

Article

The Acquisition of English Articles by Chinese EFL College Students

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Abstract

This paper reports the empirical consequences on the effect of cross-linguistic transfer in the acquisition of English articles by Chinese EFL college students. In contrast to English, Mandarin Chinese is an article-less language. Moreover, the two languages differ from each other in the denotation of semantic features such as definiteness, indefiniteness and genericity, etc. It remains unknown whether the cross-linguistic difference is transferable. To evaluate this possibility, the present study tested 20 English-learning Chinese college students in two experiments, respectively using a sentence completion task and a cloze task. The main findings were as follows across the two experiments. First, the participants performed better in the use of *a/an* than that of *the*. Second, a subset of the participants appeared to use bare NPs to denote genericity and singularity. Third, some participants had difficulty in the acquisition of genericity encoded by *the* and *a/an*. Fourth, some participants failed to tease apart the use of *a* and *an*. Taken together, the findings appear to support the Full Transfer Hypothesis. We discussed the implications of the findings in terms of cross-linguistic transfer theories.

Keywords

Second language acquisition, cross-linguistic transfer, Mandarin Chinese, English articles

1. Introduction

In the research field of applied linguistics, much attention has been paid to the acquisition of English articles (Master, 1997; Ionin, Ko, and Wexler, 2004; Ting, 2005; Snape, 2006; Ionin, Zubizarreta, and Maldonado, 2008; Leroux & Kendall, 2018; Reynolds & Kao, 2019; Kao, 2020). According to the theory of Universal Grammar (hereafter UG), human languages exhibit *deep-seated regularities*, which are

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abstract principles. Moreover, human languages can vary from one another, and the cross-linguistic variations are explained, at least in part, by parameters (Chomsky, 1965). In brief, UG is a theory of principles and parameters. According to the minimalist program, languages differ from one another in functional categories rather than lexical categories (Chomsky, 1995). Influenced by the minimalism, much attention has been focused on the functional categories in the research field of second language acquisition. As is well known, articles are classified as functional categories. Therefore, the acquisition of English articles has become a hot research topic in SLA since the proposal of the Determiner Phrase hypothesis¹ by Abney (1987).

Within the generative framework, articles have been taken as the head of Determiner Phrases since the DP Hypothesis proposed by Abney (1987). As mentioned, articles are classified as functional categories, in which cross-linguistic variations are often involved (Chomsky, 1995). There are some cross-linguistic differences in the representation of articles between Mandarin Chinese and English. First, English is a language with articles. Semantically, an article typically modifies a noun phrase such that it can introduce a new entity, refer back to an antecedent, indicate uniqueness, or encode quantity, etc. Second, articles can encode different semantic features, including definiteness, specificity and genericity. Syntactically, an article usually precedes a noun phrase, i.e., a beautiful flower. Based on definiteness, English articles can be classified into two types: definite article *the* and indefinite articles *a/an*. The definite article *the* in English is generally used to encode definiteness, so it can be used to refer back to an antecedent or denote shared experience/knowledge in the given discourse (Lyons, 1999). To illustrate, consider sentence (1).

(1) The girl is very slim.

In (1), the definite article *the* conveys the message that both the speaker and the hearer presuppose the existence of a unique individual in the set denoted by the nominal phrase *the girl* (Ionin et al., 2004). In contrast, the indefinite article (i.e., *a* and *an*) usually encodes genericity, and it typically introduces a new entity in the domain of discourse under consideration. The syntactic distribution of the indefinite article *a* differs from that of *an*. Specifically, the former often precedes a NP, whose pronunciation begins with a consonant, whereas the latter precedes a NP, whose pronunciation initiates with a vowel. To illustrate, consider sentences in (2).

(2) a. A boy is coming.
b. An elephant is approaching us.

In (2a), the indefinite article *a* precedes the NP *boy*, whose pronunciation begins with a consonant, while the indefinite article *an* in (2b) precedes the NP *elephant*, whose pronunciation begins with a vowel. However, both articles have the same generic meaning. Apart from these two types of articles, another type of article is called zero article \emptyset . In English, a zero article is usually followed by certain kinds of proper names, i.e., *Sherwood Forest*. To illustrate, consider sentences in (3).

(3) a. A lemon contains vitamin C.
b. I usually walk my dog at Hyde Park.

In (3a), the zero article \emptyset precedes the NP *vitamin C*, and it encodes genericity and uncountability. However, the zero article \emptyset in (3b) precedes the NP *Hyde Park*, and it indicates the definiteness of the NP.

