	0	1	4	0	0	1	0	2	3	0	0	0	25

iλovasilema [sunrise]	1	0	2	0	0	16	0	0	2	1	0	2	1	0	0	25
makrozoia [longevity]	2	1	0	0	0	12	0	0	0	2	0	6	1	1	0	25
aniyoklino [open and close]	2	0	0	0	12	4	5	0	0	2	0	0	0	0	0	25
aspromavros [black-and- white]	2	0	0	0	1	7	10	0	0	5	0	0	0	0	0	25
astios [funny]	2	0	0	0	0	7	0	0	0	0	9	0	7	0	0	25
xorevo [dance]	1	0	1	0	0	17	0	1	0	2	1	1	1	0	0	25
diavazo [read]	3	0	0	0	0	10	0	1	1	0	9	1	0	0	0	25
γlikoksinos [sweet-sour]	4	0	0	0	1	9	5	0	1	4	1	0	0	0	0	25
siyotrayuðo [hum]	4	0	0	0	0	9	2	2	2	2	3	1	0	0	0	25
eksipnos [intelligent]	5	1	0	0	0	7	0	1	0	0	9	1	0	1	0	25
Total	34	23	6	0	15	136	24	5	26	48	37	27	15	2	2	400

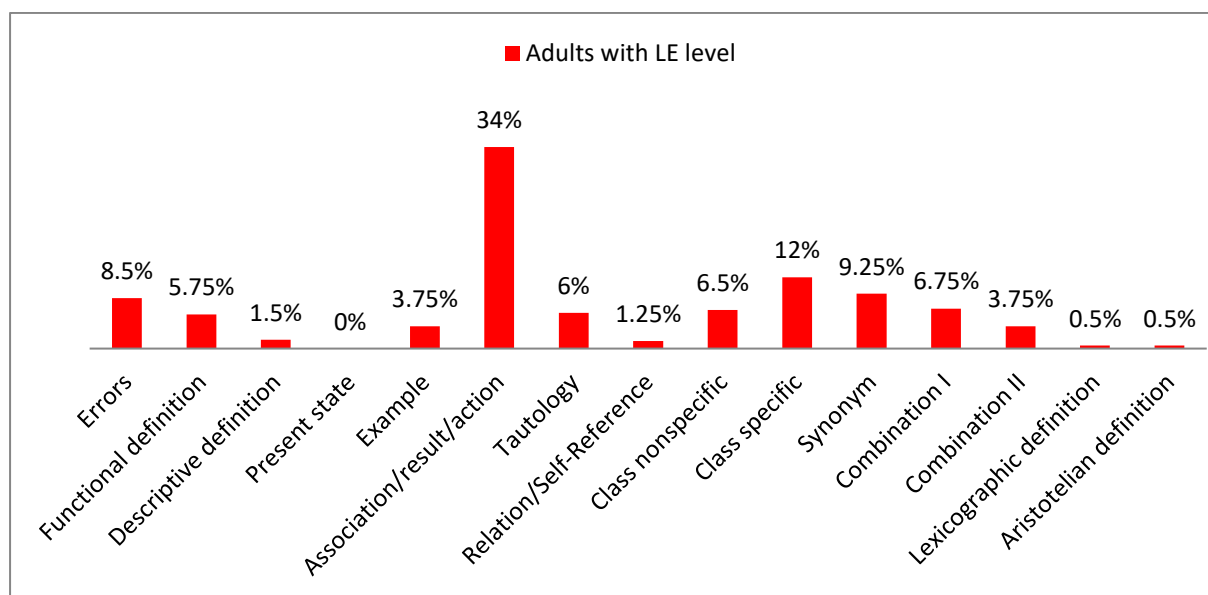
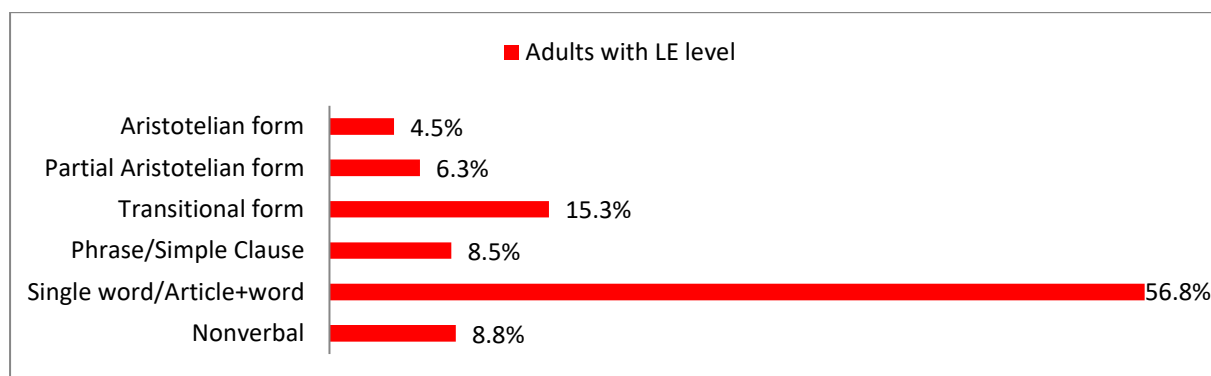


