Interpretation of Animal Metaphors: Evidence from Chinese and English Children and Adults

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Abstract

This research aims to investigate the differences and similarities in the understanding of animal metaphors in English and Chinese children and adults. 95 Chinese children and adults and 54 English children and adults participated in the experiment. The child participants are aged from eight to eleven and adults are aged from eighteen to forty. They were presented with stimulus sentence relating to fourteen animal words under four pragmatic conditions. It was found that adults gave a relatively larger number of psychological interpretations than children. Children gave more perceptual interpretations than adults. English children gave more perceptual interpretations than Chinese children. Behavioural interpretations were also found prominent in this research.

1 Introduction

Animal metaphors are used ubiquitously across languages to refer to human behaviour. Cowards are represented as chickens, lions denote the brave and crowd-followers are sheep and, although connotations and labels may vary quite significantly, the general conceptual metaphor of 'humans as animals' exists across cultures (Kovecses, 1997).

Conceptual metaphor theory (Lakoff and Johnson, 1980) has been extremely influential in cognitive science and other fields, and has cross-cultural implications. Of particular interest to this study are the conceptual metaphors HUMANS ARE ANIMALS, and OBJECTIONAL HUMAN BEHAVIOUR IS ANIMAL BEHAVIOUR (Kovecses, 2002). Kovecses (2003) also put forward that although these conceptual metaphors may be universal cross-culturally – meaning that animal metaphors may be used to describe people in all cultures – their expression in terms of the source domains used (e.g. the particular animal) may vary as a function of the linguistic and cultural background in question.

Some researchers have suggested that culture and age have significant effects on people’s interpretation and production of animal metaphors. For example, Dowker (2003) pointed out that a British person would use the term fox to mean ‘sly and cunning person’, while a Canadian might use the same term to mean ‘attractive woman’. The ways in which animal metaphors are used are certainly influenced by cultural conventions. Talebinejad and Dastjerdi (2005) compared 44 animal metaphors in English and Persian, and found that although animal metaphors in English and Persian are similar to a certain extent; many aspects of them are culture-
specific. There are some differences in the frequency and predominant types of metaphors in the two languages. For example, shark is a ‘dishonest person, a swindler’ in English, but a ‘man with no or very little beard growing on him’ in Persian.

Wierzbicka (1985, 1996) proposes the following themes are significant in people’s concepts of animals: ‘habitat’, ‘size’, ‘appearance’, ‘behaviour’, and ‘relation to people’. Leach (1964) discussed ‘the folk classification of animals in British English which is based on such criteria as edibility and taboo, in turn related to the matters of killing and verbal abuse.’ In Chinese culture, pig has a very close relation to people’s life as pork is the main meat for the Han nationality. Therefore Chinese people have created many proverbs, idioms, and poems with pig, in which pig invokes an image of being dirty, smelly, fat and stupid, such as ‘to live a life even worse than a pig’ (to live a very poor and bad life), ‘as stupid as a pig’, or with regard to someone’s home ‘as filthy as a pigpen’. However, some tropical animals are unknown to Chinese people except possibly with regard to their appearances. For instance, zebras are rarely seen by Chinese people, so they seldom appear in Chinese idioms or proverbs. Chinese people only know that the stripes of a zebra are white and black. Therefore, they can only understand metaphoric expressions concerning a zebra if these relate to its appearance.

In this research, animal metaphors were chosen for comparison in the two different languages: Chinese and English. Although there has been extensive research on metaphor across cultures, very little empirical research has been done on animal metaphors, and little of this has been cross-linguistic, although there have been some studies within the domain of anthropology or in literary investigations (Leach, 1964; Wierzbicka, 1985, 1996).

The simple paraphrase task is the most natural task and prevents the experimenter from over-interpreting children’s responses as well as from narrowing their scope. When children do not grasp the meaning of a stimulus sentence relating to metaphor as intended by the experimenter, very often their interpretation is labelled as a simple association or, as a magical, fanciful and bizarre response. An analysis of the sentences used by children to express what they think a metaphor means, the paraphrase task, could greatly improve our knowledge of the particular grounds on which children’s construction of the meaning of metaphors rests. For this reason a paraphrase task was used in this experiment.

