

The effect of transparency on L2 idiom interpretation

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1. Introduction

Past studies have defined ‘transparency’ as a measure of the relatedness between the non-literal and literal meanings of an idiom¹ (Gibbs 1987; Keysar and Bly 1995; Nippold and Taylor 1995, 2002). A transparent idiom is one with an easily recognizable connection between the literal meaning of the expression and its idiomatic interpretation, and a non-transparent idiom is one without such a connection. For example, *burn the candle at both ends* is said to be transparent, because speakers can easily discern a relation between the literal meaning of this phrase—which refers to a candle lit at and being consumed gradually from both ends—and the idiomatic meaning of ‘being extremely busy, often with the result that you become tired or sick.’ On the other hand, *shoot the breeze* is said to be non-transparent (or opaque), because there is no easily recognizable relation between the meanings of the individual words in this phrase and its idiomatic meaning ‘to talk with other people in a friendly and informal way.’

A number of views have been proposed regarding the association between transparency and predictability of meaning. Some studies suggest that transparent idioms like *alarm bells ring* and *give s.o. the green light* can be decoded successfully by uninformed L1 and/or L2 speakers, by means of knowledge of the individual words that constitute the expression, real-world knowledge, and/or pragmatic competence (Moon 1998; Boers and Demecheleer 2001; Grant and Bauer 2004; Svensson 2008). Nunberg et al. (1994) suggest that the interpretability of unfamiliar transparent idioms may depend on context. For example, the Spanish idiom *tener una lengua de trapo* ‘to have a rag tongue’ is opaque in the absence of context, but it may be possible for non-native speakers to predict from a combination of supportive context and literal meaning that this idiom means ‘to like to talk.’ Keysar and Bly (1995, 1999), however, argue that transparency is a function of familiarity with the stipulated meanings of idioms and is unrelated to predictability. Their investigation of L1 speakers’ interpretations of obsolete L1 idioms (e.g. *the goose hangs high*) showed that speakers rely on context to create

¹ In this study, ‘idiom’ is defined as a multi-word expression that is lexically, syntactically, and semantically stable. However, individual idioms vary with respect to the degree of each of these properties (Fraser 1970; Nunberg et al. 1994; Barkema 1996; Fernando 1996; Moon 1998). See Ishida (2008a, 2008b) for further discussion.

connections between the literal/non-literal meanings of unknown idioms, and that they may attribute a range of possible meanings—including opposite meaning—to even the most ‘transparent’ of idioms (see Moon 1998: 23 for a similar view).

The aim of the present study is to examine the effect of transparency on Japanese EFL learners’ interpretations of unfamiliar English idioms, in order to clarify processes associated with L2 idiom interpretation and the relationship between transparency and predictability of meaning. ‘Transparency’ is defined as a measure of the relatedness between the non-literal and literal meanings of an idiom, as judged by speakers who already know the idiom’s stipulated meaning (Gibbs 1987; Keysar and Bly 1995; Nippold and Taylor 1995, 2002).

2. Transparency and idiom interpretation

2.1 Transparency and L2 idiom interpretation

Little work has been done to explore the effect of idiom transparency on learners’ interpretation of L2 idioms. However, Irujo (1986b) and Cooper (1998, 1999) suggest that idioms like *hit the nail on the head*, *have/be a big mouth*, and *shake a leg* are metaphorically transparent and thus may be relatively easy for L2 learners to decode, whereas idioms like *have a green thumb*, *spill the beans*, and *let the cat out of the bag* are non-transparent and thus difficult or impossible to decode. In the same vein, Grant and Bauer (2004) argue that L2 learners are able to use their linguistic and pragmatic competence to decode ‘figurative’ idioms such as *get hot under the collar* and *give s.o. the green light*, but not ‘core idioms’ such as *kick the bucket* and *shoot the breeze*. However, Grant and Bauer also say that learners may need contextual clues to interpret the meanings of ‘figuratives.’

