

# *Cognitive linguistics and the language learning process: a case from economics*

Honesto HERRERA and Michael WHITE  
Universidad Complutense de Madrid

## ABSTRACT

This paper deals with the contribution of cognitive linguistics to the learning process. If conceptual metaphor pervades the way we think, speak or act, we consider that it should also have some influence on the way we learn. An empirical study was carried out with sophomore students at the Faculty of Economics, UCM, to confirm if conceptual metaphor had some relevance in the process of storing and retrieving information at the level of surface metaphor. Our findings indicate that our students recall more lexical items and that their performance in a test is improved if the teaching process is informed by a cognitive approach highlighting structural relations rather than a traditional approach where the teacher would merely supply comments ad hoc on the individual items and on the text.

## 1. INTRODUCTION

### 1.1. Metaphor in the press

Nowadays metaphor has shaken off the constraints of its traditional association with literature and is seen, at least among cognitive psycholinguists, as a dominant and widespread feature of everyday language (Lakoff and Johnson 1980), including that of technical or academic discourse (Henderson 1994). In this study, the academic and scientific level is not overlooked but we are mainly concerned with the press level in the context of the economics register (Kennedy & Bolitho 1984). Editorials and reports on economic issues in the press cannot take readers for granted. Abstract concepts need to be

presented in terms of concrete or experiential phenomena to make the text not only accessible but also more attractive to newspaper audiences whereas in the case of the academic language of manuals priority goes to accurateness and exhaustiveness in the use of terms. Thus, academic and scientific assumptions give way, in the case of press coverage, to a communicative system in which a good deal of shared knowledge between the writer and the reader is required to understand the relationship between the source and target domains of the metaphor. As laypersons in business and economics, readers will always need concrete events or entities as a point of departure to understand abstract mental phenomena, and this is precisely what journalists provide.

## **1.2. Metaphor: a handicap or a useful tool in the classroom**

Hewings (1990) states that economics is a subject that many students find difficult because of the frequent use of non-literalness of economics language. This insight apparently clashes with the cognitive approach postulates of Lakoff and Johnson (1980), in which metaphors are seen as tools that facilitate the understanding of a text. Nevertheless, the idea of difficulty posed by this circumstance is quite understandable in the case of students who are newcomers to economics because of the lack of familiarity with the field. Furthermore, since linguistic metaphors ask the reader to go beyond literalness, a shared knowledge or an implication context is thereby required (Black 1962, 1979). Added difficulty is to be presupposed in the case of the second language learner, since a demand is made on these learners to familiarise themselves with the cultural background which will allow them to discover the salient features that relate the source and target domains of the metaphor and overcome the difficulty posed by the non-literalness of the language of business and economics. Once this cultural base is obtained, metaphors can really facilitate the understanding of a text, since they can serve as useful tools to understand the relations between the semantic fields of Vehicle and Topic (Kittay 1987). Then, expressions of the types: 'Juliet is the sun' or 'Asia is walking wounded' will have a reading beyond the literalness of the text. Furthermore, our concern with examples of this nature will not follow the logical view—the objective semantic features stored in our memory—but will be guided by the experiential view of words since this provides a much richer and more natural description of their meanings (Ungerer and Schmid 1996: xi). Neither is Juliet the sun nor is Asia a wounded human being. In the case of Juliet we take for granted that she is the light, the reference, the orbital centre of someone or something whereas the Asian case reveals underlying economic information in a poignant way. Journalists, one of whose aims is to maintain the reader's attention, will constantly recur to linguistic metaphors through plastic and vivid illustrations

rather than writing accurate and dense, if not boring, reports. Expressions such as: ‘sales growth *cools*, *healthy* growth or *aggressive* growth’ will be preferred to the expressions of the same ideas in more literal terms.

### 1.3. Need to introduce metaphor into the classroom

Attempts to tap the potential of metaphor for pedagogical aims continue to be “the exceptions which by no means reflect mainstream interests” as Lindstromberg (1991:209) stated almost a decade ago. Nevertheless, significant developments in this direction, as we shall see in the next section, are taking place. Quite recently Boers (1997a) showed how sensitive students’ classroom activity may be to metaphor use. Framing an economic issue in terms of one or other metaphor decisively influenced students’ response, he found. Thus, steps are being taken in the field of applied linguistics to find out the pedagogical implications that could be derived from the different theoretical approaches.

