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Effects of Etymology and Pictorial Support on the Retention and Recall of L2 Idioms

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Abstract

Research in cognitive semantics suggests that imagery can have a powerful mnemonic effect and that the dual coding of input (i.e. verbal representations and mental images) strengthens memory traces and facilitates information retrieval. The present study compared the effectiveness of two imagery-based techniques: a) pictorial support, which consisted of illustrations that depicted the literal meaning of the idiomatic phrases; and b) etymological notes, which explained the origin of the target phrases in the learners' native language. Etymology was found to promote the retention of idiom meaning, while pictorial support facilitated the recall of their linguistic form. The results of the study are discussed in the light of the dual-coding theory and some directions for future research are offered.

1 Introduction

1.1 Background

Idiomatic language is a pervasive feature of all types of discourse. According to some counts, there are over 10,000 idioms in the English language (Brenner, 2011), and idiomatic competence is believed to be one of the defining characteristics of native-like proficiency (Cowie & Mackin, 1975). Pollio, Barlow, Fine and Pollio (1977) estimated that most English speakers utter about 20 million idioms per lifetime, or approximately 7,000 idioms per week.

The pervasiveness of idioms in natural language is particularly interesting, considering that they present somewhat of a language anomaly. Idiomatic phrases are complex syntactic units that exhibit lexical choice constraints, which cannot be explained in terms of regular syntactic rules or semantic restrictions. As a result, they were traditionally seen as "frozen," non-compositional, multi-word expressions of arbitrary semantic structure. A typical example found in literature is the idiom to kick the bucket, whose figurative meaning to die cannot be inferred from its constituent elements, and whose origin is opaque to contemporary speakers.

However, the traditional view of idioms as "dead metaphors" has been questioned by a number of studies conducted in cognitive semantics and psycholinguistics over the last thirty years (Köveces, 1990; Köveces & Szabó, 1996; Lakoff & Johnson, 1980). Many idioms, at least to some extent, were found to be compositional, semantically transparent and cognitively motivated. In their seminal work "Metaphors We Live By," Lakoff and Johnson (1980) proposed that the human conceptual system is metaphorical in nature, with conceptual metaphors shaping language, thought, perception and action. The ability to interpret figurative idioms arises from people's tacit understanding of underlying conceptual metaphors, which helps them organise different domains of

their experience. Conceptual metaphors map information from one conceptual domain to another. For example, the conceptual metaphor life is a gambling game enables interpretations of expressions such as *to take one's chances*, *the odds are against one* and *to have an ace up one's sleeve*. Lakoff and Johnson's (1980) hypothesis was empirically tested in a number of studies, including extensive research conducted by Gibbs and his colleagues (Gibbs, 1986; Gibbs, 1995, Gibbs & O'Brien, 1990; Gibbs & Nayak, 1991). Gibbs and O'Brien (1990) examined mental images that people have for the literal and the figurative meanings of idiomatic expressions. They found that images evoked by figurative meanings were highly conventional and systematic, while those generated in response to literal phrases were much less consistent. The findings were attributed to the constraining effect of conceptual metaphors, and taken as positive evidence for the semantic motivation of figurative language. Nippold and Duthie (2003) examined mental imagery and idiom comprehension of school-age children and adults. They found that both children and adults were able to generate mental images for semantically transparent, as well as opaque idiomatic expressions, but that transparent idioms were more likely to evoke mental images based on the figurative interpretation of the phrases. The authors attributed the findings to the greater saliency of conceptual metaphors in semantically transparent phrases. The sophistication of images was also found to increase with age, leading the authors to conclude that mental images people generate for idioms reflect their depth of understanding of idioms.

However, a number of studies have raised questions about the role that conceptual metaphors and mental imagery may play in real-time language processing. While tacit knowledge of conceptual metaphors may explain consistency in mental images generated by subjects in experimental conditions, it is unlikely that speakers form mental images during natural idiom comprehension. Cacciari and Tabossi (1988) maintain that literal meanings of idioms cannot be by-passed during comprehension. They see idiom meaning to be partially motivated by the meaning of the phrase's constituents, and the connections between them to be partially rooted in memory. Therefore, literal meanings must always be activated before figurative meanings can emerge, with the time lag being shorter for familiar and semantically transparent phrases.

Cacciari and Tabossi (1988) also observed that as concrete concepts are far easier to imagine than abstract ones, any images that language users may be creating during idiom processing are likely to reflect their literal rather than figurative interpretations, or the conceptual metaphors that supposedly motivate them. A similar conclusion was reached by Ccacciari and Glucksberg (1995), who claimed that the formation of mental images of idioms as described in Gibbs and O'Brien's study (1990) was incompatible with the functions that idioms play in discourse. They argued that idiom meaning encompasses both the prototypical, general situation and the specific case which the speaker or writer intends to describe. Images, however, are intrinsically concrete, and therefore, they cannot capture abstractions implied in figurative meanings. However, from a psycholinguistic perspective there seems to be little reason for language users to activate literal interpretations of phrases, when their figurative interpretations are more common and the context does not violate that expectation (Boers & Lindstromberg, 2009).

In short, while most linguists today would agree that idioms vary in their degree of semantic transparency, and that the traditional definition of idioms as "dead metaphors" applies to only a small set of phrases, there is still no consensus with regard to how idioms are understood or the processes that may underlie the mapping between their literal and figurative interpretations. The role of mental imagery during idiom processing also remains controversial. While there is some evidence that under experimental conditions mental images can be generated, even for idioms of low semantic transparency, further research is needed with regard to the role that mental imagery may play in the comprehension of figurative expressions during natural language processing.

1.2 Comprehension and acquisition of idioms in L2

Research data suggest that idiom comprehension and acquisition in L1 is a developmental process that continues well into adulthood, and is influenced by factors such as the availability of contextual clues, semantic transparency of phrases and the level of exposure (Nippold & Duthie, 2003;

Nippold, Moran & Schwarz, 2001; Nippold & Taylor, 2002). However, little is still known about how idiomatic phrases are comprehended and acquired in the second language.

A part of the problem is that idiomatic language has not been given sufficient attention in second-language teaching materials. Irujo (1986a) pointed out that idioms were either entirely left out of English textbooks, or if included, relegated to the "other expressions" section of vocabulary lists, without any practice activities to facilitate their learning. Thirty years later, little has been done to help learners develop strategies that would allow them to comprehend and produce idiomatic language. Despite the progress that has been made in cognitive and psycholinguistic studies, the old view of idioms as "dead metaphors," which can only be mastered through rote memorisation, still seems to dominate ELT materials and pedagogic practices. The consequence of this approach has been that the majority of learners lack sufficient exposure to idiomatic language and the strategies that may help them commit figurative expressions to memory.

