

The Role of Imagery in Dictionaries of Idioms

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This article adopts a cognitive linguistic approach to idioms as motivated lexical units. The focus is on lexicographic applications of the notion of motivation; specifically, on the usefulness of imagery in the form of pictorial illustrations and etymological notes in idioms dictionaries. We discuss the main features of idiom semantics, review the results of research into the influence of motivating information on idiom acquisition, and outline the issue of imagery in idiom entries, highlighting the problems involved. Finally, we report on a study with Polish university students of English. Our findings point to a facilitative role of pictorial illustrations on short- and long-term retention of both form and meaning of idioms. In contrast, etymological notes do not have any positive effect.

INTRODUCTION

Idiomatic expressions, with their colourful literal meaning, seem to lend themselves perfectly to a graphical presentation. Popular ELT books (Watcyn-Jones 1990; Hancock 1992; Milton and Evans 1998; Wright 2002) have capitalized on this characteristic for a long time now, and a few idioms dictionaries (OID2, CID2) follow suit. More interestingly, the new editions of idioms dictionaries (CCID2, CID2, OID2) supply some of their entries with brief etymological notes. Both methods—pictures and etymology—evoke mental imagery (as defined in Lakoff 1987), and can be treated as an application, or a reflection, of the cognitive linguistic (henceforth CL) views on idiomaticity. In this article, we investigate ‘imagery’ in the sense of verbal and non-verbal elements (here, in the form of etymological information and pictures) that may stimulate the formation of conventional images (Lakoff 1987: 446–447) associated with the literal readings of idioms. In order to assess the merits of placing illustrations and etymological notes next to traditional explanations of idioms, one needs to consider the findings in at least three fields: (i) idiom semantics from the CL perspective; (ii) the effect of motivating information on idiom acquisition; (iii) the role of visuals and etymology in pedagogical lexicography. Additional useful insights can be gained from research into picture perception and memory models. These issues will structure the selective overview of the literature in the first part of the article; the empirical part reports on the results of

an experiment, which is an attempt to answer questions addressing the role of imagery in dictionaries of idioms.

IDIOMATIC EXPRESSIONS: CHARACTERISTIC FEATURES

Semantic structure

The ambiguous term *idiom*¹ will be interpreted here in accordance with the criteria of the Idiomaticity Theory adopted by Dobrovol'skij and Piirainen (2005: 39–44), namely as a multiword unit marked by the highest degree of semantic irregularity (*idiomaticity*, translating into *semantic reinterpretation*, *figurativeness* and/or *opacity*) and structural irregularity, *stability*, or *fixedness*. As Dobrovol'skij and Piirainen (2005: 40) put it, 'idioms must be fixed in their lexical structure (however, this does not exclude a certain limited variation), and they must be, at the same time, semantically reinterpreted units (i.e. they do not point to the target concept directly but via a source concept) and/or semantically opaque'. Opacity, or lack of transparency, refers to the difficulty in explaining the link between the lexical structure and the actual meaning of the idiom.

In the light of the Idiomaticity Theory, all idioms, whether opaque, transparent, or partially transparent, are considered figurative² by definition, since they fulfil the criteria of *additional naming* and *image requirement*, the image component being 'a specific conceptual structure mediating between the lexical structure and the actual meaning of figurative units' (Dobrovol'skij and Piirainen 2005: 14). It is postulated that relevant elements of the image component be included in the explication of an idiom in order to raise the awareness of the difference between the idiom—the 'additional name' for an entity—and its non-figurative equivalent. By way of illustration, Dobrovol'skij and Piirainen (2005: 15) provide the following definition with the 'as if' element, which underlines the difference between *to be between a rock and a hard place* and *to be in a very difficult situation*:

facing a situation of choice between two possibilities which both entail difficulties and failure, as if the person pursuing his/her goals was not able to move away freely.

If, as Dobrovol'skij and Piirainen (2005: 80) observe, the strategies used for processing the image triggered by the lexical structure of the idiom 'stabilize the understanding of the idiom', the insertion of illustrations and etymological notes in dictionaries of idioms seems to be justified.

Idioms as motivated lexical units—a CL view³

Objectivist linguistic theory views idioms as arbitrary lexical units because their meaning cannot be computed or predicted on the basis of the meaning of their lexical components. The CL alternative to the arbitrary—predictable

dichotomy is motivation, defined as follows: '[t]he relationship between A and B is *motivated* just in case there is an independently existing link, L, such that A-L-B "fit together". L *makes sense* of the relationship between A and B' (Lakoff 1987: 448 [emphasis original]). To put it another way, '[m]otivation refers to a speaker's ability to make sense of an idiomatic expression by reactivating or remotivating their figurativity, i.e. to understand why the idiom has the idiomatic meaning it has with a view to its literal meaning' (Langlotz 2006: 45 [emphasis original]). CL holds that most idioms are motivated, even if motivation is a gradable and subjective phenomenon, dependent on the speaker's knowledge, experience, age, etc. Motivation does not imply predictability. For instance, we cannot guess that *to take the bull by the horns* means 'to deal with a difficult or dangerous situation in a direct and brave way' (OID2) on the basis of the lexical makeup of the phrase. Someone could as well hypothesize that the idiom means 'to act recklessly, foolishly'. However, once the actual meaning is known, one makes sense of the idiom. The bull stands for the difficult situation, whereas the act of taking it by the horns—for tackling the situation.⁴

Motivating links are provided by the conventional image,⁵ knowledge about the image (often culture-specific), and the conceptual metaphors⁶ that 'link the image and the knowledge to the meaning of the idiom' (Lakoff 1987: 450). Other important conceptual mechanisms that often support the recognition of a motivated idiom structure include metonymy and the interaction between metaphor and metonymy, that is metaphonymy (Goossens 2003). In this article, we will concentrate on the conventional image as a motivating link.

While many idioms are a linguistic realization of conceptual metaphors,⁷ others are motivated at the less abstract level of the rich image. In Dobrovol'skij and Piirainen's (2005: 95) words, '[t]here is an "iconic similarity" between the actual (figurative) meaning and the "inner form" (the imagery evoked by the lexical structure) of the idiom'. To take the example of the idiom *to have many irons in the fire*, the situation when someone has many projects at the same time resembles the way a blacksmith has several pieces of iron in the fire so that he can always work with one that is hot enough. We can talk of 'the superimposition of one image onto the other' (Kövecses 2002: 38), that is the image encoded in the lexical structure of the expression is imposed on that of the experience to which the expression refers.

