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A corpus-based study of a Chinese-speaking child's acquisition of English transferred negation

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Abstract

Native speakers of English have a strong preference for transferred negation as opposed to non-transferred negation. The present study aims to examine whether young Chinese-speaking ESL learners have a target-like preference for transferred negation and whether they have a system-wide representation of transferred negation in their early English development. Based on the corpora compiled with longitudinal data of a Chinese-speaking child learning English as a second language, the present study analyzed the child's collocation of matrix verbs with transferred negation and non-transferred negation, the distribution of matrix verbs in transferred negation, and the distribution of negation types in terms of different matrix verbs. The findings show that the verb THINK predominates the matrix verbs of the child's transferred negation. The imbalanced distribution of matrix verbs in his transferred negation is related to the skewed input of verbs. In sentences with the matrix verb THINK, the child has a target-like preference for transferred negation as opposed to non-transferred negation. However, he does not show a target-like preference for transferred negation in sentences with the matrix verb LOOK LIKE. Hence, we argue that young ESL learners' generalizations about constructions are focused around particular verbs that occur frequently in those constructions. Young ESL learners do not have an abstract system-wide representation at the earliest stage of second language acquisition. Instead, their ESL acquisition is based on specific verbs.

Keywords: Transferred negation, Young Chinese-speaking ESL learners, Verb-specific language acquisition, Corpus-based study

Introduction

Transferred negation, also known as *negative transportation* or *negative raising*, is particularly common in informal English (Quirk et al., 1985). Under certain conditions, the negative can be transferred from a subordinate clause, where semantically or logically it belongs, to the main clause (Quirk et al., 1985). For example, instead of saying *I think she won't come*, people tend to say *I don't think she'll come*. The negative n't, which semantically belongs to the subordinate clause, is moved to the main clause in the second sentence.

Although transferred negation is regarded as an optional rule (Jackendoff, 1971), native English speakers use transferred negation (main clause negation) in preference to non-transferred negation (subordinate clause negation) under certain conditions. Xiong's (1988) analysis of the works of English writers shows that experienced language users tend to use main clause negation (transferred negation) to express the meaning of subordinate clause negation (non-transferred negation). Not only ubiquitous in written English, transferred negation is much more widely used in spoken English (Bublitz, 1992). In 66 spoken dialogues in *London-Lund Corpus*, Bublitz (1992) found 208 instances of transferred negation with a first-person pronoun and present tense, as opposed to 23 non-transferred instances, with the ratio being about 9:1. While transferred negation is widely used by native speakers of English, it has long been difficult for Chinese ESL learners to acquire. As more and more Chinese children begin to learn English from an early age, young Chinese-speaking ESL learners have become an increasingly important group in English learning. The main objective of the present study is to examine young Chinese-speaking ESL learners' acquisition of transferred negation.

Literature review

Researchers have studied English transferred negation from four aspects: the rule of transferred negation, the semantic meaning of transferred negation, the underlying reasons for transferred negation, and the acquisition of transferred negation.

Rule of English transferred negation

The rule of English transferred negation used to be controversial. Particularly, researchers disagree about the class of verbs that undergo transferred negation (Jackendoff, 1969; Lakoff, 1969). Among others, the classification of Quirk et al. is the most representative. Quirk et al., (1985, p. 1033) categorized the verbs that allow negative transfer into two semantic categories: opinion (*anticipate, be supposed to, believe, calculate, except, figure, imagine, reckon, suppose, think*) and perception (*appear, see, feel as if/feel like, look as if/look like, sound as if/sound like*). However, it does not mean that transferred negation would occur as long as a negative semantically belongs to the subordinate clause and the matrix verb is a member of the category described by Quirk et al. Swan and Baker (2008) described an exceptional phenomenon, in which the non-transferred negation *I thought + negative* is used to express surprise. For example:

- "Would you like a drink?"
- "I thought you'd never ask." (Swan & Baker, 2008, p. 354).

In this example, the negative *never* is not moved to the main clause to express surprise even if the matrix verb *thought* allows negation transfer. The rule described by researchers including Quirk et al., Swan, and Baker laid a foundation for further research on transferred negation.

Semantic meaning of transferred negation

Fillmore (1963) proposed a partly obligatory rule "Transposition of NOT(EVER) to Main Verb" as a component of the transformational grammar of English, which suggests that transferred negation is synonymous with non-transferred negation. However,

most researchers hold that transferred negation is not synonymous with non-transferred negation. Dwight Bolinger (in Lakoff, 1969) pointed out (in personal communication to G. Lakoff, December 1967) that transferred negation expresses uncertainty and the negative force in the transferred negation is weaker than in its non-transferred congener. Lakoff argued that transferred negation “is a syntactic rule that is correlated with a fixed meaning” (1969, p. 161).

