

Positive and Negative Effects of Mother-tongue Knowledge on the Interpretation of Figurative Expressions¹⁾

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1. Introduction

In a previous investigation (Azuma, 2005), it was demonstrated that cultural elements generated from the mother tongue (Japanese, in this case) were significantly related to the understanding of English metaphorical expressions in the case of Japanese students who learned English as a foreign language (EFL, hereafter). It was a by-product of the study, the main investigation of which was the aspects of metaphorical competence of Japanese EFL students. The study showed the strong correlation between EFL students' knowledge of English vocabulary and their metaphorical competence (ibid.: 134; 288), and it indicated that the issue of metaphor and culture would be a new focal point. To develop this, a new study was started in 2006¹⁾. It aimed to find out what interpretation aspects of metaphorical expressions were revealed by different language users. With regard to that aim, this paper describes the cultural and cognitive aspects of interpretations affected by two different groups of mother-tongue users: one being Japanese speakers and the other being English speakers. The study attempts to compare the similarities and dissimilarities in interpretations of metaphorical expressions between different mother-tongue users. It seeks to contribute to promoting the language proficiency of Japanese EFL students and identifying safe or unsafe areas for the use of metaphorical expressions and suggests how to avoid communication discrepancies between different mother-tongue users.

Language users consciously or unconsciously take advantage of knowledge or schemas of their mother tongue. What expressions are strongly affected by the knowledge of the mother tongue and what interpretation strategies are prominent?

1.1. The term 'figurative expressions' in this study

The title of this paper incorporates the term 'figurative expressions.' This is because figurative expressions are usually translated into 'hiyuteki hyogen.' Although the term 'hiyuteki hyogen' includes a wide range of figures of speech, the figurative expressions in this study refer to metaphorical and metonymic expressions. One of the reasons for limiting the expressions mainly to metaphorical and metonymic expressions is to keep the contents of the

study compact; more importantly, the mechanism of metaphor possibly contributes to language acquisition in the way in which it expands the networking from words to meanings and vice versa, and enriches vocabulary, connotation, and collocation; and delves into subtle meanings hidden underneath surface meanings.

1.2. Metaphor study in foreign language education

The study of figurative or metaphorical expressions in the EFL environment is limited compared with that in English as a second language (ESL), mainly due to learners' poor accessibility to the language. As a matter of fact, EFL learners have fewer opportunities to access English in daily life than have those who learn it as an SL, therefore, their encounter with not only the language itself but with figurative expressions in the foreign language is rare. There is so much to teach in a limited time at school that those who have the chance to teach such expressions may not be so much interested in dealing with figurative expressions as in other teaching items. Figurative expressions in a mother tongue are so abundant in our daily life, why do we take a negative attitude toward dealing with figurative expressions (and the mechanism of figurative thinking if possible) in language lessons?

A small survey was conducted of 'anger' expressions examining the knowledge of figurative expressions, that is, whether or not EFL students knew figurative 'anger' expressions and how many English 'anger' expressions they knew. The survey (N=29, non-English majors at university freshman and sophomore levels) showed that the average number of 'anger' expressions in the mother tongue vs. English was about 3 responses per student in the mother tongue vs. 1.3 responses per student in English. In English, the responses could be broken down into the following proportions: swear words occupied 41%, ordinary expressions (such as 'I'm angry') 28.2%, expressions using body parts (blood boiling, blood pressure up, heat, explode) 15.4%, mood expressions (terrible, disgusting, I don't believe) 10.3%, and don't know 5.1%. This was a very small survey, but it showed some aspects of the EFL students' knowledge of figurative expressions. An amazing discovery in this small survey indicated responses using body parts and moods accounted for 25.7%. Was 25.7% a good result in such a situation, as not specifically enhancing figurative expressions in English, or a disappointing result? Another discovery was the 5.1% response that indicated no knowledge of figurative expressions. These results may lead to speculation regarding whether or not figurative or metaphorical teaching is necessary in EFL education. My reaction is that it is necessary to deal with figurative or metaphorical expressions in language lessons, especially when we know a particular expression has a particular meaning, and if there are similarities

and dissimilarities in meaning between the mother tongue (Japanese) and the target language (TL, hereafter, English in this study). Letting learners know the literal and/or figurative meaning of an expression means that they can enrich their competence, and letting them know the similarity or dissimilarity in meaning allows them to avoid miscommunication. From this standpoint, we will look at past studies, starting first from a broad perspective, then examining how metaphor is studied in relation to language teaching, and finally discussing the influence of the mother tongue on metaphorical interpretation.

Those who are engaged in language teaching can benefit from a number of metaphor studies in cognitive linguistics and applied linguistics for pedagogical purposes. The former studies provide us with noteworthy implications. In the field of cognitive linguistics, the most important research is into conceptual metaphor theory (Lakoff and Johnson, 1980; Gibbs, 1994), semantic-field theory (Kittay, 1987), and relevance theory (Sperber and Wilson, 1995) to name just a few. In the field of applied linguistics, Carter (1998), McCarthy (2001) and Cameron and Low (1999a, 1999b) are among the most important researchers. All these researchers propose important implications of the need for metaphor research and teaching in language education, for example, Carter (*ibid.*) suggests teaching the language in associative ways while McCarthy (2001) highlights the importance of the expansion of learners' semantic fields and the enhancement of learners' knowledge of metaphorical extension and words' polysemous characteristics. He emphasizes that "metaphor is a way of enabling us to talk of one thing in terms of another, ... [The] view of polysemy is creative; it leaves open the possibility of new metaphorical extensions of the central meaning" (*ibid.*: 25). Low (1988) recommends that all learners of English as an SL should develop at least some metaphor-related skills. His suggestion is that one-off examples are not helpful and that learners should have an ability to interpret and construct plausible meanings by using metaphor, knowledge of the boundary of metaphor and awareness of some features of metaphor. Littlemore (2001) investigates metaphorical competence which indicates that students who have a holistic cognitive style process metaphors more quickly than do those with an analytic cognitive style. This suggests that teachers should nurture learners' analytic skills as well as their holistic cognitive skills. Littlemore and Low (2006) place metaphorical competence in communicative competence.

Another implication, from a slightly different perspective, is the use of awareness-raising exercises; for example, Boers (2000, 2001) and Boers and Demecheleer (1998) focus on the relationship between language teaching (e.g., vocabulary retention) and metaphors.

As for past studies that investigated metaphor, TL and mother tongue knowledge, we can

find a few studies that examine the relationship between metaphor and mother-tongue knowledge and/or culture. One is in the field of applied linguistics and the other is in the field of cultural study, especially, in the study of metaphor and culture. Let us look at some of them in a little more detail. One noteworthy study in applied linguistics is by Charteris-Black (2002), who investigated the comparison of figurative phraseologies of English and Malay using Malay native speakers learning English as an SL. Another important study is by Deignan, Gabrys and Solska (1997); however, this study examined the awareness of metaphor. Although the awareness issue is important in metaphor study, the present study is not concerned precisely with this.

The findings from Charteris-Black's experiment show "figurative units that have an equivalent linguistic form and an equivalent conceptual basis were the easiest; the most difficult were those that have an equivalent linguistic form but a different conceptual basis" (Charteris-Black, 2002: 127). He also suggests that we should consider the frequency with which learners encounter figurative expressions, the depth into which learners can delve, and any relationship between the frequency of figurative units and ease of learning.

