



The Role of L3 in the Interpretation of Articles with Definite Plurals in L2 English

Hee-Don Ahn

Konkuk University, Korea

Haejin Jang

James Cook University, Singapore

Recent developments in the acquisition of third languages (L3A) have only placed an emphasis on the influence of L1 or L2 on L3A (forward transfer). However, this study investigated the role of L1 or L3 in L2A (backward transfer), by focusing on cross-linguistic variations in generic interpretation on plural NPs. We examined how multilingual (L2 and L3) learners interpret nominals in generic contexts. Two experiments (an acceptability judgement task and a truth value judgement task) are conducted to investigate the influence of L1 and L3 on L2A (English) by third language (L3) learners. We looked at whether these learners exhibit backward transfer in the acquisition of generic NPs in English. The results of the two experiments suggest that the influence of L3 is more significant in L2A of English than that of L1. Therefore, in terms of backward transfer, the results are more supportive of the Foreign Language Effect which implies that cognitive similarities play an important role in L2A for L3 learners. In conclusion, for those multilinguals, it is important to factor the L3 (high foreignness) influence when acquiring L2 (high foreignness) because L3 transfer is more important than L1 (non-foreign) transfer.

Keywords: L2/L3 acquisition, forward/backward transfer, generic plural NPs

Introduction

Most of the work on L2 language acquisition has focused on the influence that the learners' first languages have on their second language (Huebner, 1983; Leung, 2001; Master, 1987; Murphy, 1997; Parrish, 1987; Robertson, 2000; Thomas, 1989). Recent studies have begun to distinguish between the acquisition of an L2 and the acquisition of additional languages beyond the L2, such as the third language acquisition (L3A) (Bardel & Falk, 2010; Cenoz, 2001; De Angelis, 2007; Hammarberg, 2009). Most research on L3 learners, however, has focused on the L1/L2 effects in L3A (forward transfer) than L1/L3 effects in L2A (backward transfer).

This paper attempts to explore the backward (or reverse) transfer in L2A for third language learners. Cross-linguistic transfer in L2A for third language learners is more complicated than that of second language learners as transfer may occur from more diverse situations: L1 to L2A, L3 to L2A, or both L1 and L3 to L2A. Given this background, this study poses the following research question, *Do L3 learners display L3 influence in acquiring plural NPs in L2 English?* In order to answer this question, three experiments are carried out to examine what source of transfer occurred in L2A for third language learners. Four models will be discussed to explain the results: 1) *Foreign Language Effect*, also known as

L2/L3 status factor, where the non L1-system, L2 or L3, will always be the main source of the transfer (Bardel & Falk, 2007); 2) *Typological Primacy Model* (TPM), where the transfer is constrained by typological proximity (Rothman, 2011); 3) *Absolute L1 transfer*, where the L1 grammatical system is the sole source of transfer in all instances of L3A (De Angelis & Selinker, 2001; Na Ranong & Leung, 2009); 4) *Cumulative-Enhancement Model*, where both the L1 and the L2/L3 can potentially have a positive influence on L3/L2 (Flynn et al., 2004).

This paper is organized as follows. Background section documents the interpretation of plural NPs in English, French, Chinese and Korean. In addition, models of L3A and backgrounds of cross-linguistic influence of genericity in L2A and L3A are discussed. Experiments section presents the methodological approach used and results of the three sub-experiments of the study. Discussion and conclusion sections discuss the key research findings, from which a series of relevant conclusion are drawn.

Background

Cross-linguistic Variation in Genericity Marking

Some languages have article systems (such as English and French) while other languages (such as Chinese and Korean) do not. However, languages that have articles vary in whether they use articles with plural NPs that have a generic interpretation (Chierchia, 1998; Dayal, 2004). Consider (1) for English plural NPs sentences.

- (1) a. Lions are dangerous. [√generic reference, *specific reference]
 b. The lions are dangerous. [*generic reference, √specific reference]
 c. These lions are dangerous. [*generic reference, √specific reference]

In English, bare plurals in (1a) are considered as a generic reference while definite plurals in (1b) and demonstrative plural NPs in (1c) are interpreted as specific. In other words, lions in (1a) can only be stated in general and not about a specific group of lions.