In theoretical linguistics, there are several analyses on the distinction between definiteness and specificity encoded by English articles (Heim, 1991; Fodor & Sag, 1982; Ionin et al., 2004). According to the proposal by Ionin et al. (2004), if a determiner phrase of the form “D + NP” is definite, then both the speaker and the listener have a presupposition that a unique individual exists in the set denoted by the NP. By contrast, if the DP is specific, then only the speaker intends to specify a unique individual in the

set denoted by the NP. Basically, this analysis makes a clear distinction between the linguistic features of definiteness and specificity.

In contrast to English, Mandarin Chinese is a language lacking articles (Li & Thompson, 1981; Leroux & Kendall, 2018). Nevertheless, Mandarin has some semantically equivalent expressions as English articles. For instance, adult speakers of Mandarin tend to use *yi* “one” to introduce a new entity in the domain of discourse. As Cheng (2012) points out, if the Mandarin number *yi* “one” appears at the beginning of a sentence, it cannot be omitted. However, if it appears in the middle or the end of a sentence, it can be omitted. To illustrate, consider examples (4) to (6).

- (4) Yi zhi xiao wugui zhuzai chitang bian.
One-CL little turtle live pond side
‘A little turtle lives beside the pond.’
- (5) You (yi) zhi xiao wugui zhuzai chitang bian.
Have one little turtle live pond side
‘There is a little turtle living beside the pond.’
- (6) Wo mama gei wo maile (yi) zhi xiao wugui.
My mom give me buy one little turtle
‘My mom bought me a little turtle.’

In (4), the Mandarin number *yi* “one” appears sentence-initially, in the pre-subject position, so it cannot be elided in this configuration. By contrast, if *yi* “one” appears either in the middle of a sentence as in (5), or at the end of a sentence, as in (6), it can be phonologically omitted without changing the sentence meaning. Therefore, the omission of *yi* “one” depends on its syntactic position in a sentence. This resembles the linguistic behavior of the English indefinite article “a/an”, which can be deleted or replaced by “one”. To illustrate, consider the example sentences in (7).

- (7) a. I have a good idea.
b. I have good idea.
c. I have one good idea.

As illustrated in (7), the indefinite article *a* in English can be either omitted or replaced by the numeral expression one. In this instance, the Mandarin numeral *yi* “one”, like the English indefinite articles *a/an*, encodes the genericity and countability. Moreover, the definiteness feature can be encoded by the Mandarin demonstrative *nei* “the”. This can be manifested in some translation work. For instance, Chinese-English bilinguals are likely to delete “the” or replace “the” with a demonstrative when translating English into Chinese. To illustrate, consider the examples in (8) and (9).

- (8) The sun has come out.
‘Taiyang chulai le.’
- (9) He went to the church.
‘Ta dao nei jiaotang qu le.’

As illustrated, when (8) is translated into Mandarin Chinese, the definite article *the* is often omitted by Chinese-English bilingual translators. Similarly, when (9) is translated into Mandarin Chinese, the definite article *the* is often replaced with a demonstrative *nei* “the”. In addition, definiteness can also be encoded by the Mandarin demonstratives such as *zhe* “this”, *na* “that”, *zhexie* “these” and *naxie* “those”.

Last but not the least, English has more constructions than Mandarin Chinese to encode genericity in the nominal domain. In English, there are at least four constructions that can be used to encode genericity: 1) the + NP; 2) a + NP; 3) bare plural NP; 4) bare mass NP. In contrast to English, Mandarin

Chinese mainly relies on bare NPs to encode genericity even though the construction “*yi* + Cl + NP” can marginally denote the meaning of genericity².

In view of these cross-linguistic differences, we are interested in seeing whether the article-less feature of Mandarin Chinese transfers to the acquisition of English. In particular, we are interested in seeing whether English-learning Chinese have difficulty acquiring the semantic meanings of definiteness, indefiniteness and genericity of English articles due to the cross-linguistic differences between the two languages.

