Metalinguistic skills in children: what develops?

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Abstract

The aim of this study is to test developmental changes in metalinguistic skills in primary school children, using the distinction proposed by Bialystock (1986) between «analyzed knowledge» and «executive control», as two components of metalinguistic awareness involved in different tasks. 60 first, second and third grade children were individually interviewed on two tasks. In the first task (guided word substitution) children were asked to substitute an underlined word with five alternatives, thus producing new sentences to be judged on their semantic and/or morpho-syntactical acceptability. In the second task (free word substitution), children have to find out the word that can be cancelled and substituted with a new one. In both tasks children have to express an acceptability judgement, giving reasons for it. Each subject receives two scores for each task. Results from two-way Anova show that the «control» component does not change much, while the «analyzed knowledge» changes significantly, although also third grade children are more aware of semantic than of morpho-syntactic features of language.

Key words: *Metalinguistic skills, Linguistic development, Analyzed knowledge, Executive control, Judgement of acceptability, Grammaticality, Meaningfulness, Linguistic explanation, Pragmatical explanation, Word substitution tasks.*

Destrezas metalingüísticas en el niño: ¿qué es lo que se desarrolla?

Resumen

El objetivo de este estudio es evaluar los cambios en el desarrollo de las habilidades metalingüísticas de los niños de la escuela primaria, utilizando la distinción propuesta por Bialystock (1986) entre el «conocimiento analizado» y el «control ejecutivo», como dos componentes de la conciencia/metalingüística involucrados en diferentes tareas. Se les hizo una entrevista a 60 niños de primero, segundo y tercer grado, en torno a dos tareas. En la primera tarea (sustitución inducida de términos) se les propuso a los niños que sustituyeran con cinco alternativas una palabra que estaba subrayada, entonces se trataba de producir nuevas frases que habían de ser juzgadas por su aceptabilidad semántica y/o morfosintáctica. En la segunda tarea (sustitución libre de términos) los niños debían eliminar una palabra que podía ser suprimida y sustituida por una nueva. En ambas tareas los niños tenían que dar un juicio de admisibilidad, justificándolo. Cada sujeto recibe dos puntuaciones por tarea. Los resultados desde un Anova de dos-vías muestran que el componente de «control» no cambia mucho, mientras que el «conocimiento procesado» cambia significativamente, a pesar de que además los niños del tercer grado son más conscientes de la semántica que de los rasgos morfo-sintácticos del lenguaje.

Palabras clave: *Destrezas metalingüísticas, Desarrollo lingüístico, Conocimiento procesado, Control ejecutivo, Juicio de admisibilidad, Gramaticalidad, Significabilidad, Explicación lingüística, Explicación pragmática, Tareas de sustitución de palabras.*

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INTRODUCTION

Theoretical framework

Recent research (Berthoud-Papandropoulou, 1978; Sinclair, Levelt & Jarvella, 1978; Markman, 1979) has used different types of task in order to study different metalinguistic skills: phonological segmentation, segmentation of sentences in words, judgement of sentence acceptability, detèction of incoherence in stories and discourse. Researchers agree that in all these tasks children show a growing skill - partially linked to literacy (Ehri, 1979; Olson, 1977) - in processing verbal information without relying only on pragmatic and contextual meanings but by focussing on phonological, semantic and morphosyntactic aspects of language as well. However, the variability of results in different studies, as related to the different kinds of task used or even to slight variations introduced in the same task, does not give us an homogeneous developmental picture (Sinclair, 1986). It is becoming evident that metalinguistic ability is a diversified set of different types of skill and each of them raises different developmental problems.

Bialystock (1986; Bialystock & Ryan, 1985) hypothesized that two different language skill components - the analysis of linguistic knowledge and the control of linguistic processing - are involved in different metalinguistic tasks. The first component has to do with information structured in representations, such as, for instance, the encoding of the parts of speech and the morpho-syntactic rules. The second component (executive control) is involved in processes of selective attention towards aspects of language relevant for the solution of specific problems (for instance, neglecting the meaning of a sentence and evaluating only its grammatical form). Metalinguistic tasks generally require both components, but their weight can vary in the different tasks. The research carried out by Bialystock (1986; 1987) has until now shown that there is a strong age effect on tasks requiring a higher level of linguistic analysis, whereas tasks that require high levels of control are solved better by bilingual children, probably because they have a deeper and more precocious experience of the arbitrariness of names and words: the same object or event has different names in different languages.