However, French patterns essentially different from English, as shown in (2).

- (2) a. *lions sont dangereux.
 lions are dangerous
 b. Les lions sont dangereux.
 the-pl lions are dangerous
 ‘The lions are dangerous.’ [√generic reference, *specific reference]
 c. Ces lions sont dangereux.
 these lions are dangerous
 ‘These lions are dangerous.’ [*generic reference, √specific reference]

In French, all nouns need an article system. Thus, bare plurals are not allowed, as shown in (2a). Instead, definite plurals in French can have a generic reference unlike English, as shown in (2b).¹ However, demonstrative plurals in French also pattern with those of English which can only have specific interpretation.

The Korean language, on the other hand, does not have an article system, and bare plurals can be freely interpreted as generic or specific depending on the context, while demonstrative plural NPs are always

¹ There are two different types of articles you can use for plural NPs in French; indefinite article *des* and definite article *les*. Only definite article *les* is used for generic reference in contrast to indefinite article *des* which yields specific interpretation when it occurs with plural NPs.

interpreted as specific reference, as in English. The Chinese language patterns essentially on a par with Korean in all these respects.

Models of L3 Acquisition

Initially, the primary focus of CLI was L2, however, as the focus has been extended to include the L3A, there are other issues to consider as transfer may occur from L1 to L3 (Leung, 2006) or from L2 to L3 (Bardel & Falk, 2007; Bohnacker, 2006; Hammarberg, 2001). Moreover, it is also possible that L1 and L2 both can be transferred in L3A (Fylnn et al., 2004). Previous CLI studies have found a range of factors that influence the acquisition of an L3, and as such are able to predict which background languages (L1 or L2) may be more susceptible to being viewed as a source language. These factors have been identified by the language distance, also known as psychotypology or typological relation. The distance between the two languages is determined by the target language proficiency, source language proficiency, frequency of use, length of residence and exposure to nonnative language environments, order of acquisition, and formality of context (De Angelis, 2007).

Additional studies have been done to explain the source of transfer in L2A for L3 learners. To explain the source of transfer in more details, four different models have been introduced. The previous studies that have focused on L3 learners' crosslinguistic effects are now discussed using four different models.

Absolute L1 transfer

Ringdom (1986) demonstrates that the transfer of the meaning is only restricted to L1 transfer, as this type of influence requires a native like level of language proficiency for the transfer to occur. Na Ranong and Leung (2009) conducted an experiment with L1-Thai L2-English L3-Chinese learners (TEC) and L1-English L2-Chinese learners (EC). The results showed no statistical difference in judging the null object and overt object condition in the Chinese task. However, it seems that the L1-Thai was more sensitive to a subtle distinction between null and overt objects than EC learners. Therefore, their findings suggest that L1 played a significant role in L3 acquisition of syntax for Chinese null objects.

Na Ranong and Leung's (2009) result is consistent with Jin's (2008) assertion on third language acquisition of Norwegian objects. In this study, the participants were L1-Chinese L2-English L3-Norwegian learners (CEN) and L1-Norwegian L2-English learners (NE). As part of the assessment, participants were asked to complete grammaticality judgment and sentence correction tasks in English and Norwegian. The purpose of the study was to identify the ungrammaticality of null argument in the two languages and fill the null position with an overt pronoun. The result from the study provided evidence that L2 has a strong effect on the L3A of Norwegian object of CEN learners. As the Norwegian null object sentences are not presented in the text books at all, when encountering null object sentences the L1-Chinese parameter setting was activated for CEN learners. Thus, although Chinese was not the typologically closer language to L3-Norwegian and their L2-English was the closer language, the study was able to still demonstrate the influence of L1. Therefore, the influences of L1 should still be considered in L3A even if the languages analyzed are typologically dissimilar. If this absolute L1 transfer is modified to the phenomenon that this paper focuses on, we can assume that only L1 will affect L2A for L3 learners not L3. Figure 1 illustrates only L1 transfer can occur.