Several questions remain with respect to the claims made in these studies. One difficulty is that judgments of L2 learners’ ability to correctly interpret ‘transparent’ idioms are based on the linguistic intuitions of native speakers who already know the meanings of these idioms, not on experimental evidence.² Interpretability judgments of native speakers may not take into account the range of meanings attributable to ‘transparent’ idioms by uninformed L2 learners (cf. Keysar and Bly 1995, 1999; Moon 1998). In addition, the effect of context must be clarified. Past research has shown that L2 learners use context to interpret idioms and are more successful interpreting idioms in context than in isolation (Cooper 1998; Ishida 2008b; see also Lontas 2002). This means that it is necessary to separate the effects of transparency and context (Gibbs 1987; Levorato and Cacciari 1999; cf. Nippold and Rudzinski 1993; Nippold and Taylor

² Boers and Demecheleer (2001) used experimental evidence to show that a small number of idioms rated by native English speakers as having an intermediate level of transparency were relatively easy for French-speaking learners to interpret when presented without context. However, the aim of their study was to clarify the effect of culture-specific imagery (e.g. SHIPS, FOOD) on L2 idiom interpretation; the questions of how interpretation is affected by the degree of idiom transparency and the presence/absence of context were not addressed.

1995, 2002). It is also necessary to examine the possibility that contextual clues may facilitate learners' interpretation of non-transparent as well as transparent idioms.

2.2 Transparency and L1 idiom interpretation

A number of L1 developmental studies have investigated the effects of transparency and context on children's comprehension of idioms. The present study takes the view that these studies are instructive for the design of research to investigate the same factors in L2 learners' interpretation of idioms.

Gibbs (1987) found that when idioms were presented with supportive context, children from kindergarten to Grade 4 were able to explain the meanings of transparent idioms more easily than those of non-transparent idioms. However, without context, there were few significant differences related to idiom type. Gibbs (1991) showed that children in kindergarten and Grade 1 understood 'decomposable' idioms better than 'non-decomposable' idioms³ in both isolation and context. Children in Grades 3 and 4 understood both kinds of idioms equally well in supportive contexts, but without supportive contexts they were better able to interpret decomposable idioms. Levorato and Cacciari (1999) extended Gibbs' (1991) results, showing that children in Grades 2 and 4 recognized the meanings of transparent idioms better than those of non-transparent idioms, both when they were presented in context and in isolation.

Research on older children and adolescents also shows effects for transparency and context. Nippold and Martin (1989) found that adolescents were able to interpret idioms more accurately when they were presented in context than when they were presented in isolation. Later studies targeting idiom understanding in children and adolescents from Grades 5 to 11 showed that when high- and low-transparency idioms were presented in context, higher-transparency idioms were easier to understand than those that were more opaque (Nippold and Rudzinski 1993; Nippold and Taylor 1995, 2002). These studies, however, did not investigate the relationship between transparency and context.

2.3 Research questions and hypotheses

The purpose of the present study was to determine to what extent transparency affects L2 idiom comprehension *per se* and in relation to context. My hypothesis was that transparency *per se* does not have a significant effect on L2 learners' comprehension of unfamiliar idioms. L2 learners are likely to find it equally difficult to interpret the meanings of high-transparency and low-transparency idioms that are unfamiliar to them, because notions of transparency are based on previous knowledge of

³ A 'decomposable' idiom is one in which the meanings of the individual words in the idiom contribute independently to the idiom's overall figurative meaning (Gibbs, Nayak and Cutting 1989; Gibbs 1991; Svensson 2008). According to Gibbs, Nayak and Cutting (1989: 590), decomposable idioms are roughly equivalent to transparent idioms, and non-decomposable idioms are roughly equivalent to opaque or non-transparent idioms.

the meanings of idioms (Keysar and Bly 1995, 1999). My prediction was that uninformed L2 learners are likely to suggest a variety of possible interpretations for so-called ‘transparent’ idioms—as well as for ‘non-transparent’ idioms—because their view of the relationship between the literal and non-literal meanings of the idiom phrase is not constrained by previous knowledge of the idiom’s stipulated meaning. For instance, an L2 learner unfamiliar with the idiom *get hot under the collar* (‘get angry or irritated’) might plausibly guess that it means ‘be full of secret ambition or passion’ (Ishida 2008b: 126), or ‘work very hard,’ or ‘get embarrassed.’

With respect to the effect of context, my prediction was that L2 learners would have more success interpreting idioms presented with supportive context than without (Nippold and Martin 1989; Levorato and Cacciari 1999; Ishida 2008b). Two possibilities were considered with respect to the interaction between idiom type and context. One was that supportive context might provide learners with enough linguistic information to enable them to interpret high- and low- transparency idioms equally well. The other was that supportive context might allow learners to interpret high-transparency idioms more easily than low-transparency idioms, because contextual clues would lead them to perceive a connection between the idiom’s literal meaning and the non-literal meaning they had inferred from context. In other words, an effect for transparency might emerge only in the presence of supportive context.