Underlying reasons for transferred negation

Based on the description of English transferred negation rules, some researchers have further examined the underlying reasons for English transferred negation from different viewpoints and in different linguistic frameworks. Horn views transferred negation as “a functionally based phenomenon” (Horn, 1978, p. 215). He proposed a general principle that accounts for transferred negation: “the negative force weakens with the distance of the negative element from the constituent with which it is logically associated”, and he argues that the weakening effect of transferred negation is related to “the pragmatics of politeness and ‘giving options’” (Horn, 1978, p. 215). Xiong (1988) postulated pragmatic trace, empty word, medium predicate potential, and negative potential to account for English transferred negation. Bublitz (1992) introduced the concept of cognitive modality to explain why people tend to use transferred negation in spoken English from the perspective of participation and politeness. Bublitz (1992) suggested that due to processes such as synthetization, incorporation, and topicalization, transferred negation reinforces the effect of modality produced by using *I think*. Zhou (1996) explained the reason for transferred negation from a pragmatic perspective. Zhou (1996) also suggested that the speech act of negating is impolite or discourteous, and transferred negation achieves politeness by expanding the distance between the negative and the part which is negated, thus reducing the negative force. In addition, through the matrix verbs such as *think*, which is in the middle of the certainty polarity, and rhematic splitting, the negative force is also reduced to maintain a good communicative relation (Zhou, 1996). Zhang and Liu (2011) analyzed the phenomenon of English transferred negation from a combined theoretical perspective of interpersonal metaphor and cognitive principles. Those studies are of great significance for an in-depth understanding of the phenomenon of English transferred negation.

Acquisition of English transferred negation

While there is an abundance of research in terms of the rule, semantic meaning, and underlying reasons for transferred negation, the acquisition of transferred negation has long been ignored. Literature on language acquisition contains many accounts of L1 and L2 English negation acquisition (Cameron-Faulkner et al., 2007; Choi, 1988; Eskildsen, 2012; Klima & Bellugi, 1966; Wode, 1977), but those studies fail to examine the acquisition of English transferred negation. Only a few studies investigate the acquisition of English transferred negation, but the subjects under investigation were not children. For example, Liu and Song (2015) investigated 173 Chinese senior high school students' acquisition of English transferred negation through a translation test and a questionnaire to students. They found that senior high school students with different English levels have problems with the acquisition of English transferred negation. An important group

they did not investigate is young ESL learners. As Xu (2021) noted in her literature analysis of SSCI journals of applied linguistics in recent 10 years, the sampling of empirical studies in applied linguistics is quite imbalanced in that the vast majority of these studies focus merely on university students or senior high school students rather than young children (Xu, 2021). In addition, Li (2021) also pointed out that few child development corpora were available all over the world, especially those recorded since childhood. Up till now, it is still unclear to what extent young ESL learners conform to the conventions of English transferred negation. Therefore, the first question the present article tries to address is: do young ESL learners have a target-like preference for transferred negation as opposed to non-transferred negation?

In ESL studies, researchers hold differently as to how children acquire the knowledge about language. Nativists assume that human beings are born with universal grammar and what a language learner needs to do is to map the inborn grammar to the particular language they are learning (Chomsky, 1995). On the other hand, usage-based theorists argue that language and language learning is usage-based and grammatical knowledge is developed in a piecemeal fashion from language usage events. The present article also tries to address the second question with data from a longitudinal study: do young ESL learners have a system-wide representation of transferred negation in their early English development?

Method

Research questions

The present study aims to address two questions: (1) Do young ESL learners have a target-like preference for transferred negation as opposed to non-transferred negation? (2) Do young ESL learners have a system-wide representation of transferred negation in their early English development?

Subject

The data for the present study consist of diaries, audio recordings, and video recordings of interactions in an English as a Second Language (ESL) context mainly in Australia. The child under investigation is the son of the investigator, Easson, who speaks Chinese. He went to Sydney with his parents. The period of data collection includes Easson's 12-month stay in Australia and 1 month back to China afterward.

At the start of the data collection, Easson was 4 years and 10 months old and just arrived in Australia. Before that, he had 8 h of English exposure in China with a native English teacher. His English was limited to some simple English words, and he could not produce sentences with these English words.