The difficulties in idiom acquisition have also been compounded by the scarcity of research, and consequently the insufficient understanding of processes involved in the interpretation of figurative meanings in the second language. Due to their limited vocabulary knowledge, learners are not always able take advantage of contextual clues the way the native speakers do. In addition, contexts are seldom rich enough to disambiguate the meaning of unfamiliar idioms (Boer, Eyckmans, & Stengers, 2007). Consequently, learners sometimes fail to recognise figurative intentionality of idiomatic language, and they try to process the phrases in terms of their literal meanings. In some studies (e.g. Cieslicka, 2006), it was observed that learners were likely to activate the literal meanings of idioms, even when they were familiar with their idiomatic meanings and the phrases were embedded in figurative contexts. Furthermore, studies in L1 showed that people's intuition about idiom compositionality plays an important role in their perceptions of syntactic productivity and lexical flexibility of phrases, as well as the ease of their comprehension (Gibbs, 1993). Learners, however, are often not able to recognise the systematic contribution that individual words make to the overall figurative interpretation of idiomatic phrases. In short, learners' limited ability to take advantage of contextual clues and/or to perform compositional analysis of idiomatic phrases means that many of the processes that underlie idiom comprehension in L1 may simply not be applicable to idiom comprehension in L2. Furthermore, while many idioms may be motivated by cognitive metaphors that reflect universal patterns of the human conceptual system (Gibbs, 1995), there are also idioms that arose in specific historical contexts. There are many idioms which do not derive their meaning from their linguistic components alone; they are also culturally embedded, and they reflect the way in which a particular language community conceptualises the world around them (Boers, Demecheleer, & Eyckmans, 2004). Learners were found to experience additional difficulties in interpretation of phrases motivated by metaphoric themes that do not exist in their culture (Boers & Demecheleer, 2001).

Due to the differences in the amount of exposure, linguistic proficiency and metaphoric themes across cultures, it is clear that findings from L1 research cannot be applied automatically to L2 contexts. Yet, relatively little experimental work has been carried out on how second-language learners process idiomatic language. One of the earliest studies of idiom processing in L2 was done by Irujo (1986b), who looked into the effect of language transfer in idiom comprehension. The study examined the comprehension and production of English idioms by a group of advanced learners of English, whose native language was Spanish. The target idioms were divided into three groups: those that were identical in L1 and L2, those that were similar and those that had a different lexical composition, but expressed the same meaning. The results showed that identical idioms were the easiest to comprehend and produce, and that lexically similar idioms were easier to understand than different ones. However, similar idioms also showed more interference when it came to idiom production. Based on these findings, Irujo (1986b) maintained that L1 plays a role in the processing of idiomatic language in L2, and that transfer can be both positive and negative.

Cooper (1999) examined on-line processing strategies of non-native speakers of English through think-aloud (TA) protocols. Twenty target idioms were presented in a short one or two-sentence context, and the participants were asked to verbalise their thoughts as they arrived at the meaning of the idioms. Data collected revealed that learners used a variety of strategies to infer the

figurative meanings, including guessing from context, compositional analysis, reference to the literal meaning of the phrases and their own experiences in the target culture. It was often a "trial-and-error" process that led Cooper to conclude that the existing models of L1 idiom acquisition did not apply well to the comprehension of idioms by L2 users, and that TA protocols should be incorporated in class work, in order to guide learners through the idiom interpretation process.

Cooper's (1999) study was replicated by Bulut and Çelik-Yazici (2004). They used TA protocols to examine idiom comprehension by a group of Turkish learners of English. Their data showed that contextual inference was the most common strategy, and that L2 learners were often overcautious when it came to the transfer of L1 idiomatic knowledge, even when the transfer would have been positive.

With a slowly growing body of evidence on the differences in L1 and L2 idiom processing, and a recognition of the difficulties that second language learners at all levels of proficiency experience with figurative language, idioms have begun to receive more attention in educational linguistics. Today, there is growing support for the position that idiom production is subject to the same cognitive principles that control other forms of linguistic behaviour and cognition as a whole (Boers, 2004; Glucksberg, 2001;Köveces & Szabó, 1996). As a result, some attempts have been made to incorporate the insights from cognitive linguistics into idiom instruction, and establish new pedagogic practices that would be grounded in the general principles of cognitive processing, rather than rote memorisation. As a part of that movement, one subject of growing interest has been the role that dual-coding of input may play in the comprehension and production of idiomatic language.

1.3 Dual-coding theory

Dual-coding theory was initially proposed by Alan Paivio of the University of Western Ontario in 1971. Paivio argued that the human mind operates with two different levels of mental representation, visual and verbal, which are functionally independent but interacting. Therefore, information that is encoded both visually and verbally is likely to be stored and retrieved more easily than information stored through one functional system only. When verbal input evokes an associated image, memory traces are created in both verbal and visual memory. The two distinct, but interconnected storage systems facilitate the retention of information and its subsequent retrieval.

A large body of evidence has been obtained in support of the important role that dual input coding plays in human memory. Experimental research showed that people have more difficulty performing two tasks that share the same code (i.e. two verbal or two imagery tasks), which was attributed to the fact that they call upon the same representational and processing resources (Thomas, 2014a). A strong correlation was also observed between the "imageability" of a word and its memorability; concrete words were found to be notably easier to remember and recall than abstract ones, and this was attributed to the fact that they can be encoded both verbally and non-verbally (Baddeley, 1999). The "concreteness effect" was also noticed at the sentence and text levels, with concrete content being easier to comprehend and recall (Sadoski, 1995; Sadoski, Goetz, & Fritz, 1993). More recently, Brunye, Taylor and Rapp (2008) showed that multimedia presentations, which engage both visual and verbal working memories, lead to better information recall.

Paivio's theory was one of most influential cognitive theories of the twentieth century. It sparked a lot of controversy and prompted an enormous amount of research, with far-reaching implications for the psychology of reading and writing, educational practices, language understanding and cognitive science. However, despite its popularity, Dual-Coding theory has by no means gained universal acceptance. One of its criticisms was that it limits human cognition to two codes only – words and images (Flanagan, 1984; Kintsch, 1977). If there is a special code for visual imagery, then there should be corresponding codes for auditory or olfactory memory as well (Thomas, 2014b). Another issue of contention has been the nature of imagery itself. While Dual-coding theory adopts an analogous view of imagery, in which mental images are seen as inner pictures, in the Representational Theory of Mind (RTM) they are conceived as inner descriptions,

which reflect abstract mentalese (propositional) representations, rather than an encoded instance of natural language. However, while RTM has been influential in cognitive sciences, and the concept of mental propositions has been widely applied in theoretical models of human cognition, the existence of mental representations has not been and cannot be empirically proved. Dual-coding theory may not account for all aspects of human perception and cognition, or even imagery itself, but there is overwhelming empirical evidence in support of the mnemonic effect of the dual-coding of input. These findings have sparked a number of studies that looked for ways of accommodating the principles of the Dual-coding theory in language teaching, including the teaching of idiomatic language. Some of these studies experimented with the use of pictorial support, while others examined the mnemonic effect of techniques, such as etymological elaboration. The research has produced mixed results.