The current experiment aims to investigate the differences and similarities in the understanding of animal metaphors in English and Chinese children and adults. It was predicted on the basis of the earlier findings (Wang and Dowker, in press) that adults would give more psychological interpretations than children, and that children would give more perceptual interpretations than adults. Animal metaphors were expected to be interpreted differently by Chinese and English people, and especially by Chinese and English adults.

2 Method

2.1 Participants

149 participants took part in this experiment. They were equally divided according to gender at each age level: eight- to eleven-year-old children and eighteen- to forty-year-old adults (see Table 1). They were equally divided between males and females. The English child participants were studying at St. Barnabas Primary School in Oxford. The English adult participants were all students at the University of Oxford.
All the English participants were native English speakers. The Chinese children were selected at random from the Affiliated Primary School of Taiyuan University of Technology, P. R. China. The Chinese adults were students at Sun Yat-sen University, P. R. China, and had never been to English speaking countries. All the child participants were selected at random from their classrooms and the adults were all unpaid volunteers in universities. None had participated in any earlier studies of figurative language comprehension.

Table 1. Numbers of Participants

<table>
<thead>
<tr>
<th>Cultural Group</th>
<th>Age Group</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chinese</td>
<td>Adults</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>Children</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>95</td>
</tr>
<tr>
<td>English</td>
<td>Adults</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Children</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>54</td>
</tr>
<tr>
<td>Total</td>
<td>Adults</td>
<td>99</td>
</tr>
<tr>
<td></td>
<td>Children</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>149</td>
</tr>
</tbody>
</table>

2.2 Materials

The participants were presented with brief vignettes about the use of animal metaphors based on the studies by Caramelli and Montanari (1995). In these vignettes: the topic of the predicative metaphor was either the proper name of a child, e.g. Paul, John etc., or teacher’s surname preceded by Mr., according to four pragmatic conditions.

The stimulus sentence relating to metaphor’s vehicles were fourteen animal words, of which: elephant, fox, lion, sheep, snail and wolf give rise to a frozen metaphor in Italian (Caramelli and Montanari, 1995); and of which: cod, crow, grasshopper, kangaroo, ladybird and zebra gave rise to a novel metaphor in Italian (Caramelli and Montanari, 1995). Pig and dog were added by the researcher as both of them are very extensively used in Chinese. The same materials were given in English and Chinese versions.

The pragmatic conditions were: (1) a child addressing another child; (2) a child addressing a teacher; (3) a teacher addressing a child; (4) a teacher addressing another teacher.

A short story was created for each pragmatic condition as follows:

1. Child addressing another child:
   ‘There was a boy called Paul. He lived next door to a boy called David. They used to play together. One day David said: “Paul is a … (elephant, fox, lion, sheep, snail, wolf, cod, crow, grasshopper, kangaroo, ladybird, zebra, pig and dog)”

2. Child addressing a teacher:
   ‘There was a boy called Mark. Mark went to school and his teacher was called Mr. Smith. One day Mark said: “Mr. Smith is a … (elephant, fox, lion,
sheep, snail, wolf, cod, crow, grasshopper, kangaroo, ladybird, zebra, pig and dog’

3. Teacher addressing a child:
‘In St. Paul school there was a teacher called Mr. White and one of his pupils was called Robert. One day Mr. White said: ‘Robert is a … (elephant, fox, lion, sheep, snail, wolf, cod, crow, grasshopper, kangaroo, ladybird, zebra, pig and dog)’

4. Teacher addressing another teacher:
‘In St. Andrews school there was a teacher called Mr. Jenkins. Another teacher was called Mr. Parker. They used to spend break-time together. One day Mr. Jenkins said: ‘Mr. Parker is a … (elephant, fox, lion, sheep, snail, wolf, cod, crow, grasshopper, kangaroo, ladybird, zebra, pig and dog)’.

Thus, overall there were four stories followed by fourteen stimulus sentences relating to metaphors. This means that there were fifty-six items, incorporating a pragmatic condition and a metaphor.

2.3 Procedure
The materials were presented to each participant in four sessions (fourteen stories were presented in each session). In each session all four pragmatic conditions were presented. The researcher read the first story to the participant and then asked: ‘What did X (David / Mark / Mr. White / Mr. Jenkins) mean? Writing down the participants’ response, the researcher asked: ‘Do you think that X (David / Mark / Mr. White / Mr. Jenkins) likes Y (= people addressed by the metaphor)’ and transcribed the participant’s response. The other stories were then presented in the same way.