During his stay in Australia, Easson went to kindergarten and Year One in a local school. The teachers and classmates at school are English native speakers. Easson's family language is Chinese, but his mother sometimes spoke English with him, especially during recording.

Data collection and processing

In second language acquisition research, spontaneous data in longitudinal studies have better validity than elicited data from cross-sectional studies (Rosansky, 1976).

However, spontaneous data cannot ensure sufficient language production of the child. To ensure the validity and size of the research data, the present research collected both elicited data and spontaneous data.

Language eliciting tasks were designed to promote language production without any intended grammar focus. These tasks include story-telling, picture-description, and naming tasks. Easson’s utterances as well as his interactions with his mother were recorded with a voice recorder or a smartphone. In the story-telling task, the child was asked to tell stories in English with two books: *Frog, where are you?* by Mercer Mayer and *The wanderings of Sanmao* by Leping Zhang. The wordless picture book *Frog, where are you?* provides a rich context to promote language production, and is widely used in the study of language development. Likewise, the pictures from the other book *The wanderings of Sanmao* was also used in the story-telling task. In the picture-description task, Easson was asked to describe 6 pictures in English. In the naming task, Easson was asked to name 38 pictures in English.

Spontaneous data include audio and video recordings of interactions between Easson and others, mainly his mother. To supplement the audio and video recordings, the researcher kept diaries to record spontaneous utterances or events relating to Easson’s English development at least 3 times a week.

Table 1 above presents the data type, frequency, and contents of data in the present study. Audio and video recordings were done regularly and irregularly. We recorded Easson’s utterances and interactions once a week for about 30 min during the 12 months in Australia. The regular recordings of each month include at least two story-telling tasks, a picture description task, a naming task, and a free talk. In addition, Easson’s spontaneous interactions in daily life were also recorded irregularly. As mentioned above, diaries about Easson’s English development were kept at least three times a week to supplement the recording data. All the audio and video recordings were transcribed and checked according to Di Biase’s (2000) transcription conventions for second language acquisition research.

The corpora

The data were used to compile two corpora in LancsBox6.0 (Brezina et al., 2021): *Easson Corpus* and *Mum Corpus*. The data in *Easson Corpus* consist of all Easson’s utterances extracted from diaries and transcripts of audio and video recordings, which include 455 files. There are 99,132 tokens and 4262 types in *Easson Corpus*. The data in *Mum Corpus* consist of all Easson’s mother’s utterances extracted from diaries and

Table 1 Type, frequency, and contents of data

Data type	Frequency	Contents
Audio and video recording	Monthly	Story-telling: <i>Frog, where are you?</i> (30 min) Story-telling: <i>The wanderings of Sanmao</i> (30 min) Picture description and naming task (30 min) Free talk (30 min)
	Irregular	Spontaneous interactions (time varied)
Diary	3 + times a week	Interactions or events on Easson’s English development

transcripts of audio and video recordings, which include 316 files. There are 94,795 tokens and 3742 types in *Mum Corpus*.

Then, a sub-corpus named *Easson Corpus of Transferred Negation* was compiled with all the sentences involving transferred negation in *Easson Corpus*. The following method is used to identify the sentences involving transferred negation: first, all sentences with matrix verbs (with different inflections) that allow transferred negation were retrieved using the KWIC concordance tool in LancsBox6.0. Then, sentences with the negative *not* or *n't* were filtered in these sentences. After that, these negative sentences with matrix verbs that allow transferred negation were judged manually. If the matrix verb in the main clause belongs to the verb that causes transferred negation, and the semantically negated part is the clause after the predicate, then the sentence is identified as a sentence involving transferred negation. Negatives in sentences involving transferred negation may or may not be transferred. For example, *it's look like not wide, I don't think it's enough money*.

Excluding repeated sentences and incomplete sentences, we found 56 sentences involving transferred negation. These 56 sentences were used to compile a sub-corpus called *Easson Corpus of Transferred negation*. The size of the sub-corpus is 369 tokens and 95 types.

Results and discussion

Collocation analysis

In the preliminary analysis, LancsBox (Brezina et al., 2021) software package was employed to examine in the child's speech how the matrix verbs collocate with negation types (transferred negation or non-transferred negation) to examine whether the child has a target-like preference for transferred negation.