1.4 Imagery and idiom teaching

1.4.1 Pictorial illustrations and idiom teaching

The mnemonic effect that pictorial representations have on the acquisition of meaning and form of idiomatic phrases was examined in a series of studies conducted by Frank Boers and his colleagues (Boers, Lindstromberg, Littlemore, Stengers, & Eyckmans, 2008; Boers, Piquer-Píriz, Stengers, & Eyckman, 2009). Boers et al. (2008) conducted three case studies, in which they examined the effect of the timing at which pictorial support is introduced into the instructional process, as well as the possible influence of learners' cognitive styles on the effectiveness of imagery-based pedagogy. The study concerning idioms examined a possible consolidating effect of pictorial support introduced after verbal explanations. One hundred English idioms were taught to a group of 34 Dutch learners of English via an online programme. Each idiom was presented to the students in three types of exercises: (1) a multiple-choice exercise, where the students were asked to select the right source domain of the idiom (for example, "What domain of experience do you think the expression *to be on the ropes* comes from? Sports, food or sailing?"); (2) a multiple-choice exercise, where the students had to select the right dictionary definition of the idiom; (3) a gap-filling exercise, where the students had to add a missing keyword of the idiomatic phrases presented in a suggestive context. At the end of each exercise, the students were given feedback. Pictures illustrating the literal meaning of the idioms were introduced during the feedback for the first exercise, after the verbal explanations about the idioms' origins were presented. The students who participated in the study also completed Childers, Houston and Heckler's (1985) style of processing questionnaire, which enabled the researchers to assess them as high- or low-imagers. The results showed that pictures used together with verbal explanations had a positive effect on the retention of idiom meaning. However, pictorial support was found to have only a limited and sometimes even a distracting effect on the retention of idiom form, particularly in the case of visual learners, who have a predisposition for imagery processing.

Similar results were obtained in a follow-up experiment conducted by Boers, Piquer-Píriz, Stenger and Eyckmans in 2009. The instructional procedures that were followed were the same as in the 2008 experiment, but an additional effort was made to match the idioms as much as possible in two instructional conditions (i.e. verbal explanations and pictorial support vs. verbal explanations only). For example, both sets of idioms contained the same number of phrases that had first language cognates, and the same number of phrases that contained assonance or consonance, which are believed to have a facilitative mnemonic effect. The keywords that were gapped out in the post-test were also matched for the number of syllables and their corpus frequency. The data obtained, however, again suggested that pictorial support contributes little to the learners' retention of the linguistic form, and that pictures may even slow down learning when the phrases contain difficult or unfamiliar words. The distractive effect of pictorials was particularly strong for students who were naturally inclined to use imagery during lexical processing.

Szczepaniak and Lew (2011) examined the mnemonic effect of imagery in idiom dictionaries. Idiom learning was examined under four conditions:

1. Definition of idiomatic meaning + example sentence;
2. Definition of idiomatic meaning + example + etymological note;
3. Definition of idiomatic meaning + example + picture;
4. Definition of idiomatic meaning + example + picture + etymological note.

In conditions 3 and 4, which included pictorial support, the illustrations depicted literal meanings of the idiomatic expressions or one of their component words. On the post-test, the learners were asked to recreate in writing full idiomatic forms on the basis of one lexical component (a test of productive idiom knowledge), and to select the best paraphrase of the idiom meaning (a test of receptive idiom knowledge). The results showed that pictorial support facilitated idiom learning, and in particular, acquisition of their linguistic form.

1.4.2 Etymology and idiom teaching

As discussed earlier, in addition to general cognitive reasoning, motivation for idiomatic expressions may come from specific cultural contexts in which they originated. This means that besides limited language proficiency and insufficient exposure, one source of difficulty in the interpretation of figurative idioms may lie in learners' insufficient knowledge of cultural concepts, symbols and values that L1 speakers share and use to make inferences about the mappings between the two levels of meaning of idiomatic phrases.

A number of studies suggest that etymological instruction can alleviate some of the difficulties that arise from cross-cultural variation in the saliency of idiom source domains. Boers (2001) conducted a small-scale study, in which he specifically examined the effect of imagery processing on L2 idiom learning. Two groups of Dutch students of English were first asked to look up the meaning of ten English idioms in a monolingual dictionary. After that, the students in the experimental condition had a supplementary task of hypothesising about the possible origins of the idioms, while the control group was asked to supply a possible context in which the idiom could be used. The assumption of the study was that hypothesising about the idiom origin would trigger learners to generate concrete images for the target expressions, enhancing the probability of their retention. The results showed that hypothesising about idiom origin indeed helped the learners acquire the meaning and the form of L2 idioms, more than the contemplation of possible contexts in which they could be used.

Boers et al. (2004) conducted another experiment that examined the effect of the salience of source domain on L2 learners' acquisition of the idiomatic language. A group of L2 learners was presented with a set of online exercises for 400 English idioms selected from Collins Cobuild Dictionary of Idioms. Three types of exercise were designed for each idiom. Firstly, the learners were presented with the target idiom and asked to select its correct figurative meaning from a choice of three options. The students had only one chance to click the right option, so this task also served as a pre-test of their idiom knowledge. The students were informed which question they answered incorrectly, but the correct answers were not provided as feedback. The second exercise, which the authors labelled 'etymological elaboration" was also a multiple choice task, in which learners were invited to hypothesise about the origin of the idioms by selecting one of the three source domain options. For example, for the idiom *to show someone the ropes*, the following options were provided: a) prison/torture; b) boats/sailing; and c) games/sports. Idioms for which a student was able to identify the source domains correctly were marked as etymologically transparent to that student. The students were provided with concise feedback on the etymological origin of each idiom, but no explicit reference was made to their present-day figurative meaning. The third exercise tested productive idiom knowledge. Like in Boers' (2001) experiment, the learners were presented with a target idiom embedded in an appropriate context and asked to supply the missing keyword. When a student's answer was incorrect, the targeted word would appear on the screen as feedback. The analysis of the learners' responses revealed that the correct interpretation of an idiom often coincided with the students' ability to identify its source domain. The authors interpreted these findings as evidence that idiom meaning is motivated not only for native speakers but language learners as well. However, the students' performance on the gap-fill task did not indicate significant

differences in the recall rates for the idioms whose source domains were identified correctly and those whose origin was opaque to the students. These findings were attributed to the positive effect of etymological feedback. The brief explanations about the idiom origin that were given to the students were thought to have been sufficient to trigger the dual-coding effect, irrespective of whether the learners had been able to identify the source domains correctly or not.

Subsequent research (Bagheri & Fazel, 2010;B oers, Eyckmans, & Stengers, 2007) also suggests that raising the learners' awareness about the idiom origin can have a positive effect on the retention of the meaning and the form of idiomatic phrases in L2.