In the generative approach to SLA, several hypotheses have been advanced to predict cross-linguistic transfer. Among them, there are two competing ones, which are respectively called the Full Transfer Hypothesis and the Partial Transfer Hypothesis (Schwartz & Sprouse, 1994, 1996; Eubank, 1993, 1994, 1996b; Vainikka & Young-Scholten, 1994, 1996a, 1996b). The Full Transfer Hypothesis contends that both lexical and functional categories of L1 are transferred to the initial state of L2 acquisition; Moreover, it holds that L1 grammar constitutes the entirety of L2 grammar at the initial stage of L2 acquisition (Schwartz & Sprouse, 1994, 1996). The Partial Transfer Hypothesis has two camps: One camp holds that both the lexical and functional categories of L1 are transferred to the initial state of L2 acquisition, but the features of L1 functional categories remain valueless at the initial stage such that they should be set to L2 setting. Furthermore, L2 grammar will be incrementally acquired with the development of L2 morphology. This is referred to as the Valueless Features Hypothesis (Eubank, 1993, 1994, 1996). The other camp contends that only the lexical categories of L1 are transferred to the initial state of L2 acquisition such that the lexical categories constitute the basis, on which the functional categories are subsequently acquired with the help of Universal Grammar (Vainikka & Young-Scholten, 1994, 1996a, 1996b). In other words, L1 grammar has no effect on the emergency of L2 grammar such that L2ers acquire L2 functional categories with L2 properties, without L1 properties. Taken stock, the two hypotheses differ from each other in terms of whether the features of L1 functional categories have an effect on the L2 grammar development in the course of L2 acquisition. Therefore, the two hypotheses make different predictions on the cross-linguistic transfer post the initial stage of L2 acquisition. The Partial Transfer Hypothesis predicts that the grammatical features of L1 functional categories will not be instantiated in the course of L2 acquisition. By contrast, the Full Transfer Hypothesis predicts that L2 learners will pass through an inter-language stage with both L1 and L2 grammar features.

Against this background, the present study attempts to investigate Mandarin-speaking college students' acquisition of English articles. The aim is to adjudicate between the two competing hypotheses of cross-linguistic transfer. To this end, we tested 20 English-learning Chinese college students, respectively using a sentence completion task and a cloze task.

2. Previous Studies on the Acquisition of English Articles

Many previous studies have been conducted to investigate the acquisition of English articles (Ionin et al., 2004; Ionin, Zubizarreta, & Maldonado, 2008; Mayo, 2009; Leroux & Kendall, 2018; Reynolds & Kao, 2019; Kao, 2020; Lopez, An, & Marsden, 2022). First, Ionin et al. (2004) investigated the acquisition of English articles by L2 learners, whose L1 is an article-less language. The study tested 30 Russian speakers and 40 Korean speakers using three tasks: a forced-choice elicitation task, a written production task and a written proportion of the Michigan test of L2 proficiency. It aimed to evaluate the fluctuation hypothesis, which has two postulations: First, L2 learners have to reset the parameters of definiteness and specificity of articles that have positive and negative values. Second, L2 learners initially fluctuate between the two parameters settings in the acquisition of articles until the input leads them to adopt the appropriate value. The main finding was that both Korean and Russian speakers fluctuated between definiteness and specificity of English articles at the initial stage, which confirmed the fluctuation hypothesis. Although this study investigated the acquisition of English articles by speakers with an

article-less language, it did not focus on the adjudication of the Partial Transfer Hypothesis and the Full Transfer Hypothesis.

In the second study, Mayo (2009) investigated the acquisition of English articles by Spanish-speakers, whose L1 has articles. The purpose of the study was to figure out the role of L1 in the acquisition of English articles. The experimental hypothesis was that Spanish-English bilinguals acquire the semantic meanings of English articles just as they do for Spanish. Specifically, Spanish-English bilinguals were expected to accurately use *the* in definite contexts and *a/an* in indefinite contexts. In addition, the advanced English learners were predicted to be more accurate than intermediate ones. Moreover, if directionality played a role in the acquisition of articles, Spanish-English bilinguals would be expected to acquire the definite article earlier than the indefinite ones.

To assess these predictions, the study investigated 75 participants (60 adult Spanish speakers and 15 native English speakers), using the forced-choice elicitation task. Based on English proficiency, the participants were divided into two groups, 30 in the advanced groups and 30 in the intermediate groups. The task had 32 dialogues which were grouped into four contexts. Each dialogue had a missing article and the participants were asked to complete the dialogues by choosing between *a*, *an*, *the* and \emptyset based on the given contexts. The findings indicated that the low-intermediate groups used *the* in both specific and non-specific contexts, whereas they also used *the* in specific contexts. In addition, the participants performed better in the use of *the* in definite contexts than that of *a* in indefinite contexts, which supported the directionality prediction. In advanced groups, directionality disappeared, which proved the transfer effects of L1 to L2 acquisition. The findings of the study suggested that L2ers exhibited different proficiency of the use of English articles.

