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Does pictorial elucidation foster recollection of idioms?

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Experimental evidence suggests that pictorial elucidation helps learners comprehend and remember the meaning of second language (L2) idioms. In this article we address the question whether it also helps retention of the form of idioms, i.e. their precise lexical composition. In a small-scale experiment, the meaning of English idioms was clarified to students with reference to the original, literal use of the expressions. This was done with a view to stimulating dual coding, i.e. the association of the figurative phrases with images of concrete scenes. For half of the idioms, photographs or drawings depicting those concrete scenes were added to the verbal explanations. The learners' recollection of the content words of the expressions was subsequently gauged in a gap-fill test. Overall, the results suggest that the addition of pictorial elucidation contributes little to learners' retention of linguistic form. Distraction by pictures may even have a detrimental effect when it comes to retaining unfamiliar and difficult words, and this seems to apply especially to learners whose learning style shows a predisposition for processing vocabulary through imagery. Insofar as our findings are transferable to vocabulary learning in general, they may call into question the rather indiscriminate and abundant use of pictorials in modern textbooks and CALL packages.

Keywords: idioms, dual coding, pictorials, retention of meaning, retention of form, cognitive style

I Introduction

Case studies arguing in favour of introducing insights from cognitive semantics (e.g. Kövecses, 1986; Johnson, 1987; Lakoff, 1987; Gibbs, 1994) to language pedagogy have often featured figurative idioms as the target for learning (e.g. Kövecses and Szabó, 1996; Boers, 2000; Csábi, 2004; Beréndi *et al.*, 2008; Skoufaki, 2008). This is not surprising given the fact that idioms

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lend themselves particularly well to illustrate two major tenets of cognitive semantics:

- They lend themselves well to illustrate that figuration (most notably metaphor and metonymy) is part and parcel not only of literary genres but also of everyday language (e.g. Lakoff and Johnson, 1980).
- They lend themselves well to illustrate the phenomenon of linguistic motivation, i.e. the non-arbitrary properties of language, because the meaning of idioms can often be shown to derive from the original, literal usage of the phrases (e.g. Boers *et al.*, 2004). For example, *Time flies (when you're having fun)* is one of a number of expressions that reflect one of our metaphorical conceptions of time, namely the conception of time as a moving entity. Likewise, the idiomatic use of *Come under fire* – in, for example, *The Prime Minister came under fire in the Commons for his policy on health care* – is motivated by its literal origin and our conception of debating along a war metaphor.

Several learners' dictionaries of English now include explanations as to how figurative phrases instantiate overarching metaphor themes (e.g. Rundell and Fox's *Macmillan English dictionary for advanced learners*, 2007, 2nd edition) or information about the literal roots of figurative idioms (e.g. Sinclair and Moon's 2002 edition of the *Collins Cobuild dictionary of idioms*), which suggests that dictionary makers are also catching on to the idea that learners may find such information helpful.

One may wonder, though, whether learners might not spontaneously make use of the literal meaning of the words that make up second language (L2) idioms to help them interpret their figurative use, and a study by Cieslicka (2006) actually suggests that they do. However, an obvious prerequisite for this interpretation strategy is that the (literal meaning) of the constituent words be known by the learner. If learners are not yet familiar with, for example, the word *tether* in *Be at the end of your tether*, or the word *keel* in *Be on an even keel*, then the inclination they may have to use a literal reading of the idioms as a way of interpreting the figurative meaning cannot be satisfied. Moreover, the constituent words may have homonyms and the learners may not arrive at a correct interpretation of the idiom via a literal reading unless they 'choose' the appropriate literal meaning of the words (if they are familiar with that particular meaning in the first place). Examples are *suit* in *Follow suit* (from playing cards; not from clothing) and *shot* in *A shot in the arm* (from medicine; not from firearms). It follows that a pedagogical approach to L2 idioms in which the original, literal meaning of constituent words is clarified can contribute to L2 vocabulary expansion at the level of single words too.

Still, even familiar monosemic words do not always contain sufficient clues for successful idiom interpretation. For example, if learners encounter the idiom *Show someone the ropes* and associate *ropes* with a boxing

ring rather than a sailing vessel, then they are likely to misinterpret this expression. Even if learners identify the right 'source domain' of an idiom, they may nevertheless find it hard to pinpoint its precise figurative meaning. For example, learners may successfully associate *The gloves are off* with the source domain of boxing, but still fail to correctly interpret the idiom because taking boxing gloves off could just as well be read as ending a fight (while the appropriate literal reading is continuing a fight bare-fisted and thus inflicting worse injuries).

In sum, although learners may have a natural inclination to look for clues in the literal meaning of the constituent words of an idiom – as suggested by Cieslicka's (2006) study – they will often need explicit guidance towards that literal meaning and an explanation as to how it contributes to the figurative, idiomatic meaning of the given expression.