However, not all experimental data indicated a positive effect of etymological information. The results of the aforementioned study by Szczepaniak and Lew (2011), for example, showed that pictorial support had a significantly stronger mnemonic effect than the presence of etymological notes. As a result, the authors argued against the use of etymology in L2 idiom teaching, on the grounds that information about the idiom origin may distract learners' attention from their current usage, and for the danger that superficial reading on the part of the learners may lead to a mix-up of the phrases. Yet, the authors also acknowledged that the findings may have been affected by the experimental design of the study. In the experiments conducted by Boers and his colleagues, the learners were asked to hypothesise about the idiom origin, while in the study by Szczepaniak and Lew, the learners worked with etymological notes extracted from L2 idiom dictionaries. According to the "levels of processing theory" (Craik & Lockhart, 1972), the amount of learning depends on the manner in which material is processed, with more elaborate coding leading to stronger memory traces. The reading of etymological entries does not require as much cognitive effort as etymological elaboration, which means that memory traces may not have been strong enough to result in long-term retention of the input.

2 Present study

2.1 Study purpose and hypothesis

The review of the earlier studies suggests the need for more research into the mnemonic effect and possible applications of imagery-based techniques in the teaching of L2 idiomatic language. The present study aimed to compare the effect of pictorial illustrations and L1 etymological notes on the retention (comprehension) of idiom meaning and their subsequent recall (i.e. the learners' ability to use the target idioms). While both techniques present examples of imagery-based pedagogy, they differ in the nature of visual coding (direct vs. indirect imagery) and the amount of mental effort that input processing requires.

Therefore, the following research questions were formulated:

1. What effect does the inclusion of images that depict the literal meanings of idioms have on the retention of their figurative meaning (i.e. receptive knowledge) and the subsequent recall of their linguistic forms (i.e. productive knowledge)?
2. What effect does the presence of etymological notes have on the retention and recall of the idiomatic phrases?

The assumption of the study was that etymological explanations would result in better idiom retention and higher recall rates than pictorial support, due to a higher level of cognitive processing that the generation of mental images entails.

2.2 Participants and setting

The experiment was conducted as a case study with a group of 36 first-year Japanese university students (22 females and 14 males) at a low-intermediate level of English proficiency (TOEIC scores between 430 and 550) enrolled in a general integrated-skills EFL course. The classes were held twice a week for a total of three hours over a period of 15 weeks. The main objective of the course was to increase the students' communicative competence. To that end, a variety of vocabulary building activities were incorporated in the teaching materials, including extensive work on

collocations and fixed expressions. A total of 60 idioms were covered in the course. All idiom-teaching activities were created by the teacher-researcher. In order to maintain the students' interest, different approaches were employed, which included dictionary definitions, the use of pre-published idiom illustrations, learner-generated drawings and etymological notes. The data reported in this study are based on a subset of 30 idioms, which were taught with pictorial support provided by the instructor and through etymological elucidation.

2.3 Materials

The study compared the acquisition of 30 L2 idioms, 15 of which were accompanied by illustrations that depicted their literal meanings, and 15 for which etymological explanation was provided. The target idioms were presented in written rather than aural modality for two reasons. Firstly, the research on cross-cultural differences in cognitive styles showed that very few Japanese learners are auditory learners (Reid, 1987). Secondly, limiting the study to reading and writing made it easier to compare the results of this study to earlier research. While additional aural input or output activities could have had a positive affective value on classroom experience, the introduction of new variables would have also made it more difficult to isolate the effect of imagery-based instruction, which was the focus of this study.

The illustrations were selected from "Collins Cobuild Idioms Workbook" (Goodale, 1995) and etymological definitions were taken from "The Origin of English Idioms" (Sato, 2001). The phrase constituents in both conditions were mostly high-frequency words. Vocabulary Profiler analysis showed that in the picture conditions, 93% of the words belonged to the first 2,000-word frequency range, while five words were classified as off-list items. The phrases that were taught through etymology contained nine low-frequency words and 87% of the words belonged to the high-frequency band. A complete list of the target phrases can be found in Appendix 1.

2.4 Design and procedures

The idioms were taught five at a time in six 40-minute sessions. Three sessions were devoted to teaching idioms through pictorial illustrations and three sessions offered instruction through etymological support. Each session involved four stages presented in Table 1.

Table 1. Study design and procedures

		CONDITION: pictorial support			CONDITION: etymological support		
		Task	**C**	**Foc**		**C**	**Foc**
Pre-test		Explain the meanings of idioms in L2 in either L2 or L1	–	**M**	Explain the meanings of idioms in L2 in either L2 or L1	–	**M**
Treatment	**A**	Match idioms to their definitions (L2)	+	**M**	Read etymological notes (L1) on idioms	+	**M**
	B	Write idioms next to pictures depicting their literal meaning (L2)	+	**MF**	Match idioms to their definitions (L2)	+	**MF**
Immediate tests	**A**	Receptive knowledge test: sentence completion with provided idioms	+	**M**	Receptive knowledge test: sentence completion with provided idioms	+	**M**
	B	Productive knowledge test: sentence completion (idioms not provided)	+	**MF**	Productive knowledge test: sentence completion (idioms not provided)	+	**MF**
Delayed tests	**A**	Productive knowledge test: Write idioms (not provided) next to their definitions (pictorial illustrations provided) (L2)	–	**MF**	Productive knowledge test: Write idioms (not provided) next to their definitions (etymological notes provided) (L1)	–	**MF**
	B	Receptive knowledge test: idiom-to-its-definition matching (L2), idioms provided (no pictorial support)	–	**M**	Receptive knowledge test: idiom-to-its-definition matching (L2) (no etymological notes)	–	**M**

Note: **C** stands for contextual support, **Foc** for focus, **M** for meaning, and **F** for form.

2.4.1 Pre-tests

In order to be able to assess the effectiveness of the two treatments, it was necessary to establish the students' level of familiarity with the target phrases and their constituent words. In both conditions, the students were presented at the beginning of each session with a list of five idioms and were asked to explain their meanings in either English or Japanese. They were also asked to circle any words that were new to them and the meaning of these words was then clarified by the teacher. Without understanding the literal meanings of the individual words, it would have been difficult for the learners to recognise a link between the literal and figurative meanings of the target phrases.