Next are the studies in the field of metaphor and culture by Kövecses (2007) and Wierzbicka (2006). As indicated by the title of his book, *Metaphor in Culture*, Kövecses (ibid.) investigated metaphor in culture, more specifically, the relation between metaphor and culture. The following of his arguments can be made use of in my present study: conceptual metaphors vary cross culturally and within cultures; the causes on which universality and variation in metaphor depend include embodiment (i.e., the neural-bodily basis), social-cultural experience (i.e., context), and cognitive processes (i.e., cognitive preferences and styles) (Kövecses 2007: 293). He claims that the cognitive processes that human beings use are universal, but that their applications are not (ibid.).

A third study, by Wierzbicka (2006), delineated Anglo English and Anglo culture in contrast with other languages and cultures. Wierzbicka (ibid.) covered a wide range of meanings of English words and of equivalent words in other languages that involve specific cultural connotations. Her detailed explanations are useful for a study of languages and cultures.

2. Metaphor, TL and mother-tongue knowledge

We can imagine that mother-tongue knowledge affects the learning of foreign languages, for example, pronunciation, vocabulary and syntax, cultural understanding and so forth. In teaching foreign languages, the mother tongue or mother-tongue knowledge, used to be

treated as an interference; however, since the 1970s, with developments in cognitive science, it has been looked at from a neutral perspective (Gass, 1988; Selinker, 1972, 1992, to name just a few). It is claimed that the mother tongue plays a role in language acquisition, whether it is positive, neutral or negative. As has been mentioned, mother-tongue knowledge may have both positive and negative effects; however, we cannot throw away all of the effects, just as we cannot discard our mother tongue. Therefore, my present study is interested in the positive and negative effects of mother-tongue knowledge on the understanding and use of metaphorical expressions. If there are any positive effects, we can utilize them, while if there are any negative effects, we can be cautious about them as problematic areas.

2.1. Research questions

The following are research questions.

- (1) What strategies are used in the interpretations of metaphorical expressions?
- (2) How does knowledge of the mother tongue affect the interpretation of metaphorical expressions?
- (3) What expressions are strongly affected by knowledge of the mother tongue and , therefore, are problematic?

3. Methodology

The methods employed in the study are testing (administering the Metaphor Cognition Test, M-Cog Test, hereafter), which is intended to serve as an instrument to collect data, interviewing those who answer the M-Cog Test to obtain details of the answers (e.g., cognitive aspects in employing interpretation strategies, creating mental images, etc.), and analyzing the collected data to find out specific answers to the research questions. An appropriate number of test items may be about 30 to 40, if we consider participants' physical and mental constraints.

Speculations on designing a test that could examine the relationship between expressions and the interpretations of the expressions are as follows: what kinds of expressions would be required to carry out the purpose of the study, and who would be participants? If the aim is to investigate the similarity and dissimilarity of interpretations made by different mother-tongue users, it would be better to incorporate into the test items, such expressions as have linguistic and conceptual similarity and dissimilarity between the languages. If participants were selected from both Japanese native speakers and English native speakers, the test items should include such items as linguistically and conceptually originated in Japanese on the one hand,

and on the other hand, linguistically and conceptually originated in English; they should also include such items as have shared features of the two languages. Since one aim of this study is to examine JNSs' English metaphorical understanding and another is to compare the interpretation results of JNSs with those of ENSs, the test could well be presented in English. Hence, all the expressions that originated in Japanese would need to be translated into English.

3.1. Sources of the test items

It was necessary to find an appropriate number of test items suitable for the purpose of the test. Some of the test items were selected from the following references and others from my language expertise, e.g., from daily discourse and/or expressions heard from TV broadcasting or read in newspaper articles. I selected metaphorical and metonymic expressions that seemed easy for EFL students to understand.

The references used for test items in the M-Cog Test are:

- Gulland, D.M., and Hinds-Howell, D.G. (1994). *The Penguin Dictionary of English Idioms*. London: Penguin.
- Okutsu, F. (2000). *Nichiei kotowaza no hikakubunka, English and Japanese Proverbs: A Comparative Study*. Tokyo: Taishukan shoten.
- Tokita, M. (2000). *Kotowaza jiten*. Tokyo: Iwanami shoten.

3.2. Treatments for Japanese expressions

As stated above, the test items that originated in Japanese were translated into English for the test, therefore, a translation problem could arise. Usually, Japanese expressions, e.g., idioms or proverbs, are broadly translated. For example, the Japanese expression 'hyotan kara koma' is broadly translated as 'a sudden surprise,' or 'unexpected things often happen' (Kenkyusha Japanese-English Dictionary, 2000). A broad translation is practical in the sense that it can avoid misunderstanding; however, it may reduce an original nuance of the expression, making it prosaic and uninteresting as a figurative expression. I should not say all of the figurative expressions can be translatable literally or verbatim, but possibly it is feasible to translate some Japanese figurative expressions literally into English, especially if the expressions share concepts between the languages and have metaphorical/metonymic characteristics that can be easily mapped between source and target. Taking this measure, we could possibly discover a cognitive similarity among people whose native languages are

different. With this in mind, I selected original Japanese expressions and translated them literally into English, for example, 'hyotan kara koma' was translated into 'a horse out of a bottle gourd,' and 'ebi de tai o tsuru' was translated into 'to cast a shrimp to catch a bream.' These kinds of translations are called 'raw' translations in this study, because they are translated literally, therefore, they are 'raw,' not processed. Sixteen 'raw translations' are included in the 40 test items. Among the items, 12 are of genuinely Japanese origin: She *set out on a journey* to her husband at the age of 96 夫の元へ旅立つ, I *cannot sleep with my feet turning toward* him 足を向けて寝られません, The Prime Minister made *iridescent remarks* on the matter 玉虫色の発言, You and I are *united with a red thread* 赤い糸で結ばれている, a *frog in the well* 井の中の蛙, to *cast a shrimp to catch a bream* 蝦で鯛を釣る, He's my *right arm* 右腕, You must have a *strong stomach* to be a surgeon 丈夫な胃, a *horse out of a bottle gourd* 瓢箪から駒, to *wet eyebrows with saliva* 眉唾, a *weak worm* 弱虫, a *cry of a crane* 鶴の一声; and three expressions share the same wordings but have conceptually/culturally different meanings between Japanese and English: to *come to a head* 頭に来る(J) vs. 危機的状況になる(E), to *pull someone's leg(s)*足を引っ張る(J) vs. からかう(Eでは leg は単数形) and He must be *soft in the head* to do such a thing 頭が柔らかい(J) vs. 思慮に欠ける(E). The other 25 expressions are either expressions of English origins or expressions with shared concepts between Japanese and English.

Of course, we must be careful about 'raw' translation as is cautioned by Torikai (1998). However, Torikai (ibid.) comments on the importance of preserving cultural nuance, at the same time, for example, the translation of 'shirotabi' into 'white split-toed socks' or 'white socks.' 'Shiro (kon) tabi' in the Japanese-English Dictionary (Kenkyusha Japanese-English Dictionary, 2000) is translated as "white (dark) Japanese socks". The word 'socks' sounds non-Japanese. The word 'shirotabi' connotes an image of a formal and dignified situation where a formal event takes place or issues of the utmost importance are discussed. Translating such an item for those who do not have the custom of wearing a kimono, or who have no knowledge of what a kimono involves deciding whether the word should be broadly translated into the language or the custom they know or should preserve the original nuance and be translated literally, that is, a 'raw' translation, probably with an explanation. Torikai (ibid.) suggests it is better in a sense to preserve a specific culture's nuance to some degree. I agree with this idea. As discussed above, in order to preserve the original nuances of the expressions, I use 'raw' translations. If ENS participants employed their mother-tongue knowledge for the items of 'raw' translations, they would probably show a low interpretation ratio for such items or otherwise, by analogical reasoning they would possibly decipher the

true meaning.