2.4 Scoring
Participants’ interpretations were classified as perceptual, psychological, behavioural, functional, no-response, evaluative, descriptive, cross-sensory or associative. Their interpretation could either be one type or a mixture of several types. Whenever the researcher was not sure about a particular response, she would have a discussion with other judges until agreement was reached. A sample stimulus sentence together with an example of each type of response and the definitions or guidelines by which they were scored is presented in Table 2.

Table 2. Responses to a sample stimulus sentence: Tom is an elephant.

<table>
<thead>
<tr>
<th>Name</th>
<th>Example</th>
<th>Definitions or guidelines for scoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceptual</td>
<td>Tom is big and fat. Or: Tom is noisy.</td>
<td>Based on, or involving perception.</td>
</tr>
<tr>
<td>Psychological</td>
<td>Tom never forgets.</td>
<td>Relating to, or arising from the mind or emotions.</td>
</tr>
<tr>
<td>Behavioural</td>
<td>Tom moves clumsily.</td>
<td>Based on or involving action or behaviour.</td>
</tr>
<tr>
<td>Functional</td>
<td>Tom is a gardener, who waters plants the way an elephant splashes with its trunk.</td>
<td>Relating to a function.</td>
</tr>
<tr>
<td>No response</td>
<td>Do not understand.</td>
<td>The participants give no response.</td>
</tr>
<tr>
<td>Evaluative</td>
<td>It is nice. Or: He is bad.</td>
<td>Simple evaluation, no exact meaning</td>
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</tr>
<tr>
<td>Descriptive</td>
<td>Tom's surname is elephant.</td>
<td>Involving or characterized by description; serving to describe. Or concerned with classification or description.</td>
</tr>
<tr>
<td>Cross-sensory</td>
<td>(Not in this example, but in: The smell of my mother's perfume was bright sunshine.) My mother's odour is very warm.</td>
<td>Different senses were used across. In this example, odour is smelt, but warm is what people feel.</td>
</tr>
<tr>
<td>Associative</td>
<td>(Not in this example, but in Paul is a dog.) Paul was born in the year of the dog.</td>
<td>Of, characterized by, resulting from, or causing association.</td>
</tr>
</tbody>
</table>

### 3 Results

For each participant the number of items in each task using each type of explanation was calculated and two-way Analyses of Variance were carried out with age and culture as the factors.

Figure 1 shows the significant cultural and age differences in perceptual interpretations. Children gave more perceptual interpretations than adults ($F(1,145) = 94.827, MS=2592.868, p<.0001$), English people gave more perceptual interpretations than Chinese people ($F(1,145) = 48.380, MS=1322.866, p<.0001$), and there was a significant culture × age interaction ($F(1,145) = 14.446, MS=395.002, p<.0001$).

This interaction was because both English and Chinese children gave more perceptual interpretations than English and Chinese adults. Chinese adults gave comparatively very few perceptual interpretations.

Figure 1. Marginal Means for Perceptual Explanations used by Chinese and English Children and Adults

Note: Error bars display the standard error of the mean
Figure 2 illustrates that adults gave more psychological interpretations than children (F (1,145) =77.871, MS=4486.408, p<.0001), but the cultural differences were not significant (F (1,145) = 0.234, MS=13.482, p=0.629). There was a significant culture × age interaction (F (1,145) =4.955, MS=285.447, p=0.028).

Figure 2. Marginal Means for psychological Explanations used by Chinese and English Children and Adults

Note: Error bars represent the standard error of the mean

Unlike the earlier studies (Wang and Dowker, in press), behavioural interpretations were also found to be frequent in this study as well as perceptual and psychological interpretations.

Figure 3 shows the means of all the explanations by four groups of people: Chinese adults and children, English adults and children. It was demonstrated that psychological, perceptual and behavioural interpretations are the main interpretations. Non-response was only prominent among the Chinese participants.