3. Method

3.1 Transparency survey

First, a survey was carried out in order to identify one set of high-transparency and one set of low-transparency English idioms to be used in the main experiment.

Participants. Participants were 11 undergraduate students in the College of Japanese Language and Culture at the University of Tsukuba who had taken at least one of the researcher’s classes on idiom studies and were familiar with many English idioms. L2 learners were chosen because it was considered important to base transparency ratings on the perceptions of speakers similar to the group whose idiom comprehension was under investigation.⁴

Materials. 40 idioms were selected from previous studies, including 20 judged as high-transparency and 20 judged as low-transparency by L1 adolescents and adults (Gibbs 1987; Gibbs and Nayak 1989; Nippold and Rudzinski 1993). To ensure that commonly-used expressions were chosen, selection was limited to idioms listed in the *Collins Cobuild Dictionary of Idioms* and the *Longman American Idioms Dictionary* (i.e., corpus-based learners’ dictionaries with frequency-based selection criteria).

⁴ Compare to Nippold and Taylor (2002), who used children’s ratings of transparency and familiarity instead of ratings given by adolescents or adults (Nippold and Rudzinski 1993; Levorato and Cacciari 1999) to examine how these factors affect children’s idiom understanding.

Procedures. Participants were tested in small groups or individually. A written format was used, with detailed instructions and rating scales given in Japanese. Participants were first asked to judge their familiarity with the 40 target idioms, using a scale of 1 to 4 (see Section 3.2 for details).⁵ They were then asked, in a separate questionnaire, to judge the relatedness between the literal and idiomatic meanings of each of the 40 idioms, using a scale of 1 to 5 (1 = not related at all, 5 = closely related). To control for the possibility that participants might be unfamiliar with some of the idioms and thus unable to judge their transparency, a definition and example sentence, both in English, were provided for each idiom (cf. Nippold and Rudzinski 1993; Nippold and Taylor 2002). Participants were also instructed to write down any Japanese expressions they thought similar to the English idioms in terms of lexis and/or meaning.

Results. Mean transparency ratings were calculated for each idiom. Three idioms for which participants identified similar Japanese expressions were eliminated from consideration, in order to minimize the likelihood of L1 transfer in the main experiment (*skate on thin ice* / 薄氷を踏む, *button your lip* / (お)口にチャック(する), *come out of one's shell* / 甲羅を破る). Of the remaining idioms, 12 with the highest transparency ratings (mean 4.20, *SD* .82) and 12 with the lowest transparency ratings (mean 2.15, *SD* 1.06) were chosen for the main experiment.⁶

(1) high-transparency

cross swords with s.o. (4.64)
bet on the wrong horse (4.64)
blow off steam (4.55)
throw s.o. to the wolves (4.45)
get hot under the collar (4.45)
clear the air (4.36)
hang by a thread (4.00)
get the picture (4.00)
turn over a new leaf (3.91)
rock the boat (3.82)

(2) low-transparency

face the music (1.18)
kick the bucket (1.45)
fall off the wagon (1.55)
s.t. takes the cake (1.73)
chew the fat (2.00)
vote with one's feet (2.27)
shoot the breeze (2.27)
talk through one's hat (2.36)
cool one's heels (2.55)
take s.o. down a peg (2.55)

⁵ The mean familiarity score for the idioms was 1.82 (*SD* .64), which was low but significantly higher than the mean score of 1.14 (*SD* .12) for the idioms in the main experiment ($F(1, 22) = 28.38, p < .001$). Higher familiarity idioms (e.g. *kick the bucket*, 3.73) were not excluded from the main experiment, because it was thought that students who had not taken any classes on idioms would be less likely to know them than those who had (see Sections 3.2 and 3.3).

⁶ The categorization shown in (1) and (2) is consistent with the categorization of these idioms in the studies from which they were originally selected. For instance, Gibbs and Nayak (1989) classify *bet on the wrong horse* as transparent and *carry a torch for s.o.* as opaque. This supports the view that judgments of transparency are consistent across different groups of speakers (Nippold and Taylor 2002), rather than subjective and idiosyncratic (Moon 1998; Svensson 2008). However, the question of whether or not there is a statistical correlation between the transparency ratings of L1 speakers and informed L2 learners is one that remains for future investigation.

eat one's words (3.82)

burn the candle at both ends (3.82)

be a dog in the manger (2.91)

carry a torch for s.o. (3.00)

3.2 Main experiment

Participants. Participants were 18 paid volunteers (13 female, 5 male) who were second- and third-year students in the College of Japanese Language and Culture at the University of Tsukuba. All were native speakers of Japanese who at the time of the experiment had had between 7:3 and 8 years of formal English study in Japan. The 15 second-year students were enrolled in an upper-intermediate English course at the time of the experiment, and none of the participants had taken any of the researcher's idiom classes. For the experiment, participants were divided randomly into two groups of 9.