3.3. Administering the M-Cog Test

This study focuses both on JNSs' aspects of the interpretation of metaphorical expressions and on the similarities and dissimilarities in the interpretation of metaphorical expressions between the two different groups of mother-tongue users. For this purpose, a certain number of ENSs were included as participants. The ENSs' answers were expected to provide indices for the expressions that originated in English and to serve as benchmarks for them.

Participants, place and time were as follows:

- The participants:
 - 34 Japanese native speakers, who learn/learned English as EFL (JNSs, hereafter), aged 18 to 25.
 - 56 English native speakers (ENSs, hereafter): 18 Australian English native speakers (Au NSs, hereafter); 19 British English native speakers (Br NSs, hereafter); 19 American English native speakers (Am NSs, hereafter), aged 18 to 65.
- The places and the time of the study: in America, Australia, Britain and Japan in 2006 - 2008.

3.4. Scoring the answers

Since the test items consisted of expressions of English and Japanese origins, there needed to be both an ENS and a JNS as judges. The JNS was the author and the ENS was a British metaphor researcher.

Scoring for the answers followed the following procedures: first, the two judges set up an appropriate criterion of interpretation for each item (based mainly upon the conventional meaning) and allocated one point for a correct answer, hence the correctness ratio was used for data analyses in this study, or null for an incorrect answer; secondly, the two judges scored sample answers randomly picked from the answers provided by Au NSs, Br NSs, Am NSs and JNSs in order to examine if there was any discrepancy between the two; then, after agreement was reached for each item, all of the standards were established. The author scored the rest of the answers based upon the agreed standards.

3.5. Treating data

The collected answers (i.e., data) were analyzed both quantitatively and qualitatively. The quantitative data were paper-based. Each answer was scored according to the scoring criteria

stated in the above section. Then, the correctness ratios of each item were calculated. The item to which a participant gave a correct answer was allocated one point. If all the participants gave a correct answer to an item, that item achieved 100% correctness ratio. The purpose of using a correctness ratio was that the results could indicate, by such a measure, which items were easy for the participants to understand. At the same time, it was estimated that the items with higher ratios would accumulate higher feasibility as metaphorical expressions. Statistical data were processed using SPSS Windows 17.0.

4. The M-Cog Test

The incorporated 40 items were classified into the following four item classification groups, ICGs, each of which has specific characteristics. The descriptions of the characteristics or features of the four ICGs using two representative items from each ICG, and individual items in each group follow.

ICG1: a similarity-sharing group, where the same or similar concepts/wordings occur in English or Japanese expressions, i.e., shared concepts/wordings.

The characteristics of ICG1 are represented by *He's my right arm*, and *Time is money*. The word 'right' connotes such meanings as 'proper, correct, satisfactory or best' both in English and in Japanese and the word 'arm' and the word 'hand' go together. According to an ENS, the phrase, 'a right-hand man,' means 'most useful and valuable helper.' The English and Japanese concepts of this expression have this concept in common. Regarding the second expression, *Time is money*, it shares the same concept in both cultures. People's awareness of the importance of time forms part of their background knowledge. This expression seems to activate a similar mapping mechanism between the cultures. The origin is English, but this expression is familiar to Japanese students, as I was informed in the interview of being taught at a primary school.

ICG1 includes the following 13 items:

1. *Time is money.*, 2. *to bear fruit*, 3. *We are at the crossroads.*, 4. *a bolt from the blue*, 5. *to slip through one's fingers*, 6. *a body blow*, 8. *She was only saved from falling under the train by a hair's breadth.*, 9. *The Mayors have been distinguished doctors for generations. It runs in the blood.*, 10. *I could feel the electricity between us.*, 15. *a brainwave*, 26. *It is better to tell a white lie than to lose a friend.*, 28. *He's my right arm.*, and 30. *You'll need a strong stomach if you are going to be a surgeon.*

ICG2: a partial similarity-sharing group, where there are similarities either in concepts or in wordings between English and Japanese expressions.

The characteristics of this group are represented by *to be off one's head* and *I cannot sleep with my feet turning toward him*: The English expression, *to be off one's head*, means intoxication or being in an insane state of mind, e.g., losing reasonable thinking. Some JNSs may misunderstand it to mean cutting off a head or dismissal (*kubikiri*). The Japanese expression *I cannot sleep with my feet turning toward him* is used to show or imply gratitude toward someone to whom 'my' mental and physical debt is so great that the lower part of 'my' body (feet) should not be placed toward that person. This kind of expression is a highly Japanese (or Asian) culture-bound expression.

ICG2 includes the following 13 items, about half of which originated in English, hence 2E, while the other half originated in Japanese, hence 2J.

ICG2E (English origins): 8 items: 13. *a loose tongue*, 16. *to be off one's head*, 19. *My sides split.*, 20. *to spill the beans*, 22. *double-tongued*, 24. *I need to pick your brains.*, 27. *You have bought yourself a white elephant*. *No one will stay in this house.*, 29. *He has a keen mind*.

ICG2J (Japanese origins): 5 items: 7. *At the age of 96, she set out on a journey to her husband.*, 11. *I cannot sleep with my feet turning toward him.*, 12. *The Prime Minister made iridescent remarks on the matter.*, 18. *You and I are united with a red thread.*, and 23. *to cast a shrimp to catch a bream*.

ICG3: a difference group, where there are differences both in the concepts and in the wordings between English and Japanese expressions.

The characteristics of this group are represented by *to kick the bucket* and *a horse out of a bottle gourd*: The first expression *to kick the bucket* is a conventional English expression. It was expected that most of the ENSs would know the meaning of this expression, whereas the non-native speakers (the JNSs) may not have any idea of the meaning of this expression. The second expression *a horse out of a bottle gourd* is a literal translation from a Japanese expression. It is broadly translated in a dictionary as 'Unexpected things often happen,' but broad translations sometimes lose a delicate nuance or vivid imagery. Therefore, this study uses 'raw' translations and attempts to find out how original, raw nuances can be understood by non-NSs.

ICG3 includes the following 11 items, five of which are English origins, hence 3E; six of which are Japanese origins, hence 3J.

ICG3E (English origins): 5 items: 36. *Curiosity killed the cat.*, 37. *to kick the bucket*, 38. Since

Andrew started his own business, he has been making money *hand over fist*., 39. Simon is *getting cold feet* about advancing you the money., and 40. What does it matter what your uncle thinks of you? He only visits you *once in a blue moon*.

ICG3J (Japanese origins): 6 items: 21. *a frog in the well*, 31. *a horse out of a bottle gourd*, 32. *to wet eyebrows with saliva*, 33. *a weak worm*, 34. *a cry of a crane*, and 35. *a carp on the cutting board*.

ICG4: a problematic group, where the wordings are the same, but there is a difference between the meanings in English and Japanese.

ICG4 includes the following 3 items: 14. *to come to a head*, 17. *to pull someone's leg(s)*, and 25. *Tim must be soft in the head to do such a thing*.