Learners, we feel, should not be shielded from the difficulties inherent in some metaphors and should be stimulated to look for underlying interpretations perhaps in a graded process beginning with the easier ones. Students’ initial predictions about the meanings of some of the these expressions may be inaccurate, but this drawback would be completely offset by the fact that teaching learners what they need to know to make ‘authentic’ English accessible to them would be both economical and effective (Horowitz 1989). Furthermore, it could be the right moment to highlight correspondences between appropriate structures in L1 and L2 and instances where conventions between L1 and L2 differ. Subsequently teaching should focus on conceptual metaphors and linguistic expressions in L1 and L2 to see if they fulfil one of the Deignan et al. (1997: 352-60) frameworks on correspondences:

- Same conceptual metaphor and equivalent linguistic expression
- Same conceptual metaphor but different linguistic expression
- Different conceptual metaphors

## 2. RESEARCH FIELD

Much research has been done on the process of identifying whether we are dealing with conceptual or linguistic metaphors, proto-metaphors or surface metaphors or whether some conceptual metaphors can be considered universal (Cameron and Low 1999, 1999 eds.). At the moment the dynamic interrelationship between metaphor and metonymy is another prime concern (Barcelona (ed.) 2000 and Ruiz de Mendoza 1987). However, we will not be

going into these issues as our concern is business and economics literature and more precisely with a focus on the pedagogical implications connected with this register. Approaches to how to deal with some business and economic topics in the classroom are found in Henderson (1982), Henderson (1994), McCloskey (1985), Samuels (ed.) (1990), Garud (1994), Smith (1995), Greenberg (1995), Hill and Levenhagen (1995). Since our task is focused on assessing the influence of a cognitivist perspective on the efficacy of teaching we will centre our attention on what has been done along these lines.

The drive to take advantage of the pedagogical potential of metaphor is evident in two ways. Firstly, more and more publications on second language teaching and acquisition in general and on languages for specific purposes are explicitly calling for attention to metaphor (Lewis 1993: 198, McCarthy 1990/1994: 27-30, Nattinger 1988: 73-75, Dudley Evans & St. John 1998: 84). Secondly, more and more actual work by metaphor researchers are addressing the explicit role and potential of metaphor in SLA & SLT (Low 1988, 1999, Trosborg 1985, Lindstromberg 1991:209ff, Jäkel 1993, White 1994, Kövecses and Szabo 1996, Ungerer and Schmid 1996:267ff, Boers 1997a, 1997b, 2000, Roldán Riejos 1999, Charteris-Black 2000, Lazar 1996, Boers and Demmecheleer 1998). Furthermore, these very same developments are clearly evident in International conferences and among special interest groups, such as ICLA conferences and monographic conferences on this subject, such as: Koblenz-Landau 27-30 March 2000, Antwerp 12-14 April 2000, Madrid 17-20 May 2000 among others.

With this research on the pedagogic implications of metaphor as a starting point, we may single out the tendencies in the field under the headings of the following subsections.

## **2.1. Metaphoric competence. Awareness**

The need to teach learners to work with metaphor in the target language has been argued for several years, both at a general level (Alexander, in a series of papers in the early 1980s; Hatch and Brown, 1995; Low, 1988; MacLennan, 1990, 1993). Low (1988) has tried to develop a notion of metaphoric competence, he discusses the pervasiveness and centrality of metaphor, and argues that students need to develop “metaphoric competence”: awareness of metaphor, and “strategies for comprehending and creating metaphors”. MacLennan (1994) advocates explicit classroom attention to metaphor, on the grounds that it is an integral part of language. Lazar (1996) notes that there is often a cultural dimension of metaphors which students need to be aware of if they are to make sense of many expressions. Kövecses and Szabo (1996:351) have recently put forward the following suggestion:

The answer might be that people *need to be made aware* of the metaphor-approach before they can put it to use. The passive existence of metaphorical motivation, that is, the mere presence of conceptual metaphors in the mind, does not seem to be sufficient for their active use in the learning of a foreign language. Students might need to be taught about the notion of conceptual metaphors in an explicit way, before they can use the strategy of employing metaphors and discovering new ones in the foreign language.

There is a certain parallel between this proposal and that of I.A. Richards (1936:94-5) so many years ago when he called for the raising of awareness to advance metaphor study. Thus, we may conclude that the raising of awareness of metaphor is one of the initial steps favoured in the process of tapping the pedagogical potential of metaphor.

## 2.2. Correspondences between L1 and L2

The development from the awareness of metaphor presence to its production is a second trend in this field. Research has also been oriented towards comparison rather than identification. Thus, Moss (1992) shows how English-Spanish cognates are quite common in the academic and technical field of commerce. Deignan et al. (1997) explore the correspondence between English and Polish. Charteris-Black and Ennis (forthcoming), analyse the different behaviour of Spanish and English language on Financial Reporting and our own work has been studying different economic fields such as those of economic crises (White 1999), market behaviour (White 1997) or mergers and acquisitions (Herrera & White 1998 and forthcoming).