Materials and Procedures. Participants completed in succession the four tasks described below, using a written format. Detailed instructions in written Japanese were provided for all tasks, and instructions were also read aloud by the researcher for Tasks 1) and 2). Completed test booklets for each task were collected before participants proceeded to the next task.

1) Familiarity Survey. The purpose of this survey was to verify the extent to which participants were familiar with the 24 test idioms. It was anticipated that all participants would be unfamiliar with most of the idioms. The idioms were presented without context and participants judged their familiarity with each one using a 4-point scale (1 = I have never heard/read this idiom before; 4 = I have heard/read this idiom many times).

2) Explanation Task. This was the first of two tasks to investigate participants' comprehension of the target idioms. Two test booklets were prepared with 24 idiom examples each, including 6 high-transparency/6 low-transparency idioms in supportive context and 6 high-transparency/6 low-transparency idioms in non-supportive context. Idioms presented in supportive context in Booklet 1 were presented in non-supportive context in Booklet 2, and vice versa.

Supportive context examples were based on examples retrieved from the World Edition of the British National Corpus (2000). Developmental studies of L1 idiom comprehension have typically used 3- or 4-sentence invented stories with the idioms as their final sentences, as in 'Paul *broke the ice*' (Gibbs 1987; Nippold and Rudzinski 1993; Levorato and Cacciari 1999). However, examination of corpus data suggests that idioms are likely to appear embedded in longer sentences that include rich linguistic information (e.g. (3) below), and some studies argue that in order to clarify what actually goes on when speakers interpret idioms, it is important to approximate real language situations (Moon 1998: 36). In the present study, supportive context examples were based on those appearing in authentic BNC texts; however, test booklets were standardized with respect to length and difficulty. The mean number of words for supportive context examples was 41.4 and 40.1 for Booklets 1 and 2 respectively, and the average Flesch-Kincaid readability index for both booklets was 8.4.

Non-supportive context examples were sentences consisting of the test idioms along with any arguments required by the idiom's basic syntactic structure. Care was taken to show verbs in the same form in which they appeared in the supportive context examples ('Jane took Bill down a peg,' 'We were chewing the fat,' 'That takes the cake'). Idioms were presented in a different random order in each booklet, and examples were alternated with respect to idiom type and context condition.

Participants were instructed to indicate, first of all, whether or not they already knew the meaning of each idiom, using a 3-point scale.⁷ They were also instructed to read the idiom examples and write, in Japanese, what they thought each idiom meant. A sample question for an idiom in supportive context is shown in (3) below.

(3) carry a torch for someone

1	2	3
意味を知らない	意味を知っているかもしれないが、 あまり自信がない	意味を知っている

(例) Nineteen years after his death, Rita Marley is still carrying a torch for her reggae-star husband. 'We weren't just singing partners, we were man and woman, having children together, having dreams. We were just another young girl and young boy from the ghetto.'

carry a torch for someone はどのような意味を表わしていると思いますか。
(あなたの推測)

3) Forced Choice Task. Past research has demonstrated that both explanation and forced choice tasks are sensitive to factors affecting idiom understanding (Nippold and Rudzinski 1993; Nippold and Taylor 1995; Nippold and Taylor 2002); however, with the latter, care must be taken to provide an adequate number of choices, to ensure their plausibility in context, and to avoid using choices that simply restate the idiom's literal meaning. The present study used both an explanation and a forced choice task, with the expectation of similar results in both tasks regarding the factors of interest, as well as of higher scores on the forced choice task as compared to the explanation task.

Two test booklets were prepared using the same 24 idiom examples that had been used in the Explanation Task, presented in a different random order. This time four possible definitions were given for each idiom. The correct choice was based on the definition given in the *Collins Cobuild Dictionary of Idioms*, with the *Longman American Idioms Dictionary* used as an additional reference. The other choices were

⁷ Results showed that out of the total 432 responses, no idioms were rated as 3 ('I know the meaning'), and 27 were rated as 2 ('I might know the meaning, but I'm not sure'). In the latter case, most of the definitions given were incorrect; the two correct definitions were excluded from the analysis reported in Section 4.

written in consultation with an adult native speaker of Japanese who was unfamiliar with the meanings of the test idioms. Since the same sets of choices were used for both test booklets, care was taken to create choices that would be consistent with the supportive context examples and plausible to EFL learners looking at the idioms without supportive context. Effort was also made to avoid choices that paraphrased the literal meaning of the idiom, so that participants would need to consider each choice before making a final selection.