In *Easson Corpus of Transferred Negation*, we found only two types of matrix verbs in the sentences involving transferred negation: THINK and LOOK (LIKE). The preliminary analysis used the GraphColl tool from LancsBox to analyze how these two verbs collocate with transferred negation as well as non-transferred negation. In this analysis, *Easson Corpus of Transferred Negation* was used of the total size of 369 running words (tokens) in 56 texts.

Collocation of THINK and negation types

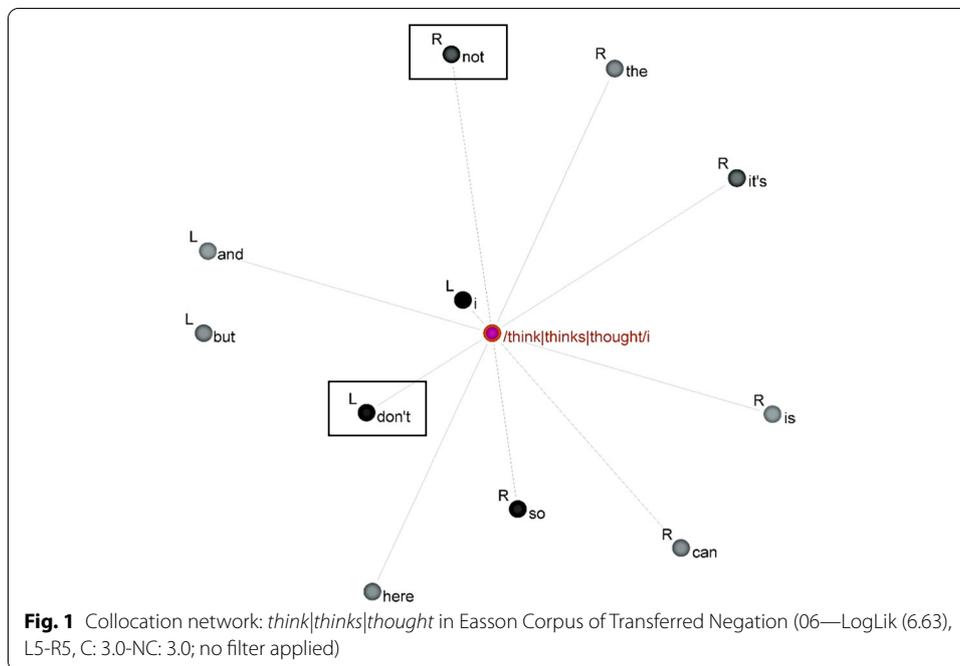
GraphColl tool from LancsBox was used to identify how the matrix verb THINK collocated with negation types. The following search term was used: "*think|thinks|thought*". The parameters used were: a span of 5 words on each side of the node; statistic threshold 3; minimum collocate frequency 5; and no minimum collocation cut-off point.

Table 2 shows the top 10 collocates of *think|thinks|thought* in *Easson Corpus of Transferred Negation* identified using the Log-likelihood (06—LogLik (6.63), L5-R5, C: 3.0-NC: 3.0; no filter applied): *I, don't, so, not, but, here, can, it's, is, and the* (see Table 2). Figure 1 displays a collocation graph for the search term. The negatives are highlighted in bold.

As can be seen in Table 2, *I don't*, and *so* are the most prominent collocates of THINK, which, not surprisingly, accords with the high frequency of the word string *I don't think so*. In these top 10 collocates of THINK, two negatives were observed: *don't* and *not*.

Table 2 Collocates of the search term *think|thinks|thought* in Easson Corpus of Transferred Negation (06—LogLik (6.63), L5-R5, C: 3.0-NC: 3.0; no filter applied)

ID	Position	Collocate	Stat (LogLik)	Freq coll	Freq corpus
1	L	i	276.659	52	55
2	L	don't	164.572	34	34
3	R	so	131.547	30	31
4	R	not	18.725	11	21
5	L	but	15.901	4	4
6	M	here	15.901	4	4
7	R	can	15.901	4	4
8	R	it's	13.285	7	12
9	R	is	11.866	3	3
10	R	the	8.829	4	6



Don't occurred 34 times in *Easson Corpus of Transferred Negation*, and every time it co-occurred with the node THINK. *Not* occurred 21 times in *Easson Corpus of Transferred Negation*, and *it* co-occurred with the node THINK 11 times.