## 2.3. The learning process

Metaphors are a way of encapsulating cultural and epistemological ideas, therefore if learning efficiency increases when input is meaningful and linked together, then organisation in terms of metaphor should be more efficient (Boers 1997 a, b; Evans and Evans 1989; MacLennan 1994). Techniques proposed vary from group discussion (Boers and Demecheleer 1998), gap-filling worksheets (Lazar 1996), labelling (Boers and Demecheleer 1998; cross-linguistic comparison (Deignan et al. 1997) and working with mind maps (Niemeier 1997). The primary focus of this work has inevitably been to help students to learn L2 vocabulary. Our case will focus on recurrent modifiers of growth in certain frameworks.

### 3. THEORETICAL APPROACH TO 'GROWTH'

In a theoretical study of the concept 'growth' (White & Herrera) we show how the term has come to be so perfectly domiciled in economic discourse and such is its pervasiveness and metaphorical force that it provides an ideal case for work on the possible implications of metaphor awareness on the learning process of our students.

In that study, we show the concept of growth in economics literature to be composed of a network of interrelated metaphors, each of which in turn was susceptible to indefinite realisations as the following fig. indicates:

Source domain	Target domain	Metaphor	Metaphoric expression
Plant life	Economy	ECONOMY IS A PLANT	Economic <i>growth wilts</i> under higher taxation
Animal life	Economy	ECONOMY IS AN ANIMAL	The measure is intended to <i>rein back runaway growth</i>
Person	Economy	ECONOMY IS A PERSON	<i>Depressed growth</i> is in need of a shot in the arm
Mechanics	Economy	ECONOMY IS A MECHANICAL PROCESS	Low interest rates <i>spark growth</i>
Motion	Economy	ECONOMY IS A DYNAMIC AGENT	Strong exports <i>accelerate growth</i>

Fig. 1. Synopsis of metaphoric configuration of growth

Most basically, a growth scenario would evidence a cyclic situation within which certain factors would contribute to and foster effective growth while others would impede or diminish that possibility. These factors are understood in terms of increase and decrease by the positive or negative modifiers that collocate with growth. Therefore, a teaching task on modifiers in this domain must take into account that many realisations of ECONOMY IS A LIVING ORGANISM follow the schema of polarity between the modifiers related to the semantic field of increase and those related to the semantic field of decrease, whereas linguistic realisations of ECONOMY IS A MECHANICAL PROCESS are associated with backward-forward or downward-upward movements in either a linear or a curved perspective. Furthermore, it is quite feasible to understand and explain the incremental or decremental process of growth in terms of life cycle:

*birth ⇒ development ⇒ zenith ⇒ decline ⇒ death*

A typical modifying pattern of growth would be as follows:

(+)	(-)
New Strong Healthy Steady Sustained	Stagnant Wilting Waning Stunted Faltering
GROWTH	GROWTH

Fig. 2. Positive and negative modification of growth

The issue now arises as to how this information could inform a learning process and we shall pose this question in the following section.

#### 4. OBJECTIVE

With these frameworks and schemas highlighting the correspondences between living organisms and growth, our purpose will be to take a step beyond the dimension of awareness and comparisons to that of the learning process and our study is focused on observing the following:

1. Relationship between recall and frequency
2. Students’ conceptualisation of positive and negative modifiers
3. Degree of difficulty and recall performance
4. Recall level evidence by our students
5. Performance in a test where cognitive frameworks rather than traditional ones are used in our teaching.

#### 5. METHODOLOGY

Given the profusion of growth modifiers, as shown in our theoretical approach to the conceptual and linguistic metaphors which the concept generates in Economics, the next question is: can we actually facilitate the learning of some of the growth modifiers in the classroom if we use the cognitivist frameworks described above? Our main hypothesis concerning this issue was that the help

given to students through the frameworks –motivation for Kövecses and Szabó (1996), transparency for Irujo (1993)– should produce better results than recurring to the traditional system of explanation and translation.

## 5.1. Subjects

We tested our hypothesis with two sophomore 25-group of Economics students. Each group belonged either to class A or to class B, both classes being of the same level and distributed to different classrooms following the order of their enrolment in the Administration Office. Prior information had also shown their knowledge of English to be basically similar. However, the experimental group's level did show up to be slightly lower according to the data of the first part of our study. Both groups had the same teacher. The study was carried out at mid-term of the first semester. By this time, they had finished their first year at the Faculty and would have taken two terms of three hour-weekly English Language classes. Consequently they were supposed to have quite a good deal of information of the subject taxonomy and an acceptable level of English for Business and Economics. To avoid the halo effect<sup>1</sup> (Brown 1988) anonymity was required. As the task involved writing, assessing the degree of difficulty, writing again and filling in the missing modifier of 20 sentences, students were told to write one letter and two figures at the head of each of the administered handouts and this code enabled us to monitor the performance of each student. Motivation was ensured since they were told that the test could be taken as one of the activities of the curricula if the performance of the group was satisfactory.