Participants were informed that they would be looking at the same idiom examples they had looked at in the Explanation Task. They were instructed to read the examples again and choose one of the four possible definitions for each idiom. They were also told it was not necessary for their choices to be consistent with the idiom definitions they had given in the Explanation Task. A sample question for an idiom in non-supportive context is shown below in (4).

(4) carry a torch for someone

(例) Jane is carrying a torch for John.

carry a torch for someone はどのような意味を表わしていると思いますか。

- a) to pass something on; to transfer possession of something to someone else
- b) to feel love for someone when you are far away or cannot have a relationship
- c) to tell many people about someone or something special
- d) to support someone; to help someone else with their work

4) Cloze test. Participants completed a cloze test using the text given in Appendix A of Kobayashi (2002). The purpose of this test was to verify the comparability of the two groups of participants (Booklet 1 and Booklet 2) with respect to their general English language ability and to categorize the participants, based on the rank order of their scores, into two proficiency groups to be compared at a later stage of the analysis. It was thought that a cloze test would be an appropriate tool to measure English ability because past research reports a moderately high correlation between performance on cloze tests and on other English language proficiency tests, especially when semantically-acceptable word scoring methods are used for the former (Kobayashi 2002: 575).

3.3 Scoring

1) Familiarity Survey. The mean familiarity rating for the 24 test idioms was 1.14 (*SD* .12), and the range was from 1.0 (*SD* 0) to 1.44 (*SD* .83). Mean ratings for the high- and low-transparency idioms were 1.14 (*SD* .13) and 1.15 (*SD* .12) respectively. The small standard deviations indicate that the 24 test idioms were homogenous in terms of low familiarity, as had been anticipated. Based on these results, it was judged appropriate to use the test idioms to investigate learners' comprehension of unfamiliar L2 idioms.

2) **Explanation Task.** All 18 definitions given for each idiom were scored in comparison to definitions listed in the *Collins Cobuild Dictionary of Idioms*, with the *Longman American Idioms Dictionary* used as a supplementary reference. Raters were the researcher and a bilingual student at the University of Tsukuba (L1 Japanese, L2 English). Two points were given for a correct answer, one point for a partially correct answer, and zero points for an incorrect answer. A partially correct answer was one that included part of the dictionary definition but was either too broad or too specific. Sample definitions and scores for *get hot under the collar* ('to get angry or annoyed') in supportive context⁸ are shown in (5) below.

(5a) 内心は怒っている。強く不満を感じている。(be inwardly angry; feel strong dissatisfaction) → 2 points

(5b) わくわくする。興奮する。熱くなる。(get nervous/excited; get worked up; heat up) → 1 point

(5c) 秘密を持っている。(have a secret) → 0 points

All 432 responses were scored independently by both raters. There were 366 agreements and 66 disagreements, resulting in an interscorer agreement rate of 85%. All disagreements were subsequently resolved through discussion so that 100% agreement was reached.

3) **Forced Choice Task.** Correct and incorrect choices were given 1 point and 0 points, respectively.

4) **Cloze test.** The semantically-acceptable word scoring method was used. This means that answers that made sense in the given context were scored as correct, regardless of their syntactic acceptability. A one-way analysis of variance showed no significant difference between the general English ability of the two participant groups, as measured by their performance on the cloze test. Participants were then divided into a higher proficiency group, with raw scores ranging from 12 to 18 out of 25 (mean 15.33, *SD* 2.00), and a lower proficiency group, with scores ranging from 7 to 11 (mean 9.00, *SD* 1.22). The difference between the means of the two proficiency groups was statistically significant at the .05 level ($F(1, 16) = 65.64; p < .001$).

4. Analysis and results

Preliminary analyses of the answers to the Explanation and Forced Choice Tasks showed that participants' scores did not differ as a result of booklet assignment. All scores were subsequently analyzed by a (2) context condition by (2) idiom type by (2) proficiency level mixed analysis of variance. ANOVA results showed that both tasks

⁸ The supportive-context example for this idiom was as follows: 'It was soon apparent that many people in the audience were critical of the way in which the law is being administered. Some got extremely hot under the collar about it.' 'Rowdy, was it?'

were sensitive to the factors of transparency and context; however, there was no main effect for proficiency and no interaction between proficiency and either of the other two factors.⁹ The proficiency factor was thus excluded from all further analyses. Table 1 (below) shows the mean raw scores, standard deviations, and ranges obtained by participants for high- and low-transparency idioms in the supportive and non-supportive context conditions, for both comprehension tasks.