As regards development of analysed knowledge, the studies of Karmiloff-Smith (1979a; 1979b; 1985) showed that, although metalinguistic awareness does not have a central role in language acquisition, even in preschool years there is some kind of access to the representation of verbal information, as related to the acquisition of various morpho-syntactic components and discourse cohesion procedures. The role of this representational activity - which Karmiloff-Smith defines as «metaprocedural» (1986) - might explain the gaps (décalages) in performance in metalinguistic tasks which are apparently similar. For instance, when asked, a five year old child can successfully repeat the last sentence of a story, but only ten year old children can define «what is a sentence». This latter task requires a conscious access to specific features of verbal information and is thus linked to a higher level of

linguistic analysis. The first performance is related to less analysed knowledge, which only allows for a procedural access.

Judging sentence acceptability

In the present study, evaluation of semantic and grammatical sentence acceptability has been used in different settings in order to explore different roles of the control and analysis components, and different levels in the representation of verbal information.

Results of previous research show that detecting ungrammatical sentences is a more complex ability than detecting grammatical ones (Tunmer, Pratt & Herriman 1984; Hakes, 1980). Judging correct sentences is an easier task and it develops in children; in fact in preschool years children tend to refuse (Hakes, 1980) sentences which depict rather atypical events. According to Bialystok (1986), judging ungrammatical but meaningful sentences implies a deeper analysis of linguistic knowledge and is only solved by older children.

Grammatical but unmeannigful sentences are better judged by bilingual children and are supposed to require a great deal of control. Levels of representation of linguistic knowledge can be explored - according to Karmiloff-Smith (1986) - by taking into account both the explanations children give to their judgments and spontaneous or requested repairs to incorrect sentences. Previous research in this field (Karmiloff-Smith, 1979) shows that children's explanations shift from a focus on pragmatic and contextual meanings to semantic-relational aspects, until morpho-syntactic features of verbal messages are consciously accessed. However «metaprocedural» activity, which is better reflected by spontaneous repairs, always seems to precede metalinguistic comments and explanations; morpho-syntactic features, in particular, are the object of spontaneous repairs when they are not yet referred to in children's explanations.

According to us it is necessary to study both the role of different components and the possibility of different levels in the representation of verbal information in order to clarify *what develops* in the metalinguistic skills. Our research is oriented in this direction, using specific types of task in which it can be assumed that the relationship between analyzed knowledge and executive control varies: performance in these tasks is related to levels of linguistic representations, assessed through requests to explain the judgements previously offered. The aim of this research is to further explore the relationships between analysis of linguistic knowledge and control of linguistic processing, and at the same time to examine how both of them are affected by age.

METHOD

Subjects

Subjects of this experiment were 60 children chosen on the basis of age and school level from a primary school in a rural area near Rome. In detail:

first grade children with a mean age of 7.1
second grade children with a mean age of 8.1
third grade children with a mean age of 9.1

Procedure

Two tasks were administered in individual interviews.

Task 1: Guided word substitution

Subjects are asked to judge the acceptability of written sentences in which words are substituted by the child. For each of the six sentences - presented to the child in a fixed order - the experimenter proposed five different words that have different grammatical roles to the child; words were presented one at a time and had to be inserted in the given sentence. The experimenter said: «Read this sentence and substitute the underlined word with this one (the experimenter gives the card with the word to the child. Read the new sentence and tell me if the sentence is good or not». The child is then asked subsequently:

1. to insert the word in the sentence;
2. to read the «new» sentence;
3. to give a judgement of acceptability;
4. to give an explanation of his/her judgement.

Following in part the categorization proposed by Bialystock (1986), we give in the following types and examples of the five sentences that are produced through the word substitution[1]:

Example of a starting sentence:

«**The cherries** grow on the trees» (the syntagma in bold is to be substituted)

a) substitution: the nests
sentence: «the nests grow on the trees»

GE sentence: grammatically correct and ambiguous as to meaning; the sentence is incorrect as to meaning, but can elicit an encyclopedic «analogy» compatible with child world knowledge.

b) substitution: the apple
sentence: «the apple grow on the trees»
gM sentence: grammatically incorrect and acceptable as to meaning;

c) substitution: the clouds
sentence: «the clouds grow on the trees»
Gm sentence: grammatically correct and not acceptable as to meaning;

d) substitution: last year
sentence: «last year grow on the trees»
gm sentence: incorrect both grammatically and as to meaning;

e) substitution: the fruit
sentence: «the fruit grow on the trees»
GM sentence: correct both grammatically and as to meaning.