## 5.2. Material

The material used in our empirical approach was mainly taken from financial and business press reports<sup>2</sup>. As the term growth as such is associated with a very abstract concept and it needs the presence of modifiers to capture the meaning we focused our attention on modifiers. We ran checks of a full year's edition of *The Financial Times* (1997) seeking out the instances where growth appeared aligned with the different collocations, which our study of the subject over the previous years had provided. The check consistently showed an enormous bias in favour of the more conventional forms and those of positive connotations, while, at the other end of the spectrum, scarce if any and no instances of the more creative forms appeared. We chose 20 adjectives taking into account the sign and the frequency of the distribution (Appendix I). The adjectives were presented in two columns to students. A balanced and systematic distribution was worked out to avoid students using mnemotechnic resources or wise strategies (Appendix II).



### **5.3. Procedures**

The study was carried out in two successive sessions. Class A was taken as the control group and we worked with it in the first session. The procedure was as follows.

First step: Before sitting down, students had on their desk a face down handout with twenty adjectives distributed in the way shown in Appendix II. Once the required instructions on the test were given they were told to turn over the handout and memorise as many adjectives as possible in two minutes.

Second step: they were asked to turn over the page and write as many adjectives as they could recall within two minutes on a white sheet which was immediately collected.

Third step: they were required to write on the left of each item the signs '+ / -' if they thought the adjective related to growth in a positive or negative sense. On the right hand side, they were required to write from 1 to 5 the degree of facility / difficulty (1 being very difficult and 5 very easy). This handout was also collected.

Fourth step: With the help of an over-head projector they could see the whole list of adjectives and they were allowed to ask for the meaning or explanation of any of them. The comments and explanation lasted 5 minutes. The class proceeded working on a text on growth for half an hour.

Fifth step: A copy of the first handout was put back on the desk. This time they were given 1 minute to memorise the whole list of adjectives again. Then they turned it upside down and had two minutes to write as many adjectives as they recalled. Once more the handout was immediately collected.

Sixth step: A test was passed in which the task involved filling in the missing modifier of 20 sentences. Two options were given and no guessing formula correction was applied. They were allowed five minutes to complete it (Appendix III).

The procedure with the experimental group followed the same pattern but at step four the explanation was given within a cognitivist framework. Most of the items were presented as referring in a positive or negative way, either to a cyclical process or to the speed and manner of upwards and downwards, forwards and backwards evolution of growth.

## **6. RESULTS**

Before going into other statistic tests an overall idea of some of the issues we tackled in this study can be obtained from Tables I and II, which present the scores of each group before and after teaching implementation. A glance at the tables shows:

Firstly, if we consider all subjects, the frequencies are higher among the positive than among the negative modifiers.

Secondly, taking the experimental and control group frequencies we observe that, before teaching, the frequencies are similar in both groups. After the introduction of the independent variable: teaching based on cognitive frameworks, the experimental group increases its frequencies more than the control group in both series.

TABLE I  
Memorisation before and after teaching. Positive Modifiers

	ALL SUB.		EXPERIMENTAL G.		CONTROL G.	
	*B	*A	B	A	B	A
AGGRESSIVE	43	45	20	26	23	19
ACCELERATING	19	38	12	20	14	18
BOOMING	52	57	27	29	25	28
CONTROLLED	29	36	14	19	15	17
EXPLOSIVE	36	39	19	22	17	17
FIRM	48	47	26	26	22	21
HEALTHY	40	42	19	22	21	20
RAPID	49	55	23	28	26	27
STEADY	16	31	7	16	9	15
SELF-SUSTAINED	10	35	6	16	4	19

• Where 'B' stands for 'Before', and 'A' for 'After'.

TABLE II  
Memorisation before and after teaching. Negative modifiers

	ALL SUB.		EXPERIMENTAL G.		CONTROL G.	
	B	A	B	A	B	A
BLOATED	14	22	5	12	9	10
DEPRESSED	26	33	15	20	11	13
FALTERING	8	27	2	14	6	13
OVERHEATED	25	37	12	20	13	17
RUNAWAY	55	46	26	25	29	21
STAGNANT	19	34	8	19	11	15
SLOW	54	54	28	29	26	25
WOUNDED	18	33	7	16	11	17
WEAKENING	45	40	22	24	23	16
SCANT	32	47	16	25	16	22

## 6.1. Relationship between recall and frequency

If we go to Appendix (I), we will find a descriptive table of the frequencies of some of the modifiers which collocate with growth in the FT 1997. The frequency of appearance of any item of the series considered positive ranges from 105 for 'explosive' to 1083 for 'rapid', whereas all the negative items but 'slow, depressed and weakening' are below 100. This frequency rate persists in the memorisation process. Before and after teaching implementation the items of the positive series are better recalled than the negative series. Significant differences with a  $t = 3.174$  and  $p = 0.002$  for the pre-test between positive and negative series and a  $t = 3.192$  and  $p = 0.002$  for the post-test between both series are found. These data coincide with the patterns observed in *The Financial Times*.