**Table 1 Results of the Explanation/Forced Choice Tasks
by context condition and idiom type**

supportive context				non-supportive context			
high-transparency		low-transparency		high-transparency		low-transparency	
Explanation Task (maximum score 48)							
mean (<i>SD</i>)	range	mean (<i>SD</i>)	range	mean (<i>SD</i>)	range	mean (<i>SD</i>)	range
4.14 (2.34)	0-9	2.20 (1.97)	0-8	2.83 (1.72)	0-6	.28 (.67)	0-2
Forced Choice Task (maximum score 24)							
mean (<i>SD</i>)	range	mean (<i>SD</i>)	range	mean (<i>SD</i>)	range	mean (<i>SD</i>)	range
3.41 (1.31)	1-6	2.40 (1.23)	1-5	2.56 (1.54)	0-5	1.39 (.78)	0-2

Note. $N = 18$; $n = 9$ for each idiom under each condition. *SD* = Standard deviation.

In the Explanation Task, high-transparency idioms were easier for participants to interpret than low-transparency idioms ($F_1(1, 16) = 28.00, p < .001$; $F_2(1, 22) = 9.98, p < .01$), and idioms presented in supportive context were easier than those in non-supportive context ($F_1(1, 16) = 24.73, p < .001$; $F_2(1, 22) = 23.70, p < .001$). (F_1 and F_2 indicate F ratios for the participant analysis and the item analysis, respectively.) However, there was no significant interaction between idiom type and context condition. This means that, while high-transparency idioms were easier to interpret than low-transparency idioms in both context conditions, this difference was not greater for idioms in supportive contexts than it was for those in non-supportive contexts. Table 2 (next page) lists the 24 individual idioms from easiest to most difficult to explain, in both context conditions.

Overall results of the Forced Choice Task were similar to those of the Explanation

⁹ To further investigate possible effects of proficiency, a separate analysis was carried out using the results for participants with the 6 highest and 6 lowest scores on the cloze test. Raw scores ranged from 15 to 18 for the top 6 (mean 16.50, *SD* 1.05) and from 7 to 9 for the bottom 6 (mean 8.33, *SD* .82), and the former scores were significantly higher than the latter ($F(1,10) = 226.51, p < .001$). However, once again, there was no effect for proficiency and no interaction between proficiency and either of the other two factors. Results for transparency and context were similar to those in the analysis for all 24 idioms: there was a main effect for both factors in the Explanation Task (transparency: $F(1, 10) = 16.27; p < .01$; context: $F(1, 10) = 12.57; p < .01$) and in the Forced Choice Task (transparency: $F(1, 10) = 9.91, p < .05$; context: $F(1, 10) = 5.27, p < .05$), but there was no significant interaction between these two factors in either task.

Task. High-transparency idioms were easier for participants to understand than low-transparency idioms ($F_1(1, 16) = 12.44, p < .01$; $F_2(1, 22) = 9.18, p < .01$), and idioms presented in supportive context were easier to interpret than those in non-supportive context ($F(1, 16) = 10.76, p < .01$; $F_2(1, 22) = 4.90, p < .05$). There was no significant interaction between transparency and context.

Table 2 Idioms listed in order of increasing difficulty for each context condition

Explanation Task					
supportive context	score	type	non-supportive context	score	type
cross swords with s.o.	14.6	HT	cross swords with s.o.	10	HT
bet on the wrong horse	9	HT	throw s.o. to the wolves	8	HT
hang by a thread	9	HT	hang by a thread	7	HT
carry a torch for s.o.	8	LT	turn over a new leaf	5	HT
get hot under the collar	8	HT	bet on the wrong horse	4	HT
throw s.o. to the wolves	8	HT	clear the air	4	HT
turn over a new leaf	7	HT	rock the boat	4	HT
burn the candle at both ends	6	HT	eat one's words	3	HT
cool one's heels	6	LT	get hot under the collar	3	HT
clear the air	5	HT	blow off steam	2	HT
rock the boat	5	HT	carry a torch for s.o.	2	LT
shoot the breeze	5	LT	talk through one's hat	2	LT
kick the bucket	4.5	LT	burn the candle at both ends	1	HT
face the music	4	LT	take s.o. down a peg	1	LT
take s.o. down a peg	4	LT	be a dog in the manger	0	LT
fall off the wagon	3	LT	chew the fat	0	LT
eat one's words	2	HT	cool one's heels	0	LT
get the picture	2	HT	face the music	0	LT
s.t. takes the cake	2	LT	fall off the wagon	0	LT
vote with one's feet	2	LT	get the picture	0	HT
talk through one's hat	1	LT	kick the bucket	0	LT
be a dog in the manger	0	LT	shoot the breeze	0	LT
blow off steam	0	HT	s.t. takes the cake	0	LT
chew the fat	0	LT	vote with one's feet	0	LT