Motivating links are sometimes called, as Lakoff (1987: 451) notes, *folk etymologies*, as opposed to 'true' etymology. According to Dobrovol'skij and Piirainen (2005: 82–83), neither should be excluded from semantic analysis of idioms. First and foremost, in the view of CL, the dichotomy synchrony/diachrony is untenable. Both are said to involve comparable conceptual operations. Moreover, discovering the origins, often the cultural roots, of the image component has potential linguistic consequences for usage restrictions.

The following section deals with pedagogical applications of the notion of idiom motivation.

THE EFFECTS OF IMAGERY ON IDIOM LEARNING

Committing new idioms to long-term memory in a way that taps the motivating links should be a less daunting task than simple rote learning, in line with the well-known principle that '[i]t is (...) easier to *remember* and *use* motivated knowledge than arbitrary knowledge' (Lakoff 1987: 346 [emphasis original]). Unsurprisingly, the CL approach has inspired numerous studies into the effects of semantic motivation on idiom learning.⁸ Particular attention has been given to the role of raising *metaphorical competence*⁹ (Kövecses 2002: 206) and that of the rich imagery evoked by the literal meaning of idioms.

Extensive research has been conducted by Boers and his colleagues into the effects of mental imagery evoked by *etymological elaboration*, that is processing information related to the origins of the expression. The items tested were often figurative idioms, that is 'idioms whose source domains are easy to identify and are sufficiently informative to figure out the metaphorical sense' (Boers *et al.* 2004b: 379), for example *burn your bridges*, *jump in at the deep end*, *the knives are out (for sb)*, *rock the boat*. They were also characterized by a rich image ('imageable' idioms), originating in concrete physical experience, that is, in very specific source domains (SDs) such as fighting/warfare (e.g. *throw someone off balance*, *in the line of fire*), food/cooking (e.g. *the icing on the cake*, *bread and butter*), or games/sports (e.g. *have sth up your sleeve*, *the ball is in your court*) (Boers and Lindstromberg 2006a). According to the levels of processing theory (Craik and Lockhart 1972) and the dual coding theory (Paivio 1986), memory performance is a function of the depth of processing, and visual and verbal information are processed and stored along different channels. Accordingly, extensive processing of the information stimulating mental imagery may enhance the depth of processing and, additionally, encourage the processing of verbal information through the non-verbal code. Storing information via both memory channels: verbal and non-verbal should have a favourable effect upon the comprehension and retention of words. Gallese and Lakoff (2005: 4) propose that in order to understand a concept such as *grasp*, 'one must at least be able to imagine oneself or someone else grasping an object. *Imagination is mental simulation* (...)'. Mental imagery, rather than being disembodied, independent of perception, is embodied, because, as Gallese and Lakoff (2005: 9) put it, '[s]ome of the same parts of the brain used in seeing are used in visual imagination (imagining that you are seeing)'.

A positive influence of etymological elaboration on form and meaning retention has been reported in Boers (2001). In this small-scale study, recall of both form and meaning turned out to be better in the experimental group than in the control group, which, instead of guessing at the origins of figurative idioms, had to supply a possible context of use. Form retention was not as successful as meaning retention since the task did not encourage form processing.

The question whether the strategy of etymological elaboration is equally effective in the case of transparent idioms and opaque idioms is addressed by

Boers *et al.* (2004a). In the first experiment, the group that had been asked to identify the source of the phrase scored higher on the retention task (gap-fill) than the control group. However, the effect of elaboration on opaque idioms was weaker than for transparent ones. The authors put this down to the affective factor: the task of identifying the source of opaque idioms may have been frustrating and unrewarding, especially when idioms contained misleading keywords (homographic, unfamiliar, obsolete words) or when the etymology involved anecdotal knowledge. Interestingly, in a follow-up study, the gap-fill scores for opaque and transparent idioms were comparable in the case of previously unknown idioms. Apparently, 'reading a brief etymological explanation is equally beneficial to retention (through dual coding) as correctly identifying the SD [source domain] followed by reading the etymological explanation' (Boers *et al.* 2004a: 73). The fact that the scores for correctly interpreted opaque idioms were not particularly affected by the presentation of etymological information was attributed to the affective factor—students who had guessed the meaning successfully did not feel motivated enough to pay attention to etymology, and lengthy notes tended to be skipped. The authors conclude that etymological elaboration can be useful with both types of idioms; for opaque idioms, an explicit concise explanation of the origin of the idiom works best.

One of the variables that may potentially influence the effects of imagery on idiom learning is the subjects' cognitive learning style. In Boers *et al.* (2008), students' position on the verbalizer/imager continuum¹⁰ was correlated with their scores on the idiom comprehension and recollection tasks. Unsurprisingly, high imagers benefited most from the feedback on the origin of idioms. In a follow-up experiment, a picture on the computer screen followed the verbal explanation of etymology in order to help low imagers (verbalizers) form a mental image. As predicted, pictures neutralized the score differences between low and high imagers, and the recall of meaning rose from 76.5 to 81%. This shows that verbalizers can also benefit from the motivating information if pictorial illustrations supplement etymological notes. Unexpectedly, the results in the gap-fill test were not favourably affected by the addition of pictures, and high imagers fared worse than low imagers. Boers *et al.* (2008) conclude that pictures serve semantic elaboration rather than structural elaboration, and the most effective use of pictures is when they encourage students to hypothesize about the origin of the idiom, and not when they merely accompany the verbal etymological information.

Summing up, a series of studies point to the effectiveness of etymological elaboration as a technique enhancing the perception of idioms as motivated lexical units, which, in turn, is conducive to their comprehension and retention. More importantly perhaps, '[r]ecognition of motivation in the linguistic sense may foster motivation in the psychological sense' (Boers *et al.* 2006: 186). The pedagogical merits of motivating information being established beyond doubt, one cannot disagree with Boers *et al.*'s (2006: 187) call for follow-up research, in which the effectiveness of different types of

CL-inspired language instruction would be compared with a view to developing better pedagogical materials.¹¹ The present study aims to take up this suggestion by investigating the contribution of motivating information in the form of pictures and etymology to the explanation of meaning in idioms dictionaries.

The following section looks at the issue of motivating information in dictionaries, in particular, at some problems inherent in presenting idiomatic meaning with pictures and etymology.

