

Chinese EFL Learners' Retrieval of English Idioms in Language Production

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ABSTRACT

While EFL learners' comprehension of English idioms seems well-documented in the literature, much less has been written about their production of idiomatic phrases. To investigate how idioms are retrieved from the mental lexicon of second language (L2) learners during language production, the think-aloud data of 35 proficient Chinese learners of English were recorded and analyzed in a Chinese-English sentence translation task. The results show that in this cross-linguistic idiom production, both the literal meaning and the figurative meaning can be used to activate the idiom itself. What's more, literally translated concepts tend to be retrieved literally, and figuratively translated concepts tend to be retrieved figuratively. This indicates that the to-be-translated concept can prime the retrieval of the idiom base form to some degree. The findings suggest that the hybrid model of idiom production still holds for L2 idiom production even when tested with cross-linguistic tasks.

Keywords: *English idiom, retrieval, literal meaning, figurative meaning, language production*

sentence translation task to verify Cutting and Bock's [2] hybrid model of idiom production with L2 learners.

1. INTRODUCTION

Idioms, one kind of formulaic language and the combination of both a literal and a figurative meaning, are the gem of human language. Being the true revelation of the folk-soul and the carrier of culture, idioms are an indispensable part in any specific language and play an important role in second or foreign language learning. To a certain degree, mastery of a second language may depend in part on how well learners comprehend initially and produce eventually the idioms encountered in everyday language. The more a non-native speaker is capable of understanding and using idiomatic expressions, the closer he or she is to the native proficiency of the English language.

For all its importance, historically L2 learners' idiom processing has not received due attention in academic researches. While much insight has been gained on mental representation during the comprehension [1-3] and production [2, 4-5] of idiomatic expressions among L1 users, only a few studies were conducted to address L2 learners' idiom comprehension [6-8]. Much less is understood about how idioms are stored or accessed in L2 learners' lexicon during the course of language production.

1.1. Our Contribution

With the research method of Think-aloud protocols (TAPs) [9], the present study aims to explore Chinese proficient English learners' idiom retrieval in a Chinese-English

1.2. Paper Structure

In the following sections, this paper will first present a review of the hybrid model of idiom production in section 2 before describing the present study which was conducted with 35 Chinese proficient English learners to address questions about English idiom retrieval during a sentence translation task. Finally, section 4 brings together the main findings of the research, expands on its limitations, and looks into possible future research potentials.

2. THE HYBRID MODEL

Comparing with the abundant proposals on idiom comprehension, those on idiom production are relatively scarce. There are two models proposed so far, and the hybrid model will be reviewed in the subsequent sections.

To our knowledge, Cutting and Bock made the first attempt at investigating the storage and retrieval of idioms during language production. In their first experiment, participants were asked to produce one or the other idiom after being presented with pairs of idioms of the same or different meaning and syntactic forms. The result showed that same-syntax idioms with similar figurative meanings were more likely to blend than different-syntax idioms with different figurative meanings, suggesting that idiom representations contain syntactic information. Their second experiment employed idioms with identical syntactic

structures but varying figurative and literal meanings. As expected, literal-meaning similarity resulted in a percentage of blends comparable to that elicited for figurative-meaning similarity between two idioms in a pair. This result speaks for the activation of the literal meaning during the production of idioms. In a third experiment, Cutting and Bock found that the lexical representations of decomposable and non-decomposable idioms are the same when they enter into the production process.

Based on these findings, Cutting and Bock proposed the hybrid model of idiom production. They stress a simultaneously unitary and distributed nature of idiom representations. The unitary nature is implemented through the lexical-conceptual level, and one concept can activate multiple lexical concept nodes. The distributed nature is reflected in the assumption that, even if idioms have their own separate nodes at the lexical-conceptual level of processing, they are not word-like entries without internal structure, but rather consist of the same lemmas that get activated in the course of literal utterance production.

3. THE STUDY

Pioneering as the hybrid model of idiom production is, it is conducted with native speakers only. Therefore, this study aims to verify Cutting and Bock's hybrid model in the L2 learning context. More specifically, the research questions include: (1) How L2 learners retrieve English idioms during language production? By the literal meaning, or the figurative one? (2) Does the target concept in Chinese influence the retrieval of the idiom base form?