Note: Accuracy scores are out of a maximum total of 18. HT = high transparency, LT = low transparency.

To compare the difficulty of the two comprehension tasks, first raw scores on the Forced Choice task were doubled to obtain a score out of 48. Mean scores for participants were 9.46 (SD 3.66) for the Explanation Task and 19.51 (SD 4.86) for the Forced Choice Task, representing success rates of 19.7% and 40.6% respectively. As had been expected, participant accuracy was significantly higher on the Forced Choice Task than on the Explanation Task ($F(1,17) = 53.08, p < .001$). Both of these tasks are cognitively demanding, because they require learners to reflect consciously on the meaning of language. However, it is likely that scores were higher on the Forced Choice Task because selecting an appropriate idiom interpretation is not as difficult as

generating one (cf. Gibbs 1987; Nippold and Taylor 1995).

In order to further investigate the association between transparency, context, and idiom comprehension, a separate analysis was carried out using the results of both comprehension tasks for the 8 highest- and 8 lowest-transparency idioms only (see (1) and (2), Section 3.1). Transparency ratings ranged from 4.00 to 4.64 for the high-transparency group (mean 4.39, *SD* .73) and from 1.18 to 2.36 for the low-transparency group (mean 1.85, *SD* .92). A question of particular interest was whether an interaction between transparency and context might emerge, given the greater gap between high- and low-transparency idioms. Results, however, followed the same pattern as those obtained in the analyses of all 24 test idioms.¹⁰ There was a main effect for both transparency ($F_1(1, 17) = 25.88, p < .001$; $F_2(1, 14) = 10.26, p < .01$) and context ($F_1(1, 17) = 18.00, p < .001$; $F_2(1, 14) = 15.61, p < .01$) in the Explanation Task, as well as in the Forced Choice Task (transparency: $F_1(1, 17) = 13.22, p < .01$; $F_2(1, 14) = 9.60, p < .01$; context: $F_1(1, 17) = 5.28, p < .05$).¹¹ However, there was no significant interaction between these two factors in either of the comprehension tasks.

5. Discussion

The results of this study indicate that both idiom type and context condition influence L2 learners' comprehension of idioms. Contrary to expectation, L2 learners were consistently able to interpret high-transparency idioms (*cross swords with s.o.*, *hang by a thread*) more successfully than low-transparency idioms (*chew the fat*, *fall off the wagon*). This indicates that, in some cases, learners' intuitions about how the literal meanings of idioms are related to their non-literal meanings may help them to interpret unfamiliar idioms. It also suggests that there may be a relationship between idiom transparency, which is based on familiarity with the meaning of idioms, and idiom interpretability from the point of view of uninformed L2 learners. However, further research is needed to clarify the nature of transparency and its role in L2 learners' idiom comprehension. One question of particular importance is the relationship between idiom transparency and 'decomposition' (see Section 2.2). Gibbs and Nayak (1989: 117, 124) state that decomposition and transparency are slightly different but not independent factors, based on a positive statistical correlation between the two. However, Gibbs (1991: 615) views decomposition (also called 'analyzability') as a 'new independent variable' and uses it to reanalyze part of the data from Gibbs (1987). At the same time, Levorato and Cacciari (1999) use the term 'analyzability' to refer to a measure of the relatedness between the non-literal and literal meanings of an idiom, which is how other

¹⁰ Initial analysis of the 8 highest- and 8 lowest-transparency idioms included the proficiency factor, but since there was no main effect for proficiency and no interaction between proficiency and the other two factors of interest, the proficiency factor was excluded from consideration. The results reported above are from a two-way analysis of idiom type and context condition.