In a third study, Lu (2001) investigated the acquisition of English articles by Chinese learners. Using an article cloze task, Lu (2001) evaluated 55 Chinese learners' acquisition of English articles. The purpose of the study was to probe the acquisition order and the underlying process of English articles by Chinese learners. The main findings were as follows. First, the participants displayed an acquisition order of $the = a > \emptyset$ in obligatory contexts and $the > a > \emptyset$ in target-like use contexts. Second, both *the* and *a* experienced a U-shaped developmental trajectory, while \emptyset underwent a flooding-then-trickling process. Third, the participants misused *the* for *a* or \emptyset , *a* for \emptyset , as well as \emptyset for *a*. The findings had significant pedagogical implications, but it didn't shed any light on the adjudication of the two competing cross-linguistic transfer hypotheses, namely the Full Transfer Hypothesis and the Partial Transfer Hypothesis.

In summary, previous studies have investigated the acquisition of English articles by L2 learners whose mother tongue is a language with or without articles. However, recent and rare attention has been paid to the issue of whether the Full Transfer Hypothesis or the Partial Transfer Hypothesis holds true (Ionin et al., 2022). Therefore, the present study attempts to probe the production of English articles by Mandarin-speaking college students, who acquire English as a foreign language. The aim is to adjudicate between the two competing hypotheses on cross-linguistic transfer, namely the Full Transfer Hypothesis and the Partial Transfer Hypothesis. To this end, two experiments were designed to address the following two research questions:

1. Does the article-less feature of Mandarin Chinese transfer to the acquisition of English by Chinese-English bilinguals?
2. If yes, how will Mandarin Chinese influence the acquisition of English articles?

3. The Present Study

The present study was designed to investigate the production of English articles by Chinese-English bilinguals. For this purpose, we tested 20 English learning Chinese college students, respectively using a sentence completion task and a cloze task.

3.1 Experiment 1

Experiment 1 was designed to probe the production of English articles by English learning Chinese college students, using a sentence completion task.

3.1.1 Participants

We tested 20 Mandarin-speaking college students (10 males and 10 females), who acquired English as a foreign language. The participants were recruited via flyers from Wuhan Textile University, Hubei, China, who had Mandarin Chinese as their first language, and began to learn English as a foreign language since they were 12 years old. That is, the participants had the same age of acquisition. All of them participated in the experiment voluntarily, and they could withdraw at any time of the experiment.

In addition, they were all non-English majors, and had almost the same English proficiency, with a score ranged from 390 to 400 in the National College English Test Band 4 (CET4). Note that CET4 is an official English proficiency test for Chinese college students, which is held twice a year for Chinese college students. The examinee who scored 425 or above is regarded as passing the test. We chose the participants who scored under 425, between 390 and 400 based on the following two reasons. First, the chosen score range was below 425, which suggests that the participants had relatively low English proficiency. This would be more possible to collect the target data for the present study as participants with higher English proficiency might not make any mistakes in the use of English articles. Second, the thesis of the present study was to probe the effect of cross-linguistic transfer, so we examined the participants with similar English proficiency in order to control the possible variables³.

3.1.2 Procedure

The participants were presented with a sentence completion task. First, they were introduced to the task in a group and were then tested in a quiet classroom. Prior to the formal experiment, the participants were familiarized with the task in a practice trial. The practice trial contained three test sentences that were designed to elicit the three types of English articles respectively, including the definite article *the*, indefinite article *a/an* and zero article \emptyset . Having familiarized with the task, the participants were asked to fill in the blanks using appropriate articles. Each participant was asked to complete the sentences individually on an answer sheet. In addition, they were not allowed to use smart phones, computers or dictionaries for references. The whole test session lasted about 15 minutes as the participants might not have enough patience for the test if tested in a longer time. After the participants completed the task, all of the answer sheets were collected for subsequent data analysis.

3.1.3 Materials

In total, the participants were asked to complete 20 test sentences. The target articles were removed from the test sentences so that the participants had to fill in the blanks based on the given contexts, using the definite article *the*, the indefinite article *a/an* or the zero article \emptyset . Five sentences were designed to elicit each of the four articles (Please see Appendix: The sentence completion task). As discussed, these articles can encode the semantic features such as definiteness, specificity, genericity and so on. The typical test sentences are illustrated as in (10)-(13).

(10) ____ cold wind was blowing from the north

(11) Do you like ____ music of the film "Titanic"?

(12) Don't make any noise in ____ class.

