REVIEW ARTICLE

EMOTION WORD DEVELOPMENT OF CHINESE - HERITAGE CHILDREN IN THE US - A CASE STUDY OF LUNA AND AVIA

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ARTICLE DETAILS	ABSTRACT

Emotion word competency is a key component of emotional intelligence, specifically, the ability to monitor one's own and others' emotions, to differentiate between different emotions, and to use emotional information to guide one's behavior and thinking. However, the majority of research on emotion words has been conducted with monolingual participants. While emotion word development of monolinguals is well documented, research to date shows no clear-cut answers to the question whether bilinguals, especially, heritage-bilingual children, share the same characteristics on emotion word development with monolinguals. By observing two Chinese inherited language children living in the United States in CLAN corpus, this paper will explore the output of Chinese affective words of bilingual children, in an attempt to compare and explain the similarities and differences between bilingual children and monolingual children in their vocabulary output during the period of two-word stage and the Telegraphic Speech.

1. INTRODUCTION

Words like *angry*, *happy*, or *worry* describing emotional states, moods, or feelings are defined as emotion words (Vigliocco et al., 2009). It was proven that emotion word competency is fundamental in interpersonal relationships and social communication (Ahn and Chang, 2021). On the one hand, emotion word competency is a key component of emotional intelligence, specifically, the ability to monitor one's own and others' emotions, to differentiate between different emotions, and to use emotional information to guide one's behavior and thinking (Colman, 2015). On the other hand, despite being a personal and internal process, emotion is largely shaped by social norms in its perception and expression, thus a person's level of emotion word competency may indicate more than just their general vocabulary in a language, but also how well accustomed they are to a culture associated with that language. In light of this, the development of emotion words has therefore attracted the attention of many scholars.

2. LITERATURE REVIEW

The majority of research on emotion words has been conducted with monolingual participants. For example, it was illustrated in a study that the early use of basic emotion terms by English-monolingual children began in the second year and exploded in the third year (Bretherton and Beeghly, 1982). Furthermore, another study pointed out that as a child grows up, the emotional vocabulary doubles every two years, but then flattens out as he or she reaches adulthood, and the processing of positive emotion words is superior to negative emotion words. (Baron-Cohen et al., 2010). In addition, a significant age effect has been found on the Mandarin Chinese emotion lexicon with a dramatic increase from age six to eight years (Li and Yu, 2015).

However, with the increase in global immigration in recent years, more and more people become multilingual and need to deal regularly with multiple cultures. For instance, as cited in (Ahn and Chang, 2021), by 2050, the number of Asian immigrants to the US, including their US-born children, is expected to reach 40.6 million (US Census Bureau, 2008). Therefore, scholars raised the question about whether the processing of emotion words has the same characteristics in bilinguals as it is in monolinguals, especially, when it comes to children born into immigrant families, who are exposed to two languages. Ferré et al. illustrated in a study that, for bilinguals, the languages acquired in childhood have strong emotional resonances due to the rich emotional context in which they are learned (Ferré et al., 2018).

2.1 Research Gap

While emotion word development of monolinguals is well documented, research to date shows no clear-cut answers to the question whether bilinguals, especially, heritage-bilingual children, share the same characteristics on emotion word development with monolinguals.

2.2 Research Questions

In light of the above, our study focused on the emotion word development of Chinese-heritage Children born in the United States, with three questions involved as the fallowing:

i. For Chinese-heritage early bilinguals, when do their emotion words in both languages start developing?

ii. Compared to both Chinese and English monolingual children, is there any difference?

iii. Is there still positive emotion word superiority as in monolingual children?

3. METHOD

3.1 Materials

3.1.1 Corpus Selection

In order to answer the first question, we selected two bilingual corpora on CHILDES: Luna from age two to four and Avia from age two to three, and both of whom during the study period were mainly exposed to Chinese at home and English and Chinese at daycares. To further illustrate the last two questions, we also chose other two monolingual corpora, a Chinese monolingual (CM) corpus of Xue'er and another English monolingual (EM) of Adam as a comparison to the bilingual corpora.

3.2 Procedure

To illustrate the starting time of their emotion word development, we need to know the time when they first produce an emotion word. Considering there is no such a command in CHILDES to help us extract related data, what we need to do first is to make a list consisting of the most frequent emotion words in two languages so that we can use *kwal* command to extract the data we need.

However, there is a large quantity of emotion words in both Chinese and English lexicon. Because of the limited time, it is almost impossible for us to check every emotion word, therefore, with reference of two other studies about emotion words, we conducted a word list as showed in Appendix 1 (Zhong and Qian, 2005; Lin and Yao, 2016). We then used *kwal* command to check every emotion word on that list in the selected four corpora and the extracted data is shown in the Appendix 2.