Studies on L2 idioms such as Cieslicka's and others (e.g. Lennon, 1998; Cooper, 1999; Cornell, 1999; Abel, 2003) have mostly focussed on learners' interpretation or comprehension of L2 idioms, i.e. they relate to 'receptive' skills. The focus in the present article, however, will be on means of helping learners remember L2 idioms, especially for purposes of (re-)production.

The results of a collection of small-scale experiments (surveyed in Boers and Lindstromberg, 2008) suggest that resuscitating the connection of figurative idioms with their literal origins can indeed be a pedagogically effective technique to help learners remember the given expressions. The observed mnemonic benefits are explainable with reference to well-established theories about memory, most notably levels-of-processing theory (e.g. Cermak and Craik, 1979) and dual coding theory (e.g. Paivio, 1986). According to the latter, the association of verbal information with a mental image is advantageous because it creates an additional pathway for recollecting the verbal information. Informing learners about the probable origin of an idiom (e.g. that *Putting out feelers* can be traced back to the scene of a snail probing about with the thin sense organs on its head) is likely to call up in the learners' minds a mental picture of a concrete scene.

An example of how of the above cognitive-semantics-inspired approach to teaching idioms can be put into practice was reported in this very journal by Boers *et al.* (2007). In the application described in that research report, students were presented with three types of on-line exercises, each targeting the same sample of English idioms. In a first stage the students were set a multiple-choice task inviting them to hypothesize about the probable experiential source domain that a given idiom is derived from. For example, the students were presented with the expression *Take something on board* and asked whether they thought the origin of the expression was to do with (1) food and cooking, (2) sports and games or (3) vehicles and transport. After they had made their choice, they were given feedback in the form of a historical/cultural/etymological explanation. In the above example, the students were informed that *Take something on board* is derived from the scene of loading

cargo onto a boat or ship. We will henceforth refer to this as the origin multiple-choice exercise. In a second stage, the students were presented with a multiple-choice task where they had to decide on the correct paraphrase of the idiomatic meaning of the phrase. If they remembered the explanation about the origin of the expression, they could use that knowledge to distinguish the true idiomatic meaning of the expression from (two) distracters. We will refer to this as the meaning multiple-choice exercise. Feedback was provided to corroborate or correct the student's choice. Finally, the students' ability to recollect the idioms was checked in a gap-fill exercise. The idiom with one content word missing was inserted in a transparent context, and the students' task was to fill in the missing word. In the case of the above example, the context would lead up to 'Thank you for your useful suggestions. I'll certainly take your advice on _____.' It may be important to note that in this sequence of exercises the students were confronted with the targeted content words on the computer screen one way or another four times before these words were to be recollected in the gap-fill exercises.

The idioms were presented to the students in series of 25 per stage of the exercise sequence. This was done to ensure that students would experience the exercises as sufficiently challenging, and also – we have to confess – to avoid ceiling effects when the battery of exercises was used for the purpose of experimental research. The following two studies that made use of the battery of exercises were the direct impetus for setting up the experiment that we report on further below.

Boers *et al.* (2006) sought explanations for the sometimes outspoken standard deviations in the scores of student groups that were given the on-line idiom exercises. Analyses revealed that not all student profiles were equally likely to benefit from the information about the origins of the expressions. Students who were self-assessed high imagers – i.e. individuals whose cognitive style shows a predisposition for thinking in mental pictures – generally obtained better scores in the meaning multiple-choice and the gap-fill exercises than their low-imager peers.

With a view to providing extra stimulation for dual coding (via the formation of mental pictures) in the low imagers, Boers *et al*. (2008) decided to add real pictures to elucidate the verbal feedback in the origin multiple-choice exercises. So, a new cohort of students were presented with a renewed version of the on-line exercises in which the explanation about the origin of the idioms was accompanied by a picture (a photograph or a drawing) which was meant to support the verbal input. For example, *A carrot-and-stick method* was now accompanied on the computer screen by a picture of a donkey being urged on by its driver dangling a carrot before it while also threatening to hit it with a stick. It may be important to mention that we chose pictures that we believed really elucidated the meaning of the idioms via providing extra clarification of the literal origins from which the idiomatic meanings were derived. One occasionally comes across pictures in textbooks that seem to have been added for purposes of entertainment rather

than clarification. MacArthur (2006) gives the example of the idiom *Fly off the handle* (meaning getting very angry all of a sudden) which she found accompanied in a textbook by a drawing of a bird sitting on a door handle, i.e. a drawing which obviously clarifies neither the idiomatic meaning nor the literal origin of the phrase.