The characteristics of this group are as follows: The majority of the ENSs are expected to interpret these in English meanings and so are the JNSs. The English meaning of the expression *to come to a head* is 'an issue or a problem coming to a crucial point so that something must be done or determined'; a majority of JNSs may misunderstand the original English meaning and take it to mean 'to go crazy,' or 'to get angry,' because they would base their interpretation on their familiar Japanese meaning, 'atama ni kuru.' The mechanism of their interpretation is due to blood rushing to the head if one is angry. The expressions share the same wordings, but the basic concept differs somewhat between English and Japanese so that the end meanings of the expressions are different. These types of expressions are confusing for JNSs. Item 17. *to pull someone's leg(s)* means to joke in English (the 'leg' in a singular form) but in Japanese it means to obstruct someone's action or hinder a team's progress, for example, in a project, a competition or at a work place. This expression possibly originates in the metonymic image that pulling someone's legs obstructs their movement. It is usually mentioned as part of an apology or a self reflection by the person who thinks to be a nuisance. Item 25. *Tim must be soft in the head to do such a thing*, is expected to be interpreted in the meaning derived from the mother-tongue knowledge: it means to be weak in thinking in English, whereas in Japanese it means to be flexible in one's thinking so that a person who is soft in the head can cope with any hardship elastically and efficiently. The interpretation may cause an opposite effect. These items are included so as to examine the differences in interpretations made by the ENSs and the JNSs. If each NS group interprets the meanings according to their mother-tongue knowledge, it can be possibly concluded that there are effects caused by the mother tongue.

5. Results and discussion for RQs 1 & 2:

(RQ1) What strategies are used in the interpretations of metaphorical expressions?

(RQ2) How does knowledge of the mother tongue affect the interpretation of metaphorical expressions?

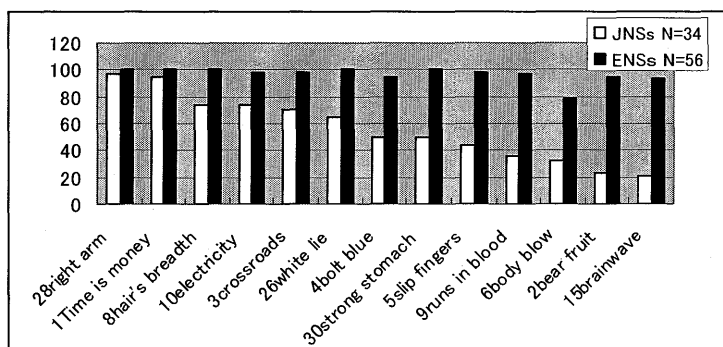
Since interpretation strategies and the utilization of the mother tongue are closely related, the analyses and discussions for RQ 1 and RQ 2 are discussed together.

5.1. Overall results of the 4 ICGs

We will look at the overall results of 4 ICGs one by one.

5.1.1. The results of the ICG1

Graph 1 shows the results.



Graph 1.

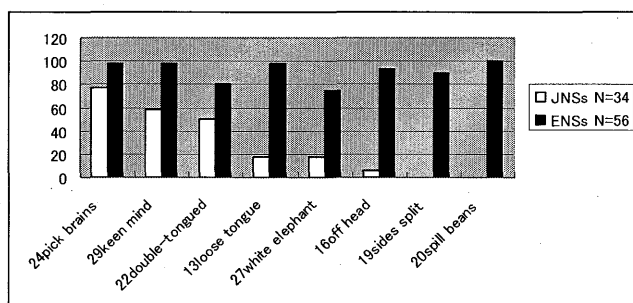
As seen in the graph, the correctness ratios of all items in this ICG except one item (6. *body blow*) were more than 95% for the ENSs, while those of the JNSs did not show any such uniformity. The highest were 28. *right arm* and 1. *Time is money*, the correctness ratios of which were as high as those of the ENSs. The next highest were 8. *hair's breadth*, 10. *electricity*, 3. *crossroads*, 26. *white lie*, 4. *bolt from the blue* and 30. *strong stomach*. The clear images of the items may have stimulated understanding. The correctness ratios of these items obtained more than 50%. The lower than 50% were 5. *slip through fingers*, 9. *runs in the blood*, 6. *body blow*, 2. *bear fruit* and 15. *brainwave*. The reason for the low ratios of 6. *body blow*, 2. *bear fruit* and 15. *brain wave* was that both the ENSs and the JNSs interpreted them as a literal meaning. These items were presented as a test item without any contextual support, i.e., an isolated or stand-alone presentation; therefore, the results might have been different, had it been embedded in a context. The other causes for the lower correctness ratios of the JNSs were mainly vocabulary

problems, as interviewees commented that if they did not know the meanings of the words, they could do nothing. This indicates that no or weak knowledge of the words in the items led the JNSs to no or fewer correct answers; for example, in item 9. The Mayors have been distinguished doctors for generations. It *runs in the blood*, there were such words as 'distinguished,' and in item 2. *bear fruit*, there were misunderstandings of 'bear' and 'fruit': 'bear' was interpreted as an animal (noun) or to endure (verb), or even it was not recognized as a phrase, and the meaning was interpreted as a bear's bait (kuma no mi). The other cause resulted from the JNSs' illogical association of 'a body blow' with blowing hair, meaning drying hair. This interpretation was generated from their daily custom.

The overall results of the ICG2 are shown in Graphs 2 and 3.

5.1.2. The results of the ICG2E

Graph 2 shows the results.



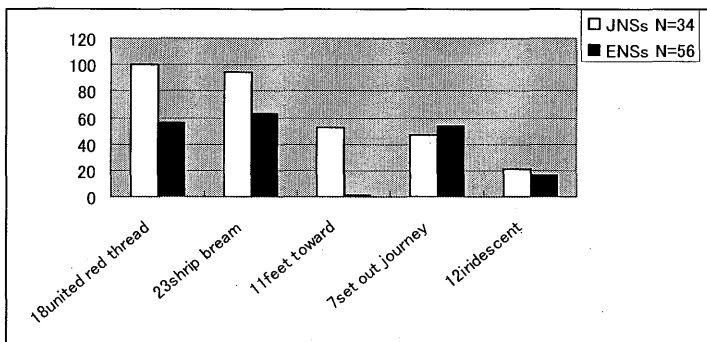
Graph 2.

Graph 2 shows the results similar to those in Graph 1: the ENSs' correctness ratios of the items were high, but those of the JNSs did not create as a clear uniformity as the ENSs', but were dispersed. The 3 items with over 50% correctness ratios obtained by JNSs were 24. *pick brains*, 29. *keen mind* and 22. *double-tongued*. Two of these items were embedded in a context; however, one item, 22. *double-tongued*, was presented in isolation (i.e., without context) in the test. Because of this presentation, or for some other reasons, it was interpreted as bilingual by some ENSs and a few JNSs. The lower ratios were found in 13. *loose tongue* and 16. *to be off one's head*. They were also presented in isolation. This might have resulted in low correctness ratios, but more interestingly, the item 16. *to be off one's head* was interpreted by the JNSs, resorting to their mother-tongue knowledge, to mean 'dismissal' (kubi o kirareru). The remaining two items obtained a null answer. It may be because these were highly culture-bound expressions. Item 19. *My sides split* was interpreted as both sides of 'my' clothes were split because of

getting fat, 'my' group was divided because of disagreement or a quarrel, or the path on which 'I' was walking split apart into two sides (to right and left). Item 20. to *spill the beans* was interpreted as a vernal event of throwing beans (setsubun no mamemaki) to get rid of evils and welcome good luck. Regarding item 27. You have bought yourself a *white elephant*. No one will stay in this house, the ENSs obtained a fairly high correctness ratio (over 80%). They could associate the white elephant with the house; however, the JNSs could not find any association between them. Their analogical thinking seemed to be weak in this case.