3.1. Participants

The participants were 70 English majors (mean age 22.2, 63 girls and 7 boys) selected from a university in Shandong Province, China. Among them, there were 35 juniors and 35 seniors and all of them had passed China's national band-4 Test for English Majors (TEM-4), representing a proficient level in English. Their participation in the experiment was voluntary.

3.2. Material

Material used in this study was a sentence translation test in the form of blank filling. It consisted of 10 sentences in Chinese and their corresponding English translation with the to-be-translated idiom part missing. The task was to translate the underlined parts of the sentences into English by using an idiom while verbalizing their thoughts all the way and having it recorded. All the tested idioms were rated familiar in the prior pilot study conducted with a group of 120 students whose English level was comparable

to that of the subjects taking part in the experiment. None of the students participating in the pilot study took part in the experiment itself. During the pilot study, the subjects were asked to rate the level of familiarity of 40 high-frequency English idioms on a 1-7 Likert scale from (1) unknown to (7) well-known. Among them, only ten whose average ratings exceeded 4.0 were selected for the experiment.

To guarantee that all sentences were real-life occurrences but not artificial ones, all the ten sentences were chosen from BNC. In addition, the content involved in the sentences was neither too professional nor technical so that it would not be difficult for students to understand.

3.3. Procedure

3.3.1. Think-aloud

Four groups of participants went to the language lab one by one and no interchange of any information happened between them. With less than 20 students in each group, there were enough intervals between them and no interference would occur. To ensure the precision of the data, the language required was Chinese, their native language, and the think-aloud was recorded by the computerized recording software installed in the language lab. This phase took about 90 minutes altogether.

3.3.2. Data processing

In light of the complexity of the task, not all recordings could meet the requirement of the study and not all students could finish all items. To ensure the representativeness of the data, an ideal recording and written answer should:

- a. Have finished all items;
- b. Be silent for less than 10% of the total recording time;
- c. Have made the retrieval and modification of the idiom base form clear with appropriate specification;
- d. Score more than 20 (total = 30) for the written test.

This process discarded 19 cases. After that, the answer sheets of the translation task were graded according to the previously-decided answer on a 3-point scale. 1 point was given for a wrong answer; 2 points for a transitional-stage response that was partially correct; 3 points for a correct idiom production. The answer sheets were graded by two raters individually and the inter-rater correlation coefficient is .867 ($p = .000$) (See Table 1). This process then excluded 16 cases that scored less than 20. After this recording-plus-score selection, 35 recordings and answer sheets remained for further data transcription.

Table 1. Inter-rater correlations for the idiom translation task

		Rater 1	Rater 2
Spearman's rho	Rater 1	Correlation Coefficient Sig. (2-tailed) N	1.000 .000 30
	Rater 2	Correlation Coefficient Sig. (2-tailed) N	.867** .000 30

** Correlation is significant at the 0.01 level (2-tailed).

Then the 467-minute translation recordings of 35 subjects were transcribed verbatim, yielding 60 double-spaced pages containing approximately 42,000 words. To ensure uniformity, all transcriptions were done by the researcher herself, avoiding reducing the reliability by multiple transcribers. All details were transcribed, including the repetition, the pause, and the silence. The data then were segmented into idiom retrieval and idiom translation. The retrieval stopped where the participant mentioned the target idiom that he/she would use in the following translation task for the first time and was marked as “/”. Once the verbal data are segmented, what comes next is coding. According to Langlotz [10], the sum of the meaning of idiom constituents constitutes its literal meaning, while the lexicalized extended meaning of the construction is its figurative or idiomatic meaning. The

literal meaning can be constructed compositionally, but the figurative meaning is something running beyond the sum of the denotation of each constituent. Therefore, in the present idiom retrieval coding, the literal retrieval refers to activating the idiom base form through either the simple addition of the constituent meanings of the target idiom or the key word of it. And the figurative retrieval refers to activating the idiom base form through its extended or metaphorical meaning, the meaning beyond the literal combination of its constituent words. Then the think-aloud data were coded by the two coders individually with reference to the decided coding scheme (See Table 2). The correlation coefficient was .895 ($p = .000$) (See Table 3). All disagreements were subsequently resolved through further discussion so that 100% agreement was achieved.