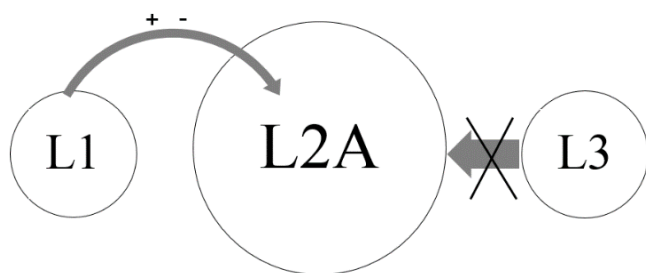


Figure 1. Absolute L1 transfer.

Foreign language effect/ L2 status factor

While some studies reveal the vital role that L1 plays in L3A, some recent studies have placed a greater emphasis on the role of L2 than L1 during the initial state of L3A (Bardel & Falk, 2007; Bohnacker, 2006; Leung, 2005; Rothmand & Cabrellie Amaro, 2010). This can be explained by the L2 status factor, which is defined by Hammarberg (2001) as a process that means people tend to suppress L1 as it is non-foreign to L3 learners and therefore rely on an L2 as a strategy to approaching L3 as both languages are foreign to them. This implies that learners activate either consciously or unconsciously transfer L2 due to its foreignness, which has the same status as the L3 (Solis, 2015). In other studies, Kamiyama (2007) found the existence of a negative influence of L2 orthography for both perception and production; while in contrast, Tremblay (2007) discovered a positive L2 influence when looking at the voice onset time (VOT) of L1-English L2-French L3-Japanese learners. More recently, Wrembel (2010)² found the existence of L2 influence in her study of L1-polish L2-German L3-English learners, particularly during the early acquisition stages.

Another key reason for L2 phonological transfer to the L3 is related to L2 proficiency (Cabrelli Amaro, 2010). In Hammarberg and Hammaberg (1993, 2005), participants only transferred their near-native L2 German and not their less-proficient Italian and French. Dewaele (1998) investigated French Language acquisition for L1-Dutch L2-French learners and L1-Dutch L2-Englsih L3-French learners. For L1-Dutch L2-French learners, L1 transfer was shown but for L1-Dutch L2-Englsih L3-French learners, more of L2 transfer was shown. This indicates that L2 has a greater effect than L1 for L3 learners. Leung (2005) experimented with L1-Chinese L2-English L3-French learners and L1-Vietnam L2-French learners in interpreting French articles. As both groups' L1 does not contain an article system, the difference between the groups is L2 English. The results assert that L3 learners were significantly better at interpreting French articles, which suggests that L2 English had a positive effect on L3 acquisition.

Carol (2008) conducted experiments on two groups of L1-Japanese L2-English L3-German learners: those with high English proficiency and those with a low level of English proficiency. This experiment sought to ascertain the different impacts that L2 proficiency has on L3 acquisition. The findings show that the group which had a higher level of English proficiency had better German article judgement than the group which had a lower level of English proficiency. In a further study by Dewaele (1998), L1-Dutch, L1-Dutch L2-French, and L1-Dutch L2-French L3-French learners were examined. In this study, the experiment compared the performance of L2-French and L3-French learners in both formal and informal situations. The finding shows that L3-French learners tend to bring out L2 more than L2-French learners do from their L1. The study also found that L1 was not always the primary source of activation for L3

² The issue of foreign language mode in L3 phonology is also discussed in Wrembel (2010). In addition, Hammarberg and Hammaberg (1993, 2005) found a stronger role for L2 at the onset of L3 acquisition. These results demonstrated the cognitive mode that reverses L1 transfer and serves as a way of dealing with unfamiliar phonetic forms. Throughout the linguistic development process, Hammarberg and Hammaberg (2005) believe that the role of L2 diminishes a finding that is supported in a more recent Wrembel (2010) study. In this instance, Wrembel found there was a stronger L1 influence among L3 learners at later stages of acquisition.

learners. Bardel and Falk (2007) further examined the initial state of the placement of the negation in the sentence. Their results indicated that syntactic structures were more easily conveyed from the L2 than from the L1 in the initial states of L3 acquisition in both cases. They concluded that the L2 status factor played a more important role than typological distance, since it was the one that determined the transfer source.