2.4.2 Treatment

In both conditions at the treatment stage the focus was on meaning, although the learners did have to pay some attention to the linguistic form in order to write the target phrases correctly. However, the procedures followed in the two conditions were different. For the idioms for which the treatment consisted of pictorial support, the learners read example sentences that involved the target idioms, inferred their meanings and matched them with their L2 definitions. After the answers were checked, the learners were asked to write the target phrases under the pictures that depicted their literal meanings. For example, for the idiom 'to hear something through the grapevine', the following image was provided:

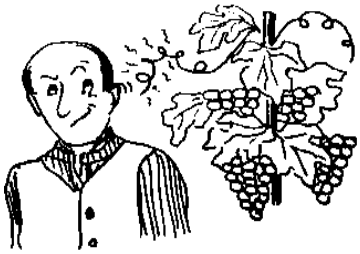

Fig. 1. Collins Cobuild Idioms Workbook (Goodale, 1995)

In the etymological support condition, the input involved example sentences in L2 and explanations about the origin of the target phrases provided in the learners' native language, Japanese. The use of L1 was adopted for two reasons. First, L1 explanations made the background information understandable to the learners. Second, L1 input made it possible to use etymological information as a "hint" during the delayed productive knowledge test without disclosing the constituent words of the target phrases. After the learners read etymological explanations in Japanese, they were asked to write the idioms next to their L2 definitions. In both conditions, after the tasks were completed, the learners were provided with the answers and given an opportunity to ask questions about the meaning or use of the target phrases.

2.4.3 Tests

Learners' retention (comprehension), and recall (ability to produce idiomatic phrases) were tested on two occasions: right after the treatment with a particular technique (immediate tests) and a week from teaching (delayed tests). Each test consisted of two tasks: one retention-oriented task measured with receptive knowledge tests, and one other recall-oriented task measured with productive knowledge tests.

2.4.3.1 Immediate tests

Two gap-fill tasks served as immediate receptive and productive knowledge tests of the target phrases in both conditions. In the first gap-fill task (receptive knowledge test) the learners were provided with a list of the target idioms in their neutral (dictionary) forms (for example, *cook the books, fill the bill*) and asked to complete a set of five sentences with suitable phrases. In the second gap-fill task (productive knowledge test) the target idioms were not provided, and therefore, the students had to recall both their meaning and their form. Following the two tasks, the students were provided with model answers and were invited to ask any questions that they had about the meaning or use of the target phrases.

2.4.3.2 Delayed tests

After a week from the treatment the participants were given a delayed post-test, which consisted of two tasks. The first task was a test of productive idiom knowledge where the learners were asked to write the target idioms next to their L2 definitions. In order to facilitate idiom recall, the mnemonic aids used at the treatment stage (idiom illustrations and L1 etymological information) were re-printed on the test page. After the students completed the task, the tests were collected and another sheet, on which the target idioms were listed, was handed out. The students were asked to match these idioms with their L2 definitions. This task served as a test of receptive idiom knowledge. A sample of activities for all stages of the study can be found in Appendix 2.

2.4.4 Scoring

In the immediate receptive knowledge test, where the target idioms were provided, points were given if the sentences were completed with suitable phrases. As the purpose of the test was to measure idiom comprehension, no points were deducted for inflectional or spelling errors.

In the immediate productive knowledge test, points were awarded only when all components of the target phrases were encoded correctly. Spelling mistakes or omissions of an article or a preposition would result in no points being scored. However, points were not deducted for verb tense errors as they were treated as grammatical rather than lexical errors.

In the delayed post-test of receptive knowledge, points were granted if the idioms were correctly matched with their definitions. In the delayed productive knowledge test, points were scored only when a complete phrase was written down correctly.

3 Results

The results of the study suggest that etymological support facilitates students' retention of idiomatic meaning more than pictorial support, and pictorial support works better for the recall of linguistic form than the technique employing etymological notes. Figure 2 provides an overview of the results.

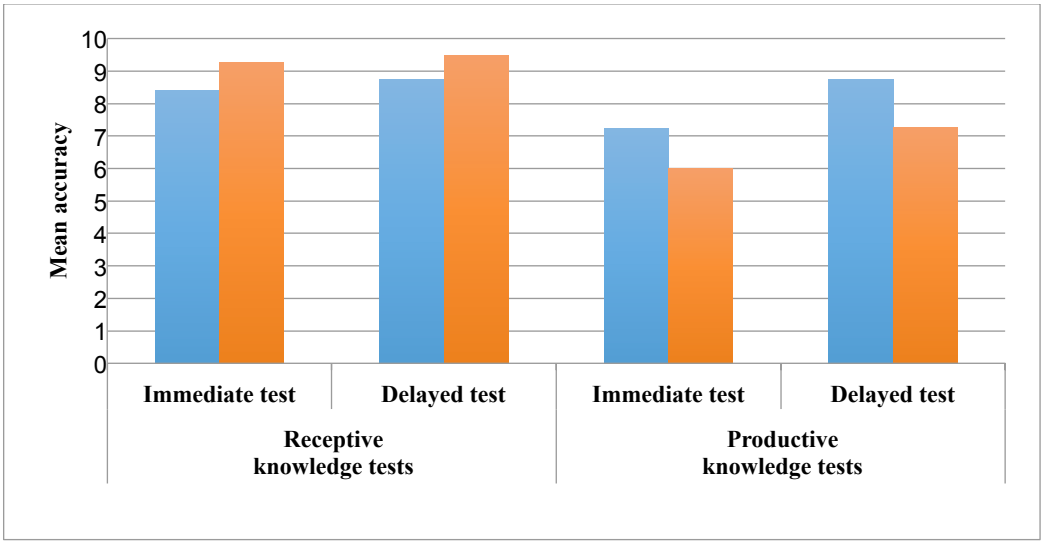

Fig. 2. Learners' performance in immediate and delayed tests by treatment condition

3.1 Students' familiarity with the target idioms prior to instruction

None of the students who participated in this study had prior knowledge of the target idioms. However, the constituent words of the phrases did not seem to pose big difficulties. The only items that had to be explained in class were *grind, grapevine, cart, bluff, Gordian knot, alley, bait* and *hoops.*

3.2 Immediate receptive knowledge tests

The results of the immediate receptive knowledge tests indicate a stronger mnemonic effect of etymological information as compared with pictorial support. When idioms were accompanied with illustrations, the students remembered on average 56% of the target phrases; when etymolog-

ical notes were used, the retention rate increased to 61.6%. The mean scores and standard deviations for the two conditions are presented in Table 2.

Table 2. Descriptive statistics of the immediate receptive knowledge tests (N=36)

Condition	Mean	SD
Pictorial support	8.41	2.02
Etymological notes	9.25	2.24

A paired sample t-test analysis showed that the difference between the two conditions was statistically significant [t(35)=19.9, p<.0001]. The eta statistic showed a very large effect size (η^2=.91).

3.3 Immediate productive knowledge tests

In both conditions, the mean scores on the productive knowledge test were lower than the scores on the test of receptive knowledge due to the more difficult nature of the task and the stricter grading criteria applied. The data obtained suggests that pictorial support facilitates the recall of linguistic form more than etymological support. When the target idioms were accompanied by illustrations approximately 48% of the phrases were recalled correctly; when instruction was built around etymological support, the figure was 40%. The results of the test are presented in Table 3.