Table 2. The coding scheme for the idiom retrieval episode

Utterance	Coding Scheme
Having one's life hanging on a thread means very dangerous . To express 'dangerous', we have two idioms, <i>be on a knife edge</i> , and <i>walk a tightrope</i>	F
The 'thread' in having one's life hanging on a thread reminds me of the idiom <i>walk a tightrope</i>	L
Having one's life hanging on a thread means very dangerous . To express 'dangerous', we have two idioms, <i>be on a knife edge</i> , and <i>walk a tightrope</i> . A tightrope is a thread , so <i>walk a tightrope</i> is better.	F + L
Having one's life hanging on a thread. The thread reminds me of the idiom <i>walk a tightrope</i> . Yes. " <i>walk a tightrope</i> " means in danger .	L + F
Objecting to something. Let me see, <i>be on a knife edge</i> ... <i>lead to a dead end</i> ... <i>jump on the bandwagon</i> ...mm, maybe <i>jump on the bandwagon</i> .	E

Note: F = figurative; L = literal; F + L = figurative + literal; L + F = literal + figurative; E = else (including exclusion, result, and condition). Words or phrases in the boldface are evidence for the judgment.

Table 3. Inter-rater correlations for the coding of idiom retrieval episode

			Coder 1	Coder 2
Spearman's rho	Coder 1	Correlation Coefficient	1.000	.895**
		Sig. (2-tailed)	.35	.000
		N	35	35
	Coder 2	Correlation Coefficient	.895**	1.000
		Sig. (2-tailed)	.000	.35
		N	35	35

** Correlation is significant at the 0.01 level (2-tailed).

3.4. Results

The first research question addresses the retrieval of idioms during their production. From Table 4 and Figure 1 we can see that in this cross-linguistic idiom variant production, both the literal meaning and the figurative meaning could be used to activate the idiom base form. Among all the items, the figurative meaning first activation added up to 191 tokens and accounted for about 55% (n = 182 + 9) of the total and the literal meaning first activation amounted to 154, about 44% (n = 136 + 18). Idioms *off the hook*, *have a mountain to climb*, and *jump*

on the bandwagon ranked high above the rest of others in figurative activation, and *blaze a trail* and *on the knife edge* were top two in literal activation. Among figurative and literal activations, the combination of the two did happen and accounted for 7.7% of the total. Except for the mainstream literal or figurative activation, other retrieval approaches such as exclusion, condition, and result took up 1%. The existence of the “figurative plus literal” and “literal plus figurative” combinational retrieval spoke against the idea of figurative only or literal processing terminating upon the retrieval of idiom’s figurative meaning.

Table 4. Data coding of the idiom retrieval episode

NO.	Idiom	F	L	F + L	L + F	E
1	On the right track	20	13	1	1	
2	Walk a tightrope	7	10	2	14	2
3	Swallow the bitter pill	21	7	4	2	1
4	Off the hook	32	3			
5	Blaze a trail	1	33			1
6	Skate on thin ice	14	20	1		
7	Have a mountain to climb	32	3			
8	Jump on the bandwagon	31	2		1	1
9	Clutch at the straw	19	16			
10	On the knife edge	5	29	1		
Total (350)		182	136	9	18	5

Note: F = figurative; L = literal; F + L = figurative + literal; L + F = literal+ figurative; E = else (including exclusion, condition, result).

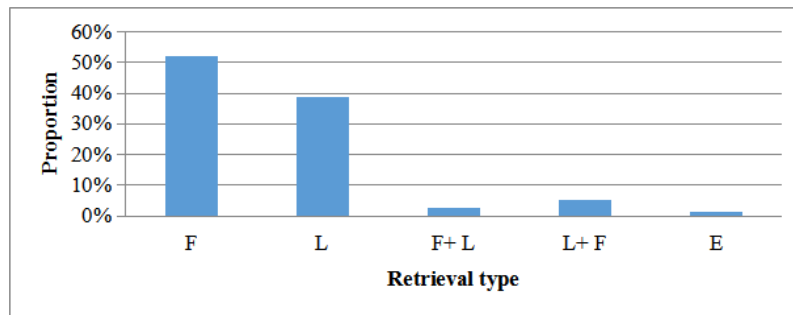


Figure 1. Proportion of each retrieval type

Since the chosen idioms were rather familiar to all participants and all of them belonged to transparent and compositional idioms, why some of them were activated

while others figuratively activated? To answer question 2, a pairing of the translation and the activation type was illustrated in Table 5, Figure 2, and Figure 3.