IMAGERY IN LEXICOGRAPHY

Linguistic motivation has always been part and parcel of lexicographic practice,¹² and CL has only helped to notice the common denominator in apparently diverse elements such as cross-references, illustrations, etymology, usage notes or morphological information. Moreover, it sparked off a debate on more explicit ways of drawing users' attention to certain motivating links such as metaphor and, to a lesser extent, metonymy, as well as highlighted the need for a more consistent organization of entries emerging from the analysis of these phenomena.¹³ Swanepoel (1992) sees the relationship between CL and lexicography as complementary:

[t]he cognitive-linguistic approach of Lakoff (1987) and current lexicographical assumptions and practices complement and overlap with each other in various respects and in various degrees, so that the cognitive linguistic theory of motivation not only sanctions or theoretically validates much of current lexicographical practice, but also serves as an evaluation matrix to judge it for adequacy. Conversely, the delimitation and description of motivational information not only sanctions or theoretically validates much of current lexicographical practice, but also serves as an evaluation matrix for the empirical/cognitive scope and validity of the linguistic theory. In this way, linguistic theory itself makes «sense» of much of lexicography theory and practice. (Swanepoel 1992: 311)

As far as references to conventional imagery in dictionaries are concerned, lexicographic devices which acknowledge the link between the image and the idiomatic meaning can be more or less explicit. The implicit ones, as Swanepoel (1992: 302) observes, include the position of idioms in the micro-structure: they are usually subentries under one of the constituent words. A related method is cross-referencing from the entry for one constituent word to another. The image component can be incorporated implicitly into the semantic explanation or introduced explicitly by means of semantic operators such as: 'like X', 'is perceived as X', 'is associated with X', 'is analogous with X', 'is described as X' (Dobrovol'skij 2007: 798), or by means of the 'as if' element (Dobrovol'skij and Piirainen 2005: 15–16). The most explicit ways of drawing

the user's attention to imagery are pictorial illustrations and etymological notes, to which we are now turning.

Etymology in learners' and idioms dictionaries

Traditionally, lexicographers do not recommend including etymology in dictionaries for foreign learners, describing it as 'spurious' (Herbst and Klotz 2009), or even misleading (Svensén 1993: 189; Landau 2001: 98), because it usually gives users wrong ideas about the current meaning of lexical items. Nonetheless, etymological information in synchronic dictionaries is not without merits, since it may raise awareness of language change and show relationships between words: '[e]ven the brief etymologies in synchronic dictionaries remind people of this process and sometimes give glimpses of the way other cultures, or our own in times past, viewed particular words' (Landau 2001: 103). For Omazić (2004: 627), etymology is particularly useful for foreign learners encountering opaque idioms since 'for most currently opaque idioms there may be a stage in their development when they actually did have links to or described real life situations, i.e. when they had more or less literal meanings, but through time the link between the original situation and the expression was lost, yet the idiom remained in the language.' A similar opinion is expressed by Swanepoel (1992: 307), who sees transparency as a limiting factor in including motivating information in the entry. Idioms whose imagery includes culture-specific knowledge may turn out to be particularly opaque and problematic to learners. Discourse variability of idioms provides a further argument for the inclusion of etymology in the explanations of idioms; knowledge of the origins may aid the user in interpreting certain kinds of contextual modification¹⁴ that activate the underlying image. Last but not least, people claim to enjoy reading etymologies (Landau 2001: 101), which may increase learners' motivation and interest in idiomatic expressions. Etymologies can be instructive provided that they are understandable to laymen (Svensén 1993: 190; Landau 2001: 102), and not too long.

In view of the fact that the etymology of idiomatic expressions has so far been regarded as a curiosity belonging in a dictionary of phrase origins (such as Rees 2002), practically 'of no consequence for the language learner' (Herbst and Klotz 2009: 227), the etymological notes in CCID2, CID2, and OID2 can be seen as a development inspired by CL theory. In the aforementioned dictionaries, etymology is reduced to the minimum. CID2 states in its front matter that '[t]he history of idioms is explained when this helps to understand the meaning of the idiom' (xiii). The etymological note follows the definition and is preceded by a symbol of a hand holding a pencil. OID2 does not state its policy on providing idioms with etymological notes; they are presented against a blue-shaded background at the end of the entry and prefixed by the encircled question mark and the word *ORIGIN*. CCID2 explains in a subsection of its front matter, titled 'Origins and explanations', that the purpose of including such information is 'to try to show how these expressions have developed their

current meaning' (vii). It is pointed out that idioms might derive from proverbs, and that they have their sources in a particular subject area, customs, or traditions. The users are informed that the origins of many idioms are unknown, uncertain, or contentious, but variety of explanations is considered as an asset. Also, the explanations of individual components of the idiom are supposed to aid learners in understanding the image. Etymology is inserted at the end of selected entries and introduced with a grey-shaded box **NOTE**. The dictionaries do not always agree on which item should be supplied with an etymological note. For example, the origins of *to haul sb over the coals* is present in CCID2 and OID, and lacking in CID2; *the kiss of death* is provided with the etymology only in CCID2; *to eat humble pie* has its origin explained in OID2 and CCID2, but not in CID2.

Static pictures¹⁵ in learners' and idioms dictionaries

The term *illustrations* will be used in the sense of pictorial illustrations, although Ilson (1987: 193) treats *illustration* as a cover term for tables, diagrams and pictures. Lexicographers seem to agree that pictures best represent complex and abstract phenomena (Stein 1991: 99, 105), unusual or unfamiliar things (Zgusta 1971: 56). Their primary function should not be purely aesthetic, but explanatory, complementary to the explication in the definition (Ilson 1987: 193; Stein 1991: 105), especially when the definition would have to be extremely complicated (Svensén 1993: 169). As Boers *et al.* (2008) demonstrated, pictures can also act as mnemonic devices. In order to fulfil their instructive functions, they require contextualization, and this is achieved by means of captions (Stein 1991: 123–124), verbal elements, often in the form of a full sentence. Placing pictures close to the headword helps to achieve the interaction between the verbal and visual definitions, as Svensén (1993: 170) notes.

As to the form of presentation, drawings rather than photographs are favoured by lexicographers because the latter are often full of accidental, non-criterial features (Zgusta 1971: 56; Svensén 1993: 169). Furthermore, one can easily manipulate dimensions and emphasize certain elements of the picture (Svensén 1993: 169–170). However, as Lew (2010: 300) points out, photographs can also be manipulated for lexicographic purposes.