## 6.2. Conceptualisation among our students of positive and negative modifiers

Taking as a reference the economic context, considerable agreement is found among the items proposed in the positive series, except 'aggressive', which was taken by 70% of the students as a negative modifier (Table III). The categorisation of the negative series was not as clear cut as the positive ones. 'Overheated' and 'runaway' were taken by more than half of the students as positive and others like 'bloated', 'scant', 'faltering' and 'wounded' presented a blurred boundary with 30% and 40% not making up their minds about which sign to choose.

TABLE III  
Conceptualisation of the spatial orientation

POSITIVE MOD.	FREQUENCY			NEGATIVE MOD.	FREQUENCY		
ORIENTATION	(+)	(-)	*NA	ORIENTATION	(-)	(+)	NA
Aggressive	18	42		Bloated	22	14	24
Accelerating	60			Depressed	58	1	1
Booming	54	5	1	Faltering	35	5	20
Controlled	53	6	1	Overheated	22	29	9
Explosive	46	14		Runaway	22	29	9
Firm	50	5	5	Stagnant	31	14	15
Healthy	58	2		Slow	55	5	
Rapid	60			Wounded	28	12	20
Steady	48	5	7	Weakening	46	9	5
Self-sustained	42	8	10	Scant	25	10	25

\*Where 'NA' stands for 'No answer'

TABLE IV  
Grade of difficulty

POSITIVE MOD.	Statistics			NEGATIVE MOD.	Statistics		
	*N	*Av.	*SD		N	Av	SD
Aggressive	60	4.52	.78	Bloated	60	1.68	.70
Accelerating	59	4.24	.90	Depressed	60	4.13	.87
Booming	60	3.30	1.06	Faltering	60	1.75	.82
Controlled	60	4.22	.88	Overheated	59	2.68	1.02
Explosive	60	4.25	.97	Runaway	59	2.86	1.06
Firm	58	3.38	1.04	Stagnant	59	2.00	.98
Healthy	60	4.03	.92	Slow	60	4.58	.77
Rapid	60	4.62	.74	Wounded	59	2.07	1.01
Steady	59	3.15	1.13	Weakening	59	3.61	1.05
Self-sustained	60	2.62	1.12	Scant	58	1.57	.77

\* Where N = 'number', 'Av' = average, and 'SD' = standard deviation.

3. A further step was taken. Table (IV) shows the idea they have as to the degree of difficulty of each modifier. It seems that frequency, signal categorisation and degree of difficulty have some sort of relationship. The positive ones present higher levels of ease whereas among negative modifiers, a tendency to the other extreme in the Likert's scale is found: 1 for extreme difficult and 5 for very easy items. Only those items that present frequency rates similar to the positive ones: 'depressed, slow and weakening' are not considered as difficult as the rest of the negative series. On the whole, considering Likert's categories as quasi-quantitative variables and applying a 't' test to the degree of difficulty, significant differences are found in the grade of difficulty of both series with  $p = 0.000$  and  $t = 18.846$ .

4. Our main concern in this study is to find out if the introduction of cognitivist frameworks in our teaching improves the students' performance.

- If the way we present the items does not make any difference in the process of memorisation, then the effectiveness in both groups would roughly be the same after the post-test.
- If, however, the cognitivist framework has the expected relevance, then the experimental group will perform better than the control group either in one or in both series. The pre-test confirms that the averages of both positive and negative series of modifiers, are similar (Table V). Results

of the post-test show that the means of MPM2 and MNM2 are higher in the experimental group than in the control group. As we assumed a normal distribution and equality of variances we apply the parametric test of ANOVA for repeated measures. The Huynh-Feldt correction effect ( $p < 0.01$ ) is taken into account and the equality of variance and covariance matrices between groups is maintained according to the Box test. The 'F' statistic confirms the interaction effect between the control and experimental group in the positive series with  $F_{(1,58)} = 3.879$  ( $p = 0.05$ )<sup>3</sup>.