Table 5. The pairing of target concept translation and retrieval type

Translation	Item	Literal Retrieval		Figurative Retrieval	
Literal Translation	2	24	(68.6%)	9	(25.7%)
	5	33	(94.3%)	1	(2.9%)
	6	20	(57.1%)	15	(42.9%)
	10	29	(82.9%)	6	(17.1%)
Figurative Translation	1	14	(40%)	21	(60%)
	3	9	(25.7%)	25	(71.4%)
	4	3	(8.6%)	32	(91.4%)
	7	3	(8.6%)	32	(91.4%)
	8	3	(8.6%)	31	(88.6%)
	9	16	(45.7%)	19	(54.3%)

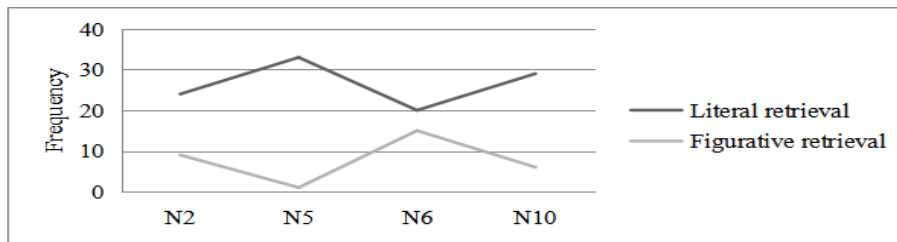


Figure 2. Idiom retrieval of literally translated concepts

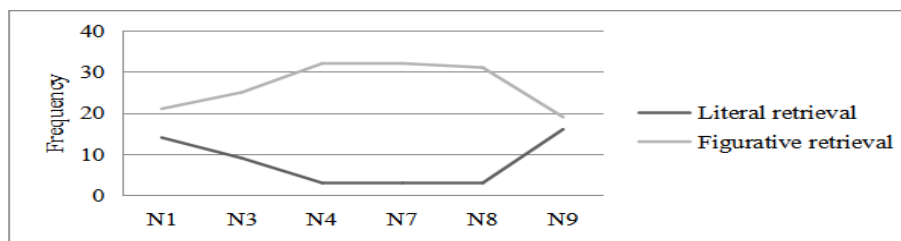


Figure 3. Idiom retrieval of figuratively translated concepts

As was illustrated in Table 5, Figure 2, and Figure 3, all the items showed certain degree of correlation between the translation type and the retrieval type: For literally translated concepts, the percentage of literal retrieval was higher than that of figurative one, with 57.1% the lowest and 94.3% the highest;

for figuratively translated concepts, the percentage of figurative retrieval was all higher than that of literal ones, with 54.3% the lowest and 91.4% the highest. The paired sample t-test revealed significance for both pairs ($t = 3.261, df = 3, p = .047$; $t = -3.894, df = 5, p = .011$) (See Table 6 and 7).

Table 6. Paired samples test for retrieval of literally translated concepts

	Paired Differences		t	df	Sig. (2-tailed)
	Mean	SD			
Pair 1 Literal-Figurative	18.750	11.500	3.261	3	.047

Table 7. Paired samples test for retrieval of figuratively translated concepts

	Paired Differences		t	df	Sig. (2-tailed)
	Mean	SD			
Pair 1 Literal-Figurative	-18.667	11.742	-3.894	5	.011

This result indicated that, the to-be-translated concept would influence the retrieval of the idiom base form to some degree. If the concept in Chinese was concerned with

the figurative meaning of the target idiom, then more often than not, the idiom would be activated by its figurative meaning. On the other hand, if the concept in Chinese

included one or more constituents equivalent, similar, or related to one constituent of the target idiom, then this idiom would be retrieved through this shared constituent and the literal retrieval happened.