Figure 3. Percentage frequency of definition types in content by adults with LE level

The data analysis suggests that the most common type of definition in form by adults with LE level is the One Word or Article +Word. The categories Transitional Form, Phrase/Simple Clause and Nonverbal answers are placed in the mid-preferences of the participants in this research. The Partial Aristotelian definition and Aristotelian form of definition is in the last stages.

Table 8. Frequency of definition types in form by adults with LE level

Words	Nonverbal	Single word / Article + Word	Phrase/ Simple Clause	Transitional Form	Partial Aristotelian form	Aristotelian Form	Total
milo [apple]	0	2	0	0	22	1	25
taksiði [journey]	0	19	3	0	1	2	25
tiropita [cheese pie]	0	11	1	2	11	0	25
poðilato [bicycle]	0	10	4	2	9	0	25
maçeropiruno [cutlery]	0	8	6	6	5	0	25
erotisi[question]	0	7	9	8	1	0	25
ίλovasilema [sunrise]	0	14	8	0	2	1	25
makrozoia[longevity]	0	8	13	2	2	0	25
aniyoklino [open and close]	0	8	15	0	2	0	25
aspromavros [black-and-white]	1	16	4	1	3	0	25
astios [funny]	1	13	1	10	0	0	25
xorevo[dance]	0	12	10	0	3	0	25
diavazo[read]	0	7	9	2	7	0	25
γlikoksinos [sweet-sour]	0	10	5	5	5	0	25
siyotrayuðo [hum]	0	9	13	0	3	0	25
eksipnos[intelligent]	2	8	4	7	4	0	25
Total	35	227	34	61	25	18	400

**Figure 4.** Percentage frequency of definition types in form by adults with LE level

Discussion

The first question of our study was: How does the educational level relate to the part of speech, the semantics and the morphological characteristics of words in terms of content and form of definitions? Results indicated an interesting differentiation between adults with HE levels and adults with LE levels. This finding seems to suggest that formal education is even more important for the development of definition skills than age.

The present study has shown that the educational level influences significantly the content and form of the definitions but also the type of definition and agrees with previous studies that focus on the influence of the educational level on the ability to define words (Luria 1976, Walker 2001, Benelli et al., 2005, Benelli, Belacchi, Gini & Lucangeli, 2006).

By analyzing the results, and in particular how the educational level affects the particular word definition category, we were able to conclude that statistically significant differences exist between adults with LE and HE level (a) in concrete nouns, (b) in abstract nouns, (c) in simple words, (d) in compound words, (e) in verbs, nouns and adjectives, both in terms of content and form of their answers. Adult superiority with a high level of education is also recorded in Benelli, Belacchi, Gini & Lucangeli (2006). The results show that only 8% of the low-educated adult definitions were metalinguistic (i.e., definite meaning + hyperonym + distinct characteristics), whereas the percentage of metalinguistic definitions for adults with a high educational level was greater than 30%. The authors conclude that formal definitions are linked to the educational level because low-educated adults use fewer Aristotle definitions than educated adults.

Additionally, Walker (2001), who studied the relationship between educational level and definitional skills, asked two groups of adults to define words belonging to the grammatical category of noun. The results showed that 80% of adults from urban areas included hypernym terms in their definitions. In contrast, only 36% of adults from rural areas included hypernym terms in their definitions. Regarding the form of their answers, the definitions in 'typical' form (Partial Aristotle/Aristotelian) was 69% for adults in urban areas and only 13% for adults in rural areas. Additionally, many researchers (Spache, 1943; Terman, 1916; Wilson, 1975) have recognized the impact of sociological factors and education mainly on content of definitions.