(13) This is such ___ interesting story that you must listen to it.

As illustrated above, the four test sentences respectively require an article that makes the given sentence complete. Only when the participants understand the semantic features (e.g., definiteness and genericity) encoded by the three types of English articles can they correctly complete the test sentences. Before the formal experiment, we conducted a pilot study using the test items. The participants' responses were analyzed using SPSS, so as to verify the reliability and validity of the sentence completion test. The results indicated that the test items were reliable and valid. The presentation of the test sentences was randomized so that the participants could not find any cues for the answers of the test sentences.

3.1.4 Data analysis

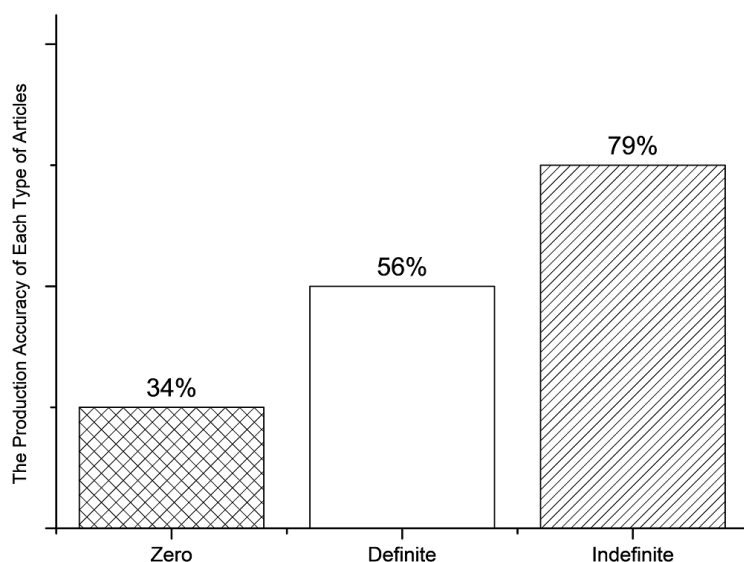
The data were analyzed in the following three ways. First, the accurate rate of each type of articles was calculated so as to see the participants' accuracy of the production of English articles. Second, a paired samples t-test was conducted to see whether the difference between the use of *the* and *a* is significant. Third, all of the error types were analyzed in order to see whether the linguistic features of Mandarin affect the acquisition of English articles.

3.1.5 Results

We calculated the participants' production accuracy of each type of articles, which is summarized in Figure 1.

Figure 1

The Participants' Accurate Production Rate of Each Type of Articles



As Figure 1 indicates, the participants accurately produced the indefinite articles *a/an* 79% of the time. For example, they correctly completed the given sentence "I saw ___ old woman sitting on a chair by the lake" using the English article *an* in the contexts that encodes the semantic features of genericity and singularity. By contrast, the participants' production accuracy for the definite article *the* was only 56% of the time. A paired samples t-test revealed that there was a significant difference between the participants'

use of *the* and *a* ($t = 2.036, p < .05$). The finding suggests that the participants performed better in the use of *a/an* than that of *the*. In other words, the participants appeared to err more frequently in the use of definite articles than that of the indefinite articles. For example, they failed to complete the given sentence “Tom’s brother hit Bob on __ nose” using the definite article *the*. Instead, they completed the sentence using the zero article \emptyset . Moreover, the participants correctly produced the zero article \emptyset 34% of the time. This revealed that the participants had difficulty in the acquisition of the zero article. On the one hand, the participants correctly produced the target articles. On the other hand, they made errors in some of the cases. Considered together, the findings indicate that Chinese-English bilingual adults exhibit an inter-language grammar with both Mandarin and English features post the initial stage of English acquisition.

To better understand the production data, we analyzed the participants’ errors and classified them into the following four types: 1) the misuse of *the* and *a*, 2) the overuse of articles, 3) the omission of articles, 4) the confusion of *a* with *an*.

First, a subset of the participants misused definite and indefinite articles, suggesting that they have difficulty in distinguishing between the semantic features of definiteness and indefiniteness encoded by English articles. The underlying reason of this error might come from the fact that Mandarin Chinese has no articles on the surface for the semantic representations of definiteness and indefiniteness. Second, the participants overused the articles in contexts that require a zero article, suggesting that they haven’t mastered the semantic features encoded by the zero article. Third, the participants failed to provide an article in article-obligatory contexts, suggesting that the article-less feature of Mandarin Chinese is transferred in the acquisition of English. Fourth, the participants appeared to confuse the use of *a* and *an*, indicating that they are insensitive to the different syntactic distributions of the two articles.