In comparison with the performance by the previous cohort of students, who had covered precisely the same idioms, the performance under the picture-enhanced version showed a significant ($p < .02$) improvement in the meaning multiple-choice exercises. Mean scores went up from 76.5% to 81% (Boers *et al.*, 2008), and it was especially the low-imagers among the new group of students who seemed to benefit from the pictorial elucidation. There is thus good reason to believe that the addition of pictures to the explanations about the idioms' origins was helpful to at least some students. It helped them to remember the origins and to apply that knowledge to figure out the idiomatic meaning of the expressions in the subsequent meaning multiple-choice exercises. It therefore seems that pictorial elucidation contributes to retention of meaning or, more precisely, the conceptual content of the verbal explanations. However, when it came to students' performance on the gap-fill exercises, where students were supposed to re-produce (part of) the expressions, and hence be able to recollect their precise lexical make-up, the new students' scores were generally lower than those of their predecessors who had been 'deprived' of pictures (Boers *et al.*, 2008). Mean scores actually fell from 75% to 71.5%. Interestingly, it was especially the students who were self-assessed high imagers who did worse than their predecessors.

These findings led us to speculate that the pictures that accompanied the verbal explanations on the computer screen might actually carry the risk of distracting students (especially high-imagers) from the verbal input, so that they spent less time reading the explanations and thus less time contemplating the lexical properties of the idioms which were reiterated in them. This could be no more than speculation, though, because (1) the comparatively lower gap-fill scores under the new, picture-enhanced version of the exercises fell short of statistical significance and (2) for lack of pretesting we could not be certain that the two successive cohorts of students were actually on a par as far as their prior knowledge of the targeted idioms was concerned. So, in order to evaluate the plausibility of the above speculation about the distracting effect of pictorial elucidation we needed to set up a new experiment.

II Research questions

The research questions that the below experiment was set up to provide answers to were the following:

- Does pictorial elucidation of the original, literal meaning of idioms help learners recollect the constituent words of the given expressions, i.e., retention for purposes of (re-)production?

- Do cognitive-style or learning-style variables impact the relative effectiveness of pictorial elucidation as a mnemonic aid? More specifically, do high imagers and low imagers respond differently to this kind of stimulus?

We feel these research questions to be relevant beyond the teaching of L2 idioms given the fact that it has become fashionable to incorporate pictures in textbooks and self-study materials (an example specifically targeting idioms is McCarthy and O'Dell, 2002), while neither the advantages nor the authors' motivation for doing so are always clear apart from the likelihood that pictorials make pedagogical materials more appealing to the user.

III Method

1 Participants

Participants were 38 language majors (aged 19–21) at a college for higher education in Brussels, Belgium. Their mother tongue was Dutch (and some were Dutch–French bilinguals). About half of the participants were in their first bachelor year and the others were in their second bachelor year, and so the level of proficiency in English of the students varied considerably. There are no entry-test requirements to enrol in the first year (and, consequently, the student population in the first year tends to be quite heterogeneous), and the second-year students had obviously received more English tuition at the college than the first-year students. As it was difficult to create two equivalent groups for a between-participants experimental design, we opted for a within-participant design instead.

2 Materials

The participants were presented with 100 idioms using the three exercise types outlined above (i.e. meaning multiple-choice, origin multiple-choice, and gap-fill). All the idioms targeted in these exercises are signalled (by means of an asterisk) in the *Collins Cobuild dictionary of idioms* (Sinclair and Moon, 2002) as 'frequently used' ones. Within this battery of 100 idioms we matched pairs, one member of which would be accompanied in the origin multiple-choice exercises by a picture while the other would not. This yielded a set of 60 items (see Appendix 1) that were matched as well as possible in terms of estimated difficulty according to the following criteria:

- The gap-fill exercise (which would serve as post test) targeted the same number of monosyllabic words (e.g. *On an even <u>keel</u>*) and bi-syllabic words (e.g. *Have the <u>inside</u> track*) in both sets.
- In both sets, the gap-fill exercise targeted equal numbers of words from the same frequency bands, as indicated in the *Collins Cobuild English*

dictionary (Sinclair, 1995), ranging from frequency band one (e.g. *Come up trumps*) to frequency band five (e.g. *In hot water*).

- Both sets contained the same number of idioms that have first language cognates. For example, *Earn your spurs* and *Rest on your laurels* have Dutch counterparts, although the keywords (targeted in the gap-fill exercise) are slightly different (*sporen* and *lauweren*, respectively).
- Both sets contained the same number of idioms featuring strong assonance or consonance (e.g. *Carry the can*; *Too close to call*), i.e. sound patterns that have been found to be mnemonically facilitative (e.g. Lindstromberg and Boers, 2008).