What specific difficulties are involved in illustrating idioms? One stems from the intricate relation of the picture to the denotatum: it is concrete nouns that are best rendered via illustrations.¹⁶ Further, in spite of the presence of contextualizing captions, pictures do not represent statements, but ideas (Anglin *et al.* 2004: 867). The picture of an idiom can be likened to Hupka's (2003: 369) scenic illustration, which 'shows an example of the piece of reality denoted by the lemma by transferring the information contained in the definition into the visual medium and adding further details in order to make the pictorial display more realistic'. However, the scenic illustration such as *railway* represents concrete meaning and, even if it involves many lemmas such as *platform*, *carriage*,

etc., they are clearly indicated by means of identifying labels. In contrast, the identification, integration, and interpretation of relevant elements in the illustration of an idiom depend entirely on the dictionary user.

The realization of the vital role of perception in picture interpretation comes from research in visual representations.¹⁷ How we view the picture depends, at least to some extent, on our cognition: we actively construct the meaning in the picture. Our perception is also a result of the knowledge of conventions, thanks to which we can interpret the outline drawings as the edges of objects (Anglin *et al.* 2004: 867). To what extent pictures of idioms occupy dictionary users' attention, how much time they devote to their scrutiny, which parts of the picture are the most intensely scanned—answers to these questions could enrich our understanding of the process of picture reception and help to improve picture design in dictionaries. How diverse the interpretations of seemingly simple and unequivocal scenes can be, was revealed in Skorge's (2008) study of the use of pictures in an authentic classroom task, when complete consensus on the meaning of pictures turned out to be extremely rare. Subjects, in their attempt to minimize cognitive effort, processed the pictures inattentively, overefficiently and superficially, settling for the first solution that came to their mind. They were also unwilling to revise their interpretation even if other elements of the picture were clearly incongruent with it. An important observation emerging from this study is that 'visual representations can only be effective in instructional contexts if they are perceived as bearers of significant, serious information, which is clearly relevant to the task at hand, and are processed attentively in the expectation of some kind of learning gain or better management of the task' (Skorge 2008: 266).

Cognitive effort invested in decoding pictures of idioms is considerable due to the complexity of idiomatic meaning, their double semantic structure. The following combinations of the literal and the idiomatic in pictures are conceivable:

- 1 the illustration depicts elements of both the literal and figurative layers of meaning (Figure 1).
- 2 only the idiomatic meaning is illustrated (Figure 2),
- 3 only the literal reading is represented (Figure 3), and
- 4 the literal meaning is humorously exploited (Figure 4).

Type 1 can be said to correspond with both the definition and the etymological note. Type 2 illustrates the definition, without any allusions to the image. Type 3 refers only to imagery; it is likely to act as a mnemonic device and boost the processing of the lexical structure. Type 4 is probably the hardest to decode and potentially misleading since it can give students wrong ideas about the meaning. Again, the learner is left to her/his own devices when it comes to linking the image to the actual meaning.

Of the new editions of English idioms dictionaries, only OID2 and CID2 include pictures. The general impression is that CID2's illustrations are more



Figure 1: Couch potato (OID2)

difficult to decode because they are full of contextual details, or ‘visual noise’ (Svensén 1993: 169); cf. the entries for *be dead on your feet*, *a Dutch treat*, *foot the bill*.¹⁸ Furthermore, the pictures in CID2 sometimes represent idioms that are really not ‘illustratable’ (see *get your head around sth* or *send chills down sb’s spine*). OID2, on the other hand, uses simpler outline drawings, often focusing on the most relevant aspects of the scene, e.g. *a big fish in a little/small pond*,¹⁹ *break sb’s heart*, *everything but/bar the kitchen sink*. Another difference lies in the proportions of the idiomatic versus the literal in the pictures. CID2 usually goes for the figurative meaning, whereas OID2 makes explicit references to imagery through humorous pictures (compare, e.g. *a balancing/juggling act*,²⁰ *have a whale of a time* in both dictionaries). Pictures in CID2 are equipped with a legend (Stein 1991: 107); in OID2, they depict an example sentence beneath. Sometimes, the picture in OID2 contains additional captions, e.g. *be in the doghouse*, *be sb’s middle name*, *be on another planet*, *hit the roof*.

Although the primary function of dictionaries is often assumed to be that of providing immediate assistance in comprehension and production problems (see e.g. Verlinde *et al.* 2010), with the long-term benefits being seen as



Figure 2: Couch potato (OID2)

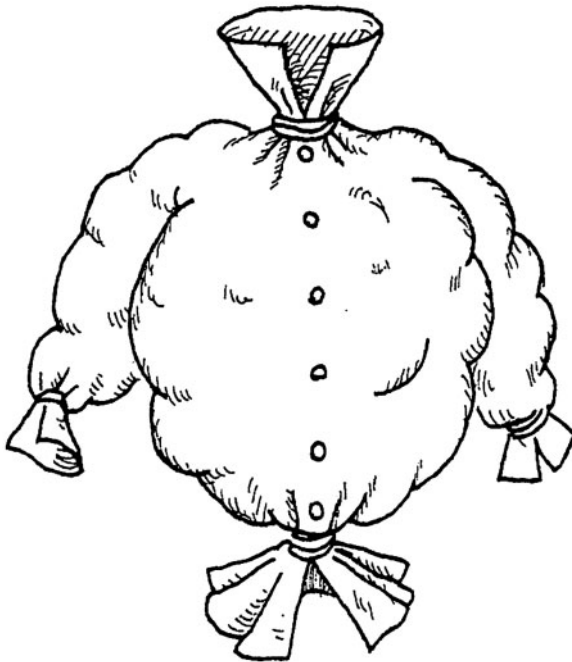


Figure 3: Stuffed shirt (Gude and Duckworth 1994: 3)