Figure 3. Marginal Means of All the Explanations

Note: Error bars denote the standard error of the mean
Figure 4 illustrates that Chinese adults gave many behavioural interpretations, together with psychological and perceptual interpretation. Figure 5, 6 and 7 indicate respectively that Chinese children, English adults and English children all gave many behavioural interpretations, as well as the psychological and perceptual interpretations that were discussed previously.

Figure 4. Mean Totals of Metaphor Categories used by Chinese Adults

![Graph showing mean totals of metaphor categories used by Chinese Adults.]

Figure 5. Mean Totals of Metaphor Categories used by Chinese Children

![Graph showing mean totals of metaphor categories used by Chinese Children.]

Figure 6. Mean Totals of Metaphor Categories used by English Adults

![Graph showing mean totals of metaphor categories used by English Adults.]

Figure 7. Mean Totals of Metaphor Categories used by English Children

![Graph showing mean totals of metaphor categories used by English Children.]

Figure 8 shows the means of different groups of participants for their explanations. Chinese and English adults gave more psychological interpretations than perceptual and behavioural interpretations. Non-responses were only frequent in Chinese participants and especially in Chinese children. English children used equally frequently psychological, perceptual and behavioural interpretations.
In addition, non-responses were much commoner in Chinese people than English people, and non-responses were especially frequent in Chinese children. After investigating the data for all the animals in four different pragmatic conditions, it appeared that almost all the non-responses given by Chinese people appeared in the stimulus sentences relating to 'cod'. This was true in all four pragmatic conditions. In the United Kingdom cod is one of the commonest kinds of fish, e.g. commonly eaten as the fish in ‘fish and chips’. The cod lives in the North Atlantic Ocean, and separate stocks are found in the waters of North America, Greenland, Iceland, and the Faeroe Islands, in the Irish Sea, to the west of Scotland, in the North Sea, the Barents Sea, the Skagerrak and the Baltic Sea. However, Chinese people are not familiar with this genus of fish. The cod metaphors are novel metaphors for Chinese, and/or they just assumed cod to be a common fish which has a slick facies.

4 Discussion

The results revealed that adults gave a larger number of psychological interpretations to animal metaphors than children probably in part because they were more familiar with conventional psychological explanations. For example, in ‘Paul is a sheep’, adults would respond that ‘Paul is docile, faithful and gentle.’ or ‘He is pathetic and never thinks of anything for himself.’ while children would say that ‘He is short and small.’ or ‘Paul is fluffy and white.’

There was no significant cultural difference in psychological interpretations; however, differences in psychological interpretations between English children and adults were slightly greater than those between Chinese children and adults. This supports earlier suggestions that both Chinese children and adults have closer familiarity with psychological metaphorical expressions than English children and adults.

The results also showed that children tended to give more perceptual interpretations than adults. It may be that adults tended to give fewer perceptual interpretations simply because they gave more psychological interpretations. For
instance, children said that ‘Robert is a dog’ meant that ‘Robert is loud / big / hairy / ugly.’ but adults responded, ‘Robert is stupid / rude / rascal / loyal / vicious.’ When interpreting ‘Mr. Smith is a zebra’, a child would say ‘Mr. Smith is stripy / black and white / has long face.’ while adults usually responded that ‘He is exotic and interesting / annoying / stubborn.’

English people were found to give more perceptual interpretations than Chinese people. English children gave predominantly perceptual interpretations and the frequency of perceptual interpretations was also high in Chinese children. A typical example was shown in ‘Paul / Mr. Smith / Robert / Mr. Parker is a kangaroo.’ Chinese adults said that ‘he is cute and lovely / kind and caring.’ However, Chinese children gave more perceptual interpretations as ‘he is fat / good-looking / has a big pocket in chest.’ and English children responded that ‘he is tall / big / brown / has big feet / lots of pockets.’

5 Conclusion

These findings supported the predictions based on prior research on metaphor (Gardner, Winner, Bechhofer and Wolf, 1978; Dowker, 1986; Gentner, Falkenhainer and Skorstad, 1988) and the earlier studies (Wang and Dowker, in press) that adults would give a relatively larger number of psychological interpretations than children. Children gave more perceptual interpretations than adults. English children gave more perceptual interpretations than Chinese children. Unlike earlier studies, behavioural interpretations were also found prominent in this research.

Acknowledgements

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References