TABLE V  
Descriptive Statistics

	Group	N	Mean	S.D.	S.E.M.
MPM1	experimental	30	5.7667	1.7555	.3205
	control	30	5.8667	1.3322	.2432
MPM2	experimental	30	7.4667	1.4559	.2658
	control	30	6.7000	1.8033	.3292
MNM1	experimental	30	4.7000	1.8223	.3327
	control	30	5.1667	1.5332	.2799
MNM2	experimental	30	6.8000	1.6692	.3048
	control	30	5.6333	1.6291	.2974

Where: S.E.M.: standard error of the mean

Mpm1: Memorisation of positive modifiers in the pre-test

Mpm2: Memorisation of positive modifiers in the post-test

Mnm1: Memorisation of negative modifiers in the pre-test

Mnm2: Memorisation of negative modifiers in the post-test.

Differences of memorisation between the experimental and control group are manifest in both series as illustrated in Fig. 3, where a steeper slope is appreciated in the experimental group.

The Huynh-Feldt correction effect ( $p = .000$ ) is also considered and the equality of variance and covariance matrices between groups is maintained according to the Box test in the negative series. The interaction effect in both groups is also confirmed with  $F_{(1,58)} = 20.008$  ( $p = .000$ ). Differences in the memorisation of the negative series are better illustrated in Fig. (4). The point of departure in the experimental group is lower in the pre-test but ends higher in the post-test, whereas the progress in the control group does not keep the same pace.

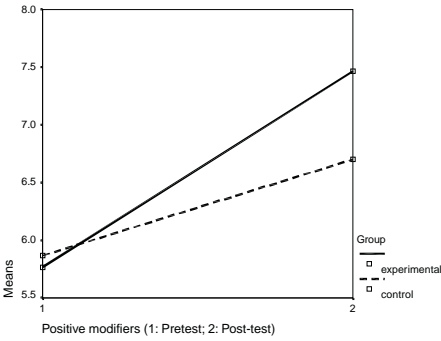


Fig. 3.

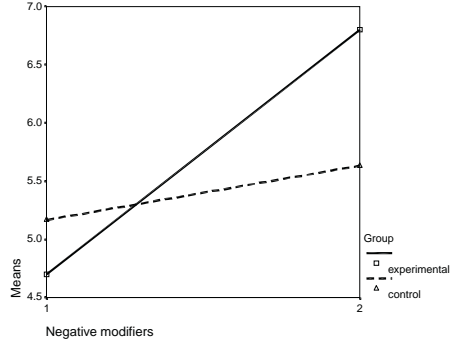


Fig.4.

5. The final issue was to study performance of both groups in a test. There are no significant differences within groups, either in the positive or negative series, but there is a significant effect between groups with  $F_{(1.58)} = 9.093$  ( $p = 0.004$ ), showing a higher performance in the experimental group as can be appreciated in Fig. (5). The slope is falling sharply in the control group, which starts with a considerable mean in the positive series and goes downwards in the negative series, whereas the performance of the experimental group is quite similar in both series.

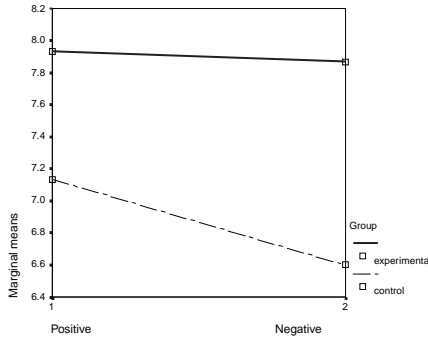


Fig. (5)

## 7. DISCUSSION

We wanted to test if cognitivist frameworks had some relevance on the learning process of a set of adjectives divided in two series: positive and negative items. If spatial orientational metaphors are one of the sets of core metaphors upon which Veale and Keane (1992) base their conceptual scaffolding model for metaphor comprehension we centre this orientation on the modifiers which collocate positively or negatively with growth. We assume that those considered negative are less familiar and more difficult to learn than those labelled as positive. On that rationale we decided to study, in the first part, issues such as the relationship between recall and frequency, agreement or disagreement on the conceptualisation and degree of difficulty of the items to see if our categorisation was well-founded. Once these issues were settled we went on to focus on the level of performance of each group to test our hypothesis.