Task 2: Free word substitution

Subjects are requested to cancel one word of his/her choice from a written sentence and to insert a new word proposed by the experimenter: for each sentence two words were subsequently proposed. The experimenter said: «Read this sentence. Now I'll give you a word: you must read it. Then you must cancel a word from the sentence and insert this new word in the same place.» So the child must:

choose a place for the new word
read the «new» sentence
give a judgement of acceptability
an explanation of his/her judgement.

Task 2 consists of two separate subtasks of 6 and 3 items respectively: in the first subtasks one type of word (Type A) can produce - if inserted in the right place - GM sentences (i.e. sentences that are correct grammatically and as to meaning) and - if put in another place, gM sentences.

Example of subtask 1:

«When the children were taken to the country, they **picked up** a lot of coloured flowers»
Type A substitution = saw Type B substitution = sang
(A and B words should substitute the syntagma that is in bold).

In the second subtask the words that the child has to insert are both B words, that is words that, if inserted in the right place, which is *different* for the two words, produce Gm sentences.

Examples of subtask 2

«Jean's **grandfather** always uses glasses when he **reads** the newspaper»

First word substitution = robin
Second word substitution = embroiders
B words should respectively substitute the syntagmas that are in bold.

Following the model proposed by Bialystock we expect the control dimension to be less involved in the costrained Word substitution task than in the free Word substitution task. In the latter the child must modify a good structure in a bad one, whereas in the former the child must only judge the acceptability of a sentence. The control dimen-

sion is more involved in the free Words substitution task: the child must overcome the conflict between the semantic and the grammatical information focusing his/her attention only on the grammatical aspect even though this creates a semantically incorrect sentence.

Scoring and type of analysis

The interviews were audiotaped and the child's answers were codified in his or her own record. Each child receives four scores (two scores for each task).

The first score of the guided Word substitution task is an *acceptability score:* it refers to the child's ability to accept the items which are correct both grammatically and on the meaning level (i.e. GM sentences) and to refuse the items in which one of the two aspects is incorrect (i.e. GE, gM, Gm and gm sentences).

For each item we attributed the following scores:

0 - when the child accepts GE, gM, Gm and gm sentences or refuses GM sentences;
0.5 - when the child accepts GE, gM, Gm and gm sentences but s/he repairs it during the re-reading and thus creates a GM sentence;
1 - when the child refuses GE, gM, Gm and gm sentences or accept GM sentences.

Also the first score of the «free Word substitution task» was an *acceptability score:* it refers to the type of sentence generated by the child with the insertion of the new word. For each item we attributed the following scores:

0 - if the insertion generates a syntactically incorrect sentence;
1 - if the insertion generates a morphologically incorrect sentence, violating a morphological rule;
1.5 - if the insertion generates a morphologically incorrect sentence but s/he *repairs* it when reading the new sentence;
2 - if the child inserts the word in the correct place thereby generating a sentence either morpho-syntactically and semantically correct (with type A word) or only morphosyntactically correct with B words.

The second score involves the child's *explanation* and we use the same method of scoring for the two tasks. Partly following the work of Karmiloff-Smith (1980) we attributed to each item the following scores:

0 - no explanation: when the child only gives an acceptability judgment without further explanation;
1 - pragmatical explanation: when the child's explanation refers to familiar and protypical events or on stereotyped world knowledge;
2 - semantic compatibility: when the child' explanation is based on the «compatibility» of two occurring events; a score of 2.5 is attribu-

ted when the child infers the means for the actions depicted in the sentence and bases his/her explanation on the compatibility between means and goals;
3 - general lexical categories: when the child's explanation is based on the word's membership of a given lexical category or on its defining characteristics; a score of 3 is attributed when this generalization is implicit and a score of 3.5 when it is made explicitly;
4 - morpho-syntactic explanation: when the child's explanation refers to morpho-syntactical rules or features of the sentence; a score of 4 is attributed when this was implicit and a score of 4.5 when this is made explicitly.

We present in table 1 the examples for each of the «explanation» scores here described.

TABLE I

Examples of categories attribution to children's explanations. Sentence to be explained: «The tables are on the branches of the trees» — Substitution word: «tables».