¹¹ In the item analysis for the Forced Choice Task, the effect for context condition was not statistically significant ($F_2(1, 14) = 2.14, p = .17$).

studies define transparency (see Section 1). Sorting out the use of these terms and establishing principled methods to distinguish between the properties they represent is necessary for further clarification of the nature of idiom meaning and idiom understanding in L2 learners.

The results of this study also show that learners are able to use context to decode the meanings of unfamiliar idioms. This is consistent with past research (Cooper 1999; Liontas 2002; Ishida 2008b) and with the hypothesis of this study. Past research, however, did not explore how the presence or absence of context affects the comprehension of idioms of different degrees of transparency. This study showed that learners were more successful interpreting both high- and low-transparency idioms with supportive context than without. An important finding was that context facilitated L2 learners' interpretation of low-transparency idioms ($ps < .01$ for both the Explanation and Forced Choice Tasks). For example, when presented in non-supportive context, the idiom *carry a torch for s.o.* received 2 points (out of a possible 18) on the Explanation Task and 0 points (out of a possible 9) on the Forced Choice Task. However, with supportive context this idiom received scores of 8 and 8, respectively. Future research should examine the effects of training L2 learners to use context and/or multiple examples to infer the meanings of both types of idioms, in order to shed further light on the influence of context on idiom comprehension.

This study showed no interaction between idiom type and context condition. The hypothesis was that supportive context might allow learners to interpret high- and low-transparency idioms equally well, or alternatively, that supportive context might facilitate the interpretation of high-transparency idioms more than it facilitated that of low-transparency idioms. In fact, the results ran contrary to both of these expectations. There was a main effect for context and transparency in both comprehension tasks, but there was no interaction between these two factors in the analysis of all 24 idioms, or in the follow-up analysis of the 8 highest- and 8 lowest-transparency idioms. The fact that learners understood high-transparency idioms better than low-transparency idioms regardless of context condition suggests that transparency and context may be independent factors. However, these results should be tested using a larger number of participants and idioms.

There were no main effects or interactions associated with proficiency level in this study. This is likely because, although there was a significant difference between the two proficiency groups in terms of performance on the cloze test, participants were relatively homogeneous in terms of L2 learning background and experience (see Section 3.2) and relatively small in number. Future studies should target a larger number of L2 learners with a wider range of proficiency levels. Particular attention should be paid to the question of whether or not there are differential effects of context condition and idiom type for different ability levels; in addition, this study's hypothesis regarding interactions should be re-examined using more advanced learners. Supportive context

might enable advanced learners to interpret low-transparency idioms equally as well as high-transparency idioms (see Gibbs' 1991 results for older children), or it might facilitate their interpretation of high-transparency idioms more than that of low-transparency idioms (see Gibbs 1987).

6. Implications for models of L2 idiom comprehension

It is unlikely that there is a single model to account for how L2 learners interpret the meanings of idioms. Past studies have shown that learners use a variety of strategies to interpret L2 idioms, including guessing from context, using the words in the idiom phrase, and using L1 idioms (Irujo 1986a; Cooper 1999; 石田 2006; Ishida 2008b). The results of this study indicate that learners try to use their metaphoric and pragmatic competence (Grant and Bauer 2004) to analyze and re-interpret the literal meanings of idioms, and that this strategy facilitates the comprehension of some idioms (e.g. *hang by a thread*). This suggests that the process of interpreting some idioms is similar to the process of interpreting other kinds of figurative language. However, many idioms cannot be interpreted by analysis of the idiom phrase alone (e.g. *cool one's heels*). These idioms likely require a more holistic interpretation process, similar to the process of interpreting unfamiliar words (Sternberg 1987; Nippold and Taylor 1995). The results of this study suggest that an effective strategy for these idioms is inferring meaning from supportive context.

One obvious difficulty is that an L2 learner encountering an unfamiliar idiom for the first time does not know whether or not it is transparent. This means that learners are likely to try—unsuccessfully—to analyze the literal meanings of low-transparency idioms in the same way that they analyze those of high-transparency idioms. Past research has proposed training learners to use a variety of interpretation strategies, including guessing the meaning of an idiom from its parts and inferring meaning from context (Irujo 1986b; Cooper 1999; Boers and Demecheleer 2001). However, further investigation is necessary to clarify how learners combine use of these two strategies under natural conditions and how they can be trained to use them most effectively to interpret idioms of different degrees of transparency. Research is also needed to clarify the effect of repeated exposure to idioms on idiom comprehension, as well as the associations between familiarity, transparency, and context.

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