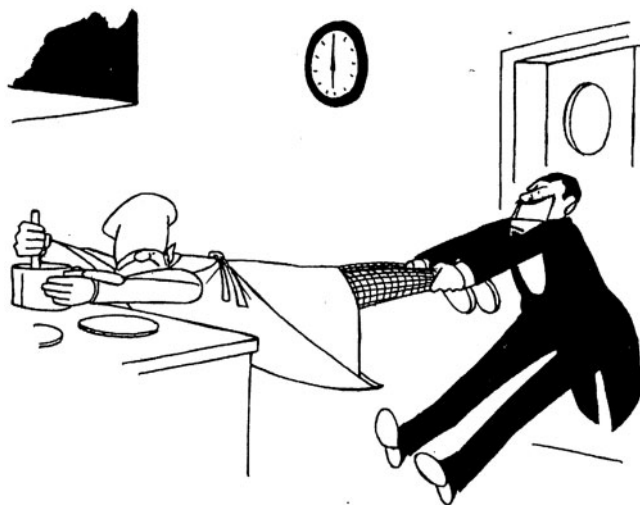


Figure 4: *Pull someone's leg* (Hancock 1992: 13)

secondary, this ordering of priorities is less obvious in the case of learners' dictionaries, and still less so with special-purpose dictionaries such as dictionaries of idioms. Here, acquisition of lexical knowledge may be seen as at least as important (Kaalep and Mikk 2008; Xu 2008) and receives considerable attention from dictionary use research (Chen 2010; Dziemianko 2010) despite the controversies surrounding such research (Tarp 2009). Let us then look at how the additional imagery-evoking elements in idiom entries affect the retention of the form and meaning of idioms in learners of English.

METHODOLOGY

Aim

The aim of the experiment is to test the influence of references to imagery in idiom entries on the immediate and delayed retention of idiomatic form and meaning.

The following research questions have been formulated.

Does the inclusion of imagery-supporting elements in idiom entries enhance the retention of idiomatic form and meaning? If so, which element is more effective, pictures or etymological notes? And, if both are effective, is their combined effect additive or synergistic?

Participants

The participants were 105 first year Polish students at Adam Mickiewicz University in Poznań, Poland, aged 18–19 years. Their proficiency level in

English was Upper-Intermediate, or B2 according to the Common European Framework of Reference for Languages scale. The pre-test results helped to isolate 62 data sets suitable for analysis.

Test items

The test items were the following 18 idioms: *white elephant*; *red tape*; *sitting duck*; *sour grapes*; *red herring*; *lame duck*; *grass roots*; *stuffed shirt*; *loose cannon*; *give someone both barrels*; *another string to your bow*; *lock horns with sb*; *have an axe to grind*; *let your hair down*; *get/have cold feet*; *walk the plank*; *move the goalposts*; *the gloves are off*. Our test items included nine phrasal compounds of the Adj + N (e.g. *sitting duck*) and N + N (e.g. *grass roots*) pattern, and nine idioms of a more complex syntactic structure (e.g. *let your hair down*). The criteria used in the compilation of the list of target items were opacity, 'illustratability' and the lack of Polish (quasi-)equivalents. The authors browsed through dictionaries of idioms in search of expressions whose meaning was not easy to guess for Polish learners (as confirmed during informal discussions with students not participating in the experiment), and whose literal reading could be represented by means of a clear, unequivocal, noise-free image, thus leaving little room for personal interpretation and minimizing the factor of perception differences. Any idiom fulfilling the above criteria was eliminated whenever a Polish idiom with the same or similar lexical structure could be found. A complete set of idioms used in the study is available online as Supplementary data.

Materials and procedure

The metalanguage used in the experiment was Polish, the native language of all the participants. The data collection comprised four stages: (1) pre-test (10 min); (2) exposure stage (10 min); (3) immediate form and meaning retention test (10 min); (4) delayed form and meaning retention test (10 min). Stages 1, 2, and 3 took place during one teaching hour. Stage 4 took place one week later, also during regular teaching hours. Subjects were informed that the aim of the experiment was to improve the methods of meaning description in works of reference.

The definitions and etymological notes come from the dictionaries of idioms listed in the bibliography; an occasional example sentence has been taken from the BNC. Some definitions and examples have been slightly adapted. The pictures have been taken from the dictionaries of idioms listed in the bibliography or the Internet via the Google image search. They illustrate the literal reading of the idiomatic expressions or one of their component words. For instance, the picture of *a sitting duck* depicts a duck that is sitting, *move the goalposts*—a scene of two men moving the goalposts on a football pitch, *let your hair down*—a girl letting her hair down.

Pre-test

In order to control for their previous knowledge, students were given a multiple-choice task in which they were asked to circle the answer that best represented the meaning of 18 idioms. Each item had four options, one of which was the correct answer.

Exposure to dictionary entries

In the first stage of the experiment, students were given booklets to read, each with entries of 18 idioms. Each subject received a booklet in one of the following formats:

- 1 definition of idiomatic meaning + example sentence;
- 2 definition of idiomatic meaning + example + etymological note;
- 3 definition of idiomatic meaning + example + picture; and
- 4 definition of idiomatic meaning + example + picture + etymological note.

The booklets containing these four entry types were randomly distributed among students. The most complete Booklet 4 is available online as Supplementary data to this article. The remaining booklets consist of proper subsets of the lexicographic data included in Booklet 4.

Immediate retention test (form and meaning)

After handing in the booklets, the students were asked to recreate in writing full idiomatic forms on the basis of one lexical component, and then to select the best paraphrase of the idiom's meaning out of four options given. By *retention of form*, we understand the ability to combine previously known words.²¹ The majority of our test items contained words that the subjects, being English majors, should have been familiar with. If one of the content words of the idiomatic expression was likely to be less familiar, it was chosen as a cue. For example, *plank* served as a cue for *walk the plank* or *goalposts*—for *move the goalposts*. The retention test can be found online as Supplementary data to this article.

Delayed retention test

This stage repeated the procedure of stage 3 one week later.

Data analysis and scoring

The scoring of form was performed by the two researchers independently according to the following criteria:

- 1 incorrect—0 points;
- 2 partially correct—0.5 points; this category included expressions with the following errors: function word errors (e.g. *a red tape*), synonym

- substitutions (e.g. *to bind horns with sb*), number errors (e.g. *grass root*), spelling errors (e.g. *a lose cannon*), word order errors (e.g. *grapes sour*)
- 3 fully correct—1 point. Whenever the subjects' forms diverged from the forms provided in the booklets, they were checked against other dictionaries and corpus data (BNC and COCA); for instance, as corpus evidence includes numerous occurrences of support verb truncation in the case of *have/get cold feet: cold feet*) or support verb extension in the case of *the gloves are off: take your gloves off*, both forms were accepted as fully correct.