In other studies, Selinker and Baumgartner-Cohen (1995) and De Angelis and Selinker (1998) argued that in the circumstances of using the third language, foreignness is more relevant for multilinguals. Therefore, the cognitive foreign language mode enabled them to have access to the language that was perceived to be ‘foreign’, rather than their L1, as it sounded more foreign to them. Therefore, the L2 status factor was also referred to as the foreign language effect by Meisel (1983). As this study focuses on how L3 affects L2A, the right term that should be used is not the L2 status factor but the L3 status factor. Therefore, to simplify the terminology, the foreign language effect will be used (Meisel, 1983). Figure 2 describes the Foreign Language Effect Model which claims that learners’ L1 cannot affect the L2A as the non-foreignness of L1 suppresses L1 better than L3 in L2A.

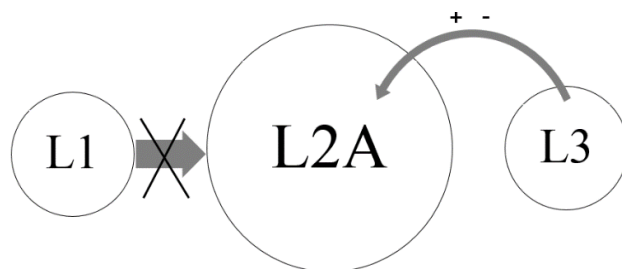


Figure 2. Foreign language effect.

This model supports the premise that L3 plays a more important role than L1 in L2A for L3 learners. However, some scholars argue that both previously learned languages can be the sources of transfer and these are more important than the order of acquisition. This can be referred to as the combined transfer. The combined transfer can be explained by Cumulative-Enhancement Model which will be discussed in the next section.

Cumulative-Enhancement Model

Flynn et al. (2004) introduced the Cumulative-Enhancement Model, which implies that when language learners gain an understanding of syntactic structure in one language, they retain that knowledge in the newly learned language. To prove the theory, they investigated both adult and children respondents in order to verify the roles of L1 and L2 in L3A. As part of their analysis, Flynn et al. (2004) conducted four experiments on restrictive relative clauses. Firstly, from the children group, the results showed that young language learners tend to learn *free relatives* first rather than *lexically headed head* with semantic context and without semantic context. Connecting the child study to an adult second language learners’ study showed the same pattern to that of the children. L1-Japanese L2-English learners (JE) and L1-Spanish L2-English learners (SE) displayed different results. This indicates that for JE learners whose first language is a head final language, which branches right to left and the lexical head comes last, they had no experience with the syntactic form. In contrast to this, SE learners were better equipped to understand the syntactic form due to the fact that Spanish is a left to right branching language where the lexical head comes first.

Finally, their third experiment looked at whether these syntactic structures learned in an L2 context would extend to that of an L3. In this regard, the participants both children and adult L1-Kazakh L2-Russian, L2-English learners (KRE), whereby Kazakh is similar to that of Japanese and Russian is similar to English on syntactic manners in relative clauses. The children KRE learners still had to learn free

relatives first, while the adult KRE learners showed L2 transfer in L3A. These findings suggest that Cumulative-Enhancement Model is applicable once a certain point in the learning curve is passed. Therefore, experience in any prior language can affect the later, newly learned language.

In further studies, Pyun (2005) observed production data from L1-Korean L2-English L3-Swedish learners. The results showed that phonological knowledge in the pronunciation of L3 words from the relationship between processes and phonological categories found in the L1, L2, and L3, which demonstrates influence of multiple sources. Wunder (2010) also found evidence of the L1 and L2 in her observation of VOT values of L1-German L2-English speakers acquiring L3 Spanish. In this regard, Wunder found that hybrid L2 VOT values were then transferred to L3.

This Cumulative Enhancement Model indicates that both L1 and L3 can be effective for the L2A for L3 learners but only “positive” transfer can be explained in this model. Therefore, there are some limitations when attempting to explain “negative” transfer for L3 learners in L2A. Figure 3 describes how both L1 and L3 can be the source of the L2A for L3 learners.