Finally, the second research question was: Does a preferred type of definition exist per group? The analysis of the data shows that the most common type of content definition by adults with HE level is Combination II. The categories Association/Effect—Action, Class specific, Combination I and Synonym were in the second place of preferences. Additionally, these categories are the most common types of content definitions by adults with LE level. In the mid-preferences of adults with HE level, the category Tautology is included. Finally, low categories are Example, Descriptive Definition, Relationship/Self-Reference and Present State. According to the form of definitions, the most common type in adults with HE level is the Partial Aristotelian definition whereas the half of adults with LE level prefer to define words with One Word or Article + Word. The categories Phrase/Simple Clause and One Word or Article + Word are placed in the mid preferences of adults with HE level in this research. The Transitional and Aristotelian form of definition are in the last stages.

These results can be explained from the tendency of educated people to define words by including hypernym terms in their definitions (content and form). Specific nouns are defined mainly by the Partial Aristotelian form. This happens because specific nouns can be included in categories (e.g., apple-fruit). Moreover, they use to connect the meaning of words with concepts, situations, or things. The category Tautology appears to a large extent because half of the words are compounds. Finally, the category One Word or Article + Word is preferred by the sample to define words with a synonym (e.g., clever-intelligent).

5. Conclusions

One of the main conclusions of this study is a very interesting difference between adults with educational level and adults without educational level. This finding seems to suggest that education is an important factor for developing definitional skills than mere chronological age is. Moreover, the results showed that formal definitions are associated with literacy, as overall low-educated adults used fewer Aristotelian ('post-linguistic') definitions than educated adults.

In the future, this study should be repeated and confirmed in a larger number of populations, as well as its verification in new environments would be useful. For example, the ability to define words of different social groups residing in different areas, such as urban or semi-urban, could be studied or, finally, the ability to define words of native and non-native speakers of Greek language could be studied and compared.

Acknowledgements

«This research is co-financed by Greece and the European Union (European Social Fund-ESF) through the Operational Programme «Human Resources Development, Education and Lifelong Learning» in the context of the project “Strengthening Human Resources Research Potential via Doctorate Research” (MIS-5000432), implemented by the State Scholarships Foundation (IKY)»



REFERENCES

- Al-Issa, I. (1969). The development of word definition in children. In *Journal of Genetic Psychology*, 114, 25-28.
- Anglin, J. (1977). *Word, object and conceptual development*. New York: Norton.
- Benelli, B., Arcuri, L., & Marchesini, G. (1988). Cognitive and linguistic factors in the development of word definitions. *Journal of Child Language*, 15, 619-635.
- Benelli, B., Belacchi C., Gini, G., Lucangeli, D. (2006). To define means to say what you know about thing: The development of definitional skills as metalinguistic acquisition. *Child Language*, 33, 71-97.
- Benelli, B., Belacchi C., Lucangeli, D. (2006). The role of cognitive and linguistic abilities in the development of definitional competence. *Journal of Psycholinguistic Research*
- Biber, D., Conrad, S., & Reppen, R. (1998). *Corpus linguistics: Investigating language structure and use*. Cambridge, England: Cambridge University Press.
- Cabré, T. (1999). *Terminology: theory, methods and applications*. Amsterdam: John Benjamins.
- Colley, A., Todd, Z., Bland, M., Holmes, M., Khanom, M., & Pike, H. (2004). Style and content in emails and letters to male and female friends. *Journal of Language and Social Psychology*, 23, 369–378.
- Davidson, R.G., Kline, S.B. & Snow, C.E. (1986). Definitions and definite noun phrases: indicators of children decontextualized language skills. *Journal of Research in Childhood Education I*, 37-48.
- Dourou, C. (2019). *The comparison of definition ability of different age groups*. Unpublished Dissertation. Department of Greek Philology. Democritus University of Thrace. [In Greek]
- Ehrman, M. & Oxford, R. (1989). Effects of sex differences, career choice, and psychological type on adult language learning strategies. *The Modern Language Journal*, 73, 1-12.
- Eshelman, A. (2013). *Socioeconomic status and social class as predictors of career adaptability and educational aspirations in high school students* (Master's thesis). Southern Illinois University, Carbondale.
- Fischer, U. (1994). Learning words from context and dictionaries: An experimental comparison. *Applied Psycholinguistics*, 15, 551–574.