3.5. Discussion

3.5.1. Idiom retrieval

The existence of both the literal and figurative activation again suggested that the hybrid account of idiom representation proposed by Cutting and Bock [2] still holds true even when tested with cross-linguistic tasks. One support for this hybrid model can be found in Sprenger et al. [5]. They complemented Cutting and Bock's speech-error elicitation task with error-free speech production with different reaction time paradigms and validated their idiom representation accounts. The separate access to the individual component of the idiom supported the compositional nature of idiomatic expressions, and the stronger priming effect in the case of idioms indicated their unitary conceptual representation. Effects coming from both phonological and semantic priming suggested that idioms could not only be primed via their word form, but also via the conceptual level.

The present study is another support for the hybrid model. The coexistence of literal meaning and figurative meaning activation was in favor of the compositional and unitary representation of idioms.

3.5.2. Priming effect

The result illustrated above demonstrated a relatively constant pattern of the semantic and lexical priming effect of idioms across English and Chinese.

In Yeganehjoo's [11] priming experiment, participants were exposed to auditory primes in Persian that share some degree of similarity between L2 idiom and its L1 idiom counterpart. The study found that the Persian prime that is the shared lexical item in both the L1 and L2 idioms and the idiom key for the L1 idiom exhibited the shortest reaction time for the production of the L2 idiom. However, the Persian prime that was the shared concept for both the L1 and L2 idioms did not facilitate the production of the L2 idiom.

The same effect was also detected by Carrol and Conklin [12-13]. To explore the representation and access of idioms in L1 and L2, they investigated the processing of translated Chinese idioms by intermediate proficiency Chinese-English bilinguals to determine whether known L1 combinations show idiom priming effects in non-native speakers when encountered in the L2. In two eye-tracking experiments, they compared reading times for idioms vs. control phrases (Experiment 1) and for figurative vs. literal uses of idioms (Experiment 2). The result showed that native speakers of Chinese showed recognition of the L1

form in the L2, but figurative meanings were read more slowly than literal meanings, suggesting that the non-compositional nature of idioms makes them problematic in a non-native language.

Different from previous literature, the present study found not only the lexical priming effect but also that of the conceptual level between Chinese and English as idiom production were concerned. Possible explanation of this difference might come from the following two aspects. First, in this researches, the priming word was in different language. Carrol and Conklin used the transliterated Chinese idioms (e.g. draw-snake-add...feet) as primes. For Chinese native speakers, the direction was from L2 to L2, namely, participants were primed by L2 and produced target words in L2 or understood L1 in L2. Although the transliterated Chinese idioms contained the equivalent words to that in Chinese, they were scarcely encountered in an unfamiliar translated form. This defamiliarization should make the computation of the underlying figurative meaning of the target idiom slower than expected, thus rendering no priming effect. However, in this study, primes were the shared Chinese concept of the target idioms, which was exactly how idioms were initially remembered by Chinese-English learners. Second language learners learn idioms in a rote manner, by establishing arbitrary links between idiom forms and their figurative meaning. Therefore, the presentation of their concept would readily activate their word form, as Yeganehjoo et al. once assumed.

Moreover, since chosen idioms in the present study were all highly familiar ones with Chinese participants, most probably they had established a strong link between their conceptual level and lexical level through repeated exposure, thus making a direct concept-to-form retrieval.

Secondly, even though Yeganehjoo [11] employed the auditory primes in participants' native language, Persian, the size of the priming words was different from the present study. All concept primes in their experiments were single or two word(s) such as "eye", "dear", or "fly off", while concept primes in ours were phrases or sentences. Compared with single word like "*lang chao*" (movement) or "*ke fu*" (conquer), these phrases or sentences contained more shared concept between English and Chinese and were more likely to demonstrate a facilitating effect in idiom production.

4. CONCLUSION

The results of this study add new L2 evidence to the hybrid model of idiom production. According to this hybrid model, idioms are represented as both unitary and compositional entities in the lexicon, and they can be primed not only through the word form but through the conceptual level. The existence of both the literal and figurative retrieval found in the present study suggests that the hybrid account of idiom representation still holds true for L2 idiom production even when tested with cross-linguistic tasks. In addition, the to-be-translated target concept influenced the retrieval of the idiom base form.

