The Polysemy of the Chinese Action Verb "Dǎ" and Its Implications in Child Language Acquisition

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Abstract. The Chinese verb "*dǎ*" is a polysemous and frequently used verb. Studies have shown that it is one of the earliest verbs acquired by monolingual children by the age of five year old, they can use most of the commonly used senses in their daily life. But whether it is an easy task for bilingual children to acquire and use the verb in different contexts is unknown. Our study investigated the usage pattern of "*dǎ*" by 30 Chinese-English bilingual preschool children in Singapore. Visual stimuli depicting "*dǎ*" actions were used to elicit descriptions from the participants. The results reveal that the meaning representations of "*dǎ*" in the semantic domains such as "social interaction" and "physical punishment" are most commonly used by the children while the meaning representations of "*dǎ*" in the semantic domains such as "fastening" and "possession" are the least used by the children. This paper will discuss the factors that affect the children's use of the polysemous verb.

Keywords: *dǎ* polysemy, Chinese language acquisition, bilingual language acquisition, pre-school children

1   Introduction

1.1   The *Dǎ* Polysemy

The verb "打" [dǎ] (hit) in Chinese is commonly used as a typical physical action verb. Its prototypical meaning refers to a single or repeated "physical contact between a human agent's hand(s) and a patient object" (Gao, 2001:157). The prototypical meaning is exemplified in *the* set phrases of "*dǎ*"such as "打屁股" [dǎ pìgǔ] (spank on the buttock), "打门" [dǎ mén] (knock on the door), etc.

However, "*dǎ*" is highly polysemous in actual language usage. Xiàndài Hànyǔ Cídiǎn (The Contemporary Chinese Dictionary) itself lists 24 meanings of the verb. Gao (2001) analysed the "*dǎ*" polysemy based on the Taiwan Sinica Corpus and the Peking University Contemporary Corpus (CCL Corpus) and calculated here are 152 distinct meaning representations of "*dǎ*". These meaning representations were then grouped into 27 semantic domains. Based on Gao's (2001) framework pertaining to

the categorisation of the meaning representations of "*dǎ*", this paper will explore the application of different meanings of "*dǎ*" by 30 Chinese-English bilingual preschool children in Singapore.

1.2   Child Language Acquisition

Much research has been done to understand the multiple aspects of language development in children, particularly in their lexical development. For example, investigations of the types of words children first acquired in their lives have been the interest of many researchers (e.g. Gentner, 1982; Gentner & Boroditsky, 2001; Imai et al., 2008; Tardif, 1996). There are also studies which explore the factors influencing children's lexical development. Non-linguistic factors such as language exposure, family SES status, and parents' education background have been examined and found to be correlated to children's vocabulary use (e.g. Dixon et al., 2012; Duursma, 2014; Huttenlocher et al., 1991). Linguistic characteristics such as the polysemous nature of a word, the relationship with its near-synonyms may also affect children's acquisition of a particular lexical item (e.g. Gao, 2015; Germann et al., 2010).

Bilingualism is the emerging trend in today's globalised world. However, established studies on bilingual acquisition are often constrained to bilingualism in English and other Indo-European languages (Yip & Matthews, 2013). In addition, most studies focus more on the development of English in bilingual speakers than that of their ethnic languages (Dixon et al., 2012).

Previous studies show that "*dǎ*" is one of the earliest verbs acquired by monolingual children and by the age of 5 years old, they can use most of the commonly used senses in their daily life (Gao, 2001; 2015). However, little is known about the acquisition and application of the variety of the meanings of "*dǎ*" by bilingual children.

Therefore, we hope that our study can fill the above-mentioned gaps by focusing on the Chinese lexical acquisition by Chinese-English bilingual children, particularly in the acquisition of polysemous verbs.

2   Literature Review

Studies targeting specifically on the acquisition of Chinese polysemous words have highlighted various characteristics of child language acquisition of such words. For example, Zhang et al. (2010) examined the acquisition of 8 polysemous words in Mandarin Chinese by 3 monolingual children and found that their acquisition of the polysemous meanings typically followed the chronological order of the derivation of the meaning extensions, unless driven by functional motivations. That is, the more frequently used meanings in the children's daily lives were generally acquired before other meanings. However, the existing studies merely address mainly on the acquisition order in monolingual children.