5.1.3. The results of the ICG2J

Graph 3 shows the results.



Graph 3.

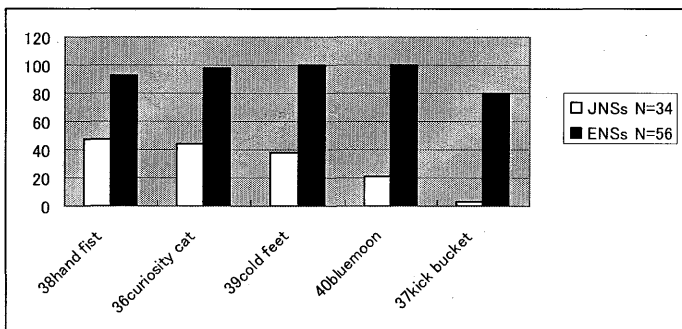
Here we can see the reverse phenomenon of Graph 2. The correctness ratios of the JNSs in the following three items, 18. You and I are *united with a red thread*, 23. to *cast a shrimp to catch a breem*, 11. I cannot sleep with my *feet turning toward him*, are more than 50%, followed by 7. She *set out on a journey to her husband* at the age of 96; however, the JNSs' ratio for item 12. Prime Minister made *iridescent remarks* on the matter is low, but a little higher than the ratio of the ENSs. The ENSs' correctness ratios of 23. *shrimp*, 18. *united red thread* and 7. *set out on a journey* were more than 50%, then 12. *iridescent* and 11. *feet turning toward* followed. We can imagine reasons for the somewhat high correctness ratios obtained by the JNSs and ENSs in the first two items. They are metonymic, therefore, the ENSs easily understood the meanings, and for the JNSs, these expressions are familiar expressions in Japanese. However, the fourth item is a euphemism. Some JNSs (and approximately the same number of ENSs) interpreted it as having a literal meaning. In that case, an analogy from the husband's age was not effective. Or, is a euphemism hard to understand?

Items 11. *feet turning toward* and 12. *iridescent remarks* seemed to have particular causes, that

is, the 'raw' translations. The ENSs' correctness ratios were low; however, amazingly enough, some ENSs interpreted item 12. *iridescent remarks* in accordance with the original Japanese meaning. They said in the interview that they guessed the meaning analogically. The topic concerns politics and politicians usually protect themselves from being attacked by opponents, therefore, their remarks are intended to be ambiguous. They had no precise knowledge of the wings of a chrysochroa (tamamushi), but they had thought of a similar kind of insect. On the other hand, item 11. *feet turning toward* caused them to have a non-Japanese image, for example, a couple quarreled so that they could not sleep in the same direction. There were a few participants in the ENSs group, whose parents had come from India or Asian countries. These participants interpreted it in accordance with the original Japanese meaning. These results show that, in some cases, especially if an expression is embedded in a context, or if there was an access to mixed cultures, there seemed to be a possibility that it would be understood by non-NSs.

5.1.4. The results of ICG3E

Graph 4 shows the results of ICG3E.

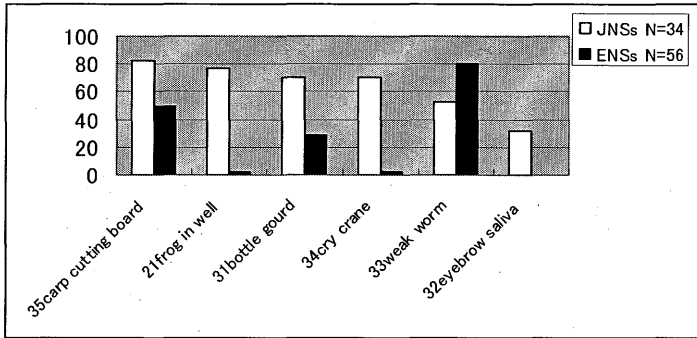


Graph 4.

The high correctness ratios of the ENSs contrasted with the low correctness ratios of the JNSs. The items are English origins. The first five items had contextual supports but item 37. *kick the bucket* did not. This feature may have made the interpretation more difficult. In addition, the item is an unfamiliar idiom for the JNSs or probably for other non-ENSs.

5.1.5. The results of ICG3J

Graph 5 shows the results of ICG3J.

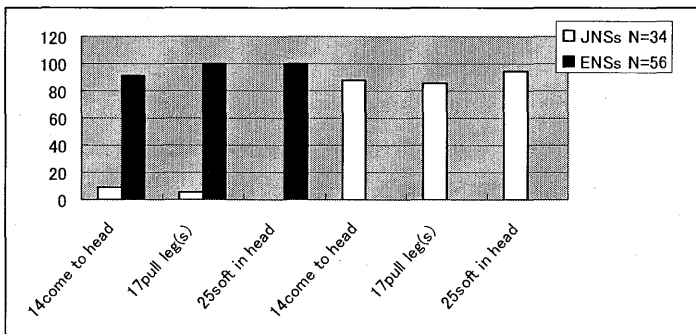


Graph 5.

This ICG3J was a counterpart of the ICG3E. Most of the items were featured with clear images but presented in isolation. The JNSs' correctness ratios of the first four items showed good results, followed by one item (33. *weak worm*). This item was embedded in a short sentence, therefore, it may have assisted the interpretation. The clear images or analogical associations of the expressions may also have assisted the both NSs groups' interpretations. These characteristics of the items were effective for the ENSs to interpret them, too, as in 33. *weak worm*, 35. *carp cutting board*, and 31. *bottle gourd* to some degree. The high (in the JNSs) and medium (in the ENSs) ratios of 35. *carp on the cutting board* resulted from the knowledge of a phrase 'a fish on the chopping board.' The other item (31. *bottle gourd*, though its correctness ratio was lower than the 33 and 35) was fairly well interpreted by some ENSs, whereas other items were low, null or almost null. Item 32. *to wet eyebrows with saliva* did not show a good result, especially in the ENSs.

5.1.6. The results of the ICG4

Graph 6 shows the results.



Graph 6.

This ICG4 attempts to investigate the differences in interpretations between JNSs and ENSs. The graph shows the differences in contrast: one is the English meanings on the left and the other is Japanese meanings on the right. As the graph demonstrates, the results show significant differences. The JNSs interpreted them according to their native meanings and so did the ENSs. This indicates that if these kinds of expressions were used without attention being paid to different meanings, there would be miscommunication. This is a risky area in terms of the use of figurative expressions, or 'raw' translations. There were a small number of correctness ratios by JNSs in the English meanings for items 14 and 17. These answers were provided by a small number of JNSs. They said in the interview that they had learned the English meanings in lessons or by themselves, therefore, they answered in accordance with the English meanings, as the test was presented in English.

5.2. Another results of the ICG test items

Before discussing the results of the ICGs in further detail, let us first look at ethnicity differences resulting from the varieties of English used by the ENSs in this study, that is, Australian, British or American English, to examine whether or not there were any differences in interpretation among them, because these different forms of English have been developed and used in the different parts of the world and over long periods, and, therefore, may have created different meanings. The Pearson correlations among the three forms of English are very strong (see Table 1). As a whole, we can say there is no significant difference among them.