Per matched pair of target idioms (or, more precisely, per matched gap-fill target words), we evaluated the pictorial elucidation that we had added to the origin multiple-choice exercises for the previous cohort of students (see above). The principal criteria for evaluation were quality and precision of the picture. Per matched pair we then deleted the picture we unanimously felt to be least satisfactory. The new cohort of students (i.e. the participants in the present experiment) would thus be presented with 30 idioms accompanied (in the origin multiple-choice exercises) by what we felt to be an elucidating picture of their literal origins and with 30 idioms with only verbal explanations about those origins. The 60 idioms we had managed to match were evenly distributed over the set of 100 idioms to be presented to the students. The exercises thus also included 40 idioms that had fallen short of the matching criteria listed above. Students' scores on the latter were excluded from the data analysis. As with previous cohorts of students, the 100 idioms were not presented in one go. Instead, they were presented in series of 25 at a time, i.e. the students tackled the same 25 idioms along the three exercise types before moving on to the next series of 25 idioms.

3 Procedure

The students spent two one-hour sessions on the idiom exercises, doing two series in each session. The exercises were tackled individually, in class (or rather in the college's computer room), under supervision of the teacher.

In contrast with the order of the tasks outlined above – and despite evidence of the pedagogical advantages of that particular order (Boers *et al.*, 2007) – the meaning multiple-choice exercises (i.e. 'What is the figurative meaning of …?') were presented first. That way, these could serve as a pretest to ascertain which of the targeted idioms were as yet unknown to students. Our analysis of the students' gap-fill responses will therefore be concerned with the idioms that were wrongly interpreted in the meaning multiple-choice exercises, and whether the ones that were accompanied by pictorial elucidation in the feedback to the origin multiple-choice exercises (i.e. 'What domain do you think … comes from?') were recollected more

successfully in the subsequent gap-fill exercises than the ones whose literal origin was presented only verbally.

As was mentioned in the introduction to this research report, the addition of pictures to the on-line exercises was originally driven by our concerns about cognitive-style variables, and more specifically by our wish to stimulate dual coding in students who might be less inclined to process vocabulary through mental imagery autonomously. The cognitive-style questionnaire that we used in previous studies (Boers *et al.*, 2006; Boers *et al*., 2008) was borrowed from Childers *et al.* (1985). In their questionnaire, respondents are invited to indicate on a four-point scale to what degree each of 22 statements applies to them. Half of the statements are meant to estimate the extent to which a respondent is inclined to think in mental pictures (i.e. to estimate the extent to which a respondent is a high or a low imager). These include statements such as 'I like to relive special times in my life by mentally picturing just how everything looked.' The other half of the statements are analogous to these, but they refer to the respondent's relative inclination to think in words rather than pictures. The respondents' self-assessment with regard to both types of statements gives an indication of their position on a cognitive-style continuum from low imager to high imager. However, this questionnaire was produced in the domain of marketing and consumer research, and some of the items do seem rather distant from the life experience of our students. Moreover, none of the questions pertain to language learning, let alone vocabulary learning in particular (except for the item 'I like learning new words', which our students – given the fact that they have chosen to become language majors in the first place – consider to be rather self-evident). As a result, the Childers *et al.* (1985) questionnaire was felt by our students to lack face validity, and we have meanwhile replaced it by another questionnaire that we put together ourselves and which has been handed out to our students primarily for purposes of self-assessment and awareness-raising. The new questionnaire, which can be found in Appendix 2, retains the four-point response format of its predecessor, but the majority of the statements to which students are invited to respond tap into Schmitt's (1997) taxonomy of vocabulary learning strategies. A number of these also clearly relate to mental imagery and they can thus be used to estimate to what extent individual students tend to resort to mental pictures when they try to remember new vocabulary (or process language generally), while the other statements relate to strategies of a more 'verbal' kind.

IV Results

Let us first briefly look at the gap-fill results irrespective of the pretest data. The 30 gap-fill items targeting idioms whose literal origins had been elucidated pictorially and the 30 gap-fill items targeting idioms whose literal origins had been explained only verbally yielded very similar numbers

of correct responses. Mean gap-fill scores were 21.95 (SD 4.67) and 21.87 (SD 4.09), respectively.