The scoring was done in electronic lists of all unique responses specifically generated for this purpose (in MS Excel 2003), so that the raters had no access to any other experimental data when assigning the scores. In particular, they had no knowledge of which entry type or types co-occurred with specific responses. Inter-rater agreement was 98.1%. The few isolated differences in ratings were resolved in a joint session. The ratings of all the response types were linked automatically to main data sheets with response tokens to minimize human error.

Meaning recognition was scored automatically based on a special key sheet. Preprocessed data were further analyzed with a statistics package.²²

RESULTS

We felt it was important that subjects had no previous knowledge of the target idioms. As the Pre-test took the form of a four-item multiple-choice test, the expected baseline score (i.e. if options were selected randomly) was 25%, or 4.5 points out of 18. In view of this, only data from those subjects whose Pre-test scores were 5 points or less were allowed for further analysis. This condition was met by 62 subjects out of the initial sample of 105. Also, if a subject provided a correct response for an item on the Pre-test, that item was excluded from the subject's score, so in each case only those items which tested negative on the Pre-test contributed to the scores. For example, if a subject tested positive on one item out of the 18, then her successful recall of the remaining 17 items, rather than 18, would translate into a recall rate of 100%. Out of the final set of 62 subjects (after eliminating those whose Pre-test scores were too high), there were 14 subjects with definition + example (DefEx) booklets, 13 using definition + example + etymological note (DefExEtym) versions, 20 definition + example + etymology (DefExPic), and 15 subjects using the most elaborate entries of definition + example + picture + etymological note (DefExPicEtym).

Pre-test-corrected scores for form recall and meaning recognition were analysed by Repeated Measures ANOVA's, separately for form recall and meaning recognition, and these will be discussed in turn. Independent variables were the presence of pictorial illustrations (*Picture*) and the presence of etymological notes (*Etymology*) in the entries, each with two levels (*present* versus *absent*).

Form

Overall mean score for immediate recall of form was 66%, with the delayed figure being 49%. Mean immediate and delayed scores broken down by entry version are given in Figure 5.

For immediate recall, scores ranged from 59% for entries with just the definitions and examples to 73% for the richest entries including pictures and etymological notes. Intermediate values were obtained for entries with either etymology (63%) or pictures (66%). For delayed recall a similar progression across entry versions was noted, but the scores were systematically lower: between 14 and 18 percentage points below their immediate counterparts.

Entry version had a significant overall effect on recall of form scores (Wilks' $\lambda = 0.89$, $F_{(57,2)} = 3.36$, $P = 0.04$). A detailed univariate ANOVA table for immediate and delayed recall of form is given in Table 1.

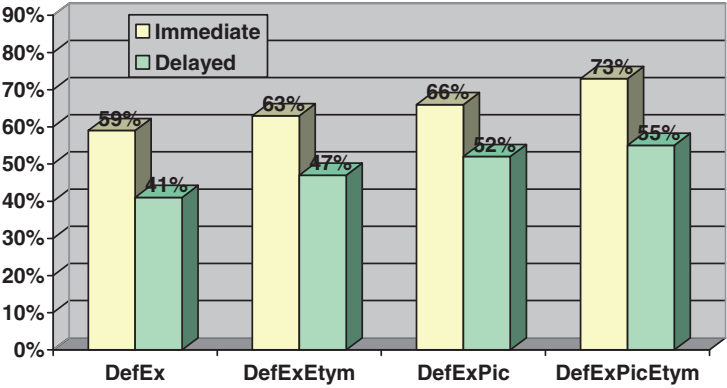


Figure 5: Scores for immediate and delayed recall of form across the four entry types

Table 1: ANOVA table for immediate and delayed recall of form (*P*-values in bold are significant)

Effect	Immediate recall of form					Delayed recall of form			
	DF	SS	MS	F	P-value	SS	MS	F	P-value
Intercept	1	25.873	25.873	1397.87	0.00	14.433	14.433	501.14	0.00
Picture	1	0.102	0.102	5.51	0.02	0.146	0.146	5.08	0.03
Etymology	1	0.044	0.044	2.36	0.13	0.035	0.035	1.21	0.28
Picture*Etymology	1	0.002	0.002	0.12	0.73	0.005	0.005	0.16	0.69
Error	58	1.074	0.019			1.670	0.029		
Total	61	1.216				1.852			

It will be seen from Table 1 and Figure 5 that the presence of pictures in entries had a significant positive effect on both immediate and delayed recall of form. In contrast, the presence of etymological notes had no significant effect, nor did the interaction between *Picture* and *Etymology*. A separate analysis of fully correct and partially correct answers did not reveal any interesting patterns.

Meaning

Overall mean score for immediate recognition of meaning was 79%, as compared with 66% for delayed recognition. Mean scores for recognition of meaning are presented in Figure 6.

The situation for meaning looks somewhat different when compared with form: here the lowest mean scores were those for the etymology-equipped entries, and this is so for both immediate (68%) and delayed (58%) scores. For this entry type, scores were lower than for the simplest definition + example entry, scoring 78% immediately and 64% on a delayed test. The best performance was noted for the two versions with pictures, and the means were strikingly similar for entries without etymological information (84 and 69% for immediate and delayed, respectively), and those where pictures were combined with etymology (83 and 70%). Just as with form, delayed scores were systematically lower, by 10 to 15 percentage points, than their corresponding immediate scores.

In terms of an overall effect of entry version on meaning recognition scores, it failed to reach the 5% significance level, though the effect was still marginally significant at 10% [Wilks' $\lambda = 0.91$, $F_{(57,2)} = 2.54$, $P = 0.09$]. A univariate ANOVA table for immediate and delayed recognition of meaning is given in Table 2.

