**Why should we care about sound symbolism in EFL learning?: two pilot studies**

[7,988 words]

**ABSTRACT:** Given the importance of the phonological and lexical components of the language in L2 learning, this article discusses an innovative, holistic approach to learning these two parcels of the language based on the existence of “sound symbolism” –the interrelation between sound and meaning– in English. In particular, it describes how and why the study of sound symbolism can be advantageous to EFL learners. This claim is grounded in empirical data gathered from two pilot studies carried out at two educational settings (a secondary school and the University of Alicante). The results suggest that knowledge of sound symbolic principles underlying the English language can enhance lexical storage and semantic prediction.

**Keywords:** sound symbolism, sound-meaning interplay, language learning, EFL, classroom experiences.

**1. INTRODUCTION**

Most studies on “sound symbolism” or “phonaesthesia” –broadly defined as the systematic relationship between meaning and sound as <gl> signifying ‘light’ in such words as *glitter, glow, glare, glint* or *gleam* (cf. Hinton, Nichols, & Ohala, 1994)– in language learning concentrate on the processing of non-arbitrary language by native speakers (Monaghan, Mattock, & Walker, 2012; Parault & Schwanenflugel, 2006), thereby neglecting the role that sound symbolism can potentially play in the mental lexicon of non-native speakers. In fact, one of the most extensive accounts of sound symbolism in English (Reid, 1967) described some of the sound-symbolic properties of English vowels and consonants as perceived by native speakers. However, Reid’s recurrent reference to quotations to support his claims throughout the book confirmed my somewhat impressionistic view on the use of sound symbolism in some genres such as literary texts to powerfully evoke the general mood or atmosphere of the scene depicted.

I then realised that if I could take advantage of this general tendency in texts –particularly, in literature– for the benefit English as a Foreign Language (EFL) learners[[1]](#footnote-1), they could learn semantically and phonologically related networks of words in a more engaging way. This led me to carry out two pilot studies whose findings are herein reported. The aim of this article is thus to justify the learning of these non-arbitrary signs by EFL learners. In order to do so, I will report on these classroom experiences and assess the pedagogical implications of my findings. I will likewise suggest possible ways in which “sound symbolic elaboration” can be strategically used not only by intermediate-level learners but also by more proficient users of English as a Foreign Language.

**2. HOW DOES SOUND SYMBOLISM FIT IN L2 LEARNING RESEARCH?**

A widely held premise in language learning is that only when the connection between form and meaning is established, knowledge really begins to be generated (Laufer & Girsai, 2008; Schmitt, 2008; Webb, 2007). This type of explicit association is conventionally known as “elaboration” in Second Language Acquisition research. Traditionally, elaborations have been dichotomical, that is, they have either been meaning-based or form-based, but they have not merged both perspectives (cf. Deconinck, Boers, & Eyckmans, 2015: 3).

Semantic processing tends to be more easily achieved and fostered through a myriad of strategies such as providing synonyms, referring to mental imagery or pictorial elucidation (e.g. Boers, Piquer, Stengers, & Eyckmans, 2009) or to etymological explanations (Boers, Eyckmans, & Stengers, 2007). These elaborations assist meaning recollection and can contribute to consolidating semantic networks, but they do not entail learners’ recollection of the form of new words (cf. Boers Lindstromberg, Littlemore, Stengers, & Eyckmans, 2008: 190). The major drawback of these meaning-based strategies is that the final outcome largely depends on learners’ preferred cognitive styles (see Boers & Littlemore, 2000).

Boers *et al.* (2008) appropriated the *verbaliser*-*imager* continuum from cognitive psychology and applied it to their vocabulary tests. Along this continuum, learners were deemed to have a stronger preference for images (i.e. they were “high imagers”) or for words (“low imagers”). These researchers demonstrated that high imagers took full advantage of both “direct” imagery (i.e. pictorials) and “indirect” imagery (i.e. verbal explanations which triggered the visualisation of a mental image), whereas propositional or verbal content seemed to yield better results in the case of low imagers. Overall, this results in an asymmetrical storage of structural and semantic aspects of the target words, and it thwarts full knowledge of a word, which encompasses many more aspects than just its meaning (cf. Nation, 1990: 31).

Within this SLA framework, what I call “sound symbolic elaboration” may prove to be more effective in EFL learning than other cognitive linguistics-inspired strategies. A limited number of case studies explored synesthetic associations with English phonemes in an attempt to optimise to EFL pronunciation teaching (Mompeán-Guillamón, 2013; Wrembel, 2010). Mompeán-Guillamón (2013) concluded that knowledge of the relation between certain sounds and colours did not help Spanish learners to reproduce English sounds. This may be due to the fact that certain “coloured” sounds (e.g. /æ/) were not part of the Spanish vowel repertoire.