Table 1. The Pearson correlations among Au, Br and Am NSs

	Au 18	Br 19	Am 19
Au18	1	.959(**)	.944(**)
Sig.(2-tailed)		.000	.000
N of items	40	40	40
Br19	.959(**)	1	.940(**)
Sig.(2-tailed)	.000		.000
N of items	40	40	40
Am19	.944(**)	.940(**)	1
Sig.(2-tailed)	.000	.000	
N of items	40	40	40

** Correlation is significant at the .01 level (2-tailed).

An overall result of the M-Cog Test with regard to the ICGs is shown in Table 2. Again I would like to mention that all the data in the tables are based upon the correctness ratios calculated in the scoring.

In terms of the ICGs, the ENSs obtained high correctness ratios in 1, 2E and 3E, that is, the shared concepts/wordings and original English expressions, while they obtained low ratios in the expressions that originated in Japanese. On the other hand, the ratios obtained by the JNSs were not as high (i.e., over 90%) as those obtained by their counterparts. This was because the test items were provided in English, the language they were learning; therefore, their proficiency was not as high as that of the ENSs. We should keep this in mind.

The JNSs obtained high ratios in 2J and 3J, that is, the expressions that originated in Japanese. Their correctness ratio in ICG1, the shared concepts/wordings, can be said to belong to a medium range. This is not a disappointing result.

Table 2. The averages of ICGs 1-4 (%)

ICGs	Expressions/Concepts	Characteristics	N of items	ENSs average	JNSs average
ICG 1	same/similar	shared con/wrd	13	96.3	56.1
ICG 2	similar concepts or wordings	2J con/wrd	6	43.9	55.4
		2E con/wrd	7	93.9	29.8
ICG 3	different betw E / J	3J origins	6	27.1	64.2
		3E origins	5	94.2	30.1
ICG4 2E/2J	problematic	risky*	3	E meaning: 96.9	E meaning: 4.9
				J meaning: 0	J meaning: 89.2

*The risky 3 items: 14 to *come to a head*, 17 to *pull someone's leg(s)*, 25 Tim must be *soft in the head* to do such a thing.

The bottom column of ICG4 2E/2J includes three items with different meanings in English and in Japanese. These three items (14. to *come to a head*, 17. to *pull someone's leg(s)* and 25. Tim must be *soft in the head* to do such a thing) are culture-bound expressions. Therefore, if they were scored as either one of the meanings, the correctness ratios were different: the ENSs interpreted the expressions correctly in accordance with the English meaning, but not in accordance with the Japanese meaning. We can take these correctness ratios to mean that both NSs groups utilized their familiar knowledge and employed previously known schemas in the interpretations.

5.3. Speculations on strategies used in the interpretation of the expressions

Possible strategies were first analyzed from the paper-based answers and confirmed by the supporting information in the interviews with the participants, which revealed they used the following strategies:

- (a) intuition,
- (b) general knowledge, general schemas,

- (c) image association, the activation of a mental image,
- (d) cognitive process for unfamiliar expressions , e.g., analogical reasoning and/or resorting to context and/or connotation,
- (e) translation into the mother tongue, looking for (first) literal and (then) figurative meanings

We may be able to classify the above strategies further into more simplified categories as strategies, that is, the strategies based on knowledge, visualization and logical schemas. This will be further discussed in this and the following sections.

Human cognition is complex; therefore, it is hard to separate one aspect of understanding or interpretation from others. However, in order to investigate further what aspects the interpretations assumed, some discussion points are necessary. Therefore, the following two points are established in this study and the following discussion converges into these points, with reference to the results of the M-Cog Test: one of the points is a similarity/difference in interpretation by English NSs and non-English (Japanese) NSs, from the point of view of conceptual schemas rooted in and/or generated from the mother-tongue knowledge: in this area, we can look at the results of the utilization in interpretations of general knowledge, schemas and mental images. The other point is a similarity/difference in interpretation by ENSs and non-ENSs, from the point of view of logical schemas rooted in and/or generated from the mother-tongue knowledge: in this area, we can look at the strategies employed other than those used in the first point, e.g., logical schemas or reasoning from contexts, wordings, splitting and/or combining, etc.

However, there may be some other phenomena. In this respect, here, we will also look at the effects caused by learners' linguistic ability, e.g., EFL learners' vocabulary knowledge. Some students commented that if they did not know the meanings of the words in expressions, they could not do anything at all. Therefore, regarding this issue, I examined the correlation between metaphorical competence and vocabulary knowledge. In fact, the Pearson correlation between Vocabulary Levels Test (2000 - 3000 word levels) (Schmitt, 2000) and the M-Cog Test of the JNSs was $r = .759$; $p < .01$. The result was positive, which indicates that the higher the vocabulary level was, the better and the easier the interpretation seemed to be.

5.4. Conceptual schemas, image associations and logical schemas

In the following sections, we will look at the details of interpretations. Again, I would like to mention that it is hard to separate one aspect of understanding or interpretation from others, as our cognition is constructed holistically. However, we need some classifications for

probable interpretation strategies. Therefore, the analyses for interpretations were made quantitatively by attentive reading of the answers provided in the test items and through inquiries and confirmations with interviewees, for example, asking why they interpreted the items in the way they did, what knowledge they used, and/or what images they drew in their minds for the items. By analyzing these details, the classification was made up: (1) conceptual schemas rooted in and/or generated from the mother-tongue knowledge; (2) image associations, i.e., visualization; and (3) other measures (logical/analogical reasoning, etc.). First we will look at conceptual schemas generated from the mother-tongue knowledge and image associations or visualization and then logical schemas and other phenomena. In the following table, the k stands for conceptual schemas or mother-tongue knowledge and the v stands for visualization.

5.4.1. Conceptual schemas and image associations

Here we will look at the general knowledge or schemas utilized in the interpretation of the expressions by both NSs groups.

Overall phenomena revealed in the M-Cog Test are as follows. In general, both the ENSs and the JNSs seemed to utilize their general knowledge or schemas (cultural or mother-tongue knowledge) quite well in the interpretation of the items of the shared concepts (ICG 1). This is the same as stated in the previous section.

With regard to the results of image associations shown in Table 3, where the k and the v stand for knowledge and visualization respectively, the majority of the ENSs seemed to utilize well their schemas (the k column) and image associations (the v and the k+v columns) in the interpretations of the shared concepts and the genuine English expressions. In other words, the results of 1, 2E, 3E are in the range of more than 90%, which is quite high. However, in the case of the expressions that originated in Japanese (2J, 3J), the correctness ratios were low, but not null (approx. 30%).

Table 3. The strategies: knowledge and image associations (%)

strategies	k				k + v		v	
	ICG	ICG	ICG	ICG	ICG	ICG	ICG	ICG
concepts/ origins	1	2E; 3E	2J; 3J	2E/J	1; 2E	2J; 3J	1; 2E; 3E	3J
N of items	6	7	5	2*	5	6	8	1
ENSs N=56	94.6	91.6	42.9	E meaning: 100; J:0	95.3	30.6	95.3	33.9
JNSs N=34	62.3	33.2	40.6	J meaning: 89.7; E: 5.8	36.5	74.1	38.9	70.6

*17 to pull someone's leg(s), 25 Time must be soft in the head to do such a thing.