In summary, the participants instantiated an inter-language grammar with both Mandarin and English features in the acquisition of English articles. The findings suggest that the participants experience an inter-language stage in which both Mandarin and English grammars constrain the use of English articles. Considered together, the findings appear to support the Full Transfer Hypothesis (Schwartz & Sprouse, 1994).

3.2 Experiment 2

Experiment 2 investigated the same participants’ production of English articles at the discourse level, using a cloze task. Note that Experiment 1 was designed to test the acquisition of English articles by Chinese learners at the sentence level, while Experiment 2 tested the acquisition of English articles by Chinese learners at the discourse level as the semantic features of articles are typically encoded in discourse. That’s why we conducted Experiment 2 using a cloze task, which would help us gain a more global picture of the participants’ acquisition of English articles.

3.2.1 Participants

Experiment 2 tested the same participants as Experiment 1, and it was conducted three days after Experiment 1. The interval between the two experiments was created to avoid carry-over effect.

3.2.2 Procedure

Experiment 2 adopted a cloze task. In the task, the participants were asked to complete a short English passage using appropriate articles. The main purpose of the task was to assess the participants’ production of English articles in the discourse level. Four types of articles were expected to be filled up in the

passage, including *the*, *a*, *an* and \emptyset . Each of the participants was asked to fulfill the task individually on an answer sheet. As in Experiment 1, they were not allowed to use phones, computers or ask anyone for help during the test session. The participants were required to complete the task within 15 minutes. Upon the completion of the task, the participants' work was collected for subsequent data analysis.

3.2.3 Materials

The test item was an English passage, in which all of the articles are removed. The passage is illustrated as follows.

The test passage

I live in _ ancient house in _ small village. There are usually two cars parked outside __ house: __ blue one and _ gray one. __ blue one is my neighbor's, but I don't know who __ owner of __ gray one is. December 25th is _ Christmas. At _ Christmas, __ old lady stood in front of my house and told me she was my aunt. She said she went there by _ air and brought __ exquisite gift for me. I offered her __ cup of tea and __ interesting book. She said neighbors regarded me as __ honest and gentle man. I told her people often go outside by _ foot due to __ small village, so people all know each other. Then I smiled and took her to __ guest room so that she could stay in _ bed.

In addition, the passage with reference answers is also provided below the test passage. As indicated by the reference answers, the missing articles include 5 definite articles *the*, 5 indefinite articles *a*, 5 indefinite articles *an* and 5 zero articles \emptyset . As Experiment 1, we also tested the reliability and validity of the cloze task, the results of which suggest the cloze was reliable and valid.

The test passage with reference answers

I live in an ancient house in a small village. There are usually two cars parked outside the house: a blue one and a gray one. The blue one is my neighbor's, but I don't know who the owner of the gray one is. December 25th is \emptyset Christmas. At \emptyset Christmas, an old lady stood in front of my house and told me she was my aunt. She said she went there by \emptyset air and brought an exquisite gift for me. I offered her a cup of tea and an interesting book. She said neighbors regarded me as an honest and gentle man. I told her people often go outside by \emptyset foot due to the small village, so people all know each other. Then I smiled and took her to a guest room so that she could stay in \emptyset bed.

3.2.4 Data analysis

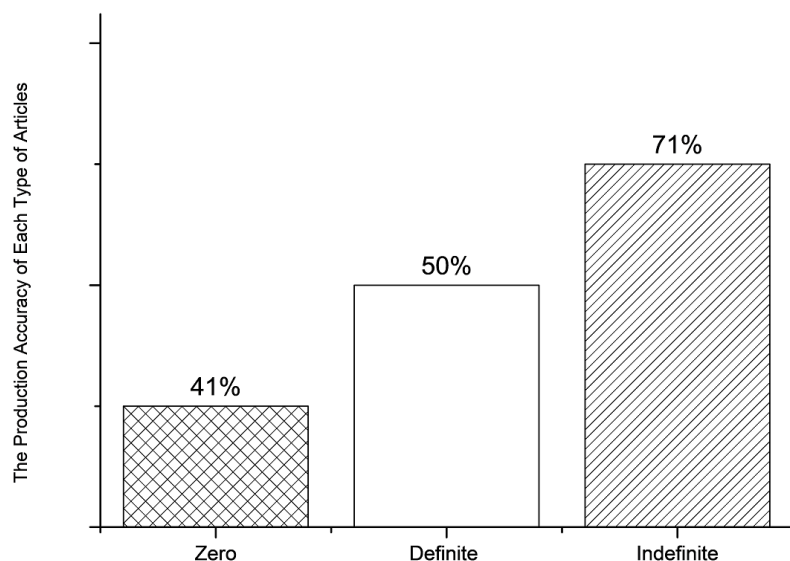
The articles used in the participants' cloze task were analyzed as follows. First, the accurate rate of each type of articles was calculated so as to see the participants' accuracy of the production of English articles. Second, a paired samples t-test was conducted to see whether the difference between the use of *the* and *a* is significant. Third, all of the error types were analyzed in order to see whether the linguistic features of Mandarin influence the acquisition of English articles.