Other scholars (Li & Li, 2008; Lu-hua, 2004; Yanqun, 2007) have made use of several types of iconicity (structural iconicity, morphological iconicity, phonetic iconicity, and metaphorical iconicity) to teach English in contexts in which learners’ L1 was Chinese. Chinese uses characters instead of an alphabetic system, which is why this language could be considered to be iconic to a certain extent. In this regard, Luk and Bialystok (2005) state that Chinese characters “contain pictorial indications of meanings that can be used to help retrieve the referent” (2005: 79).

Nonetheless, sound symbolism in its narrowest sense –i.e. prototypically in form of phonaesthesia– is an unexplored area in EFL teaching/learning. Only Zohrabi *et al.* (2014) carried out a study testing 90 intermediate level Turkish learners and their ability to analyse meaning in isolation and in sentences. Learners could match the Farsi appropriate rendering of unknown sound symbolic words both in context and isolation even though there was no instructional intervention (Zohrabi, Sabouri, & Peimanfar, 2014: 48). The benefits of phonological motivated signs seem to outnumber the pitfalls that either the teacher or the learner may encounter as I attempt to prove in the following sections.

**3. PHONOLOGICALLY MOTIVATED SIGNS IN THE EFL CLASSROOM: TWO EXPERIMENTS**

The pilot study that I initially conducted took place in a secondary school in Alicante (henceforth, “PS1”). As I will explain, this preliminary experience enabled me to contrast the results of two context-based tasks and to refine the methodological procedure which was subsequently employed in a second minor-scale study at the University of Alicante (henceforth, “PS2”). Unlike PS1, PS2 exclusively concentrated on lexical storage of sound symbolic words, which is why its findings will be discussed in greater depth. It is also worth noting that this shift in setting and participants was due to intended procedural variations, which I will comment upon in due time.

In PS1 my main concern was to explore whether there were significant differences in terms of vocabulary learning outcomes when learners encountered two completely dissimilar (adapted) texts and sets of target words. For the time being, it will just suffice to state that the target words met one of those criteria:

1. they were either exclusively semantically related (in text 1), that is, they all belonged to the semantic field of the environment,
2. or all words exhibited a meaning-sound pairing (in text 2), as they all contained the “phonaestheme” (Firth, 1930) or sound symbolic consonant cluster <gr>. I drew on the already strengthening sound /r/, which, when backed by /g/, results in an appropriate beginning for words expressing contempt, discomfort, or resentment (e.g. *grim*, *gross*, *grumpy*, *grubby*, etc.).

The hypotheses that I put forth accounted for these lexical differences. Nonetheless, my questions mainly focused on the “untraditional”, sound-symbolic words, which were more unfamiliar to learners. In this two-phase experiment, my aim was to address the following hypotheses:

1. whether “sound symbolic elaboration” could aid in lexical recall and in establishing correct meaning-form connections based on a meaningful framework (i.e. texts). In the tradition of SLA research, I propose the term “sound symbolic elaboration” as a follow-up for meaning-based and form-based elaborations (see, e.g., Barcroft, 2002; 2004 on semantic and structural elaboration).
2. whether there were differences between learners’ being instructed on the semantics of the phonaestheme in question and being given no explicit sound symbolic information at all. This different procedure would result in two cognitive phases: the “recognition” and the “guess” phase. As I will explain, I only provided meaning-form elaboration in PS1 and group 1 of PS2, but I included none in the handouts distributed among Group 2 participants in PS2. In that way, I attempted to promote autonomous learning to a larger extent.
3. whether learners would be able to infer the meaning of unknown words that were not present in the text. In PS1 I adopted a contrastive stance towards the analysis of two tasks (one contained sound symbolic words and the other did not), whereas in PS2 I narrowed down the scope, tackling just sound symbolic words’ storage.

**3.1 Participants**

The participants involved in PS1 were twenty secondary school students, who were in their first year of post-compulsory secondary education (i.e. 1st year of “bachillerato”, roughly equivalent to the A-levels). Their overall competence in English was at a B1 level –following the ECFR–, and they were either Spanish or Catalan native speakers. None of them reported a different L1, and English was the first additional language of their choice, French being the second option available to them in their secondary school.

In PS2 the participants were two groups of students taking the subject “English Lexicology” and who were expected to be at a C1 level. Even though the groups were officially larger, only 35 students from Group 1 and 22 students from Group 2 were present at the moment in which the study was conducted. “English Lexicology” is a compulsory, third-year subject that makes up the syllabus of the Degree in English Studies at the University of Alicante, and it is also popular among exchange or international students. I could gather this information from the questionnaire supplied in which they were asked to indicate their first language. I hypothesised that their L1 could give me insights into the effect that linguistic proximity between the L1 and L2 could have on the outcome of this study.