Category	Explanation given by the child	Score
No explanation	* «I don't know, it is not well..»	0
Pragmatic explanation	* «No, I have never seen it»	1
Semantic possibilities	* «No, because the branches would break»	2
	* «No, because the tables have not legs to get up on the branches»	2.5
Use of general lexical category	* «No, it is not well because the tables are not birds»	3.5
Morpho-syntactic explanation	«Yes, it is well because they ** are many»	4
	«Yes, because it is plural as the word that there was before»	4.5

*: Children justify their refusal of the sentence produced by the substitution word.
**: «they» refers to the tables.

Data analysis

For task 1 two-ways ANOVA (age [3 levels] × sentence type [4 levels]) were applied to the two dependent variables: scores of judgement of acceptability and explanation scores.

For task 2 two-ways ANOVA (age [3 levels] × words type [3 levels]) were applied to the two dependent variables: scores of free substitution and explanation scores on both subtasks.

Hypotheses

On the basis of the differences between the two tasks we made the following hypotheses.

1) Correctness of judgment on the Guided word substitution task will be lower (particularly for the younger children) with gM and GE sentences in which there is a conflict between grammatical and semantic aspects. Both kinds of sentence require more analysed knowledge; the former on a morphosyntactic level (which allows for the detection of the ungrammaticality), the latter on the semantic level (which allows for the detection of the semantic incompatibilities in a sentence which depicts very prototypical events). We do not expect differences in the level of correctness of judgment between age groups with Gm or gm sentences, which could be rejected even if one focuses only on the semantic aspect.

2) Correctness of child generated substitutions in the Free word substitution task requires more control particularly with B1 and B2 words; for this reason we expect the level of correctness to be lower with B words than with A words, particularly in younger children.

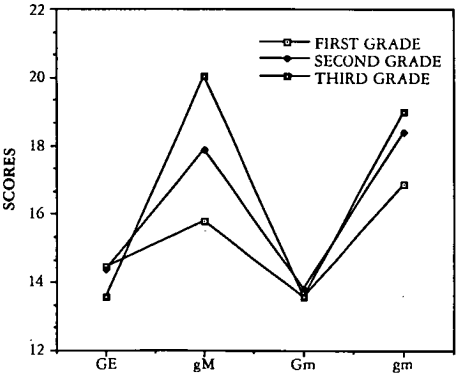
3) The use of a higher level of explanations can be regarded as a measure of higher analysis of linguistic knowledge and consequently it will be affected by age and schooling: we expect that there will be differences between age groups in the level of explanations.

RESULTS AND DISCUSSION

Guided word substitution task: acceptability score

The distribution of the acceptability score in the different items of the «word substitution task» confirms our hypothesis: all the children of the three age groups reject Gm and gm sentences and so reach high score levels on these sentences (see Fig. 1).

FIGURE 1



Mean correctness scores for Guided word substitution task

Interaction AGE X TYPE OF SENTENCE:
F = 4.157; DF = 6; P < .001

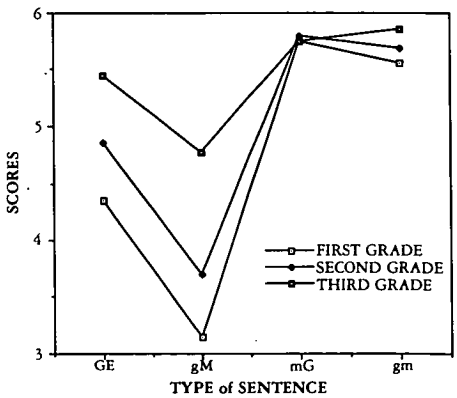
On the other hand there are *differences* between the age groups in the GE and gM sentences. The correctness of the acceptability judgment in GE sentences, which required their rejection, increases significantly with age: older children are more able to analyze the semantic aspects only, implicitly rejecting any encyclopedic «analogy» even through it is compatible with their previous world knowledge. We hypothesize that this ability is related to a system of knowledge representations based on semantic relationships rather than organized mainly through contextual or «scriptal» links (Nelson & Gruendel, 1979). For this reason we suggest that this ability is related to the growing capacity to distinguish between «text» (what is said) and «context» (what context suggests) (Olson, 1977).