Table 3. Descriptive statistics of the immediate productive knowledge tests (N=36)

Condition	Mean	SD
Pictorial support	7.22	3.05
Etymological notes	6.0	2.09

The difference between the two conditions was found to be statistically significant [t(35)=2.75, p<.05]. The eta squared showed a large effect size ($\eta^{2=}$.17).

3.4 Delayed receptive knowledge post-tests

The mean scores on the delayed receptive knowledge post-tests showed a positive effect of etymological information on the retention of idiom meaning. As shown in Table 4, one week after the treatment the students remembered the meaning of about 63.2% of the phrases for which etymological background was provided and about 58.3% of the idioms that were presented with pictorial support.

Table 4. Descriptive statistics of the delayed receptive knowledge post-tests (N=36)

Condition	Mean	SD
Pictorial support	8.75	2.03
Etymological notes	9.49	1.87

A paired sample t-test analysis showed that the difference between the two conditions was statistically significant [t(35)=2.07, p<.05]. The eta squared statistic showed a moderately large effect size (η^2=.10).

3.5 Delayed productive knowledge post-tests

The scores on the delayed productive knowledge test showed a positive effect of illustrations on the retention of the structural properties of idiomatic expressions. About 58.3% of the target

phrases were remembered in the pictorial support condition. Etymological definitions resulted in the correct recall of 48.3% of the target idioms. Descriptive data for both conditions are presented in Table 5.

Table 5. Descriptive statistics of the delayed productive knowledge post-tests (N=36)

Condition	Mean	SD
Pictorial support	8.74	2.08
Etymological notes	7.25	1.68

The difference between the two mean values was found to be extremely statistically significant [$t(35)=4.61$, $p<.0001$]. The eta squared statistic showed a large effect size ($\eta^2=.37$).

4 Discussion

Idioms naturally lend themselves to the dual-coding strategy, due to the two possible semantic levels at which they can be interpreted: literal and figurative (Boers & Lindstromberg, 2009). However, as discussed earlier, with the exception of the ground-breaking work carried out by Frank Boers and his colleagues, relatively little research has been done on the mnemonic effect of imagery-based pedagogy on idiom acquisition in L2. Furthermore, there are hardly any comparative studies of the effects of different kinds of imagery-based pedagogy. This study sought to fill a gap in the research by comparing the effect of pictorial support (perceptual imagery) and etymological notes (mental imagery) on the retention and recall of the meaning and linguistic form of L2 idioms. Although both techniques are examples of imagery-based pedagogy, the results suggest that they have different mnemonic effects. In both the immediate and the delayed post-test, the students' retention of idiomatic meaning was better when they learned about the origin of the expressions, while illustrations seem to have had a facilitative effect on the retention of the structural properties of the phrases.

Idiom illustrations are examples of direct imagery; the images that the learners worked with were real pictures and, as a result, their encoding was a perceptual experience. The illustrations provided extra stimulation for the dual coding of the compositional elements of the target phrases, which was reflected in the higher recall-rates on the productive knowledge tests. The pictures, however, did not depict the figurative layers of idiom meaning, which could have been one of the reasons for the learners' less successful performance in the receptive knowledge tests.

On the other hand, stimulation of dual coding through etymological elucidation represents an instance of indirect imagery. The learners were not presented with any kind of visually perceivable input; instead, the information about the idiom origin was expected to prompt them to generate "mental pictures" of concrete scenes, which in turn were supposed to help them to concretise the target phrases and unify the individual words in idiomatic strings in a single mental representation. According to Paivio and Walsh (1993), these integrated mental images allow more efficient information storage and more flexible processing, due to the fact that imagery representations tend to be synchronous in nature, unlike verbal input that tends to be processed sequentially. As a result, the imagery can increase the efficiency of the search for relevant information and its retrieval. Based on the postulates of the dual-coding theory, imagery should also facilitate verbal recall, and therefore we can assume that the mental images that students generated from etymological input helped them to evoke verbal descriptions. Etymology-based verbal input should have made idiom meaning more transparent to the learners, which subsequently might have helped them to bridge the gap between the two levels of the semantic structure, resulting in the better retention of the phrase meaning.

It should be remembered, however, that information that is derived from mental imagery is qualitatively different from information obtained from perception (McGinn, 2004). Mental images are, to a large extent subject to voluntary control, and can be manipulated more easily than perceptual experiences. While etymological information provided a basis for imagery, we do not know

whether or how the learners transformed the verbal input into images, how detailed those images were or whether they included figurative levels of meaning in addition to the literal ones. As discussed earlier, while some researchers see mental images as *pictures,* others believe that they are more like *verbal descriptions,* without any spatial properties of their own (Thomas, 2014a). Some researchers also argue that semantic concepts are stored in some abstract code, which can be transformed into a linguistic form or an image depending on a need (Baddeley, 1999; Thomas, 2014a). The unresolved theoretical issues about the nature of the mental imagery itself, and the fact that most studies on idiom processing were done in L1, make it difficult to infer the nature of mental representations the learners formed following their exposure to the verbal input.

The lack of a unified theory of figurative language processing, however, does not diminish the observed positive mnemonic effect of imagery-based instruction. While we can still only speculate about the cognition of imagery, there is little doubt that imagery plays an important role in human memory. The findings of this study provide additional empirical evidence in favour of the use of imagery-based pedagogy in the teaching of L2 figurative language.

On some counts, the results of this study seem to contradict previous studies (Boers et al., 2008; Boers et al., 2009) where pictures were found to have a limited and possibly a negative effect on the recall of the structural properties of idiomatic expressions. The differences in the findings, however, could have resulted from the differences in the experimental design. While in earlier studies pictures were used only during idiom instruction, in this study they were accessible to the learners during the recall test. It is possible that the presence of illustrations triggered learners' memory for the lexical constituents of the idiomatic phrases.

The results of this study also do not support Szczepaniak and Lew's (2011) argument about the distracting effect that etymological notes have on the acquisition of idiomatic language. Although the observed mnemonic effect was stronger in the receptive knowledge tests, the recall rates of about 40% to 48% in the productive knowledge test are encouraging, considering the strict test grading criteria and the fact that the instruction included only limited opportunities for structural elaboration.

Another factor that needs to be addressed is the possible influence of the learners' cognitive styles on the mnemonic effect of the treatments. As discussed earlier, the results of some studies suggest that learners who are high-imagers, (i.e. learners who have a predisposition to think in mental images), are more likely to benefit from etymological input than low-imagers, but that they also may be at a disadvantage when it comes to the formation of memory traces for the structural properties of idiomatic phrases during picture-based instruction (Boers et al., 2008; 2009; Boers, Eyckmans, & Stengers, 2006).