No other personal data was requested on their part since I did not intend to test other variables such as gender or age (on the possible correlation between sound symbolic associations and age and gender in native speakers, see Krause, 2015). Besides, to preserve their anonymity, each student was assigned an arbitrary number which I would use for data collection and analysis purposes. This had to be remembered by both PS1 and PS2 participants, as they had to write their answers on sheets which were different from those containing the texts.

**3.2 Target words**

Even though the choice of target words was motivated by either exclusively semantic criteria (Text 1 in PS1) or by meaning-form connections (Text 2 in PS1 and Text 1 and 2 in PS2), I attempted to select content words from three main word classes, namely, nouns, adjectives, and verbs. As for PS1, six target words were present in each text:

Text 1: *claim* (v), *harm* (v), *supply* (v), *smog* (n), *threat* (n), *pollution* (n)

Text 2: *greenfly* (n), *ogre* (n), *greedy* (adj), *gruff* (adj), *grumpy* (adj), *grunt* (v)

The questionnaire, however, contained eight words that were not present in the text: four were presumably unknown adjectives to the reader and followed the underlying iconic principle (they started with <gr>): *gross* (adj), *grisly* (adj), *gruesome* (adj), *grim* (adj). In contrast, the other four non-symbolic words occurred in the book from which the environment vocabulary was drawn, *Bridges for 1º de bachillerato*: *issue* (n), *dump* (n), *layer* (n), *claim* (n). These were relatively high-frequency words compared to the target sound symbolic lexical units.

Concerning PS2 target words, the number of target words was larger (i.e. nine words) and was at a more advanced level. This was my intended objective, which was also fulfilled thanks to the textual material itself. The reading was partially different, as I will detail in the “materials” section. The target words were *gruff* (adj), *greenfly* (n), *grumpy* (adj), *grunt* (v) *greedy* (adj), *gross* (adj), *grievance* (n)*grim* (adj), and *grudge* (n). In PS2 questionnaire there were three new “added” words: *grisly* (adj), *gruesome* (adj), and *groan* (v).

**3.3 Materials and methodology**

The first preliminary experience in the secondary school (PS1) attempted to analyse whether there were significant differences between two context-based vocabulary learning strategies: in the control condition the target words belonged to the same semantic field (i.e. the environment) although the formal aspects of these words differed greatly. In the experimental condition, the target lexis contained meaning-form connections, that is, they were phonologically motivated.

In both PS1 and PS2 I presented two texts that they had to read carefully. The instructions were given in written form: “Read the text below paying special attention to the underlined words”. In PS1 these two texts belonged to different genres: one of them was a partial rewriting of the short story *The Selfish Giant* by Oscar Wilde, and the other one was an informative text based on *The Guardian* article “Humans: the real threat to life on Earth”[[2]](#footnote-2), with a focus on environment. The environment topic was in close connection with the fourth topic of the aforementioned book.

For time constraints, texts were shortened and the target vocabulary was condensed in a way that this lexical density did not pose a threat to the textual integrity of the material. They were “stand-alone” texts, as they did have a prototypical structure (i.e. they contained a beginning, a middle, and an end). It is likewise worth noting that I did not provide any participants with the “correct” definitions for any target word at any stage. In PS1 participants were only given information about the sound symbolic properties of <gr> orally, whereas in PS2 only one group (Group 1) had that information available.

Regarding the texts employed in PS2, there were two literary texts: *The Selfish Giant* adapted version, and three short passages from Heaney’s (2000) verse translation of *Beowulf.* This text —originally in OE— perfectly fitted the purpose of this research study as it naturally contained sound symbolic words sharing the phonaestheme <gr> (i.e. *grievance*, *grim* or *greedy* and even the antagonist’s name in the story, *Grendel*). It alsosuited the needs of English language and literature students, who were indeed the participants of PS2.

The selected passages were loosely connected, as they made allusion to the havoc created by the grim creature Grendel or described this devilish figure. Likewise, by choosing “real” texts, I was able to make the task more authentic without threatening learners’ understanding of the text. In fact, C1 learners could cope with this text, and there was no need for a textual adaptation as in PS1. In the same handout containing the texts, participants were asked to (1) self-assess their previous knowledge of the target words –the categories presented were based on Dale and O’Rourke (1986)– and (2) elicit possible connections between those words. The exercises were the following:

1) Out of these four categories, select the one that best describes your level of knowledge for each word. Write the word next to the category.

1) I have never seen this word before.

2) I’ve heard of it, but I don’t know what it means.

3) I recognise it, but I don’t use it.

4) I know it.

2) Can you find anything in common between the words underlined? If so, what?

After having completed this first part of the task, ending with the open-ended question above, participants were asked to complete the questionnaires. These were made up of two parts: the nature of the first part one was common to both PS1 and PS2. This was a multiple-choice section in which students were required to choose the correct signifier from a total of three. All the definitions provided were retrieved from the *OALD* (*Oxford Advanced Learners’ Dictionary*), so that the wording was not difficult according to their level. For both sets of target words (sound symbolic and non-sound symbolic words), at least one of the distractors was chosen on the grounds of phonological-graphemic similarities on varying degrees.