Regarding early child language acquisition, Gao (2015) examined the Chinese monolingual children's acquisition of physical action verbs based on the data extracted from Child Language Data Exchange System (CHILDES). The results revealed

that factors such as children's physical development, growth environment, and cognitive understanding of the actions have direct correlations with the children's acquisition of corresponding physical action verbs. Besides, it was found that children's personal experience with the actions had a positive correlation with the number of near-synonyms they acquired.

There are also studies which research upon bilingual child language acquisition in Singapore. For instance, Dixon et al. (2012) conducted an empirical study on 6-years-old preschool children, testing the lexical development of their mother tongue (Chinese, Malay, and Tamil) based on translated versions of the American-based Peabody Picture Vocabulary Test-III (PPVT-III). The study indicated that parents speaking their mother tongues to their children create a positive effect on the children's mother tongue vocabularies, while parents speaking English to their children yield a negative effect on the children's mother tongue vocabularies.

Gao & Wang (2013) conducted a domain-specific lexical development study on preschool children in Singapore with the use of two vocabulary checklists. The results showed that parents who spoke English to their children at home restricted their children's lexical development in Chinese. On the other hand, , parents who spoke Chinese to their children at home did not result in any observable impediment on their children's lexical development in English.

In recent years, more domain-specific studies on verbs have been conducted in Singapore. For example, Tan (2015) and Wang (2015) investigated the preschool children's lexical development in positive actions and pulling actions respectively. These studies underscored the trend that bilingual children were more inclined to use a hypernym or a more general verb to describe the relevant actions. Both studies highlighted that the Chinese-English bilingual children have a smaller size of vocabulary in Chinese than in English.

3   Methodology

3.1   Participants

Thirty child participants aged between 3;4 and 5;9 (mean: 4;5) were recruited in this study. They were all Chinese-English bilingual children enrolled in bilingual pre-schools in Singapore. In terms of dominant language, 14 children were Chinese-dominant, 7 were English-dominant, and 9 were balanced bilinguals. Based on the demographic information collected, these children came from middle-income families and thus represented the typical average Singapore families.

3.2   Materials

Questionnaire. A parent report form designed by Gao (2014) was used for the parents of eligible child participants to provide relevant information such as the child's age, gender, languages spoken at home and his or her parents' education background etc.

Visual Stimuli. A list of "*dǎ*" constructions of "Verb + Object" were first searched and selected from different resources, such as oral productions of Singaporean speakers, preschool storybooks, frequently occurring set phrases of "*dǎ*" in the Taiwan Corpus of Child Mandarin (TCCM), and Peking University CCL corpus. Relevant pictures or videos of the set phrases of "*dǎ*" were self-filmed or selected from the internet and used as visual stimuli for the test. Forty-one actions were prepared and tested accordingly. Thirty-one of them were analysed in details and discussed in this paper.

3.3 Procedure

The experiment was conducted in the children's pre-schools and the children were tested individually. They were first reassured that there were no right or wrong answers before being asked to describe the actions shown to them. The experiment was video-recorded for the ease of transcription. Transcribed responses were then coded and analysed afterwards.

4 Results

Table 1 below presents the usage rate[1] of individual meaning representations for the actions. The 10 actions (out of 31 actions analysed) which did not elicit any use of *the* meaning representations of "*dǎ*" from the children are excluded from Table 1.

Table 1. Usage rate of *dǎ* for each action

Rank	*Dǎ* Set Phrase	Semantic Domain	Usage Rate of *Dǎ* (%)
1	打电话 [dǎ diànhuà] (make a phone call)	Social Interaction	80.0
2	打耳光 [dá ěrguāng] (slap in the face)	Physical Punishment	63.3
3	打蚊子 [dǎ wénzǐ] (hit the mosquito)	Battle	56.7
4	打针 [dǎ zhēn] (inject)	Insertion	53.3
5	打屁股 [dǎ pìgǔ] (spank on the	Physical Punishment	50.0

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[1] Usage rate refers to the percentage of children who used *dǎ* in their descriptions.