An unexpected result was that IIIrd grade children had the highest score with the gM sentences but did not reach the maximun of a perfect performance (score 6): in fact 63.6% of gM sentences (21 out of 33) were correctly repaired by these children during sentence reading and so were judged acceptable. These repairs occur only in 40% of the gM sentences for the first grade children and in 41% for the second grade shildren: the difference between first and third grade children (E = 2.38) is statiscally significant ($p<.01$), while the difference between second and third grade children (E = 2.01) is significant at $p<.05$. It seems that children of all ages have the same difficulties in using executive control dimension upon gM sentences: however the older children also use a great deal of analysed knowledge which allows them to operate repairs upon sentence reading.

Free word substitution task: acceptability score

The distribution of the substitution score in the different items in the Free word substitution task confirm our hypothesis: with sentences generated with type B words (called B1 for subtask 1 and B2 for subtask 2) children of the three age groups obtain lower score than with type A words (see Fig. 2).

FIGURE 2



Mean correctness scores for Free word substitution task

AGE: F= 9.301; DF = 2; P < .001
TYPE of WORD: F = 28.762; DF = 2; P < .001

This result can be explained in the following way. When children have to insert the type B word which might create a Gm or a gM sentence, they produce more often (or they prefer) a gM sentence instead of the corresponding Gm sentence. For example, when asked to insert the word «papà» (daddy) for the sentence «Il giardino di mia nonna è pieno di fragole rosse» (The garden of my grandmother is full of red strawberries»), they produce more often a sentence which contains a morphological error like «Il giardino di *mia* papà pieno di fragole rosse» («mia» is a female adjective and «papà» is a male noun) rather than «Il papà di mia nonna é pieno di fragole rosse» («The daddy of my grandmother is full of red strawberries»). It has to be stressed that it was in these cases that children tended to repair correctly (25% first grade, 30% second grade and 36% third grade) the gM sentence during the reading of it. For example, they read «il mio papà» instead of the written syntagma «il mia papà». Only the difference between first and third grade children (E = 0.85) is statiscally significant $p<0.05$.

The higher results of third grade children thus seem so mainly due to the fact that they make more repairs than the other age groups during sentence reading. To these repairs we attributed a higher score when they produce a correct sentence. This result suggests that the control dimension remains the same in the different age groups, while the implicit metalinguistic knowledge that permits the spontaneous repairs during reading increases with age, as in task 1.

Explanation scores

Our results show a significant interaction between levels of explanation and kind of sentence explained. For this reason we will explain results separately for the two tasks and for different type of sentences.

Guided word substitution task

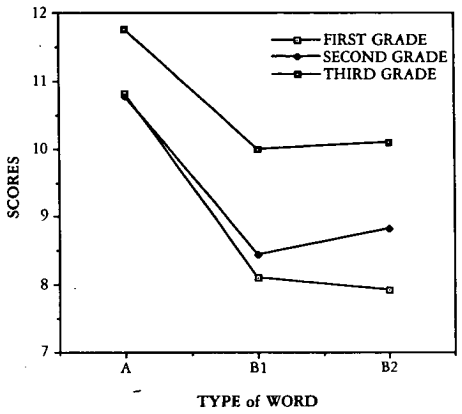
The distribution of the explanation scores for GE e Gm sentences does not reveal differences between age groups: all children achieve the lower explanation scores with these sentences. It must be remembered that these sentences are morpho-syntactically correct and require semantic explanations.

On the other hand there is a statiscally significant difference with gM sentence, in which older children obtain the higher level of explanation score (see Fig. 3).

Looking at the frequencies, we find that, for these sentences, morpho-syntactic explanations are 59% with third grade children, 41% with second grade children and 29% with first grade children (see Tab. 2).

With gm sentences all children obtain a high level of explanation score: this suggests that most children of all age group can more easily focus their explanation on the morphosyntactic aspect when the

FIGURE 3



Mean explanation scores for Guided word substitution task

Interaction AGE X TYPE OF SENTENCE

F = 4.165; DF = 6; P < .001

TABLE II

Percent frequencies of explanation categories in different types of sentences for the «Words constrained substitution task».