Although this study did not specifically investigate the effect of the learners' cognitive styles, a high level of uniformity in the learners' performance suggests that the observed differences are more likely to have resulted from the different nature of the two treatment conditions than cognitive style variables. In the immediate receptive knowledge test, 29 out of 36 learners had better scores in the etymology-based condition. In the delayed receptive knowledge test, that number went up to 31. On the other hand, 29 learners in the immediate productive knowledge test and 27 learners in the delayed post-test had better results in the pictorial support condition. Therefore, unless it is assumed that the majority of the participants in the study shared a similar cognitive style, there is little reason to believe that the patterns that were observed in the learners' performance resulted from their reasoning or learning style characteristics. Moreover, previous studies of imagery-based idiom instruction (Boers et al., 2006; 2008, 2009) point to a possible interference effect of cognitive styles in the case of visual learners only. However, earlier research on cognitive styles suggests that very few Japanese students fall into this category. Reid's (1987) comparative study of the learning styles of ESL students of different cultural and linguistic backgrounds showed that Japanese students have much lower preference for visual input than Korean students, for example. Hyland's (1994) study, which focused specifically on the learning styles of Japanese learners, revealed that very few Japanese students are visual learners, and that overall they display a preference for a cluster of minor learning modalities, such as tactile, kinaesthetic and auditory learning. For these reasons, it seems plausible to conclude that observed differences in the effects

of the picture-based and etymology-based instruction are more likely to have been caused by the differences in the nature and content of imagery representations that resulted from the two instructional treatments, rather than the learners' cognitive traits.

In conclusion, to the extent that a small-scale study allows for generalisations, the findings support imagery-based pedagogy in the teaching of L2 figurative idioms. Both pictorial support and etymological explanations were found to promote idiom learning offering new alternatives to the teaching of idiomatic language that go beyond blind memorisation.

However, just like any other teaching approach, imagery-based pedagogy should be applied critically and selectively. There is no teaching strategy than can address all facets of learning, and the dual-coding based strategies are by no means an exception. For example, with regard to the use of pictures, it is important that teachers remember that not all words or expressions are suitable for pictorial elucidation, and that the mnemonic effect of visual materials can differ dramatically (Hupka, 1989, cit. in Boers et al., 2008, p. 190). In many EFL materials, pictures seem to have a purely decorative function, with little impact on the learning itself. Furthermore, even when pictures aid comprehension, the presence of illustrations does not imply that the encoding of the linguistic form of the target idioms will be straightforward. In this study, although pictorial support was found to be more conducive to the acquisition of idiom structure than etymology, the learners were able to recall between 48% and 58% of the target phrases correctly, and the analysis of their responses revealed numerous instances of the omission of function words, as well as some spelling errors. One possible reason is that the illustrations highlighted the content words, but did not necessarily strengthen the memory traces for grammatical words in idiomatic strings. This means that comprehensive instruction of idiomatic language would require pictorial support to be supplemented with other activities that can promote structural elaboration.

Some limitations of the picture-based pedagogy are also linked to individual differences in perceptional and cognitive abilities. Research in visual representations has shown that while people have little control over their perceptual experience, in the sense that once they are exposed to a stimulus they cannot help perceiving it (McGinn, 2004), the nature of perception is to a large extent influenced by cognition and that there are enormous differences in how that stimulus may be processed (Anglin, Vaez, & Cunningham, 2004). This means that while we can say with a fairly high degree of confidence that the learners in this study *noticed* the idiom illustrations, we can also assume that there were significant differences in the amount of attention given to the images and the ways in which the individual students identified and integrated the elements in the pictures.

A number of concerns also arise when instruction is based on etymological input. To begin with, although etymological feedback can be an effective strategy for highlighting the semantic motivation of figurative expressions, the success of this strategy requires explicit guidance from the teacher. Simply put, the majority of second language learners do not have the skills or persistence to decode the links between the idiom origins and their current figurative use. Without some help from the teacher, many learners may give up before they get to experience any mnemonic benefits of etymological elucidation.

Furthermore, although data obtained in this study suggest that the information about idiom origin helped the learners remember their figurative meaning, there is a possibility that etymological notes made the acquisition of the figurative meanings more difficult for some learners, due to the activation of associations that were irrelevant to the idiomatic phrase usage (Szczepaniak & Lew, 2011). More experimental work is needed in this respect. In addition, some idioms may be so opaque to the learners that it may be too difficult for them to conjure images that could link the literal and the figurative levels of interpretation (Boers, 2001). Finally, even when idioms are semantically transparent, etymological feedback may not be sufficient for the learners to acquire the structural properties of idiomatic phrases, as this study has shown. The students' responses contained a number of incomplete phrases, with both content and function words omitted. Nevertheless, the meaning retention rate of over 61% in the immediate post-test suggests that etymology could be a viable alternative to rote memorisation, at least when it comes to the teaching of the meaning of idiomatic expressions.

5 Conclusions and future research

The study looked into the effectiveness of imagery mnemonics in the teaching of idiomatic expressions in the second language. The results of the experiment suggest that imagery can indeed facilitate encoding of the verbal input, but that the strength of memory traces is likely to depend on how visual coding is stimulated. Pictures that depicted the literal idiom meaning were found to have a stronger mnemonic effect on the retention of the compositional elements of the target phrases, while stimulation of mental images through etymology led to better retention of the figurative idiom meanings. Further research, however, is necessary to corroborate these findings and elucidate the results.

Firstly, interpretations of the observed effects of any idiom teaching strategy will remain incomplete until there is a better understanding of the psychological processes involved in idiom comprehension. Studies that examined idiom processing in L1 demonstrated that the computation of literal idiom meaning can be terminated after the phrases have been interpreted figuratively, while the computation of the syntactic structure always has to be completed (Cacciari & Tabossi, 1988; Gibbs, 1986; Peterson & Burgess, 1993). However, little is known about the patterns of interaction between the syntactic and semantic processing of idiomatic language in non-native speakers. Non-native speakers display a tendency to process the constituents of idiomatic phrases individually and literally (Cieslicka, 2006; Irujo, 1986a), and therefore, it is possible that the nature of interaction of the syntactic, literal and figurative processing will display different patterns from those of native speakers.

Secondly, further studies are needed to examine the effectiveness of the imagery-based approaches in relation to different cognitive styles, with attention given not only to visual but also auditory-verbal and kinaesthetic learners.

Thirdly, more controlled research is needed to examine the long-term effects of the two strategies. In the current study, the post-tests were given only a week after the treatments and the tasks on the delayed post-tests were cognitively less demanding than those on the immediate post-tests. In the immediate test, the students had to pay attention to the sentence context and occasionally make some transformations to the target phrases; the delayed post-test was context-free and the learners only had to match or write the idioms next to their definitions. Therefore, further research is needed in order to get a more accurate estimate of the amount of the long-term learning that can be expected from the two approaches.