- Gandia, A.M. (2016). *On Word Definition in Children and Adults: Effects of Word Category and Level of Abstraction* (Doctoral dissertation, Universitat de Barcelona). Retrieved from <https://www.semanticscholar.org/paper/On-Word-Definition-in-Children-and-Adults%3A-Effects-Gand%3ADa/e94adbcf159dd6544e79b0ffaf09513a0f5a1dce>
- Gavriilidou, Z. (2011). The development of word definitions in Greek Preschoolers, In Chatzopoulou, K., Ioannidou A., Suwon Yoon (eds.) *Proceedings of the 9th I.C.G.L.*, pp. 88-96.
- Gavriilidou, Z. (2015). The development of noun, verb and adjective definitional awareness in Greek preschoolers, *Journal of Applied Linguistics*, 30, 44-58.
- Gelman, S., & Taylor, M. (1984). How two-year old children interpret proper and common names for unfamiliar objects. *Child Development*, 55, 1535-1540.
- Gleser, G. C., Gottschalk, L. A., & John, W. (1959). The relationship of sex and intelligence to choice of words: A normative study of verbal behavior. *Journal of Clinical Psychology*, 15, 183-191.
- Gutierrez-Clellen, V, & DeCurtis, L. (1999). Word definitional skills in Spanish speaking children with language impairment. *In Communication Disorders Quarterly*, 21 (1), 23-31.
- Halpern, D. F. (1986). Sex differences in cognitive abilities. Hillsdale, NJ: Erlbaum.
- Hauser, R. M., & Warren, J. R. (Eds.). (1997). *Socioeconomic Index of Occupational Mobility: A Review, Update and Critique*, 27. Cambridge: Blackwell.
- Herring, S. C. (1993). Gender and democracy in computer-mediated communication. *Electronic Journal of Communication*, 3(2). Retrieved October 3, 2014, from http://www.cios.org/getfile/HERRING_V3N293
- Holmes, J. (1995). *Women, Men and Politeness*. London: Longman.
- Huttenlocher, J., Haight, W., Bryk, A., Seltzer, M., & Lyons, T. (1991). Early vocabulary growth: Relation to language input and gender. *Developmental Psychology*, 27, 236-248
- Iris, M. A., Litowitz, B.E., & Evens, M. (1988). Problems of the part-whole relation. In M. W. Evens (Ed.), 237-288.
- Johnson, C. J., & Anglin, J. M. (1995). Qualitative developments in the content and form of children's definitions. *Journal of Speech and Hearing Research*, 38, 612-629.
- Katz, N., Baker, E., & Macnamara, J. (1974). What's in a name? A study of how children learn common and proper names. *Child Development*, 45, 469-473.
- Keil, F. C. (1985). Review of R. Lerner, On the nature of humanplasticity. *American Scientist*, 73, 488.
- Kleek, A. (1994). Metalinguistic development. In G. van Wallach & K. Butler, *Language learning disabilities in school-age children and adolescents: Some principles and applications*. New York, NY: Macmillan.
- Litowitz, B. (1977). Learning to make definitions. *Journal of Child Language*, 4, 289-304.
- Luria, A. (1976). *Cognitive development: Its cultural and social foundations*. Cambridge: Harvard University Press
- Makau, J. M. (1990). Reasoning and communication: Thinking critically about arguments. Belmont, CA: Wadsworth.
- Marinellie, S. A., & Johnson, C. J. (1998). Definitional skills of children with language impairments. Paper presented at the 19th Annual Symposium on Research in *Child Language Disorders*, Madison, WI.
- Marinellie, S.A. & Johnson C. (2002). Definitional skill in school-age children with specific language impairment. *Journal of Communication Disorders*, 35(3): 241-259.
- Marinellie, S. A., & Johnson, C. J. (2003). Adjective definitions and the influence of word frequency.