3.2.5 Results

The participants' production accuracy for each type of articles is calculated, which is depicted in Figure 2.

Figure 2

The Participants' Accurate Production Rate of Each Type of Articles



As indicated in Figure 2, there are three main findings in Experiment 2. First, the participants correctly used the zero article \emptyset 41% of the time. For example, they correctly filled up the zero article \emptyset in the given sentence “she said she went there by ___ air”. The finding suggests that the participants might have acquired the idiomatic expressions such as “by air” by rote learning. Nevertheless, this might also be a sign that the participants began to gradually acquire the use of the zero article \emptyset with the trigger of input and the access to UG. Second, the participants correctly used the definite article *the* 50% of the time. The finding indicates that the participants have incrementally acquired part of the semantic meanings encoded by the definite article *the*. Third, the participants correctly used the indefinite article *a/an* 71% of the time, suggesting that they have nearly mastered the use of the indefinite articles *a/an*. To see whether the participants make the distinction between *the* and *a*, we conducted a paired samples t-test. The result indicates that there is a significant difference between the use of *the* and *a* ($t = 2.312, p < .05$).

In addition, the errors that appeared in the cloze task included the same four types as in Experiment 1. The details are summarized as follows. First, three of participants overused the articles. For example, they filled up *the* in the given sentence “December 25th is _ Christmas”. This indicates that the participants haven’t acquired the generic meaning encoded by the zero article \emptyset . Second, six of the participants used the definite article *the* in contexts where the indefinite article *a/an* is obligatory. This reveals that the participants have difficulty distinguishing the use of *the* and *a/an*. The difficulty might stem from the fact that there are no definite and indefinite articles in Mandarin Chinese such that it’s hard for the participants to make the distinction between the two types of articles in English. Third, five of the participants filled up *a* in contexts where the use of *an* is obligatory. This suggests that they might be insensitive to the distinct syntactic distributions of the two articles. Fourth, eight of the participants appeared to use bare NPs to encode indefiniteness and singularity. For instance, the participants used the zero article \emptyset to complete the sentence “I smiled and took her to a guest room”. Obviously, the participants used the bare NP *guest room* to encode genericity and singularity, just as they do in Mandarin Chinese. This is compelling evidence that the article-less feature of Mandarin is transferred in the acquisition of English articles.

In summary, the findings from Experiments 1 & 2 jointly provided evidence of cross-linguistic transfer. Specifically, the findings reveal that English learning college students’ acquisition of English articles is constrained by the article-less feature of Mandarin. The participants exhibit an inter-language grammar in the course of English acquisition. Therefore, we interpret the findings as evidence of supporting the Full Transfer Hypothesis (Schwartz & Sprouse, 1994).