However, as explained above, we were interested in students' gap-fill responses related to hitherto unfamiliar idioms, i.e. idioms that they failed to interpret correctly in the meaning multiple-choice exercise (i.e. the pretest). The question was whether previously unknown idioms were better recalled in the gap-fill exercises after they were presented with pictorial elucidation in the origin multiple-choice exercise. Of the total number of 2280 responses in the meaning multiple-choice exercises (n 38 × 60 matched idioms), 796 (34.91%) were incorrect. In general, the idioms that were associated with pictures in the subsequent origin multiple-choice exercises appeared to be slightly easier than the others (or at least the multiple-choice items related to them were). Students misinterpreted on average 9.87 (SD 3.68) and 11.10 (SD 4.36) idioms per set of 30, respectively. The mean scores on the corresponding gap-fill items were 7.13 (SD 2.84) and 7.57 (SD 3.30). Sixteen students recalled more items that had been elucidated by a picture, while 20 recalled more items the origin of which had been explained only verbally. Application of the Sign Test, comparing individual students' recall rates of pictorially elucidated idioms with their recall rates of the others, yields p 0.618 (two-tailed). The overall data thus provide no statistical evidence so far to suggest that adding pictures to stimulate the dual coding of L2 idioms fosters recollection of the phrases for purposes of re-production.

As we mentioned above, the words targeted in the gap-fill exercises were also matched with regard to the frequency bands signalled in the *Collins Cobuild dictionary* (Sinclair, 1995). We may assume that words belonging to relatively low frequency bands were more likely than those belonging to relatively high frequency bands to be unknown to the students before their (literal) meaning was clarified in the origin multiple-choice exercises. Among the idioms that were presented with pictures the ones targeting low-frequency words were: *Come up trumps, Be at the end of your tether, (Not) Rest on your laurels, Grasp the nettle, Rap someone on the knuckles*, and *Play second fiddle*. Among the idioms whose literal origins were explained only verbally they were: *Throw down the gauntlet, Ride roughshod over someone, Be on an even keel, Throw a spanner in the works, Pass muster*, and *Rattle your sabre*. This subset of 12 idioms generated 172 incorrect responses in the meaning multiple-choice exercises. In the corresponding gap-fill items, the target words of the idioms whose literal origins had been elucidated pictorially turned out less likely to be recalled successfully than the target words of the idioms whose literal origins had been explained only verbally. Mean scores were 49.12% and 63.71%, respectively. Application of the Sign Test shows the likelihood of obtaining lower recall rates for the pictorially elucidated idioms to be significant at p 0.0347 (two-tailed; n 17 vs. n 6).

Similar quantitative comparisons of recall rates between subsets of target words belonging to higher frequency bands did not produce any noteworthy

(let alone statistically significant) differences, which suggests that the addition of pictures had little impact on students' recollection of the lexical make-up of idioms whose targeted content words they were probably already familiar with.

A more qualitative comparison of the wrong responses in the gap-fill exercises reveals that students often substituted the precise target word of idioms that had been presented with pictorial elucidation by a (more common) synonym. This suggests that students tended to remember the pictures and the concepts depicted in them, but failed to remember the precise words to denote those concepts. For example, instead of *toss* in *Argue the toss* (which was elucidated in the origin multiple-choice exercise by a picture of football players tossing a coin), they would type *throw*. Instead of *rein* in *Keep a tight rein on someone* (elucidated by a picture of the reins on a horse held tightly in fisted hands) they would produce *rope*. Instead of *fiddle* in *Playing second fiddle*, they would write *violin*. And so on. This type of incorrect response in the gap-fill task occurred no fewer than 32 times in connection with idioms that had been presented with a picture, compared to just ten times in connection with idioms that were explained only verbally (e.g. *flame* instead of *flash* in *Flash in the pan* and *in the middle* instead of *halfway* in *Meet someone halfway*). Application of the Sign Test shows that students were statistically more likely at p 0.0014 (two-tailed) to make this type of mistake with regard to idioms presented with pictures (n 24 vs. n 6). This lends plausibility to our speculation that the pictures indeed tended to distract students' attention away from the precise verbal input, which the pictures were actually meant to support. Sometimes students seem to have zoomed in on the 'wrong' elements of the scenes depicted by the photographs or drawings. For example, instead of *toss* in *Argue the toss* they would type *coins*, and instead of *rein* in *Keep a tight rein on someone* they would type *fist*. Again, this suggests that these students' attention was so much drawn to the pictures that they paid insufficient attention to the verbal input. This type of error did not occur in the gap-fill responses related to idioms whose origins had been elucidated only verbally.

If it is true that students spent insufficient time and effort reading the verbal explanations about the literal origins of the idioms – i.e. explanations in which the keywords of the expressions were reiterated – then they may in effect have attended to the targeted words only three times (instead of the intended four times) prior to the gap-fill exercise. It is then not surprising that the verbal input left a relatively weaker trace in their memories, resulting in their failure especially to recall relatively difficult or hitherto unfamiliar target words.

Let us now turn to the research question regarding possible cognitive-style or learning-style variables in the mnemonic effect of pictorials. Unfortunately, we obtained the filled out style of memory questionnaires of only 14 students who had participated in our experiment on the role of pictorial elucidation.