In some cases there was an extra initial phoneme (vowel or consonant) in one of the distractors (e.g. *claim* (target word) / *acclaim* (distractor), *tissue* (target word) / *issue* (distractor)), whereas in others there were greater differences (e.g. *greenfly* (target word) / *butterfly* (distractor)). As already pointed out in Section 2.3.2, a word’s beginning is one of the most cognitively salient positions, which is why some of these alterations could potentially pose problems and unveil learning difficulties.

In PS1 there was a set of ten multiple-choice questions, whereas in PS2 there were twelve of them. This responded to the changes made affecting target words and texts although there were no significant procedural modifications besides the increment in number.

At this stage it is important to note that the questionnaire was presented in two different modalities in PS1 and PS2: in PS1 a paper-based questionnaire was distributed, as there was not an overhead projects in the classroom. All participants had thus a hard copy and answered to the questions with a pen/pencil. Answers were then processed and transferred to the computer. In PS2 the questions were in a timed PowerPoint presentation which was projected on a screen. Each presentation was programmed to be shown for just sixty seconds, and participants had the chance to see and check all the questions again for a few seconds at the end of the session. I did not explore this variable (computer/completely paper-based questionnaire) in relation to participants’ performance. Any significant differences could be indeed traced in subsequent research replicating this study.

However, this dissimilar format did have a noticeable impact on the completion of the second part of the questionnaire. This section required participants to recognise meaningful sentences as appropriate textual environments (or co-texts) in which the target lexemes could occur. Participants had thus to pay attention to word classes and nuances of words. In PS1 participants had to handwrite the answer which should be chosen from an array of options. The instructions explicitly said they should “use the correct verb tense and noun form (singular/plural noun/s)”. However, I found serious misspelling problems, and third person *–s* and past tense morphemes (i.e. *-ed*) missing.

This does not favour correct lexical storage, especially taking into account the cognitively prominent position that this exercise occupied (as it was at the end of the test). Therefore, I altered the format and instead of asking students to write the answers, I provided them with options. I also decided that at least one distractor should belong to a word class different from the expected answer as in the sample question below. This was a fortunate “move”, as this format still allowed me to trace word-class confusions.

A sample question in PS2

18. She held a \_\_\_\_\_\_\_\_ against her former boss.

a. grudge b. grunt c. gruff

Besides, as the PS2 questionnaire had to be answered in exam sheets processed by optical mark reading, this standardised version made the analysis of the results much more automatised, thereby avoiding “human” mistakes. Tables 1 and 2 summarise the materials and main procedure used in both classroom experiences.

Table 1. Materials and procedure used in Pilot Study 1 (PS1)

|  |
| --- |
| PS1 |
| Reading of two texts (similar length) –reduced versions of The Selfish Giant and a text about the environment.  Elicitation of previous word knowledge and the connection among the target words.  Completion of a) twenty multiple-choice questions (ten questions based on each text) and b) twelve gap-filling exercises (six questions based on each text). |

Table 2. Materials and procedure used in Pilot Study 2 (PS2)

|  |
| --- |
| PS2 |
| Reading of the adapted story *The Selfish Giant* and three fragments from *Beowulf* (similar length between the textual support).  Elicitation of previous word knowledge and the connection among the target words (Only in Group 1).  Completion of a) twelve multiple-choice questions (definitions) and b) six multiple-choice questions (gap-filling exercises). |

**3.4 Results**

The overall performance of the participants involved in both studies suggests the potential benefit of learning sound symbolic words. I will first present those of PS1 with a special emphasis on sound symbolic lexical units, as this will allow comparisons between PS1 and PS2. PS1 participants obtained an average of 75% correct answers when enquired about the meaning of sound symbolic words in the multiple-choice test as opposed to 68% in the case of words belonging to the semantic field of the environment. These may include a number of “lucky guess”, as the multiple-choice format gave three options per item.

Remarkably, a student’s understanding of the word’s meaning tended to coincide with –or even surpass– the same student’s ability to use it in context. 86% was the average of correct answers (even though these may have been misspelled or contained grammatical mistakes) to questions targeting sound symbolic words, and 60% as for the thematically related words. This discrepancy between both results may imply that PS1 participants may not have accurately chosen the categories describing their word knowledge accurately. For instance, two participants indicated that they “had never seen” any of the sound symbolic words before, even though *ogre* is a cognate present in Spanish (i.e. *ogro*).

In contrast to the knowledge of sound symbolic words claimed by PS2 participants, the category “I have never seen this word before” was the most widely used one with a total of 53 words included within it. The least known words were *greedy* (15 participants (75%) stating lack of familiarisation with the word), *grumpy* (10 participants (50%)) and *gruff* (9 participants (45%)) (see Table 3 below). A roughly similar number of participants stated that they had “heard those words but did not know what they meant”. The only exception was *gruff,* only two participants labelling their experience with that word by referring to category III.