4. General Discussion

The present study attempted to explore the empirical consequences of the effect of cross-linguistic transfer in Mandarin-speaking college students' acquisition of English articles. Taken together, the present study gave rise to three main findings. First, the participants were better at the use of *a/an* than that of *the*. This finding can be construed by the cross-linguistic variations between Mandarin Chinese and English. In English, the indefinite article *a/an* typically occur in indefinite and singular contexts. This linguistic behavior resembles the Mandarin expression with “*yi* + classifier”. However, the definite article *the* in English can be used in definite plural, definite singular and definite mass contexts. In Mandarin Chinese, there is no such an article that behaves like English definite article *the*. Therefore, it's more difficult for the participants to acquire the definite article than the indefinite one. We interpret the finding as an effect of cross-linguistic transfer. Second, a subset of the participants appeared to use bare NPs to denote genericity and singularity. In Mandarin Chinese, bare NPs are usually used to encode genericity and singularity. For instance, in the Mandarin sentence *Ma you si tiao tui* “A horse has four legs”, the bare NP *ma* “horse” is used to encode genericity and singularity. Obviously, the finding is compelling evidence that Mandarin grammar is instantiated in the acquisition of English articles. Third, the participants had difficulty acquiring the semantic feature of genericity encoded by *the* and *a/an*. In Mandarin Chinese, no articles can be used to encode genericity, whereas such a semantic feature can be denoted by both the definite and indefinite articles. This cross-linguistic difference might have hindered the participants' acquisition of genericity encoded by English articles. Fourth, some of the participants have difficulty teasing apart the use of *a* and *an*. As discussed, the two English articles have different syntactic distributions. Specifically, *a* often precedes a NP, whose pronunciation begins with a consonant, whereas the *an* precedes a NP, whose pronunciation initiates with a vowel. By contrast, Mandarin Chinese depends on the construction “*yi* + classifier” to encode the semantic features that the English article *a/an* does. Therefore, the finding also reveals that the Mandarin grammatical features constrain the acquisition of English articles.

In summary, the participants have acquired part of the semantic features of English articles, but they also erred in the production of English articles. Taken together, the present findings appear to support the Full Transfer Hypothesis.

5. Conclusion

The present study investigated Mandarin-speaking college students' production of English articles. The main thesis was to adjudicate between the two competing hypotheses of cross-linguistic transfer, namely the Full Transfer Hypothesis and the Partial Transfer Hypothesis. The main findings indicate that the grammatical features in Mandarin Chinese indeed transfer to the acquisition of English articles and that the participants exhibit an inter-language grammar with both Mandarin and English grammatical features. We interpret the findings as evidence of supporting the Full Transfer Hypothesis (Schwartz & Sprouse, 1994).

Admittedly, there are some limitations in the present study. First, the sample size was relatively small. Therefore, the results might not be generalized to a larger population. Second, the present study was mainly deigned to evaluate the effect of cross-linguistic transfer, so it did not take some of the factors into consideration, i.e., gender difference, learning motivation and learning contexts, etc. Third, the two tasks are confined to the evaluation of the written production data, so the data were not comprehensive enough to provide a more global picture of Mandarin-speaking learners' acquisition of English. We will strive to overcome these limitations in future research so as to gain a better understanding of Chinese learners' acquisition of English articles.

Notes

- Chomsky (1986) proposed that like lexical categories, functional categories such as complementizers can project to phrase level. Following Chomsky, Abney (1987) proposed that as a functional category, a determiner phrase can also project to phrase level and the determiner heads the NP. That is, in the DP, a determiner such as an article is the head of the phrase, and the noun is no longer the head.
- Note that in Mandarin Chinese, the construction “yi + Cl + N” also has generic meaning, but it is very marginal for such a construction to encode genericity. To illustrate, consider the following examples (i) and (ii).

- (i) Yi zhi qingwa you si tiao tui.
One Cl frog have four leg
“A frog has four legs.”
- (ii) *Yi zhi nuo tuo shi you yong de dongwu.
One Cl camel is useful animal
“A camel is a useful animal.”

As illustrated, the construction “yi +Cl+ N” in (a) is an instance of the generic interpretation, but the similar construction in (b) cannot be used to encode genericity.

- Note that gender is a potential variable that influences the participants’ production of English articles, which is not the main thesis of the present study, so we did not take this factor into consideration.

Appendix: The sentence completion task

Instructions: Please complete the following sentences using appropriate articles, including the definite article *the*, the indefinite article *a/an* and the zero article \emptyset .

- ___ cold wind was blowing from the north.
- September 10th is ___ Teachers’ Day.
- Do you like ___ music of the film “Titanic”?
- Don’t make any noise in ___ class.
- This is such ___ interesting story that you must listen to it.
- ___ Browns have been to China twice.
- Mary has a bad cold. She has to stay in ___ bed.
- Next week they will go to Australia by ___ air.
- What ___ terrible weather we’ve been having these days!
- ___ horse can help people carry heavy things.
- Have you got ___ e-mail? I want you e-mail you some photos.
- January is ___ first month of the year.
- Tom’s brother hit Bob on ___ nose.
- ___ man who my father is talking to is my father.
- There was ___ honest boy in the village. His name was John.
- ___ number of students have gone to Shanghai.
- We work five days ___ week.

18. I saw ____ old woman sitting on a chair by the lake.
 19. Fancy saw ____ accident in the street yesterday.
 20. There is ____ 600-meter-long bridge over the river.

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