The highest ratio of the JNSs (74.1%) was in the k + v group; this probably indicates that the JNSs found it easier to interpret the expressions that stimulated their knowledge and those that conveyed clear images. The next highest ratio to this was in the v group (ICG3J: 70.6%), followed by the k group (ICG 1: 62.3%). The results possibly indicate that they utilized general knowledge and/or schemas and visualization in these ICGs to a degree.

5.4.2. Logical schemas

Contextual effects

Among the expressions, some were embedded in sentences and some not, i.e., some were words and phrases in isolation. Being embedded in sentences might have provided contextual support, but the latter did not provide this support.

We can see the effect of the contextual support from the results shown in Table 4. The contextual support may have had some effect on the accuracy with which both the ENSs and the JNSs were able to understand the expressions, as shown in the columns of expressions embedded in sentences and in isolation in Table 4.

As far as the JNSs' correctness ratio was concerned, the interpretations originating in their mother tongue were higher in the results than those of English origin. This probably indicates that the JNSs resorted to knowledge of their mother tongue, and that the activation of mother-tongue knowledge may have led to stimulation of their cognition.

Table 4. The contextual effects (%)

effects	in sentences				in isolation		
	1	2E, 3E	2J, 3J	2E/J	1	2E, 3E	2J, 3J
ICGs	1	2E, 3E	2J, 3J	2E/J	1	2E, 3E	2J, 3J
N of items	8	6	6	3*	5	6	6
ENSs N=56	98.7	96.5	43.8	E: 100/J: 0	89.3	90.2	25.42
JNSs N=34	69.9	41.3	55.4	E: 5.8/J: 89.2	32.9	17.8	71.1

*14 to *come to a head*, 17 to *pull someone's leg(s)*, 25 Tim must be *soft in the head* to do such a thing.

Other strategies

The operations of splitting and/or combining as interpretation strategies are found in the answers. Some participants from both NSs groups attempted to deduce the meaning by splitting an expression into various parts and guessing the meaning from the part they knew, e.g., *brainwave* was split into brain + wave.

On the other hand, some JNSs guessed the meaning by combining the words or meanings,

e.g., for the item, *to kick the bucket*, they first comprehended the meaning of a 'bucket' as a container and the bodily movement of 'kick,' and hence, one interpretation was that of a situation where the level of anger was so high that it made one kick the bucket with one's foot, and the other interpretation resulted in the scene of 'a heavy rain.' As a matter of fact, there is a Japanese expression such as 'rain heavily falls as if the bucket full of water were turned over,' equivalent to 'it's raining cats and dogs.' These interpretations involved lexical and cultural schemas.

As stated earlier, it is hard to identify or separate exactly which strategies were used in each case, because the mental work of interpretation involves multiple cognition in the mental and cultural element at the same time. Although it seems hard, this study attempts to discover what strategies are prominent in interpretation and what effects the mother tongue has on interpretation.

5.5. Summary of the strategies

In processing and analyzing the test results and the information from the interviews, the following phenomena were identified:

- (1) the strategy most often used was that of resorting to general knowledge or schemas, i.e., looking for similar expressions in the mother tongue (according to some ENSs, they looked for the meanings in their native language, or paralleled, linked and associated the meaning with their native language), i.e., the operation of linking, paralleling or association.
- (2) In addition to the above strategy, most of the participants utilized an image association strategy. They visualized or pictured the expressions in their mind, i.e., the utilization of mental images.
- (3) If they could not resort to their mother-tongue knowledge, they first looked for verbally literal meanings. When this strategy proved unsuccessful, they resorted to guessing figurative meanings.

The ENSs and JNSs used the following logical schemas in interpretation either initially or when they did not use the above (1) to (3):

- (4) According to some English NSs, they activated their cognitive process when they came across certain expressions, looked for connotations in English, and broke down the expression into smaller parts. For example, in the case of the expression *a carp on the cutting board*, they transferred 'carp' to 'fish' and conjured up an image such as a fish being placed on the chopping board. The most frequently used strategies were

connotations (with visualization); for example, in the expression of *a frog in the well*, they visualized a picture of entrapment. In other cases, they attempted to guess the meanings from the context, as in the case of 'You have bought yourself *a white elephant*. No one will stay in this house.'

- (5) According to the JNSs, some of them translated the expressions into Japanese and attempted to deduce the meanings. Rather than breaking down the terms, some JNSs combined the words in the expressions to get the clues as to the meanings.
- (6) Both the ENSs and the JNSs used logical thinking plus an image association strategy, e.g., comparing the sizes of the two terms (a horse and a bottle gourd) in *a horse out of a bottle gourd* to get to the correct meaning.

6. Discussion for RQ 3: Problematic expressions

This section briefly answers RQ3: What expressions are strongly affected by knowledge of the mother tongue and, therefore, are problematic.

The less problematic expressions were those belonging to ICG 1 in the M-Cog Test. The problematic expressions for the JNSs were the highly conventional English expressions, such as to *kick the bucket*, to *spill the beans* and *My sides split*. The reversed phenomena were applicable to the ENSs, for example, the 'raw' translations of the genuine Japanese expressions with highly cultural elements, such as *I cannot sleep with my feet turning toward him* or to *wet eyebrows with saliva* were problematic. However, the most confusing ones were the expressions with the same or similar wordings but with different meanings, as discussed in the previous sections, a problematic group.

7. Further investigation into the interpretations:

Stimulus between source - target and degrees of cultural difference

There are some other elements to consider regarding the aspects of interpretations of metaphorical expressions. One of these is the strength of the stimulus between the source (domain) and the target (domain) of an expression, and the other is the degree of cultural elements in the expression. The cultural elements are classified into three degrees: easy, medium and hard to understand (E, M, H, respectively, in the tables); the T-S strengths are indicated with the marks $\odot \rightarrow \circ \rightarrow \bullet \rightarrow \triangle \rightarrow \blacktriangle$ in the order of strong to weak stimulus in the following tables 5-8.

The first 10 items of the T-S strengths are strong and the degrees of cultural elements range from easy to medium, where the ENSs accumulated a 98.7% correctness ratio and the JNSs 69.4%. These ratios were quite high. The next 6 items of the T-S and the cultural elements are not

as strong as the first 10 items, where the correctness ratios of the JNSs was 41.2%, whereas that of the ENSs was 83.7%. The items include the shared concepts and expressions of English and Japanese origins. We should pay attention to the expressions with low correctness ratios, especially in the last 2 items (6 *body blow* and 2 *bear fruit*). The causes for the low correctness ratios have already been discussed. The JNSs' correctness ratios of the next 8 items were low compared with those of the ENSs. Most of the items have English origins.