All three –*greedy*, *grumpy*, and *gruff*– were in the text and, therefore, should have been learnt by reading the passages. The results corroborated these predictions: 19 participants out of 20 (95%) chose the correct answer when selecting the definition of *gruff,* 17 students (85%) in the case of *grumpy,* and the correct definition of *greedy* was selected by 13 (65%) students. As for the multiple-choice test, 19 participants (95%) inserted *gruff* in the correct blank; 14 participants (70%) did the same in the case of *grumpy,* and in the case of *greedy* it amounted to 15 participants (75%).

Table 3. Number of PS1 participants who chose each of the categories given to describe their previous knowledge of the sound symbolic words present in the text

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Category | *ogre* | *grumpy* | *greedy* | *grunt* | *gruff* | *greenfly* |
| “I know this word” | 13 | 1 | 1 | 0 | 3 | 2 |
| “I recognise it, but I don’t use it” | 1 | 4 | 0 | 5 | 7 | 5 |
| “I’ve heard it but I don’t know what it means” | 3 | 8 | 4 | 7 | 2 | 7 |
| “I have never seen this word before” | 3 | 10 | 15 | 8 | 9 | 8 |

PS1 participants had more difficulties coping with sound symbolic words which were not contextualised in the text. The results of the multiple-choice questionnaire (the first section) revealed that only 7 participants chose the correct definition of *grim* (35%)*,* 8 of *gross* and *grisly* (40%)*,* and 9 of *gruesome* (45%)*.* This may be reasonable if one takes into account that these participants (young secondary school students) had no specific training in guessing word meanings of words which they had not encountered in any texts. It is also worth remembering that the correct definitions were not given at any stage in an attempt to promote autonomous cognitive strategies.

Most PS1 students (17 out of 20 (85%)) were aware of similarities between sound symbolic words. Nonetheless, 15 of them (70%) indicated that “all the words contained gr” or similar paraphrases, thereby focusing on the graphemic level rather than the meaning-form interplay. Only one of them even ventured to say that the underlined words had “a bad meaning”, the other participant touching upon meaning saying that they had “fantastic elements” in common. As for the rest, two students stated that <gr> occurred at the beginning of words, and other two indicated that “the form was a common element”.

On the other hand, the results of PS2 were particularly enlightening: 42 participants (73.68%) scored between 90% and 100%; 7 (12.28%) participants were on the range 80-90% and 70-80% (amounting to 14 participants), and just one participant obtained a result between 60-70%. No participants scored less than 60% unlike in PS1 in which there was greater variation in terms of results.

In PS2, out of the target twelve lexical items, the most unknown words were *gruff* and *greenfly,* 28 participants (49.12%) and 19 participants (33.33%) pointing out that they had never seen them. Only 5 participants (8.78%) knew the word *grim*. On the contrary, as anticipated, *ogre* and *grumpy* were extensively familiar to the participants: 40 and 37 of them (70.18% and 64.91%) chose the category “I know this word” for each word respectively. *Ogre* was underlined in both texts although it only acted as a target word in PS1. I had assumed that *ogre* would be known by 100% of C1-level participants, but this figure was probably lower due to a percentage of PS2 participants who stated that they spoke non-European languages (e.g. Korean) in which this word may not exist.

In relation to the rest of the vocabulary, participants recognised the form of a number of target words, as they had encountered them throughout their learning process as English learners. However, they had not created a meaning-form association, that is, “they did not know what the word meant”, despite previous oral or written encounters with the word. That applied to *grudge* –17 participants (29.82%)–, *grunt* –10 participants (17.53%)–, and *greedy –*6 participants (10.52%).

Even though participants had pointed out that they had never read/heard such words as *greenfly, grudge, gruff,* or *greedy*,92.98% (53 participants) and 100% of PS2 participants correctly inferred the meaning of *greenfly* and *grudge.* The results of gap-filling exercises were equally positive. All the participants used *greenflies* in the right context, and 47 participants (82.46%) chose *gruff* as the appropriate answer.

Table 4 makes a distinction between the participants who stated that they knew the word beforehand and those who did not by concentrating on the categories “I have never seen this word before” and “I’ve heard of it, but I don’t know what it means” and subsequently contrasting the figures for each word with the number of participants scoring right answers. Out of those participants, 100% chose the correct meaning of *grumpy* (11/11 participants)*, greedy* (6/6)*, gruff* (36/36)*, grim* (7/7)*,* and *grudge* (36/36); so did 90.90% of all of the participants in reference to *grunt* (17/18 participants)*, greenfly* (34/35)*,* and *gross* (10/11),and 66.66% participants (6/9) were able to discern the correct meaning of *grievance*.