4. RESULTS AND DISCUSSIONS

4.1 Results

After comparison and analysis, the previous three questions will be answered in this part.
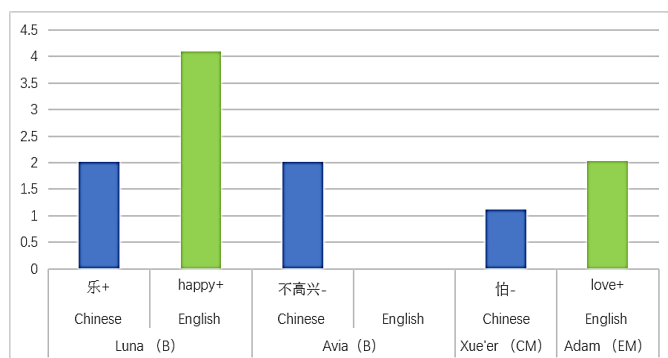

Table 1: Age of First Emotion Word Production

For bilingual children, there is an age gap between the first creation of emotional vocabulary in Chinese and English, as seen in Table 1. Avia and Luna established their Chinese emotion words significantly earlier than English emotion words attributed to the effect of Mandarin in the early family environment (as we already mentioned the backgrounds of two heritage children). Luna produced her first emotion word "乐" in Chinese at the age of 2 years 2 months (at same time Chinese monolingual Xue'er produced her first emotion word "怕" at the age of 1.5) but did not produce her first English emotion word until she was 4 years old. Two years after she produced her first Chinese emotion word. As for English monolingual Adam, he produced his first emotion word at the age of 2. For Avia, she did not even produce any English emotion word in this corpus. However, one thing needs to be noted is that Avia's corpus only records her discourse from 2 to 3 years old. Therefore, the output of Avia's lack of English emotional words is related to the fact that the corpus is not recorded. Beside the age gap, there is still a quantity gap between their Chinese emotion words and English emotion words, with the quantity of Chinese emotion words much larger.

Though compared to their English emotion word development, Chinese is more dominant for Luna and Avia. However, compared to Chinese monolingual child——Xue'er, we found out that the diversity of Chinese emotion words produced by Luna and Avia is more limited. As in the appendix 2, Luna used the negation form of "不+ root" to express feelings

like "不开心" for sadness, while Xue'er can use different words to describe sadness such as "伤心","难过" . The case is the same comparing Luna's English emotion word development with English bilingual, Adam. From this perspective of diversity, we could draw the conclusion that the development of emotion words of monolingual children is better than that of bilingual children from the age of two to four. However, this may be related to the input they received, which will be further explained in discussion.
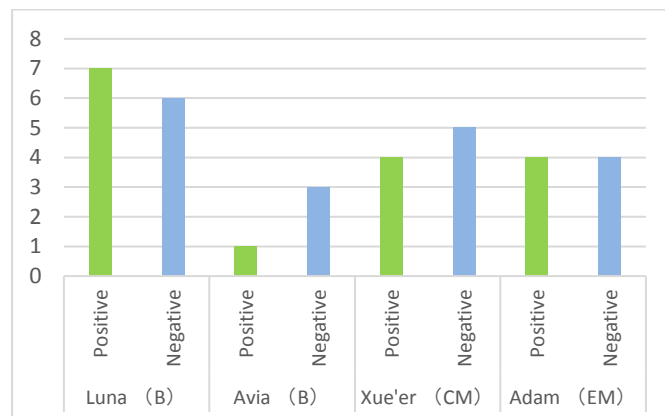

Table 2: Valence of Emotion Words

Regarding the third question, as showed in Table 2, there is no obvious positive superiority in both bilingual children and monolingual children's production. Overall, they produced even more negative emotion words, such as Avia, whose negative words output was three times more than that of positive words. And this case was also shown in the corpus of Xue'er, whose negative emotion word output is more than positive output. Thus, no positive superiority has been found in this study.

4.2 Discussion

There are some arguments pointing out that instead of emotion words, children often begin to express their emotions by crying when they cannot speak, right after birth when they are hungry, sleepy, or in pain. When it comes to babbling stage, children will use "noun + noun" to express feelings and moods, such as "饿饿" (hungry) and "觉觉" (sleepy). The above arguments are true but now that we have evidence that children learn the use of emotion words before they learn to use copulas, in another word, children learn how to express their feelings in verbal vocabulary at the early two-word (or telegraph). For instance:

I happy. (Brown/Adam/021113)

He happy. (Brown/Adam/030011)

Besides, regarding the definition of vocabulary or phrase collocation, we also regard such words "不高兴" as negative words, so homophones, such as willing and like in English were excluded in this study. And the words expressing other intentions rather than emotions were deleted in this study as well. For example, Xue'er produced "快乐"when she was 1 year and 10 months old, but actually she was saying "生日快乐"（happy birthday）at that time, thus "快乐" in this case is not an emotion word.

Meanwhile, we added the search of the preceding and following sentences in the retrieval instruction to rule out the target vocabulary produced by children, in case it is imitation affected by the input of adults. We then recorded the earliest age at which the child spontaneously produced the word. Finally, we will count how often the child produces the word. All above can also help us to know the earliest emotion words produced by bilingual children in English and Chinese, which are positive word "乐"and negative word "生气"in Chinese and positive word "love" and negative word "hate" in English.