	Types of sentence											
	GE			gM			Gm			gm		
Explanation category	I	II	III	I	II	III	I	II	III	I	II	III
No explanation	0	0	.08	0	0	0	0	0	.08	.03	.02	0
Pragmatic explanation	.23	.22	.28	.30	.21	.13	.26	.20	.21	.17	.17	.17
Semantic possibilities	.25	.32	.32	.12	.12	.13	.32	.39	.47	.15	.10	.14
Use of general lexical category	.47	.44	.37	.25	.14	.39	.38	.30	.29	.19	.15	
Morpho-syntactic explanation	.04	.01	.01	.29	.41	.59	.02	.02	0	.35	.50	.53

Legend: I = First grade children
II = Second grade children
III = Third grade children

meaning level is also incorrect. When the meaning is correct second grade children tend to give less explanations based on morpho-syntactic aspects. In fact, second grade children achieve the same frequencies as third grade (50 % vs 53 % in gm sentencies), while there are differences in the frecuencies in gM sentences (40.8 vs 59.2).

Free words substitution task: explanation score

The distribution of the explanation scores show a difference in B words between subtask 1 and subtask 2 (B1 and B2 words respectively). With B2 words children obtain significantly *lower* explanation scores than with B1, although there are no differences in the two subtasks as regards correctness score (see Fig. 2). We are not able to give an interpretation for this unexpected difference: we can only hypothesize an effect due to some specific content item, that should be better controlled in further research.

As regards children's explanations produced in this more engaging task, we think it interesting here to provide more detailed descriptive information about the distribution of the types, which is developmentally important. The most frequent type of explanation is, for all three age groups, the explanation that refers to the word's membership of a given *lexical category,* followed by the explanation based on the semantic compatibility between two events (see Tab. 3).

TABLE III

Frequencies of explanation categories in the «Words free substitution task»

Explanation Category	First grade	Second grade	Third grade
No explanation	8	8	1
Pragmatic explanation	43	37	27
Semantic possibilities	68	57	42
Use of general lexical category	227	238	250
Morpho-syntactic explanation	14	20	40

It is interesting to look at the explanation distribution across the different *types of sentence* that have been actually *generated* by the children (see Tab. 4). There is a difference between age groups only with gM sentences: for example with the sentence «Quando cade la neve i bambini si divertono a giocare con *Io* palloncini», in which there is a violation of a morphological rule of concordance. With this type of sentence the older children produce twice as many morpho-sintactic explanations as the older age groups.

CONCLUSIONS

Our results help to confirm that two different dimensions, executive control and analysed knowledge, are differently affected by metalinguistic development. The control dimension - mainly investigated

TABLE IV

Frequencies of explanation categories in different types of sentences actually produced by children in the «Words free substitution task»

Sentences produced with «A» words

	GE			gM			Gm			gm		
Explanation category	I	II	III I	I	II	III	I	II	III	I	II	III
No explanation	0	0	0	2	1	0	0	0	0	0	2	0
Pragmatic explanation	0	0	0	2	2	0	2	1	0	2	2	0
Semantic possibilities	3	2	0	4	4	0	4	3	2	6	6	4
Use of general lexical category	7	6	2	5	4	2	2	3	2	78	80	100
Morpho-syntactic explanation	0	0	0	1	1	3	0	0	0	2	3	5

Sentences produced with «B1» words

	GE			gM			Gm			gm		
Explanation category	I	II	III	I	II	III	I	II	III	I	II	III
No explanation	3	2	0	0	0	0	0	0	0	0	1	0
Pragmatic explanation	1	0	0	2	1	0	0	0	0	4	1	0
Semantic possibilities	3	1	1	6	4	3	2	4	5	10	4	2
Use of general lexical category	11	11	3	12	10	8	15	14	9	42	57	72
Morpho-syntactic explanation	0	1	2	7	8	14	0	0	0	2	1	1

Sentences produced with «B2» words

	GE			gM			Gm			gm		
Explanation category	I	II	III	I	II	III	I	II	III	I	II	III
No explanation	2	1	0	1	0	0	0	0	0	0	1	1
Pragmatic explanation	6	5	0	9	7	4	1	2	8	14	16	15
Semantic possibilities	5	5	1	9	4	4	2	4	2	14	16	18

Sentences produced with «B2» words (Cont.)

	GE			gM			Gm			gm		
Use of general lexical category	7	5	1	4	3	2	10	10	8	34	35	41
Morpho-syntactic explanation	2	0	4	0	5	10	0	0	0	0	1	1

Legend: I = First grade children
II = Second grade children
III = Third grade children

in our research through the insertion of type B words in the Free word substitution task - did not change much within the age range that we studied and is not well acquired even at 9 years: children of all three age groups prefer to create grammatically incorrect but semantically acceptable sentences instead of grammatically correct but semantically inacceptable ones. Thus it seems that children of all ages experience some difficulties in «forgetting» the semantic aspects and in focussing their attention only on the grammatical ones. This result confirms Bialystock's results (Bialystock, 1986).