Table 4. Previous knowledge of sound symbolic words both present and non-present in the text (PS2)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Word | “I have never seen this word before” | “I’ve heard of it, but I don’t know what it means” | Total of participants who did not know the target word | Participants  choosing correct answers |
| *grunt* | 11 | 7 | 18 | 17 |
| *grumpy* | 2 | 9 | 11 | 11 |
| *greedy* | 5 | 1 | 6 | 6 |
| *greenfly* | 28 | 7 | 35 | 34 |
| *gruff* | 27 | 9 | 36 | 36 |
| *grim* | 1 | 6 | 7 | 7 |
| *gross* | 6 | 5 | 11 | 10 |
| *grievance* | 5 | 4 | 9 | 6 |
| *grudge* | 20 | 16 | 36 | 36 |

Taking into account the relatively low number of participants in PS1 who were able to infer the meaning of words which were not contained in the text, I was particularly interested in assessing the results in PS2: those words were *groan, gruesome,* and *grisly,* and the vast majority of participants did choose the correct meaning in the multiple-choice questionnaire. This represented 100% of participants in the case of *groan,* 94.74% as for *gruesome,* and 91.23% as far as *grisly* is concerned. As can been deduced, the other options selected were not statistically significant.

Some confusion arose when learners were asked to choose which word would fit in a given context (gap-filling exercises 13-18). Except for question number 13, which targeted *greenflies,* the rest of gap-filling exercises were not unanimously answered even though the majority of participants were overall right in their attempts. For instance, in question number 18 (*grudge* (n) was the expected answer), 11 participants (19.30%) chose *grunt* (v) (option “b”) and 2 of them (3.51%) opted for *gruff* (adj.) (option “c”). This evidenced some word class identification problems which should be further explained in the discussion section.

Finally, in relation to my initial hypothesis as to whether participants would be able to identify meaning-form pairings in the words underlined, that is, in those containing the phonaestheme <gr>, the results for Group 2 (as the other group already had that sound symbolic information available) displayed that 12 participants (54.55%) expressed their views on formal similarities (i.e. the cluster <gr>); 4 participants (18.18%) pointed out that those words contained negative connotations; interestingly, 3 participants (13.64%) pinpointed the connection between meaning and form, 2 of them (9.09%) suggested that all of them expressed “qualities”, and 1 participant (4.55%) did not answer. Some of the *verbatim* comments included “They are similar because of their connotations. They all make reference to a negative sense, meaning things related with [sic] anger or greed”, “Yes, they all have the letters “g” and “r” in them, and also if we look at meaning all of them have a negative connotation”, “These words are adjectives related to bad attributes. In addition, they can be synonyms”, or “They all begin with gr- (except ogre, but it also contains -gr). They all have negative connotations”.

**3.5 Discussion**

It was expected that one of the greatest effects of the use of sound symbolism on vocabulary learning could be found in the “recognition” phase of PS1 and PS2 (only in Group 1). Participants were guided as to how interpret the target phonaestheme <gr> either through an oral explanation (in PS1) or through a brief written text (Group 1 of PS2). This could assist them in generating a greater number of correct word definitions than by simply presenting the word in isolation (cf. Parault & Schwanenflugel, 2006: 46).

Nonetheless, there were no significant differences in terms of participants’ performances between those two groups –i.e. PS1 participants and Group 1 of PS2– and Group 2 of PS2. A “guess” phase can be claimed to have taken place at some point between/while their reading of the texts and the completion of the questionnaire in Group 2 of PS2. Participants could then have deduced the form-meaning connection existing in them without having more clues than the typographical distinction common to all the target words, as they were underlined. Nonetheless, the overall levels of correct guessing were high in both groups of PS2. This result is promising as to how such a simple strategy as underlying the target words could in fact help learners to infer a word’s meaning.

Surprisingly, PS1 gap-filling exercises yielded better results (the average score being 86%) than multiple-choice questions based on definitions (75%). The lower results of PS2 participants are more in line with traditional beliefs concerning word learning, since speakers first identify and attempt to interiorise the meaning of a word, which eventually leads to productive or contextual uses of that target word.

The wrong answers to the gap-filling exercise suggest that word classes were not accurately identified. The reason behind these confusions may lie in the syllabic structure of words. One example will suffice to illustrate my point: in terms of syllabic structure, there is a close resemblance between *grudge,* *gruff,* and *grunt.* They all are monosyllable words composed of an onset (<gr>), a nucleus (<u>) and a coda (<nt>, <ff>, and <dge>). The coda was thus the only distinctive element.