Like any other type of research, the present study suffers from some limitations. Participants involved in this research are English majors at proficient level from a non-key university in China. Therefore, the findings emerging from the present study can only represent the behaviors of populations that share the same characteristics as the participants in this investigation but not others like non-English majors, or students at advanced level or in key universities. In addition, the sample size of 35 subjects, although much more than that of many other existing think-aloud experiments, is still not large enough. Therefore, some of the results of the present study should be interpreted in the strictly predictive sense and some of the conclusions still wait to be confirmed by future studies with more refined research design. Future researchers can replicate the present research design on larger-scale idioms with more participants from different universities, of different language proficiency or different language background.

ACKNOWLEDGMENT

This research is supported by grants from the Social Science Foundation of Shandong province (12DWXJ10) and the Social Science Foundation (2011-11) and Startup Foundation for Doctors (2018) of Liaocheng University.

REFERENCES

- [1] S.A. Bobrow, S.M. Bell, On catching on to idiomatic expressions, *Memory and Cognition*. 1(3) (1973) 342-346. DOI: <https://doi.org/10.3758/BF03198118>
- [2] J.C. Cutting, K. Bock, That's the way the cookie bounces: Syntactic and semantic components of experimentally elicited idiom blends, *Memory & Cognition*. 25(I) (1997) 57-71. DOI: <https://doi.org/10.3758/BF03197285>
- [3] C. Cacciari, S. Glucksberg, Understanding idiomatic expressions: The contribution of word meanings, in: G.B. Simpson (Eds.), *Understanding Word and Sentence*, Elsevier, Amsterdam, Netherlands, 1991, pp. 217-240. DOI: [https://doi.org/10.1016/S0166-4115\(08\)61535-6](https://doi.org/10.1016/S0166-4115(08)61535-6)
- [4] S.A. Sprenger, Fixed Expressions and the Production of Idioms, Ph. D. Thesis, University of Nijmegen, 2003.
- [5] S.A. Sprenger, W.J.M. Levelt, G. Kempen, Lexical access during the production of idiomatic phrases, *Journal of Memory & Language*. 54(2) (2006) 161-184. DOI: <https://doi.org/10.1016/j.jml.2005.11.001>
- [6] J. Kormos, *Speech Production and Second Language Acquisition*, NJ: Erlbaum, 2006.
- [7] B. Abel, English idioms in the first language and second language lexicon: A dual representation approach, *Second Language Research*. 19(4) (2003) 329-358. DOI: <https://doi.org/10.1191/0267658303sr226oa>
- [8] K. Conklin, N. Schmitt, Formulaic sequences: Are they processed more quickly than nonformulaic language by native and nonnative speakers? *Applied Linguistics*. 29(1) (2008) 82-89. DOI: <https://doi.org/10.1093/applin/amm022>
- [9] K.A. Ericsson, H. A. Simon, *Protocol Analysis: Verbal Reports as Data*, MIT Press, 1993.
- [10] A. Langlotz, *Idiomatic Creativity: A Cognitive-linguistic Model of Idiom Representation and Idiom-variation in English*, John Benjamins, 2006.
- [11] M. Yeganehjoo, Ngee Thai Yap, M.H. Abdullah, B.H. Tan, The influence of cross-linguistic similarities on L2 idiom production, *3L: The Southeast Asian Journal of English Language Studies*. 18(4) (2012) 91-107.
- [12] G. Carrol, K. Conklin, Getting your wires crossed: Evidence for fast processing of L1 idioms in an L2, *Bilingualism: Language and Cognition*. 17(4) (2014) 784-797. DOI: <https://doi.org/10.1017/S1366728913000795>
- [13] G. Carrol, K. Conklin, Cross language lexical priming extends to formulaic units: Evidence from eye-tracking suggests that this idea 'has legs', *Bilingualism: Language and Cognition*. 20(2) (2017) 299-317. DOI: <https://doi.org/10.1017/S1366728915000103>