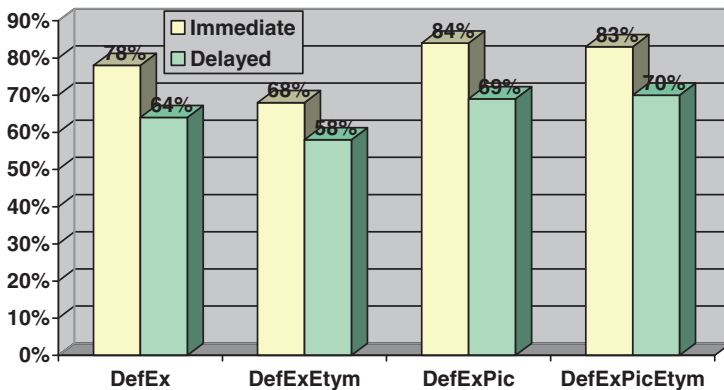


Figure 6: Scores for immediate and delayed recognition of meaning across the four entry types

Table 2: ANOVA table for immediate and delayed recognition of meaning (*P*-values in bold are significant)

Effect	Immediate recognition of meaning					Delayed recognition of meaning			
	DF	SS	MS	<i>F</i>	<i>P</i> -value	SS	MS	<i>F</i>	<i>P</i> -value
Intercept	1	36.892	36.892	1136.1	0.00	25.818	25.818	569.7	0.00
Picture	1	0.164	0.164	5.0	0.03	0.110	0.110	2.4	0.13
Etymology	1	0.040	0.040	1.2	0.27	0.010	0.010	0.2	0.63
Picture*Etymology	1	0.032	0.032	1.0	0.32	0.015	0.015	0.3	0.56
Error	58	1.883	0.032			2.628	0.045		
Total	61	2.108				2.759			

Looking at the *P*-levels, we find a significant positive effect of the presence of pictures on immediate recognition of meaning, but not on delayed recognition. The presence of etymological notes does not produce a significant effect. The interaction between *Picture* and *Etymology* is again not significant.

DISCUSSION AND CONCLUSIONS

With regard to idiomatic form, the presence of imagery positively influenced the retention rate. However, only the pictorial element turned out to have a statistically significant effect on the immediate and delayed retention of form. Although the richest entry scored highest, neither the presence of the etymological note nor the interaction between the picture and etymology element was statistically significant. Immediate recall of form across all conditions was 66%, with delayed recall rate being 49%, and it must be borne in mind that these rates could have been affected to some extent by the pre-test, which offered additional exposure to form. In terms of effect size, picture-equipped entries performed on average 13% better on immediate recall and 22% on delayed recall rates than entries without pictorial enhancement (conflating both levels of the etymology variable). This is a significant gain for the learner, not just statistically, but practically.

As to the accuracy of the forms supplied, a lot of hybrid forms (e.g. *couch duck*, *black lame*, *another string to one's horns*) arose due to contamination from other familiar English idioms (*couch potato*, *black sheep*) or other idioms appearing in the booklet (*lock horns with someone*). Sometimes, the participants incorporated fragments of definitions in their idiomatic forms (e.g. *pick horns* from *pick a fight*).

To turn to idiomatic meaning now, the positive impact of imagery on meaning retention can again be attributed to the pictorial element: entries equipped with etymology tended to yield lower scores than the 'standard' entries

without the imagery element. The inclusion of pictorial illustrations resulted in meaning recognition rates higher by 14% as against entries with no pictures, both immediately and after one week (with or without etymological notes). Here, the 14% improvement turned out to be statistically significant on the immediate test only, and thus just a tendency as a long-term effect, but the practical significance of an improvement of this order would definitely be worth the effort.

On the surface, the fact that the recall of meaning was on the whole better than the retention of form seems to correspond with the findings of Boers *et al.* (2008). Nevertheless, the ensuing explanation that pictures serve semantic elaboration rather than structural elaboration is not completely in accord with the results of the present study. First of all, it was solely the pictorial and not the etymological element that had a statistically significant effect on the immediate and delayed retention of form. One can draw a tentative conclusion that depicting the literal meaning of the idiomatic expression might have boosted the processing of its lexical structure and in this way contributed to the retention of the idiomatic makeup. Second, the impact of pictures on meaning retention was less prominent than on form recall in terms of a long-term effect. It needs to be pointed out, however, that differences in experimental design might account for the discrepancy between the effect of pictures in our study and that of Boers *et al.* (2008), where the presentation of pictures followed verbal explanations about the etymological origin of the expressions.

The negligible role of etymology in the recall of meaning makes sense in the light of the reservations of many contemporary lexicographers about the inclusion of etymology in learners' dictionaries. Arguments against etymology as potentially distracting users from the current meaning thus seem to receive additional support from the present study.

Despite the unexpectedly low achievement of participants presented with etymological information, our results do not contradict the findings by Boers and colleagues. The differences are likely to stem from the nature of the activities that the subjects engaged in. Etymological elaboration encourages learners to invest considerable cognitive effort in intensive processing of imagery before feedback on the actual origins and meaning of the expression is provided. In a typical dictionary consultation situation, the etymological note, even if it is not dismissed as a curious addition to the entry or read perfunctorily, will not normally invite the depth of processing typical of the hypothesizing inherent in the etymological elaboration strategy. Inattentive reading as a cause of low scores in our study appears plausible, considering Boers *et al.*'s (2004a: 73) conclusion that, especially in the case of unknown opaque idioms, reading a brief etymological note is the best solution. Given the results of the present experiment, it would be interesting to further investigate the possible impact of etymological notes on form and meaning in more attentive consultations of a dictionary of idioms.

To conclude, whereas previous research has shown that guessing at the origin of idioms is beneficial to the process of learning idiomatic expressions in a typical classroom situation, the mere presence of etymological notes in dictionary entries cannot guarantee deep processing of their content and thus cannot ensure better retention of idioms. Moreover, superficial reading of such notes may divert learners' attention from the actual meaning or result in actual and etymological meanings being mixed up. The other element incorporating imagery and traditionally employed in dictionaries—pictorial illustration—seems to facilitate the recollection of idiomatic form (on condition that the picture depicts the literal reading of an idiom) at least as effectively as that of idiomatic meaning. It would be interesting to investigate whether pictures illustrating exclusively the actual meaning instead of the literal reading would significantly contribute to the retention of idiomatic meaning. On the whole, in view of the results of the present study, we would recommend the inclusion of pictorial illustrations of idioms in dictionaries and foreign language coursebooks.

SUPPLEMENTARY DATA

Supplementary material is available at *Applied Linguistics* online.