As it is generally assumed, beginnings of words are more prominent in storage than ends (cf. Aitchison, 1993: 121), so my findings just corroborate the so-called “bathtub effect”. This phenomenon was first formulated by Brown and McNeill (1966) and is described by Aitchison (1993: 119) as follows,

People remember the beginnings and ends of words better than the middles, as if the word were a person lying in a bathtub, with their head out of the water one end and their feet out the other. And, just as in a bathtub the head if further out of the water and more prominent than the feet, so the beginnings of words are on an average better remembered than the ends.

Most phonaesthemes –sound symbolic clusters, consonants or vowels– are cognitively salient, since they prototypically tend to occur either at the beginning or the end of the word (e.g. <sh> ‘continuous movement’ in *splash, mash, crash* or *dash* or <bl> denoting a ‘bursting out’ or ‘the resultant expansion’ in such words as *bloom, blow, blossom, blurt* or *blush*). Therefore, the position of phonaesthemes may also have an effect on the processing and storage of these words, which should be further traced and analysed.

Besides, the word class *per se* is a major factor. Words from the same word class are typically clumped together (e.g. adjectives such as *red, green, blue*) in our mental lexicon, whereas evidence suggests that words belonging to different words classes are more loosely tied (Aitchison, 1993: 100).

The results of my two empirical studies, however, revealed that learners systematically failed to pay attention to the word class of the target lexemes as well as to the parts of speech surrounding the target words. Generally, they were able to identify the correct meaning for the sound symbolic words which were both present and absent in texts, but they were unable to use the words embedded in those texts in subsequent gap-filling exercises, which were productive –in the case of PS1– to a certain degree. This is a limitation of the study that should be tackled in forthcoming research.

As for the participants’ inferential abilities, results for PS1 display that context plays an essential role even in sound symbolic processing. This is in line with the findings presented by Zohrabi *et al.* (2014), who asked intermediate level Turkish learners to infer the meaning of a selection of sound symbolic words. They determined that the highest scores corresponded to those participants who had been presented with the sound-symbolic word embedded in a co-text (Zohrabi, Sabouri, & Peimanfar, 2014: 51).

PS1 participants had problems when selecting the correct definition for *grim, gross, gruesome* and *grisly*, which were not in the text, whereas the rest of vocabulary did not pose any particular difficulties. This is in sharp contrast to the results reported on PS2, in which correct definitions for those words spanned 91.23%-100% of correct answers. Inference is indeed a strategy which can be developed, and it is closely related to learners’ cognitive maturity. In the case of PS1 participants, the variable “age”, which was not originally taken into account, could have played a part.

It is also worth drawing parallels between PS1 and PS2 participants’ awareness of sound symbolic properties. In PS1 70% of the participants realised that all the target words contained <gr>, but only less than 1% noted the semantic connection (“that words had a bad meaning”). However, in PS2 there was a wider range of answers: the majority of PS2 participants (54.55%) underlined the formal connection (i.e. the cluster <gr>) existing among the target words; but 18.18% indicated that they all had “negative connotations” and, even more revealing for the purpose of this study is the fact that 13.64% pinned down the connection between meaning and form. PS2 participants had more exposure to the English language and some training in phonology and lexicology, which may be why these results vary considerably from one experiment to another.

Therefore, awareness of sound symbolic networks among target words could optimise inferential abilities. In both studies I aimed to elicit form-meaning pairings by including a section in the questionnaire in which participants had to state if there were any similarities among the target words underlined in the text and if so which those were. This had a very positive effect on the subsequent tasks, as also corroborated by scholars testing native speakers on sound symbolic grounds (see Parault & Schwanenflugel, 2006; Parault & Parkinson, 2008).

In PS2 one participant went as far as to claim that all sound symbolic words were “synonyms” after stating that they were “related to bad attributes” (Participant number 49). As already mentioned in the previous section, synonymy is one of the most frequent pathways liking words in the mental lexicon, which may be a reason why this participant attempted to conceptualise his/her mental association at a lexical level with this somewhat unfortunate label. Even though sound symbolic words are not synonyms, they do share a common sememe which brings them closer to this type of word link. I would suggest that the connection among sound symbolic words is so strong that it could be better compared to the one arisen out of co-ordination.

Sound symbolic words tend to be clustered together and, generally, occur within the same word class as in the case of the phonaestheme in question, <gl> (*gleam, glare, glitter, glow* or *glint*) or other such as <cl> (e.g. *clamp, clasp, clinch, clog* or *cling*), <m> (e.g. *maunder, mumble, murmur, mutter, mewl*) or <pr> (e.g. *prank* or *prate*). This is a plausible explanation which might have led learners to wrongly store these words as if they belonged to the same class. Hence, unconsciously, sound symbolic words may be stored at the same level than co-ordinates, although they bear resemblance to synonyms in so far as they are semantically closed one to another. An epitome of this is the <gl>-based sound symbolic words.