The position of these two negatives may largely indicate the distribution of transferred negation and non-transferred negation. Transferred negation involves the negation of the matrix verb in the main clause, in which the negative is placed right after the operational verb and before the matrix verb. Thus the position of *don't* may suggest the use of negation type (transferred negation or non-transferred negation) in terms of THINK. That is, if a negative appears predominantly to the left of the node THINK, the child predominantly uses transferred negation as opposed to non-transferred negation with the matrix verb THINK. Similarly, if a negative appears predominantly to the right of the

node, the child uses non-transferred negation more frequently as opposed to transferred negation with the matrix verb THINK.

As shown in Table 2, the negative *don't* appeared predominantly to the left of the node THINK, and the other negative *not* appeared predominantly to the right of the node THINK. The positions of *don't* and *not* suggest that in utterances with the matrix verb THINK, *don't* was mainly used in transferred negation, and *not* was mostly used in non-transferred negation.

Although *don't* and *not* are both top 5 collocates of the node THINK, their collocation strength differs a lot. The LogLik value of the collocation *don't* and THINK is 164.572, while the LogLik value of the collocation *not* and THINK is 18.725. Similarly, the collocation frequency of *don't* and THINK is 34, as opposed to 11 of *not* and THINK. It indicates that THINK is more likely to co-occur with *don't* rather than *not*. As mentioned above, *don't* and *not* were dominantly used in transferred negation and non-transferred negation respectively. Therefore, in terms of the matrix verb THINK, the child used transferred negation much more frequently than non-transferred negation.

Figure 1 above visualizes 11 collocates of THINK identified by GraphColl tool. The two negatives in the 11 collocates have been highlighted in the graph with rectangles: *not* and *(do)n't*. The strength of collocation as measured by the LogLik value is indicated by the distance (length of line) between the node THINK and the collocates. As Fig. 1 displays, the collocate *don't*, which predominantly appeared to the left of THINK, is much closer to the node THINK than the collocate *not*, which predominantly appeared to the right of THINK. Thus, the visualized graph shows that Easson mainly used transferred negation rather than non-transferred negation with the matrix verb THINK.

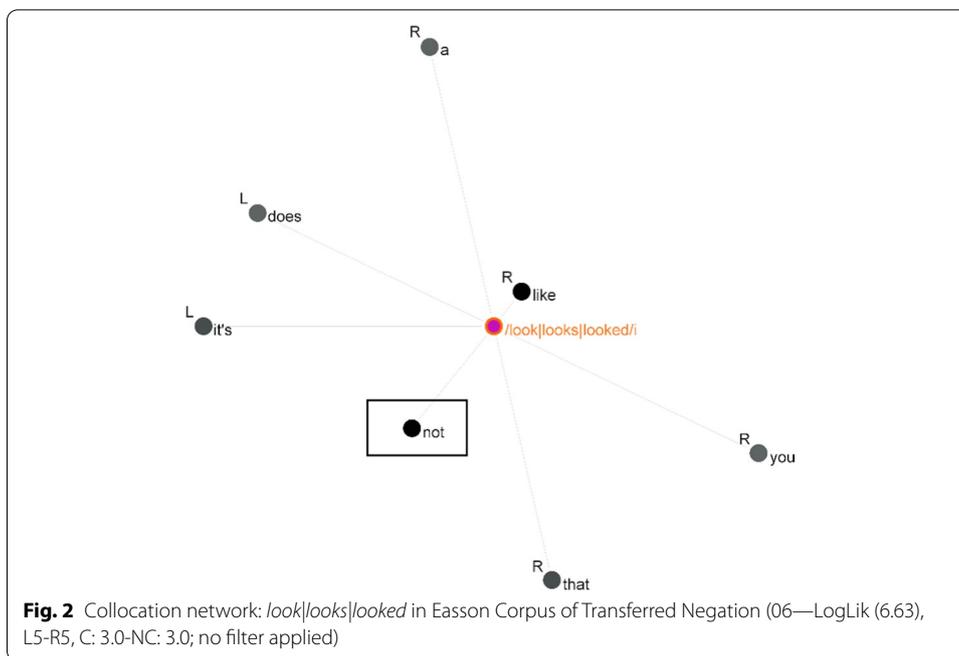
Collocation of LOOK and negation types

GraphColl tool from LancsBox was also used to identify how LOOK, the other matrix verb that allows transferred negation in *Easson Corpus of Transferred Negation*, collocated with transferred negation and non-transferred negation. The following search term was used: “*look|looks|looked*”. The negative is highlighted in bold.

Table 3 shows the top 10 collocates of *look|looks|looked* in *Easson Corpus of Transferred Negation* identified using the Log-likelihood (06—LogLik (6.63), L5-R5, C: 3.0-NC: 3.0; no filter applied). Figure 2 displays a collocation graph for the search term. The negative is highlighted in bold.