NOTES

- 1 For a discussion of the terminology and typology of phraseological units, see, for example, Cowie (1998: 4–8), Moon (1998: 2–5).
- 2 Cf. Howarth's (1996) terminological distinction of *pure* (=opaque) versus *figurative* (=transparent) idiom, which blends the degree of motivation with figurativeness.
- 3 Due to space constraints, the present study provides only a selection of CL views that seem most pertinent to the subject. Later developments in CL, such as Conceptual Integration Theory (earlier referred to as Blending Theory; cf. Grady *et al.* 1999; Fauconnier and Turner 2002), focus on online processing in the comprehension of novel information, for example, in the interpretation of counterfactuals. Some attempts have been made to explain the comprehension of idioms such as *to dig one's own grave* or *to be born on third base* (Coulson 2001) within Conceptual Integration Theory. However, this line of research emphasizes online processing of new information rather than creating stable mental representations with motivating links in different modalities. For the treatment of the concept of idiomaticity within the framework of Construction Grammar, see Wulff (2008).
- 4 An example based on Moon (1998: 23) and Geeraerts (2003: 440).
- 5 According to Lakoff (1987: 446–447), conventional images are unconscious, not context-bound and relatively uniform among members of one culture. They are said to be associated with the so-called *imageable idioms* [cf. Lakoff's (1987: 447–448) discussion of the image behind the idiom *to keep someone at arm's length*]. Together with accompanying knowledge and conceptual metaphors, conventional images are

responsible for providing the link between the idiom and its meaning (motivation). The notion of the conventional image is not synonymous with other CL concepts related to images, namely the *image metaphor* and the *image schema*. The former, illustrated by poetic metaphors such as *My wife... whose waist is an hourglass*, as cited by Kövecses (2002: 51), is based on physical resemblance. The typically innovative character of the image metaphor does not render it very useful in the analysis of highly conventionalized idiomatic expressions. The latter notion, the image schema, introduced and extensively presented by Johnson (1987) refers to the biologically based abstraction of our everyday experience. The often quoted example is the concept CONTAINER, created through the interaction of our bodies with the environment when we enter and exit rooms (containers), when we swallow food (the body as a container) or put things in boxes. This image schema can later motivate various metaphors such as COUNTRY IS A CONTAINER (Charteris-Black 2006). Such basic underlying image schemata can be identified for any metaphorically motivated expression as they are mediators between our embodied experience and conceptual knowledge.

- 6 A conceptual metaphor is a mapping between two domains of experience; usually the more abstract target domain is understood in terms of the more concrete source domain (Lakoff and Johnson 1980).
- 7 For instance, *a wet blanket, fan the flames* are comprehended via the ENTHUSIASM IS FIRE metaphor (Kövecses 2002: 203).
- 8 See Boers and Lindstromberg (2006b) for a review of CL applications.
- 9 E.g. Kövecses and Szabó (1996); Lazar (1996); Deignan *et al.* (1997); Boers (2000); Boers and Littlemore (2000).
- 10 The term refers to one of the two major cognitive style continua, the other being the analytic/holistic continuum (Riding and Cheema 1991).
- 11 Teachers who would like to put research findings on etymological elaboration to test can benefit from Boers and Lindstromberg's (2006a) five classroom activities (partially based on *Idiomteacher*—a package of online awareness-raising exercises) in which learners engage in hypothesizing about the origins of idioms, drawing or miming literal senses, and later try to come up with the actual figurative meaning.
- 12 Even if lexicography is increasingly seen as autonomous from linguistics, cf. De Schryver (2009a, 2009b).
- 13 Cf. Ayto (1988); Van der Meer (1999); Csábi (2002); Moon (2004); Wojciechowska-Bartkiewicz (2009).
- 14 In particular, the adjectival modification called the *internal modification*, or *source domain modification* (Stathi 2009: 86–89).
- 15 We use the term *static* in the sense of Anglin *et al.* (2004). The issue of animated pictures in electronic dictionaries is dealt with in Lew and Doroszewska (2009).
- 16 The positive effect of enhancing verbal explanation of concrete nouns with pictorial illustrations on vocabulary comprehension and acquisition has been reported, for example, in Nesi (1998) and Gumkowska (2008).
- 17 See Anglin *et al.* (2004) for an extensive review.
- 18 For example, the illustration of *foot the bill* depicts as many as six people. Great precision in the presentation of the details of clothing, hairstyle, facial expressions and accessories hinders the perception of the real subject of

the picture: the action of *footing the bill*. On the left, a middle-aged man with a receding hairline, wearing a striped suit and a dotted bow-tie is holding a wallet in his right hand and a dark square object (supposedly, a credit card) in his left hand. To his right, there is the head and the right hand of a lady (supposedly, the shop assistant), stretching her hand for the card. The rest of her body is hidden behind two young girls in the forefront, slightly to the right. They have long wavy fair hair; one is wearing a T-shirt and carrying a big handbag and a shopping bag with the letters GAL on it; the other girl is wearing a long-sleeved top and carrying a shopping bag in her left hand. They are smiling and fumbling with the clothes they have just bought. The clothes are sticking out of the large shopping bag with the word MODE on the front. In the far background, there are two women facing each other, waving their hands—probably greeting each other enthusiastically. Given the size of the picture (5 × 5 cm), the whole scene is extremely crowded and it takes a close look to figure out what is going on in it and why it is supposed to represent the idiom *foot the bill*.

- 19 The picture illustrating the idiom *a big fish (in a little/small pond)* in OID2 shows a big fish in a small goldfish bowl. The big fish is wearing a bowler hat and carrying a briefcase. It has a serious look and is accompanied by two small fish.
- 20 The picture illustrating *a balancing/juggling act* in OID2 depicts an exasperated-looking woman in the act of juggling with a TV set, a baby, a dog, a saucepan, and a briefcase. In order to illustrate the same idiom, CID2 shows a woman who is standing in front of a computer, trying to type with her right hand, at the same time feeding her daughter in a high chair with her left hand.
- 21 There is a difference between learning idioms composed of unfamiliar word forms and learning idioms for which the word forms in question are already known. The former amounts to learning these new word forms (as encountered in contexts other than the idiomatic unit) in addition to learning the structure and figurative meaning of the whole multiword unit. Boers *et al.* (2009) report that the picture condition facilitates recall only in the case of familiar words, whereas the recollection of unfamiliar words is hampered by the presentation of pictures. Given that the frequency and morphological makeup of component words had not been formally measured in our study, we were unable to test the hypothesis that the presence of pictures interfered with the retention of idioms whose component words might have been less familiar to students. We are grateful to the anonymous reviewer for drawing our attention to this issue, which undoubtedly deserves further investigation.
- 22 Statistica 8.0 for Windows, StatSoft, Inc.

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