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6	打手心 [dá shǒuxīn] (beat on the palm)	Physical Punishment	43.3
7	打鼓 [dá gǔ] (drum a drum)	Sound Source	36.7
8	打棒球 [dǎ bàngqiú] (play baseball)	Game	30.0
8	打架 [dǎ jià] (fight)	Battle	30.0
10	打油 [dǎ yóu] (refuel)	Insertion	26.7
11	打高尔夫球 [dǎ gāoěrfūqiú] (play golf)	Game	20
12	打喷嚏 [dǎ pēntì] (sneeze)	Physiological Reaction	16.7
13	打篮球 [dǎ lánqiú] (play basketball)	Game	6.7
13	打哈欠 [dǎ hāqiàn] (yawn)	Physiological Reaction	6.7
13	打招呼 [dǎ zhāohu] (greet someone)	Verbalisation	6.7
13	打麻将 [dǎ májiàng] (play mahjong)	Game	6.7
17	打灯笼 [dǎ dēnglóng] (hold up a lantern)	Upholding	3.3
17	打呼噜 [dǎ hūlu] (snore)	Physiological Reaction	3.3
17	打扑克 [dǎ pūkè] (play poker)	Game	3.3

17	打嗝 [dǎ gé] (burp)	Physiological Reaction	3.3
17	打门 [dǎ mén] (knock on the door)	Sound Source	3.3

The 10 actions in which the meaning representations of *"dá"* were not used by the children are:

1. 打口哨 [dá kǒushào] (whistle) / sound source,
2. 打游戏机 [dǎ yóuxìjī] (play video game) / game,
3. 打结 [dǎ jié] (knot) / fastening,
4. 打毛衣 [dǎ máoyī] (knit a sweater) / fastening,
5. 打鱼[dǎ yú] (catch fish) / possession,
6. 打秋千 [dǎ qiūqiān] (swing on a swing) / game,
7. 打瞌睡 [dǎ kēshuì] (doze off) / physiological reaction,
8. 打伞 [dá sǎn] (hold up an umbrella) / upholding,
9. 打领带 [dá lǐngdài] (tie a tie) / fastening, and
10. 打水 [dá shuǐ] (fetch water) / possession.

The most frequently used meaning representation was 打电话 [dǎ diànhuà] (call on the phone), with a usage rate of 80%. Meaning representations belonging to "social interaction", "physical punishment", "battle" and "insertion" were most commonly used by the children - the actions tested in these semantic domains ranked top 10 or higher. On the other hand, none of the meaning representations of *"dǎ"* belonging to the semantic domains of "fastening" and "possession" were used by the children.

5   Discussion

5.1   Experience

The results indicate that the children were more familiar with the meanings of *"dǎ"* in the semantic domains of "social interaction", "physical punishment", "battle" and "insertion". This might be due to the fact that children were more familiar with the corresponding actions or events.

For instance, 80% of the children used *dǎ* for 打电话 [dǎ diànhuà] (call on the phone) even though the meaning of the action of *"dǎ"* is somewhat abstract and far from being prototypical. Since most children would have personal experience of making a phone call, frequent exposure to this particular verb phrase could have motivated its early acquisition. In addition, the meaning representation of *"dǎ"* in 打针 [dǎ zhēn] (inject) was also used very frequently in the study (53.3%), despite it not being prototypical. The reason could be that most children had prior frightening experiences with injections and they might also have learned the expression at an early age.

Due to the restrictions of their physical capability, young children mostly participate in events that are typical of simple actions as being easily manipulated. Meaning representations in "physical punishment" and "battle" had high usage rate owing to the simplicity in the corresponding actions. These actions include the use of a hand, and a goal-directed action with strong force and motion. Features as such make it easier for children to imitate the action, thus supporting their cognitive understanding of the actions and resulting in early acquisition of the lexical item. In fact, Gao (2015) mentioned that physical abilities, cognitive abilities, and personal experiences would aid in the learning of linguistic expressions of these physical actions.

However, we note that experience with the actions was not an accurate predictor of the acquisition of the meaning representations of "*dǎ*". For example, despite the fact that the action of knocking on the door is common in the children's daily lives, the usage rate is one of the lowest out of all actions tested. Moreover, some actions in the same semantic domains have vastly different usage rate. This thus shows that there are other factors alongside experience which are involved in the process of acquisition. We will discuss these factors in Sections 5.2 to 5.4.