With respect to the relationship between the amount and the sort of items recalled, the results (Tables I and II) and the level of frequencies pointed out in Appendix (I) presented considerable overlapping. The spatial orientation concept: left - right translated in our context of growth to negative and positive according to the sense of the movement that was used in the categorisation of modifiers. The outcome with regard to frequency would almost have been the same if we had taken the familiarity concept. We realise that to draw a line which clearly separates familiar from less familiar modifiers is not easier than establishing a boundary between positive and negative modifiers. But as a more or less familiar categorisation does not help in spatial orientation and does not add as much information as positive and negative modifiers, we opted for this latter categorisation. Moreover, it is precisely the positive and negative modifiers which reveal the more prototypical features of growth. According to the results, which are found in Tables I and II, there is a good deal of correspondence between the recall of our students and the FT frequency data. The significant differences in the 't' test for correlated samples contribute to confirming this relationship between recall and frequency and it does likewise in suggesting that the negative series of modifiers offer more difficulties at first sight than the positive series. It seems that growth and economy is written from an optimistic point of view and positive modifiers are more abundant than negative ones since politicians and economists are more concerned with modifiers that foster effective growth rather than with those that impede or diminish that possibility. This insight could have its explanation in the prototypicality of growth which is understood as something that goes forwards and upwards rather than backwards and downwards.

Students' conceptualisation as for the positive series is practically the same as the one proposed except for the case of 'aggressive', positively labelled in our

categorisation and taken as negative by a good deal of students. If we assume that centrality of metaphor in everyday language is emphasised by the presence of dual-function adjectives (Rumelhart 1979), there will be room to interpret the disagreement in the conceptualisation of this modifier. This point of view leads us to think that the lack of cultural information in economics may be the explanation for this conceptualisation. Students still refer 'aggressive' to the domain of war and conflict or social behaviour rather than to the economic domain. They are not aware of the entrepreneurial connotations it may have in the economic domain. This gap of information may explain their choice for the literal rather than metaphorical meaning and its negative interpretation. Disagreement arose with the negative series (Table III). Some misleading interpretations beyond the economic domain may have led them to place 'overheated' and 'runaway' in the fuzzy boundary of one or the other series. Unfamiliarity could be the explanation for the blur of 'bloated', 'scant', 'faltering' and 'wounded'. Probably, they lack this sort of knowledge that would allow them map some features from the source domain onto the target domain. They do not take economy as a living organism. They do not have enough shared knowledge to understand economic growth in terms of 'bloated' 'faltering' and 'wounded'.

The degree of difficulty goes with the conceptualisation interpretation. The negative series is harder than the positive one and it proves to be an appropriate field to test the influence of cognitivist frameworks in the learning process of a student of Economics.

Let us now look at the level of performance either in the two memorisation tests or in the cloze test. The first issue is addressed to confirm or reject the relevance of the cognitivist framework in the learning process of our students. Performance is similar in both groups in the pre-test but the experimental group outweighs the control group in the post-test as is illustrated in Fig.3 and Fig.4, where the interaction effect is shown. These data call for further research not only with modifiers but also with verbs that define the neutral and open concept as 'growth' or any other keystone concept of business and economics which requires recurring to source domain to explain target domains.

Our expectations based on cognitivist frameworks such as orientation, cyclical curves or mechanical processes have proved to be useful in the learning of the different modifiers that collocate with growth. A further step on the issue of the pedagogical implications is obtained analysing the level of performance within each group on the positive and negative series of items. The evolution of the control group is quite remarkable in both series, it has a higher starting point but as seen in the end of Figs.3 and 4 the levels reached are described by similar slopes which do not have the gradient of the experimental group. The control group maintains poor steepness in the slopes, but the different points of departure and arrival allow us to infer that the



positive series was easier than the negative one. The experimental group performance is completely different. It starts at lower levels in the pre-test of both series and ends with steeper slopes in the post-test.

These data seem to imply that the mode of conceptualising the terms combined or related to growth via metaphorical frameworks helped students improve their memorisation more than traditional approaches. The access to the meaning of a 'bloated financial sector', 'overheated markets' or 'booming sales' is facilitated if Economy is seen in terms of a living organism or a mechanical process: something that goes backwards or forwards, upwards or downwards.

The second issue dealt with students' level of achievement in a cloze test where two options were given (Appendix III). Comparing the data of both groups, interaction effect is found and the results show that the performance of the experimental group outstripped that of the control group as is seen in a more expressive way in Fig. (5). On the grounds of these data what really attracts our attention is firstly that our students feel more confident with the positive series than with the negative series, and secondly that the improvement of the experimental group in the negative series is such that they have levelled off the original differences which we showed up in the pre-test memorisation. This result leads us to claim that the introduction of metaphor has had its effect among our students.