As regards analysed knowledge, our results suggest that there are two types of information which undergo a change in representation. The first - revealed by the greater ability of third grade children to judge the GE sentences as being incorrect - refers to the passage from knowledge representation based on familiar events like «scripts» to a knowledge organization based on semantic links, i.e. going from weak associational relationships to more semantically organized ones.

The second refers to the morpho-syntactic aspects of the language system: this one is not explicitly represented, even in third grade children who produce morpho-syntactic explanations less frequently than other types of explanation. Nevertheless third grade children have a deeper access to the morhosyntactic features of language; in fact they get better results in judging the gM sentences as being incorrect and in repairing the grammatically incorrect sentences during reading. This latter result confirms those of Karmiloff-Smith (1986) and suggests that there is a «metaprocedural» phase in «metalinguistic development» that is completely distinct from one of metalinguistic awareness. Our data suggest that for 9 year old children the semantic aspects of the language system are objects of metalinguistic awareness, whereas the morphosyntactic aspects are still mainly objects of a metaprocedural activity.

Notes

[1] We adopted this conventionality to distinguish the different sentences and their consequent combination:
G = gramatically correct
g = grammatically incorrect
M = Acceptable as to meaning
m = not acceptable as to meaning
E = encyclopedically, but not semantically acceptable.

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Resumen extenso

Investigaciones recientes (Berthoud-Papandropoulou, 1978; Sinclair, Levelt & Jarvella, 1978; Markman, 1979) han empleado diferentes tipos de tareas para estudiar distintas habilidades metalingüísticas: segmentación fonológica, segmentación de frases en palabras, juicios acerca de la aceptabilidad de la frase, descubrimiento de incoherencias en historias y discursos. En diferentes estudios sobre juicios de la aceptabilidad de la frase, Bialystock (1986; Bialystock & Ryan, 1985) planteó la hipótesis de que la resolución de las diversas tareas metalingüísticas planteadas involucra dos componentes distintos de las habilidades lingüísticas: el análisis de los conocimientos lingüísticos y el con-

trol del procesamiento lingüístico. El primero de tales componentes tiene que ver con la información estructurada en representaciones, como pueden ser, por ejemplo, la codificación de los elementos del discurso y las reglas morfosintácticas. El segundo (control ejecutivo) está relacionado con los procesos de atención selectiva sobre determinados aspectos del lenguaje relevantes para la solución de problemas específicos (por ejemplo, la práctica de obviar el significado de una frase y evaluar únicamente su estructura gramatical). Las tareas de índole metalingüística requieren, por lo general, de ambos componentes, pero el peso de cada una varía en las diferentes tareas.

El objetivo de este estudio es evaluar los cambios en el desarrollo de las habilidades metalingüísticas de los niños de la escuela primaria, utilizando la distinción propuesta por Bialystock (1986) entre el «conocimiento procesado» y el «control ejecutivo», como dos componentes del conocimiento involucrados en diferentes tareas. En el presente estudio, la evaluación de la aceptabilidad semántica y gramática de la frase ha sido utilizada en diferentes escenarios para explorar distintas funciones del control y el análisis de los componentes, y diferentes niveles en la representación de la información verbal.

Se les hizo una entrevista a 60 niños de primero, segundo y tercer años de primaria, en torno a dos tareas. En la primera tarea (sustitución inducida de términos) se le preguntó a los sujetos que evaluaran la aceptabilidad de varias frases escritas en las que determinadas palabras han sido sustituidas por el propio niño. Para cada una de las seis frases en total —presentadas siempre en el mismo orden—, el experimentador proponía cinco palabras distintas, que representaban distintas funciones gramaticales para el niño; las palabras eran presentadas una a la vez y debían insertarse en la frase de que se tratara (tarea de sustitución inducida de términos). Se les pedía entonces a los niños que dijeran nuevas frases que habían de ser juzgadas en función de su admisibilidad semántica y/o morfosintáctica, y dar una explicación justificativa de su juicio. En la segunda tarea (sustitución libre de términos) los niños debían eliminar una palabra que podía ser suprimida y sustituida por una nueva. La segunda tarea consiste en dos subtareas separadas de 6 y 3 ítems respectivamente: en la primera de ellas, un tipo determinado de palabras podía suscitar —de insertársela en el lugar apropiado— frases que son correctas desde el punto de vista gramatical y en cuanto al significado y otro tipo de palabra que al colocarla en el lugar correcto va a producir frases que son gramaticalmente correctas pero sin significado. En la segunda subtarea las palabras que el niño tiene que insertar son palabras que una vez insertas en la posición gramatical correcta, *distinta* para ambas palabras, suscitan siempre frases gramaticalmente correctas pero sin significado. También en esta segunda tarea los niños tienen que expresar juicios de aceptabilidad dando razones para ello.