Table 3 Collocates of the search term *look|looks|looked* in Easson Corpus of Transferred Negation (06—LogLik (6.63), L5-R5, C: 3.0-NC: 3.0; no filter applied)

Index	Position	Collocate	Stat (LogLik)	Freq (coll.)	Freq (corpus)
1	R	like	77.88	10	11
2	M	not	55.57	10	21
3	R	that	21.93	4	6
4	L	does	21.78	3	3
5	R	a	15.14	3	5
6	L	it's	14.54	4	12
7	R	you	13.59	3	6



The following 7 items were identified as collocates of *look|looks|looked* in *Easson Corpus of Transferred Negation*: *like*, *not*, *that*, *does*, *a*, *it's*, and *you* (see Table 3). Not surprisingly, the collocation strength of LOOK and *like* measured by the log-likelihood is the strongest. *Like* occurred 11 times in *Easson Corpus of Transferred Negation*, and it co-occurred with LOOK 10 times. That is in accordance with the frequent use of LOOK LIKE in *Easson Corpus of Transferred Negation*. Among the top 7 collocates of LOOK, the only negative observed was *not*. Among its 21 occurrences in the sub-corpus, *not* co-occurred with LOOK 10 times. The Log-likelihood value of the collocation *not* and LOOK is 55.57.

As can be seen from Table 3, the position of *not* is middle, which means the negative *not* is evenly distributed to the left and right of the node LOOK. As mentioned in Sect. 3.1, the position of a negative suggests the use of transferred negation (Left) or non-transferred negation (Right) in terms of a matrix verb. In this case, the middle position of *not* indicates an even distribution of transferred negation and non-transferred negation when the matrix verb is LOOK (LIKE). In other words, with the matrix verb LOOK (LIKE), Easson did not have any preference for either transferred negation or non-transferred negation.

Figure 2 visualizes the 7 collocates of LOOK (LIKE) identified by GraphColl tool. The items *like* and *not* are the most prominent collocates of the node LOOK. The collocate *like* predominantly appeared to the right of LOOK. However, *not*, the only negative in all the collocates, which has been highlighted in the graph with a rectangle, did not have a predominant position. It suggests that Easson used transferred negation and non-transferred negation equally when the matrix verb is LOOK (LIKE).

Distribution analysis

The corpus-based collocation analysis above has suggested that the matrix verb THINK predominantly collocated with transferred negation while the matrix verb LOOK (LIKE) collocated equally with transferred and non-transferred negation. To further confirm whether the child has a preference for transferred negation in his early English development, we analyzed the distribution of negation types in terms of different matrix verbs.

Each sentence in *Easson Corpus of Transferred Negation* was further categorized in terms of matrix verb (THINK and LOOK LIKE) and negation type (transferred negation or non-transferred negation). Four categories are presented below with examples taken from Easson’s speech.

Transferred negation with the matrix verb THINK:

*I don’t think so
and I don’t think so I can fit in the cupboard
I said I don’t think I can make that*

Non-transferred negation with the matrix verb THINK:

*I play with Dev and Michael and Toby but I think Michael are not here anymore
so I think now he’s not scared by water
I thought it was not my toy so I throw it in the bin*

Transferred negation with the matrix verb LOOK LIKE:

*a frog does not looks like that
our pillow does not looks like that*

Non-transferred negation with the matrix verb LOOK LIKE:

*it’s looks like not wide
this looks like not you*

Distribution of matrix verbs in transferred negation

Table 4 below presents the distribution of matrix verbs in Easson’s transferred negation. As we can see in Table 4, the distribution of matrix verbs in transferred negation is quite imbalanced. In a total of 38 transferred negation sentences in *Easson Corpus of Transferred Negation*, there are 33 sentences with THINK as the matrix verb and 5 sentences with LOOK LIKE as the matrix verb. THINK and LOOK LIKE account for 86.84% and 13.16% respectively of the matrix verbs of transferred negation. Thus, THINK predominated the matrix verbs in Easson’s transferred negation.