- Journal of Speech, Language and Hearing Research*, 46(5), 1061–1076.
- Markowitz, J., & Franz, S. K. (1988). The development of defining style. *International Journal of Lexicography*, 1(3), 253–267.
- Martin, A.V. (1976). Teaching academic vocabulary to foreign graduate students. *Tesol Quarterly*, 10, 91-97.
- McGhee-Bidlack, B. (1991). The development of noun definitions: A metalinguistic analysis. *Journal of Child Language*, 18, 417–434.
- McKeown, M. G. (1993). Creating effective definitions for young word learners. *Reading Research Quarterly*, 28, 16–31.
- McMillan, J. R., Clifton, A. K., McGrath, D., & Gale, W. S. (1977). Women's language: Uncertainty or interpersonal sensitivity and emotionality? *Sex Roles*, 3, 545–559.
- Mehl, M. R., & Pennebaker, J.W. (2003). The sounds of social life: A psychometric analysis of students' daily social environments and natural conversations. *Journal of Personality & Social Psychology*, 84, 857–870.
- Miller, G., & Gildea, P. (1987). How children learn words. *Scientific American*, 257(3), 94–99.
- Mulac, A. & Lundell T.L. (1986). Linguistic contributors to the gender-linked language effect. *Journal of Language and Social Psychology* 5, 81-101.
- Nagy, W., Anderson, R. C., & Herman, P. (1987). Learning word meanings from context during normal reading. *American Educational Research Journal*, 24, 237-270.
- Nelson, K. (1978). Semantic development and the development of semantic memory. In K. E. Nelson (ed.), *Children's language*, Vol. 1. New York: Gardner Press.
- Nippold, M.A. (1995). School age children and adolescents: norms of word definitions. *Language, Speech & Hearing Services in Schools*, 26, 320-325.
- Nippold, M. A. (1998). *Later Language Development: The School-age and Adolescent Years*. Austin, TX: Pro-Ed.
- Nippold, M. A. (2016). *Later Language Development: School-age children, adolescents, and young adults (4th ed.)*. Austin, TX: Pro-Ed.
- Nippold, M. A., Hegel, S., Sohlberg, M. M., & Schwarz, I. (1999). Defining abstract entities: Development in preadolescents, adolescents, and young adults. *Journal of Speech, Language, and Hearing Research*, 42, 473–481.
- Nist, S., & Olejnik, S. (1995). The role of context and dictionary definitions on varying levels of word knowledge. *Reading Research Quarterly*, 30, 172–193.
- Norlin, P.F. (1981). The development of relational arcs in the lexical semantic memory structures of young children. *JChLang*, 8, 385-402.
- Norrelegen, F., Lacerda, F., & Forssberg, H. (2001). Temporal resolution of auditory perception in relation to perception, memory and language skills in typical children. *Journal of Learning Disabilities*, 34, 359-369.
- Reynolds, A. & Paivio, A.U. (1968). Cognitive and emotional determinants of speech. *Canadian Journal of Psychology*, 22, 164-175
- Romaine, S. (2001). Language and social class. *International Encyclopedia of the Social & Behavioral Sciences*, 8308-8312. Retrieved 19/2/2014 from <http://users.ox.ac.uk/~romaine/isb309114.pdf>.
- Scott, J. A., & Nagy, W. E. (1997). Understanding the definitions of unfamiliar verbs. *Reading Research Quarterly*, 32(2), 184–200.
- Snow, C.E., Cancino, H., Gonzalez, P., & Shriberg, E. (1989). Giving formal definitions: An oral language correlate of school literacy. In D. Bloome (Ed.), *Literacy in Classrooms*, 233–249. Norwood, NJ: Ablex.

- Snow, C.E. (1990). The development of definitional skill. *Journal of Child Language*, 17, 697-710.
- Spacbe, G. (1943). The vocabulary tests of the revised Stanford-Binet as independent measures of intelligence. *Journal of Educational Research*, 36, 512-516.
- Storck, P.A., & Looft, W.R. (1973). Qualitative analysis of vocabulary responses from persons aged six to sixty-six plus. *Journal of Educational Psychology*, 65, 192-197
- Swartz, K., & Hall, A. (1972). Development of relational concepts and word definitions in children five through eleven. *Child Development*, 43, 239-244.
- Terman, L. (1916). *The measurement of intelligence*. Boston: Houghton-Mifflin.
- Walker, S. (2001). Cognitive, Linguistic, and Social Aspects of Adults' Noun Definitions. *Journal of Psycholinguistic Research*, 30, 2.
- Wardhaugh, R. (1998). *An introduction to sociolinguistics*. (3rd ed.) Blackwell
- Watson, R. (1985). Towards a theory of definition. *Journal of Child Language*, 12, 181-197.
- Watson, R. (1995). Relevance and definition. *Journal of Child Language*, 22, 211-222.
- Watson, R., & Olson, D. (1987). From Meaning to Definition: A Literate Bias on the Structure of Word Meaning. In R. Horowitz & S. J. Samuels (Eds.), *Comprehending Oral and Written Language*. New York: Academic Press.
- Wehren, A., De Lisi, R., & Arnold, M. (1981). The development of noun definition. *Journal of Child Language*, 8, 165-175
- Werner, H., & Kaplan, B. (1963). *Symbol Formation*. New York: Wiley.
- Wilson, J.A. (1975). Development and social interaction in categories of word definition. *British Journal of Educational Psychology*, 45, 268-278.