Todas las entrevistas fueron grabadas y las respuestas de los niños codificadas en registros individuales. Cada niño recibió cuatro puntuaciones posibles (dos por cada tarea). La segunda escala de puntuación de cada tarea alude a la *explicación* del niño y el mismo método de puntuación es utilizado para las dos tareas, variando desde la no ex-

plicación o explicaciones de índole pragmática hasta las explicaciones morfo-sintácticas.

Siguiendo el modelo propuesto por Bialystock esperábamos que la dimensión de control estaría menos involucrada en la tarea de sustitución inducida de términos que en la de sustitución libre de términos. En la última el niño debe modificar una buena estructura en una mala, mientras que en la primera el niño debe solamente juzgar la admisibilidad de una frase. La dimensión de control está involucrada más en la tarea de sustitución libre de palabras: el niño debe superar el conflicto entre la información semántica y la gramática al centrar su atención solamente en el aspecto gramatical aun cuando esto crea una frase semánticamente incorrecta.

En ambas tareas se aplicó un ANOVA de dos vías (edad [3 niveles] × tipo de frase [4 niveles en la primera tarea y 3 niveles en la segunda]) a las dos variables dependientes: puntuaciones acerca del juicio de aceptabilidad y puntuaciones acerca de la explicación.

Nuestros resultados pueden contribuir a confirmar que el desarrollo metalingüístico afecta diferencialmente a dos facetas distintas: el control ejecutivo y el conocimiento ya procesado. La faceta del control —que en nuestro estudio fue investigada básicamente a través de la inserción de palabras del tipo B en la tarea de sustitución libre de términos— no varió sustancialmente en el rango de edad examinado y no está bien afianzada ni siquiera a los 9 años: los niños de los tres grupos de edad estudiados prefirieron, todos ellos, generar frases incorrectas desde el punto de vista gramatical aunque admisibles en términos semánticos, en lugar de frases gramaticalmente correctas aunque inadmisibles desde el punto de vista semántico. Así pues, parece ser que los niños de cualquier edad experimentan ciertas dificultades para «olvidarse» de los aspectos semánticos y centrar su atención únicamente en lo gramatical. Estos resultados confirman los de Bialystock (Bialystock, 1986).

En lo que se refiere al conocimiento ya procesado, nuestros resultados sugieren que dos de los tipos de información en juego experimentan algún cambio en la forma de ser representados. El primero —manifiesto en la mayor aptitud de los niños del tercer año para enjuiciar como incorrectas las frases GE— alude a la transición desde una forma de representar el conocimiento basada en acontecimientos familiares al sujeto, que funcionan como un auténtico «guión», a una elaboración del conocimiento basada en relaciones semánticas, esto es, el paso de los nexos asociativos más débiles a los que se hallan semánticamente elaborados.

El segundo se refiere a los aspectos morfo-sintácticos del sistema que configura el lenguaje; esto último no está explícitamente representado en la muestra, ni siquiera en los niños del tercer año que generan explicaciones morfo-sintácticas con menos frecuencia que otros tipos de explicación. Así y todo, los niños del tercer año profundizan mayormente en los aspectos morfo-sintácticos del lenguaje; de hecho, obtienen mejores resultados al enjuiciar como incorrectas las frases gS y corregirlas gramaticalmente durante la lectura. Esto último confirma los hallazgos de Karmiloff - Smith (1986) y sugiere la existencia de

una fase «metaprocedimental» en el «desarrollo metalingüístico», absolutamente distinta de otra fase de consciencia metalingüística. Nuestros datos sugieren que, al menos en los niños de 9 años, existe una consciencia metalingüística de los aspectos semánticos del lenguaje, aunque los rasgos morfo-sintácticos son en esencia, aún entonces, objeto de la actividad metaprocedimental.