Table 5. The degrees of cultural elements and the T - S strengths

Shared & J/E origins				(sorted by JNSs)		
D of culture	ICGs	base	T-S	24 items	34JNSs	56ENSs
E	1	shared	◎	1 Time is money	94.1	100
E	1	shared	◎	28 right arm	97.1	100
E	2E	E	○	24 pick brains	76.5	98.2
M	1	shared	◎	8 hair's breadth	73.5	100
E	1	shared	◎	10 electricity	73.5	98.1
E	1	shared	◎	3 crossroads	70.6	98.2
M	1	E	○	26 white lie	64.7	100
E/M	1	shared	○	30 strong stomach	50	100
M	1	shared	○	4 bolt blue	50	94.6
M	1	shared	○	5 slip fingers	44.1	98.2
10 items				ave.	69.4	98.7
M	2E	E	●	29 keen mind	58.8	98.1
M	2E	E	○	22 double-tongued	50	80.5
M	2J	shared	○	7 set out journey	47.1	53.4
M	1	shared	●	9 runs in blood	35.3	96.5
M	1	shared	○	6 body blow	32.4	78.9
M	1	shared	○	2 bear fruit	23.5	94.7
6 items				ave.	41.2	83.7
M	3J	J	△	33 weak worm	52.9	80.5
M	3E	E	△	38 hand fist*	47.1	92.6
M	3E	E	△	36 curiosity cat	44.1	98.1
H (to JNSs)	3E	E	△	39 cold feet	38.2	100
M	1	E	△	15 brainwave	20.6	92.9
H(to JNSs)	3E	E	▲	40 blue moon*	20.6	100
M	3E	E	▲	27 white elephant	17.6	74.7
H(to JNSs)	2E	E	△	13 loose tongue	17.6	98.2
8 items				ave.	32.3	92.2

*idiomatic/contextual

The following tables 6 and 7 show the high correctness ratios of the ENSs (more than 90%) and extremely low correctness ratios of the JNSs. The expressions in Table 6 are all English idioms. Some JNSs tended to associate the meanings with Japanese or abandoned the attempt to answer. This was estimated in this study. However, the important finding was that although the

expressions had strong T-S stimuli, the stimuli were not effective in the interpretations of the idioms, because some idioms have cultural origins, such as 19. *My sides split* or 37. *to kick the bucket*. For these expressions, though some participants could delve into the meaning of the expression to a certain degree, but after that, the set meaning would block interpretation; in other words, analogy alone would not be sufficient; furthermore, mother-tongue knowledge would not assist understanding. Again, the interpretation phenomena of these expressions have already been discussed.

Table 6. English origins

E origins			(sorted by JNSs)			
D of culture	ICGs	base	T-S	4 items	34JNSs	56ENSs
H(to JNSs)	2E	shared*	◎	16 off head	5.9	92.8
H(to JNSs)	2E	shared*	◎	20 spill beans	0	100
H(to JNSs)	3E	shared*	△	37 kick bucket	2.9	80.4
H(to JNSs)	2E	shared*	△	19 sides split	0	89.2
4 items		*idioms		ave.	2.2	90.6

Table 7. Different meanings between Japanese and English

Different meanings			in English meanings (sorted by JNSs)			
D of culture	ICGs	base	T-S	3 items	34JNSs	56ENSs
H JEdif	2E/J	J/E	◎	14come head	8.8	90.8
H JEdif	2E/J	J/E	○	17 pull leg(s)	5.8	100
H JEdif	2E/J	J/E	◎	25 soft in head	0	100
3 items				ave.	4.9	96.9
				in Japanese meanings		
				3 items	34JNSs	56ENSs
				◎	25 soft in head	94.1
				◎	14come head	88.2
				○	17 pull leg(s)	85.3
				ave.	89.2	0

Finally, concerning the correctness ratios of the expressions of Japanese origin, in Table 8, the expressions of the strong T-S and the culturally easy degrees (the first 3 items) were fairly well interpreted by both the ENSs and JNSs. However, the JNSs' correctness ratios of the medium T-S strength and culturally difficult degrees (4 next to the first 3) were higher than those of the ENSs. This is possibly a result of the Japanese knowledge. The last 2 items of the weak T-S and medium/difficult cultures were not well interpreted, especially by the ENSs.

Table 8. The Japanese origins

J origins			in Japanese meanings (sorted by JNSs)			
D of Culture	ICGs	base	T-S	9 items	34JNSs	56ENSs
H (to ENSs)	2J	J	◎	18 united red thread	100	55.5
H (to ENSs)	2J	J	○	23 shrimp bream	94.1	62.7
M	2J	J	◎	35 carp cutting board	82.4	49.8
H (to ENSs)	3J	J	○	21 frog in well	76.5	1.7
E/M	2J	J	○	31 bottlegourd	70.6	28.4
H (to ENSs)	3J	J	○	34 cry crane	70.6	1.9
H (to ENSs)	3J	J	○	11 feet toward	52.9	1.7
H (to ENSs)	3J	J	△	32 eyebrows saliva	32.4	0
M	3J	J	△	12 iridescent	20.6	15.9
9 items				ave.	66.8	24.2

The above results possibly indicate that the expressions that have strong T-S stimuli with culturally shared concepts are less problematic for both the JNSs and ENSs.

8. Conclusion

As far as the effects of knowledge of the mother tongue are concerned, these effects are ambivalent: beneficial, but, at the same time, risky. We should be cautious about those expressions that are similar in concepts or wordings, but have different meanings. However, I should say we should not be too hesitant to use figurative expressions. Our daily discourse is usually conducted within a certain context, depending upon which speakers can get their meanings crossed. Therefore, in the case of problematic expressions, as long as they are used in context, hearers/readers may understand what is implied. For example, the following passage may be understood by people of different culture, "He is only interested in making kettles, not in other things. He stays in his world. He is *a frog in the well*." In a sense, it may be interesting to speak with rich connotations, taking into account that there may be risks involved. Rich expressions may possibly stimulate human cognition. Delicate expressions may enrich our linguistic activities and thoughts.

As for the strategies, both the JNSs and the ENSs seemed to use mother-tongue knowledge and visualization, or a combination of both. The JNSs' correct interpretations shown in the strategies were effective in ICG1, i.e., shared concepts, and in ICG3, Japanese origins, but were not as effective in ICG2 English origins, as in the first two. The ICG4 was problematic.

Figurative expressions or 'hiyuteki hyogen' are used consciously or unconsciously in daily conversation, for example, 'when I talked to her, she answered me with an *icy smile*.' We think of 'ice,' mapping the features of 'ice' onto a kind of smile. Then, the meaning of ice expands, stimulating the image of a cold, hard object. Elements such as mapping and

expansion from word to word are involved in this example. Idioms and/or proverbs are often used as figurative expressions. They incorporate cultural elements, and sometimes these may be hard for non-native speakers to understand. Therefore, if EFL students encounter these expressions, teachers might wish to spare some time (short or long) to deal with why the expressions have such specific meanings. Even if easy words comprise figurative expressions, this might cause misunderstanding, as seen in *to come to a head*, because of an etymological reason or for some other reason. Where unusual words comprise figurative expressions, EFL students might shy away from the expressions. To alleviate this anxiety, we might think of enhancing vocabulary, as vocabulary plays an important role in EFL learners' performance.

Littlemore and Low (2006) emphasize the importance of vocabulary and figurative thinking in foreign language learning. They give us the following noteworthy implication: figurative thinking can help language learners work out a reasonable approximation of the meaning of unknown vocabulary, as well as extend the variety of things that they can talk about with their existing vocabulary (ibid.: 89). They also suggest the role of figurative thinking in the performance of communicative functions.

Figurative expressions, including idioms, proverbs and daily expressions in figurative use, are ubiquitous; teachers as well as learners cannot avoid dealing with them. Enhancing learners' figurative thinking should be an important part of teaching.

Notes: 1) This study is part of the whole study of "the effects of the knowledge of mother tongues on the interpretation of figurative expressions" funded by Grant-in-Aid for Scientific Research of JSPS 2006-2007.

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