Fourthly, in the current study the learners were provided with the illustrations that represented the literal meaning of the target phrases. It would be interesting to see the mnemonic effect of pictorial support that entailed the elements of the figurative meaning of the target phrases, as well as the effect of the illustrations that were generated by the learners themselves. Likewise, in order to get a better understanding of the effect that etymology may have on idiom learning, further studies that would compare the effect of the etymological input provided by the teacher with the techniques, such as etymological elaboration, which require learners to make hypotheses about idiom origin, are needed.

In this study, pictures and etymological information were provided separately. It would also be interesting to explore the combined mnemonic effect of the pictures and etymological notes, considering also variables such as order of presentation (i.e. pictorial support provided before, together with, or after etymological input).

Finally, as discussed earlier, the data obtained in this study did not reveal much about the nature of the images that the students generated. In the subsequent studies it may be useful to employ introspective techniques, such as verbal protocols, in order to have a better understanding of the cognitive processes involved in the mental imagery.

It is hoped that the results of this study will inspire teachers and researchers to explore the possible applications of imagery-based pedagogy further, in search of more cognitively sound ways of teaching idiomatic expressions to second language learners.

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Appendices

Appendix 1 – Target idioms

Pictorial illustrations
- cook the books
- ring a bell
- play it by ear
- start the ball rolling
- let off steam
- have an axe to grind
- hear something on the grapevine
- put one's finger on something
- stab somebody in the back
- put the cart before the horse

Etymological information
- fill the bill
- call someone's bluff
- go belly up
- spill the beans
- cut the Gordian knot
- stick to one's guns
- bring someone to heel
- jump through the hoops
- right down someone's alley
- hot under the collar

- burn the candle at both ends
- put one's cards on the table
- take the bull by the horns
- let the cat out of the bag
- you scratch my back, I'll scratch yours
- rise to the bait
- bark up the wrong tree
- be saved by the bell
- kill the goose that lays golden eggs
- get up on the wrong side of the bed

Appendix 2 – Task samples (abridged)

Pre-test (Both conditions)
Instructions: Below you will find a list of five idioms that we are going to study in today's lesson. If you are familiar with them, explain their meaning in English or in Japanese. If there are any words you do not know in these expressions, circle them.

- *cook the books*
- *put the cart before the horse*

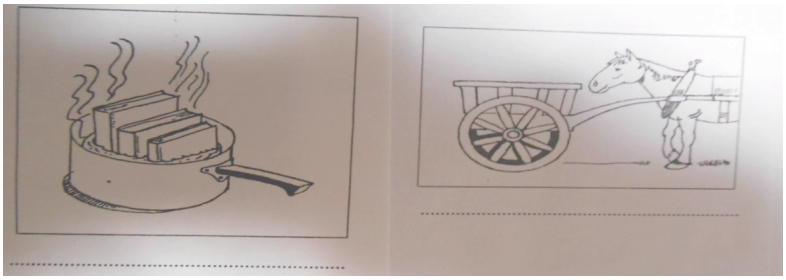
[…]

Treatment (Pictorial support)
Task A.
Instructions: Read the following example sentences and match the target idioms with the corresponding definitions below. Compare your answers with a partner.

- *One of the directors had been **cooking the books** and the firm had been losing money for years.*
- *Deciding what to wear before you've even been invited to the party is rather **putting the cart before the horse,** isn't it?*

…… = to have the things in wrong order; to have things confused and mixed up
…… = to keep false financial records for an organisation

Task B.
Instructions: Guess which idiom is illustrated in each picture and write it on the line.



……

Treatment (Etymological notes)
Instructions: Read the example sentences below and the information about the origin of the target idioms that follows. Next, write each idiom next to its corresponding definition. Compare your answers with a partner.

1. *Don't tell him anything. He's sure to **spill the beans**.*
Origin: In ancient Greece, when there was a secret vote, white beans were placed in a jar to express support, and black ones to express opposition. Therefore, spilling the beans meant disclosing a secret.
(Note: This is the author's translation; in the experiment, etymological notes were provided in the learners' L1, Japanese)

2. *Never try to reason with him when he**'s gotten up on the wrong side of the bed**.*

Origin: Here ‘wrong’ side means ‘left side’. ‘Sinister’, a Latin word for left, in English came to mean ‘unfortunate’. This is the origin of a superstition that ‘left’ means ‘bad luck’.

…… = to disclose a secret
…… = to be in a bad mood from the start of a day

Immediate tests – Immediate receptive knowledge test (both conditions)
Instructions: Complete the sentences below with a suitable expression from the list. Pay special attention to the verb and pronoun forms.

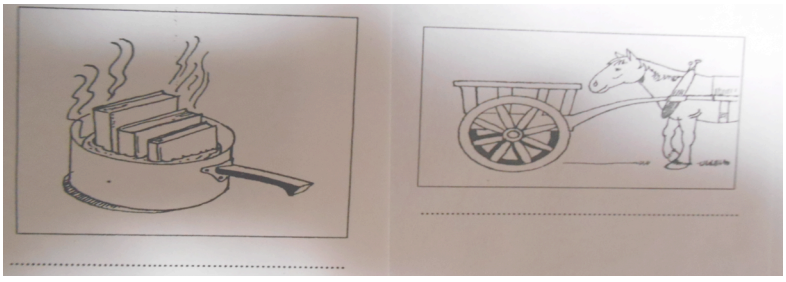
- cook the books
- put the cart before the horse
[…]
1. *You’re eating your dessert first! You’ve ……..*
2. *We are not going to …… or lie about the health of our business.*

[…]

Immediate tests – Immediate productive knowledge test (both conditions)
Instructions: Complete the sentences below with a suitable idiom that you have learnt today.

1. *An independent investigation showed that the company has been …….. for years.*
2. *A: I’m going to get a really good job, and then go to university.*
   B: Aren’t you _____ ?
   A: What do you mean?
   B: You should go to university first.

Delayed tests – Delayed productive knowledge tests (Pictorial support)
Instructions: Write the idioms that you learned in the previous lesson next to their corresponding definition.



…… = to have the things in wrong order; to have things confused and mixed up
…… = to keep false financial records for an organisation

Delayed productive knowledge tests (Etymological notes)
Instructions: Write the idioms that you learned in the previous lesson next to their corresponding definition. The notes about the idiom origin may help you with the task.

1. In ancient Greece, when there was a secret vote, white beans were placed in a jar to express support, and black ones to express opposition. Therefore, spilling the beans meant disclosing a secret.
2. Here ‘wrong’ side means ‘left side’. Latin word for left ‘sinister’, in English came to mean ‘unfortunate’. This is the origin of a superstition that ‘left’ means ‘bad luck’.
(Note: In the tests, etymological information was provided in the learners’ L1, Japanese.)

…… = to disclose a secret
…… = to be in a bad mood from the start of a day

Delayed receptive knowledge test (Both conditions)
Instructions: Write the following idioms next to their corresponding definitions.

- *cook the books*
- *put the cart before the horse*

[…]

…… = to have the things in wrong order; to have things confused and mixed up

…… = to keep false financial records for an organisation

[…]