As for frequency, we can have a general watching, that is, in the list of high-frequency emotional words of adults, which words will children choose as "emotional words frequently used by children"? Based on our data at the moment, the Chinese positive words frequently used by children are "乐", "快乐" and "高兴" (the output frequencies of the four children are: 10, 7 and 18 respectively); Chinese negative words are "生气", "害怕" and "怕" (the output frequencies of the four children are: 18, 20 and 19 respectively). The English positive words frequently used by children are

"happy" and "love" (the output frequencies of the four children are: 44 and 61 respectively); the English negative words frequently used by children are "angry" and "hate" (The combined output frequencies of the four children are: 6 and 5). So further studies can collect more corpora of children to get a vocabulary of high-frequency emotional words of children.

Lastly, to explore the relationship between parents' input and children's output of emotion words, we also extracted data from MOT tier and it showed that：

Firstly, parents' input to their children is biased towards narrative (or third-person descriptive) emotional words. For example, when Xue'er's mother tells her fairy tales, she will input emotion words in such situation(*MOT: 小老虎毛毛看了很高兴. (Zhou3/000227). But when the child is producing, in addition to using emotion words to describe the state or emotions of others when telling stories, they have also used emotional words to express their own state, emotion, and mood (*CHI: 我们真高兴. (Zhou3/ 000610).

Secondly, the types of emotion words input from parents and observers in the corpus are less than the output produced by the children themselves, regardless of positive words or negative words. The positive words produced by Xue'er have 6 different types of positive words and 5 of negative words. After searching one by one, Xue'er's mother only produced 4 positive words "高兴", "幸福", "乐" and "开心", and 3 kinds of negative vocabulary, which are "生气", "难过" and "害怕". Here we do not discuss whether children have increased the types of negative words because they have learned the use of "不", but regard "不高兴"、"不开心", etc. as an independent and holistic way of vocabulary to express emotions or feelings.

Thirdly, although the mother has produced a negative word "怕" in the corpus (*MOT：怎么，你怕蜘蛛网吗? (CHCC/Avia/Mandarin/021101)), but obviously, due to the influence of another language—English, Avia did not produce "怕" on her own, but used the combination of "no+positive" vocabulary that she has learned to express negative emotional meaning, such as:

*CHI：大山不高兴啦！（CHCC/Avia/Mandarin/020118）；

*CHI：只是阿姨不开心我们进去啊.（CHCC/Avia/Mandarin/021101）

5. LIMITATIONS AND SUGGESTIONS

Due to the urgency of time, we were not able to compare more corpora so fail to get a large quantity of data. Thus, the phenomenon obtained cannot be regarded as a general conclusion. Moreover, the word list we used might fail to include all the high frequency emotion words, so further studies are encouraged to include more words and more corpora in order to gain a complete picture.

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Appendix 1

Word List								
Chinese						English		
Positive		Negative				Positive	Negative	
高兴	欣喜	愤怒	讨厌	哀恸	惊疑	pleased	angry	depressed
欢欣	快活	愤懑	怕	悲愁	吃惊	joyful	resentful	surprised
欢乐	满意	暴怒	恐惧	伤感	震惊	happy	rage	astonished
欢喜	愉悦	心急	畏惧	悲凄	生气	willing	impatient	stunned
开心	欢畅	心焦	哀愁	悲凉	难过	delighted	anxious	shocked
乐	幸福	焦虑	哀伤	沮丧	害怕	pleasure	worried	
乐意	喜爱	焦急	悲伤	惊讶		satisfied	bored	
喜悦	欣慰	焦躁	伤心	惊奇		excited	hate	
快乐	热爱	厌烦	伤感	诧异		favorite	fear	
欢	窝心	反感	悲痛	惊诧		love	sad	

Appendix 2

Emotion Word Production List					
Participants		Emotion Word	Valence (positive+, nagative-)	Age of the First Emotion Word	Frequency
Luna	Chinese	开心	+	30612	2
		不开心	-	40215	1
		乐	+	20204	8
		伤心	-	20512	4
		不生气	+	20722	6
		生气	-	20722	10
		不害怕	+	30523	1
		害怕	-	20226	19
		怕	-	20916	6
		不怕	+	20611	5
	English	happy	+	41016	3
		favorite	+	40716	1
		angry	-	40904	1
Avia	Chinese	高兴	+	20420	17
		不高兴	-	20118	5
		生气	-	20118	4
		不开心	-	21101	1
	English	None	None		
Xue'er	Chinese	高兴	+	30800	1
		快乐	+	30900	7
		幸福	+	30900	2
		怕	-	11128	13
		不/别怕	+	30500	4
		难过	-	30800	1
		生气	-	40800	4
		伤心	-	40400	4
		害怕	-	40800	1
Adam	English	happy	+	21113	41
		favourite	+	30209	17
		excited	+	30707	6
		love	+	20318	61
		angry	-	40511	5
		hate	-	21030	5
		sad	-	30025	2
		surprised	-	41023	5