Table 4 Distribution of matrix verbs in Easson’s transferred negation

Matrix verb	Frequency	Ratio (%)
THINK	33	86.84
LOOK LIKE	5	13.16
Total	38	100

Table 5 Distribution of negation types in Easson Corpus of transferred negation

Matrix verb	Negation type	Frequency	Ratio (within matrix verb) (%)
THINK	Transferred negation	33	71.74
	Non-transferred negation	13	28.26
LOOK LIKE	Transferred negation	5	50.00
	Non-transferred negation	5	50.00

Distribution of negation types in terms of different matrix verbs

Table 5 below presents the distribution of negation types in terms of different matrix verbs in sentences involving transferred negation in *Easson Corpus of Transferred Negation*. As we can see in Table 5, the distribution of negation types in terms of different matrix verbs is also imbalanced. In a total of 46 THINK matrix verb sentences, the frequency of transferred negation is 33, while the frequency of non-transferred negation is 13. Transferred negation and non-transferred negation account for 71.74% and 28.26% respectively of the THINK matrix verb utterances. It shows that the child had a strong preference for transferred negation when the matrix verb was THINK.

It should be noted that Easson’s 13 non-transferred negation sentences include three occurrences of target-like construction *I thought + negative*, which expressed surprise: *I thought it’s not a bird*, *I thought they can’t*, and *I thought it was not my toy so I throw it in the bin*. In this case, in Easson’s THINK matrix verb sentences, 36 out of 46 were target-like.

However, in *Easson Corpus of Transferred Negation*, a very different distribution was observed in LOOK LIKE matrix verb sentences. In a total of 10 LOOK LIKE matrix verb sentences, the frequencies of transferred negation and non-transferred negation are both 5. That is, transferred negation and non-transferred negation are evenly distributed in LOOK LIKE matrix verb sentences. It indicates that the child did not have any preference for transferred negation or non-transferred negation when the matrix verb was LOOK LIKE.

The distribution of matrix verbs in Easson’s transferred negation shows that THINK predominated the matrix verbs of Easson’s transferred negation. Such imbalanced distribution of matrix verbs in transferred negation was also found in the speech of Easson’s mother. In *Mum Corpus*, there are 117 occurrences of THINK and no occurrence of LOOK LIKE in transferred negation. Besides, such skewed distribution of matrix verbs towards THINK in transferred negation was also observed in native English writers. Xiong (1988) analyzed 74 sentences involving transferred negation of 8 native English writers, and found the occurrences of *think*, *suppose*, *believe*, and *imagine* were 32, 8, 3, and 1 respectively. The skewed input of the matrix verbs in transferred negation may account for the imbalanced distribution of matrix verbs in Easson’s transferred negation.

Casenhiser and Goldberg’s (2005) experiment with 5- to 7-year-old children suggests that the disproportionately high token frequency of a single verb in a particular construction facilitates the acquisition of constructions. The skewed distribution of matrix verbs towards THINK in Easson’s transferred negation suggests that his generalizations about transferred negation may have focused around the matrix verb

THINK which occurs much more frequently than other matrix verbs. Hence, it would be facilitating if caregivers and teachers provide young ESL learners with a skewed distribution of verbs in the input of construction at the earliest stage.

General discussion

While much work has been done on the rule, semantic meaning, and underlying reasons for transferred negation, the acquisition of transferred negation has long been ignored. The results in the present study demonstrate that the young ESL learner's preference for transferred negation varies according to different matrix verbs. In the early stage of English second language acquisition, the child shows a target-like preference for transferred negation when the matrix verb is THINK, but no preference for transferred or non-transferred negation was observed when the matrix verb is LOOK LIKE. This result leads us to the second research question: do young ESL learners have a system-wide representation of transferred negation in their early English development?

Studies have shown that children do not have a system-wide representation at the early stage of first language acquisition and their early first language acquisition is verb-specific. Based on the comprehensive diary data of his daughter's English development, Tomasello (1992) found the child's earliest arguments and syntactic marking is verb-specific. In a follow-up study with 16 children aged 2 and 16 children aged 2.5, Tomasello and Brooks (1998) employed the novel verb experimental paradigm and found that English-speaking children's acquisition of transitive and intransitive constructions are based on specific verbs. In addition, Goldberg (2006) also observed similar verb-specific results in her diary data of an English-speaking child, Aliza. At the age of 21 months, Aliza always omitted prepositions and produced *come me* and *play me* to express the meaning of "come with me" and "play with me" respectively. From 1; 9.9, she began to say *come with me*. But in the next 2 months, she continued to use *play me* without prepositions. Thus, Tomasello (2010) proposed the verb island hypothesis and argued that children's early constructions are item-based. Theakston et al. (2015) demonstrated that children do not show adult-like productivity early on in their first language acquisition and child speech was less flexible than child-directed speech, especially in the earliest stage of first language development. These studies show that children learn a language on an item-based basis at the beginning of their first language acquisition. However, an important question that these studies have not addressed is whether second language learners, who have already developed an adult-like first language system and abstract linguistic categories, learn a second language on a verb-specific basis.