5.2   Competition between *Dǎ* Meaning Representation and its Near-synonyms

A closer examination into the verbs (apart from "*dǎ*") used by the children revealed that *the* meaning representations of "*dǎ*" which have more near-synonyms were less likely to be used.

"打门" [dǎ mén] (knock on the door), for example, has only a usage rate of 3.3%. 63.3% of the children used 敲 [qiāo] (knock) instead. Both "*dǎ*" and "*qiāo*" have similar semantic properties - both actions involve a force, contact and motion. The observed usage pattern above concurs with the occurrence rate in CCL corpus: "*qiāo mén*" occurs 2110 times while "*dǎ mén*" occurs only 377 times. With a much higher occurrence rate in daily lives, "*qiāo*" entered the children's vocabulary before the respective meaning of "*dǎ*" did. Another example would be "打秋千" [dǎ qiūqiān] (swing on a swing), the respective meaning representation of "*dǎ*" was not used by any children. In fact, the near-synonyms "荡" [dàng] and "玩" [wán] were used in preference instead, with a usage rate of 20% and 26.7% respectively. A search in CCL corpus shows that *dàng qiūqiān* (115 times) is more common than *dǎ qiūqiān* (33 times). "*Wán qiūqiān*" is the least common, occurring only 5 times.

All in all, the results reveal that near-synonyms could affect the acquisition of the meaning of "*dǎ*", particularly if the near-synonyms are more commonly used in daily lives.

5.3   Children's Understanding of Actions

The analysis of the verbs used other than "*dǎ*" also revealed that certain meanings of "*dǎ*" were not acquired because of a lapse in the understanding of the action itself. For example, while only 6.7% of the children used "*dǎ*" to describe the action of "打篮球" [dǎ lánqiú] (play basketball), most of the children (36.7%) used "丢" [diū]

(throw) to describe it. The meaning of "*dǎ*" in *dǎ lánqiú* encompasses a much more abstract meaning, involving a series of actions that can be defined as defeat, physical contact, interaction between players, etc (Gao, 2001). As such, young children without a complete understanding of the process of a basketball game may find it difficult to map such a complex process onto "*dǎ*".

5.4   Bilingual Cross-Language Effects

Growing up in Singapore entails a challenge in language acquisition. Most children are exposed to two languages since birth. As such, it brings about an exclusive challenge when it comes to language acquisition. Language transfer, or more specifically lexical transfer, arises as a result of language contact between English and Chinese.

For example, the meaning of "*dǎ*" in the phrases, such as "打游戏机" [dǎ yóuxìjī] (play video game) and "打扑克" [dǎ pūkè] (play poker) were hardly used by the children. They used "玩" [wán] (play) in replacement instead. This is quite possibly due to the fact that the English descriptions of these actions involve the verb "play", such as "play video game" and "play poker". The language transfer resulted in the children usage of the Chinese translational equivalent, which is "*wán*". Although "*wán*" has similar semantic properties as "*dǎ*" in these contexts, it is not a colloquial expression in Mandarin. We assume that this type of word usage by the children in Chinese was due to the English interference.

6   Conclusion

In summary, this study has shown that the different meaning representations of "*dǎ*" are acquired through a complicated process involving an interplay of several factors. First of all, our results show that exposure to action events was advantageous for children to acquire the corresponding meanings of "*dǎ*", particularly if the actions are simple. Secondly, we found that "*dǎ*" and the complex relationships with its near synonyms might have impeded the children's acquisition of the relevant "*dǎ*" meanings. Thirdly, non-linguistic factors such as children's understanding of the actions would also affect the children's acquisition of certain meanings of the verb. Lastly, bilingual children's use of the "*dǎ*" verb was found to have been negatively affected by their use of English.

As the study was based solely on a sample size of 30 children, the results might not be representative of the child population in Singapore. Besides, this study was restricted to a small number of the "*dǎ*" meanings. Future studies could investigate the acquisition of the other meanings of "*dǎ*". Comparative studies between the acquisition of "*dǎ*" polysemy and its English translational equivalents could also be explored.

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