These we used to estimate the students' position on the imager continuum and to correlate that by means of the Spearman Rank correlations test to their performance in the idiom exercises. The students' position of the imager continuum was calculated by (1) adding up their scores on all the items related to imagery strategies and (2) subtracting from that the total score on the items related to verbal strategies. The latter was done to compensate for individual differences regarding overall under- or overestimation. (In fact, when we repeated the correlation analyses by using the students' 'raw' total scores on the two categories of items, the outcome was virtually identical.)

We calculated correlations first with students' raw recall rates and subsequently with students' recall rates (percentage-wise) of the idioms they had been shown by the pretest to be unfamiliar with. Noteworthy correlations were found only with regard to the idioms whose origins had been elucidated pictorially: significant negative correlations (*rs*. –0.68 and –0.67; $p < .01$) were found between the students' inclination towards mental imagery and their recall rates of idioms that had been presented to them with pictorial elucidation. It thus seems that the pictures had a distracting effect especially on students who were already prone to processing vocabulary via imagery. Coincidentally, there is one particular item in the questionnaire which goes straight to the heart of the idiom-learning strategy employed in the on-line exercises, i.e. 'I try to remember … in the case of figurative expressions, by imagining their literal meaning' (see Appendix 2). The Spearman rank correlation of recall rates of pictorially supported idioms with students' responses to this item alone yields *rs*. –0.78 ($p < .01$).

V Conclusions

While previous research suggests that (good) pictorial elucidation is likely to facilitate retention of the meaning of idioms, the results of the experiment reported above suggest that its contribution to retention of the form of idioms – i.e. their precise lexical composition – for purposes of re-production may well be negligible. Our findings suggest that when verbal input has to compete for the learner's attention with pictorial elucidation, it is the latter that is likely to be best retained by the learner and possibly so at the expense of the former. This is in fact in accordance with experimental psychologists' findings of the mnemonic power of pictures when presented alongside verbal information, the so-called picture superiority effect (e.g. Nelson *et al.*, 1976).

When the words that are to be recalled are already well-entrenched in the learner's memory, then remembering the associated picture may indeed provide a mnemonic pathway that leads straight to the word that is to be retrieved. However, when it comes to recollecting a word that has left only a weak trace in memory, then the mnemonic route via the associated picture may just be a dead end.

We do need to acknowledge, of course, that ours was a small-scale study, the general findings of which would need to be replicated before any firm conclusions can be drawn. For one thing, the number of respondents was small, especially in the correlational analysis. For another, the learning experiment measured students' recollection of words that are part of multiword expressions. We cannot tell to what extent our observations are transferable to learners' recall of single words after they have been elucidated by means of a picture. We nevertheless believe our findings call for some caution, or at least realistic expectations, on the part of materials writers, textbook authors and CALL package designers when they decide to add pictorials to the verbal input.

When pictures are chosen well, i.e. when they really elucidate the target items, they are indeed likely to stimulate retention of meaning, i.e. retention of the concepts denoted. However, there seems little reason to believe that the pictures will also stimulate retention of the precise linguistic form that is used to denote those concepts. A study by Yoshii (2006) on the effectiveness of different kinds of glosses also showed beneficial effects of pictures with regard to learners' retention of the meaning of words, but not with regard to their (re-)productive knowledge of them.

We also acknowledge that the addition of pictorials can make pedagogical materials more appealing, and that it is thus likely to contribute to positive affect. Besides, in this day and age it would be unrealistic to try to wean learners and materials writers off the use of pictures, anyhow. Nonetheless, our findings suggest that, when one of the objectives of a programme is for language learners to add words and expressions to their repertoires for active usage, it must be pedagogically sound to at least incorporate a stage in the learning sequence where the learners' attention is drawn to linguistic form (in the case of our study, the precise lexical make-up of multiword units) in addition to meaning. This could be done, for example, by presenting pictorials only after the verbal information has been attended to, or by drawing learners' attention explicitly to certain formal features that are known to have mnemonic potential, such as assonance and consonance (e.g. in *Rule the roost*).

VI References

Abel, B. (2003). English idioms in the first language and second language lexicon: a dual representation approach. *Second Language Research*, *19*, 329–58.

Beréndi, M., Csábi, S. and Kövecses, Z. (2008). Using conceptual metaphors and metonymies in vocabulary teaching. In Boers, F. and Lindstromberg, S. (Eds.), *Cognitive Linguistic approaches to teaching vocabulary and phraseology* (pp. 65–99). Berlin/New York: Mouton de Gruyter.

Boers, F. (2000). Metaphor awareness and vocabulary retention. *Applied Linguistics 21*, 553–71.