The results of negation type distribution analysis together with collocation analysis in the present study show when it comes to different matrix verbs, children may use transferred negation differently. In terms of the matrix verb THINK, the Chinese young ESL learner's English transferred negation has a similar distribution to native English speakers. However, in terms of the matrix verb LOOK LIKE, the distribution of transferred negation differs a lot from native speakers. When the matrix verb is THINK, the Chinese young ESL learner uses transferred negation predominantly as opposed to non-transferred negation. When the matrix verb is LOOK LIKE, he uses transferred negation and non-transferred negation equally. The results indicate that the child's early representation of transferred negation seems to be based on specific matrix verbs, and there seems

to be no structural connection between them. The knowledge he learned about transferred negation for one verb (THINK) does not immediately generalize to other verbs (LOOK LIKE). That is to say, the child might learn a productive transferred negation device for sentences with the matrix verb THINK, but it is another question whether this device will generalize to other matrix verbs. The child's failure to generalize the transferred negation device suggests that at the early stage young ESL learners do not possess the abstract structures that would enable this generativity. Therefore, in the early stage of ESL development, Chinese young ESL learners do not have any system-wide representation of transferred negation.

The results of the present study prove that the same item-based pattern in first language acquisition applies to second language acquisition as well. Young ESL learners do not have a system-wide representation in the earliest stage of ESL acquisition. Instead, children learn a second language on a verb-specific basis. The reason for this might be that young children at the earliest stage of ESL acquisition do not have target-like syntactic categories, nor do they have any kind of word class of verbs to support generalization across verbs. Goldberg (2019) holds that children are more conservative in language use because they are less good at handling knowledge in their high-dimensional conceptual space. Likewise, second language learners sometimes fail to recognize similarities across transferred negation exemplars, so their early second language develops in a verb-specific fashion. Despite the differences between first language acquisition and second language acquisition, usage-based theorists' (Eskildsen, 2012; Tomasello, 2001) posits on first language acquisition hold true for second language acquisition that the earliest syntactic devices are lexically specific and only later are linguistically decontextualized and generalized to other items. No matter how abstract learners' knowledge about a second language may ultimately become, it develops invariably from specific occasions of use.

Conclusion

Transferred negation is prevailing in English, particularly in informal English. Native speakers of English have a strong preference for transferred negation as opposed to non-transferred negation. However, few studies have examined Chinese young ESL learners' acquisition of English transferred negation. Based on the longitudinal data of a Chinese-speaking child learning English as a second language, the present study analyzed the collocation of matrix verbs with transferred negation and non-transferred negation, the distribution of matrix verbs in his transferred negation, and the distribution of negation types in terms of different matrix verbs.

The findings show that THINK predominates the matrix verbs of the young ESL learner's transferred negation. The imbalanced distribution of matrix verbs is related to the skewed input of verbs. In sentences with the matrix verb THINK, the child has a target-like preference for transferred negation as opposed to non-transferred negation. However, in sentences with the matrix verb LOOK LIKE, he does not show a target-like preference for transferred negation; instead, transferred negation and non-transferred negation account for 50% of the LOOK LIKE sentences respectively.

Hence, we argue that young ESL learners' generalizations about constructions are focused around particular verbs that occur frequently in those constructions. Their

acquisition of transferred negation is based on specific verbs. Young ESL learners do not have an abstract system-wide representation at the earliest stage of second language acquisition. These findings are of practical implications for second language teachers as well as caregivers to facilitate children's early second language development. Besides, these findings provide cross-linguistic evidence that item-based acquisition pattern in first language applies to second language acquisition as well.

The present study has investigated young ESL learners' preference for transferred negation and proved that their representation of transferred negation is verb-specific, but more studies are needed to examine how ESL learners' transferred negation develops over time. Besides, we also noticed that there are systematic errors in the transferred negation of the child under investigation. More investigations are also needed to study the developmental details of what happens when children produce these errors.

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Author contributions

All the authors have made significant contributions in conceptualizing, drafting, editing, revision, polishing and proof-reading of the manuscript. Data collection and transcription has been solely carried out by Huiqin Dai. All authors read and approved the final manuscript.

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Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declaration

Competing interests

The authors declare that they have no competing interests regarding this study.

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