## 8. CONCLUSION

Cognitive linguistics, with its vocation to be interdisciplinary, can claim to offer a great deal to the language teacher. In our case, as well as empirically analysing the metaphorical performance of growth in the world of economics, we took, and are taking, further experimental steps to verify if and how awareness of the metaphorical nature of the collocations (we had come up with) might affect foreign language learners' learning processes. On the whole, we can conclude, that the cognitive approach has helped students to conceptualise and to recall the items better than the traditional one and to perform better in a cloze test. Thus, we understand that tapping conceptual metaphor in the foreign language classroom is highly beneficial and we favour a sequential process of recognising or identifying followed by understanding, assimilating and then using the metaphorical expressions. Once students identify the different linguistic expressions comprising the source domain in relation to the target domain, they can all the better assimilate the underlying schemas and then use them. The empirical evidence presented weighs in on the side of adopting cognitivist frameworks for language teaching purposes.

## NOTES

<sup>1</sup> ‘Halo effect’. This effect is due to the tendency among human beings to respond positively to a person they like. (Brown 1988: 33).

<sup>2</sup> The basis for our selection derives particularly from British economics journalism over the period 1990-1998, specifically *The Financial Times*, *The Times* and *The Guardian* and numerous economics books and Journals. We also had access to the Collins Cobuild *Bank of English* entry for “growth” as it stood in October 1996 and which basically provided confirmation of many of the entries of our corpus of growth collocations rather than supply significant additions. As most of the growth collocations listed turn up repeatedly in the sources mentioned and have been freely manipulated by us for teaching purposes, actual reference is restricted to significant cases or where academic works are cited.

<sup>3</sup> The data have been studied with the standard statistical package for social sciences (SPSS), 9.01. As it is a Spanish version an English translation has been provided.

Sección Departamental de Filología Inglesa  
Facultad de CC.EE. y EE.UCM.  
Campus de Somosaguas  
28263 Madrid

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## APPENDIX I

### Frequency of collocations with growth in the FT 1997

rapid	1083	stagnant	95
slow	1014	lacklustre	85
forced	689	swift	71
firm	604	faltering	50
steady	590	scant	36
controlled	432	overheated	36
sustained	428	bloated	31
aggressive	412	runaway	31
healthy	411	stunted	19
depressed	314	bloom	17
accelerating	213	wounded	17
booming	169	anaemic	12
weakening	161		
explosive	105		

APPENDIX II

Handout to memorise

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booming	stagnant
aggressive	weakening
scant	accelerating
firm	self-sustained
explosive	runaway
wounded	steady
bloated	faltering
overheated	rapid
controlled	depressed
healthy	slow

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APPENDIX III

Test

Fill in the blanks with the appropriate terms. Write ‘A’ or ‘B’ on the left of each item”

- 
- The \_\_\_\_\_ growth of technology is a good indicator of a healthy economy  
**A: overheated. B: accelerating.**
  - \_\_\_\_\_ growth augurs high joblessness. **A: depressed. B: controlled.**
  - What accounts for the \_\_\_\_\_ growth of plastics in the sign and display field? A lot.  
**A: scant. B: rapid.**
  - The economy is sick and growth mortally \_\_\_\_\_. **A: aggressive. B: wounded.**
  - The \_\_\_\_\_ growth of the area has also a retarding effect on the metropolitan core.  
**A: rapid. B: slow.**
  - The \_\_\_\_\_ growth in the market for replacement parts continues year by year and that means turnover increases. **A: steady. B: runaway.**
  - Several related tasks must be carried out if \_\_\_\_\_ growth is to be achieved.

**A: faltering. B: self-sustained.**

8. A \_\_\_\_\_ growth of technology means high profitability for the company.  
**A: bloated. B: controlled**
  9. Higher energy costs will mean \_\_\_\_\_ growth. **A: booming. B: weakening.**
  10. The measure is intended to rein back \_\_\_\_\_ growth. **A: healthy. B: runaway.**
  11. The historic fall in interest rates will bring about \_\_\_\_\_ growth. **A: slow. B: explosive.**
  12. Owing to hyperinflation growth in the short term is expected to be \_\_\_\_\_. **A: scant. B: explosive**
  13. \_\_\_\_\_ growth means little hope for the unemployed. **A: Accelerating. B: Stagnant.**
  14. \_\_\_\_\_ growth is the Government's priority. **A: Firm. B: Weakening.**
  15. \_\_\_\_\_ growth always causes inflation. **A: Healthy. B: Overheated.**
  16. \_\_\_\_\_ growth won't last because it does not work. **A: Firm. B: Bloated**
  17. Western companies just cannot close their eyes, in the early 90's to the \_\_\_\_\_ growth of the tiger countries. **A: aggressive. B: depressed.**
  18. Tiger countries experienced \_\_\_\_\_ growth until the mid 90's. **A: booming. B:stagnant.**
  19. Fortunately, the present growth is \_\_\_\_\_ and likely to last. **A: healthy. B: wounded.**
  20. \_\_\_\_\_ growth could cost a collapse on the Stock Exchange.  
**A: Self-sustained. B: Faltering.**
-