Boers, F. and Lindstromberg, S. (2008). How cognitive linguistics can foster effective vocabulary teaching. In F. Boers and S. Lindstromberg (Eds.), *Cognitive Linguistic Approaches to Teaching Vocabulary and Phraseology* (pp. 1–61). Berlin/New York: Mouton de Gruyter.

Boers, F., Demecheleer, M. and Eyckmans, J. (2004). Etymological elaboration as a strategy for learning figurative idioms. In Bogaards, P. and Laufer, B. (Eds.), *Vocabulary in a second language: selection, acquisition and testing* (pp. 53–78). Amsterdam/Philadelphia: John Benjamins.

Boers, F., Eyckmans, J. and Stengers, H. (2006). Means of motivating multiword units: rationale, mnemonic benefits and cognitive-style variables. In Foster-Cohen, S., Medved Krajnovic, M. and Mihaljevic Djigunovic, J. (Eds.), *EUROSLA Yearbook 6* (pp. 169–90), Amsterdam/Philadelphia: John Benjamins.

Boers, F., Eyckmans, J. and Stengers, H. (2007). Presenting figurative idioms with a touch of etymology: more than mere mnemonics? *Language Teaching Research*, *11*, 43–62.

Boers, F., Lindstromberg, S., Littlemore, J., Stengers, H. and Eyckmans, J. (2008). Variables in the mnemonic effectiveness of pictorial elucidation. In Boers, F. and Lindstromberg, S. (Eds.), *Cognitive linguistic approaches to teaching vocabulary and phraseology* (pp. 189–216). Berlin/New York: Mouton de Gruyter.

Cermak, L. and Craik, F. (1979). *Levels of processing in human memory*. Hillsdale, NJ: Erlbaum.

Childers, T.L., Houston, M.J. and Heckler, S.E. (1985). Measurement of individual differences in visual versus verbal information processing. *Journal of Consumer Research*, *12*, 125–34.

Cieslicka, A. (2006). Literal salience in on-line processing of idiomatic expressions by second language learners. *Second Language Research*, *22*, 115–44.

Cooper, T. (1999). Processing of idioms by L2 learners of English. *TESOL Quarterly*, *33*, 233–62.

Cornell, A. (1999). Idioms: an approach to identifying major pitfalls for learners. *IRAL*, *37*, 1–21.

Csábi, S. (2004). A cognitive linguistic view of polysemy in English and its implications for teaching. In Achard, M. and Niemeier, S. (Eds.), *Cognitive linguistics, second language acquisition, and foreign language teaching* (pp. 233–256). Berlin/New York: Mouton de Gruyter.

Gibbs, R.W. (1994). *The poetics of mind: figurative thought, language and understanding*. Cambridge: Cambridge University Press.

Johnson, M. (1987). *Moral imagination: implications of cognitive science for ethics*. Chicago, IL: University of Chicago Press.

Kövecses, Z. (1986). *Metaphors of anger, pride and love: a lexical approach to the study of concepts*. Amsterdam/Philadelphia: John Benjamins.

Kövecses, Z. and Szabó, P. (1996). Idioms: a view from cognitive semantics. *Applied Linguistics*, *17*, 326–55.

Lakoff, G. (1987). *Women, fire and dangerous things: what categories reveal about the mind*. Chicago, IL: University of Chicago Press.

Lakoff, G. and Johnson, M. (1980). *Metaphors we live by*. Chicago, IL: University of Chicago Press.

Lennon, P. (1998). Approaches to the teaching of idiomatic language. *IRAL*, *36*, 12–30.

Lindstromberg, S. and Boers, F. (2008). The mnemonic effect of noticing alliteration. *Applied Linguistics*.

MacArthur, F. (2006). Metaphor in the real world of ELT: coursebooks for learners aged 12–18. Unpublished paper presented at the RaAM 6 Conference, Researching and Applying Metaphor: Ten years on. University of Leeds.

McCarthy, M. and O'Dell, F. (2002). *English idioms in use*. Cambridge: Cambridge University Press.

Nelson, D.L, Reed, V.S. and Walling, J.R. (1976). Picture superiority effect. *Journal of Experimental Psychology: Human Learning and Memory*, 2, 523–28.

Paivio, A. (1986). *Mental representations*. Oxford: Oxford University Press.

Rundell, M. and Fox, G. (Eds.) (2007). *Macmillan English dictionary for advanced learners*. 2nd edition. Oxford: Macmillan.

Schmitt, N. (1997). Vocabulary learning strategies. In Schmitt, N. and McCarthy, M.M. (Eds.), *Vocabulary: description, acquisition and pedagogy* (pp. 199–236). Cambridge: Cambridge University Press.

Sinclair, J. (Ed.) (1995). *Collins Cobuild English dictionary*. Glasgow: HarperCollins.