Overall, these findings imply that sound symbolism, as another lexical property from which learners can derive information, can enhance vocabulary-learning outcomes, thereby corroborating my second hypothesis. This is particularly so if the results based on “sound symbolic elaboration” are contrasted to the outcome of using more traditional word learning processes based exclusively on meaning as in PS1. Similar studies should be replicated in order to be able to generalise the results herein presented.

**4. PEDAGOGICAL IMPLICATIONS AND CONCLUDING REMARKS**

It has been deplored that vocabulary instruction does not encourage attention to the structural aspects of words even though *real* L2 word learning entails the recollection of form as well as meaning (cf. Barcroft, 2002 and 2004; Schmitt, 2010). These two pilot studies attempted to address this gap by drawing on the three main principles of the “Cognitive Vocabulary Approach” (*CVA*) (cf. Harmon, Buckelew-Martin, & Wood, 2010: 101): (1) recognition of unfamiliar words, (2) examination of word meanings, and   
(3) establishing connections amongst word meanings. Particular emphasis was on form-meaning pairing, which builds the foundation for real word knowledge (see Laufer & Girsai, 2008; Schmitt, 2008; Webb, 2007). This is indeed the central aspect underlying the design of the short-scale investigation reported.

A frequent issue raised in the discussion of sound symbolism is the idea that phonaesthemes do not carry meaning within themselves but rather that these prompt word associations from the initial/final word sounds. I postulate that the validity of that claim should be limited to native speakers of English or proficient learners reaching near-native command of the language. In these two experiments, the first languages of the participants involved were mainly Spanish or Catalan, languages which do not have the same lexical networks revolving around a given phonaestheme as other Germanic languages.

However, in the case of <gr>, Spanish/Catalan speakers would be able to relate sound symbolic information to their previous knowledge of such words as *gruñir*/*grunyir* and derived words, *grotesco/grotesc, grosero/grosser* (or *groller*)and derived words, *grima, ogro/ogre* and, more remotely, *gripe/grip* or *grima* in Spanish*.* These anecdotal examples might be deemed to be vestiges of “semantic primitives” (Schank, 1972) of echoic origin, but they do not seem to constitute such a robust semantic network as the one found in English.

Further studies focused on other phonaesthemes completely extraneous to learners should be carried out to either rule out or confirm this possibility. Still, this does not prevent learners from taking advantage of previous exposures to sound symbolic principles in English. Neither does it run contrary to the creation of cross-linguistic sound symbolic networks. Learners may be able to establish a connection between the target words and equivalent words in languages with which they are already familiar or attempt to learn. Linguistic distance and semantic transparency of target phonaesthemes would be thus another criterion to be taken into account in the design of these experiments.

Intermediate learners should be first introduced to phonaesthemes that are semantically transparent, based on the linguistic proximity of the target phonaestheme to the learners’ first language(s). If those first languages belong to the same language family, the teacher’s task will be comparatively easier. Learners will be able to draw on a common (albeit unconscious) lexical-phonetic repertoire. For instance, Germanic languages (German, English, Swedish, Icelandic) share a number of phonaesthemes, such as <gl>, <fl> and <bl>, all of which are connected to light (cf. Carling & Johansson, 2014: 209).

Advanced learners could likewise increase their mental lexicon. More proficient learners are in a closer situation to native speakers, as they have been exposed to the language for a longer period. For this reason I believe that they would particularly take advantage of sound symbolic associations based on “neighbourhood effects” (Andrews, 1997), since the visual recognition of words is under the influence of the type and number of orthographic and phonological neighbours the target word has.

Besides, more attention should be devoted to the phonological dimension of phonaesthemes and lexemes in general. By paying close attention to the target words in written texts, most PS1 and PS2 participants concentrated on graphemes rather than phonemes. This is a natural result of the dissimilar orthographic depth between such a Romance language as Spanish and English: whereas in Spanish there is one-to-one grapheme-phoneme pairing, in English a lack of correspondence between these two linguistic levels is rather the norm. Technically speaking, English has a “deep orthography”, and Spanish has a “shallow orthography”.

Orthographic depth has a strong connection with “sub-vocalised reading”, which was also done in the experiment. Whereas Spanish learners may have problems linking spelling-pronunciation, sets of phonaesthemic words have the peculiarity of sharing the same onset or rime, which are pronounced and written alike. This eases the learning “burden” and facilitates lexical storage of whole sound symbolic words which contain the same phonaestheme.

Taking into account all of these factors, learners should be encouraged to construct word knowledge by attending not only to the meaning but also to the form of the word, and they should not underestimate the role of phonological motivated words in English. In that way, they would sharpen their meta-cognitive skills and avoid root memorisation in form of list of words only semantically connected to a greater or lesser extent.

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1. I use the label “EFL” since the experiments carried out for this study were in this context. However, the findings could be extended to ESL contexts. [↑](#footnote-ref-1)
2. <www.theguardian.com/environment/2013/jun/30/stephen-emmott-ten-billion> [↑](#footnote-ref-2)