Sinclair, J. and Moon, R. (Eds.) (2002). *Collins Cobuild dictionary of idioms*. 2nd edition. Glasgow: HarperCollins.

Skoufaki, S. (2008). Conceptual metaphoric meaning clues in two idiom presentation methods. In Boers, F. and Lindstromberg, S. (Eds.), *Cognitive linguistic approaches to teaching vocabulary and phraseology* (pp. 101–31). Berlin/New York: Mouton de Gruyter.

Yoshii, M. (2006). L1 and L2 glosses: their effects on incidental vocabulary learning. *Language Learning and Technology*, *10*, 85–101.

Appendix 1: Idioms targeted in the experiment (the underlined words were the targets in the gap-fill exercises)

Presented with pictorial elucidation: clear the decks; the ball is in your court; be off base; carrot and stick; a one-man band; burn your bridges; take it on the chin; a baptism of fire; carry the can; jump in at the deep end; have had your fill; play second fiddle; ruffle someone's feathers; mend fences; lower your guard; live from hand to mouth; rest on your laurels; grasp the nettle; keep a tight rein on someone; rap someone on the knuckles; the knives are out for you; wide off the mark; pull the strings; have the inside track; call the tune; come up trumps; be in hot water; at the end of your tether; dyed in the wool; argue the toss.

Presented without pictorial elucidation: bring someone to book; take something on board; be past your sell-by date; go belly up; a loose cannon; be on

cloud nine; show your true colours; sign someone's death warrant; not your cup of tea; a false dawn; have egg on your face; jump the gun; a flash in the pan; lose your edge; turn up the heat on someone; meet someone halfway; be on an even keel; pass muster; take pot luck; rattle your sabre; give someone lock, stock and barrel; ride roughshod over someone; earn your spurs; a long shot; on your tail; throw down the gauntlet; a clean slate; throw a spanner in the works; too close to call; a shot across someone's bows.

Appendix 2: Questionnaire used for the correlation analysis (items felt to be related to imagery strategies are signalled by *)

Style of memory questionnaire

People differ in the types of memory strategies they tend to use when learning words and expressions. The purpose of this questionnaire is to find out what strategy you tend to use. For example, do you often try to remember words and expressions by associating them with pictures? Or do you prefer to connect them to other words with a similar meaning, with translations perhaps? Or do you exploit the way words sound and say new words out loud? Please circle one of the four options next to each of the statements. There are no right or wrong answers.

	Almost never	Some-times	Often	Very often
I try to remember new words or expressions ...				
1. by saying them out loud a couple of times (or by doing so silently, in my head)	1	2	3	4
2. by creating a mental picture of what they refer to*	1	2	3	4
3. by associating them with their translation equivalent	1	2	3	4
4. by analysing the building blocks of longer words, e.g. prefix + root	1	2	3	4
5. In the case of action verbs (e.g. *squeeze*), by "acting out" their meaning (physically or just in my imagination)*	1	2	3	4
6. by inserting the word or expression in a story or scenario*	1	2	3	4
7. by associating them with another word because of a similar sound, e.g. when learning *jeopardy* (= danger), I might think of the sound of *leopard*	1	2	3	4
8. by associating them with another word because of a similar spelling, e.g. when learning *jeopardy*, I might think of the written word *leopard*	1	2	3	4

(*Continued*)

Appendix 2 (*Continued*)

9.	by associating them with a particular place (e.g. where they first struck you)*	1	2	3	4
10.	by focussing on how a word is written (or by actually writing it down)	1	2	3	4
11.	by organising sets of words in diagrams (e.g. connecting words that belong to the same field) or scales (e.g. placing *lukewarm* on a line between *cold* and *hot*)*	1	2	3	4
12.	by "playing with" the sound of the words, e.g. creating rhymes	1	2	3	4
13.	by recalling a song, a spoken slogan, or so, in which they are used	1	2	3	4
14.	by using them in a sentence (that I encountered them in or one I invent myself)	1	2	3	4
15.	in the case of figurative expressions, by imagining their literal meaning, e.g. when learning *Close ranks*, I might picture soldiers shoulder to shoulder on a battlefield; when learning *Rat race*, I will picture real rats; etc.*	1	2	3	4
A few more general questions:					
16.	I'm good at remembering how people speak (e.g. I can imitate them).	1	2	3	4
17.	I'm good at remembering what someone said, i.e. her/his precise words.	1	2	3	4
18.	I'm good at interpreting diagrams in a manual; I don't need to read the text.*	1	2	3	4
19.	I think aloud or "say" things internally.	1	2	3	4
20.	When I draft an outline of an essay or a presentation, I use arrows and other symbols to signal the connections between words.*	1	2	3	4