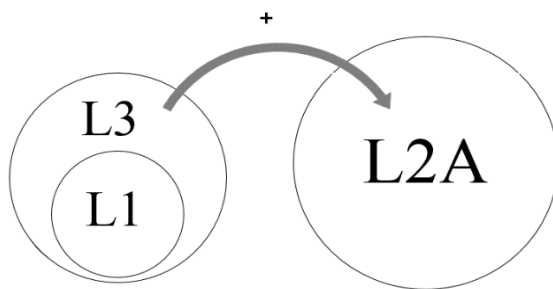


Figure 3. Cumulative Enhancement Model.

Typological Primacy Model (TPM)

The TPM is closely related to that of the CEM, in that both models support the transfers of morphosyntactic properties, which can originate from any previously acquired language system (Cabrelli Amaro, 2010). Despite the similarities, the TPM makes somewhat different predictions to that of the CEM, as transfer is considered to be selective and driven by perceived typological distance. Therefore, unlike the CEM, TPM is able to determine whether or not the type of transfer that occurs is either facilitative or non-facilitative. Ringbom (1987) and De Angelis and Selinker (1998) state that irrespective of L1 or L2, the formal similarity that exists between languages is the key factor behind the amount of influence that is likely to occur in L3A.

Kellerman (1983) also proposed that learners' perception of language distance, can trigger or constrain language transfer for L3 learners. In a further study, De Angelis and Selinker (2001) assessed L1- French L2-English L3-Spanish L4-Italian learners. In order to examine the issue, an interview was conducted to examine the lexical knowledge of English and Italians. Their results showed that the participants relied more on L3 Spanish than their native language as Italian and Spanish were typologically closer.

In other studies, Wrembel (2010) examined the global accent of L1-Polish L2-French L3-English speakers, the results of which provided support for the TPM. In a subsequent follow-up study, Wrembel (2012) found that the L2 phonology was dominant in the learners' L3 productions. Overall, the results of the two studies demonstrated that the L2 influence on L3 phonology is conditioned by typology. More recently, Ionin et al. (2015) conducted plural NP interpretation tests to assess L1-English L2-Spanish L3-Brazilian Portuguese learners (ESB) and L1-Spanish L2-English L3-Brazilian Portuguese learners (SEB) to ascertain how transfers occur in L3A. Their findings suggest that in determining the interpretation of plural NPs in their L3A, participants rely on the language they recognize as being structurally close to the L3, irrespective of whether it is their L1 or L2. The results showed that ESB and SEB transfer for the generic reading of definite plurals from Spanish to BrP, but not the transfer of generic readings for bare

plurals forms English to BrP. Therefore, regardless of whether Spanish was their L1 or L2, learners transferred from Spanish rather than English. Finally, the findings also showed the importance of structural similarity among the languages in language acquisition. Modifying it to the current study, the typological primacy model claims that the transfer occurs when the language between L1/L2 or L3/L2 shares typological similarity (See figure 4).

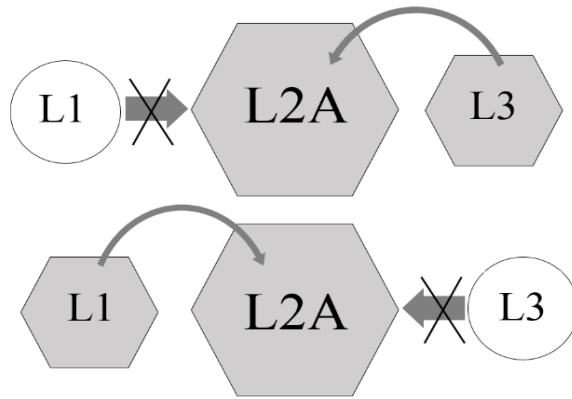


Figure 4. Typological Primacy Model.

Four different models thus far have been explained to clarify the results of the experiments for this study. These four types of Models were shown to discuss how we can explain the L3 effects on L2A and why this phenomenon occurs. Moreover, the study observes where this transfer is derived from. This is important in the sense that we not only understand where the source came from but also why the effect has happened.

Experiments

Experiment 1

Participants

The participants of this study were comprised of 26 L1-Korean L2-English learners (KE), 20 L1-Korean L2-English L3-French learners (KEF) and 20 L1-French L2-English learners (FE), as well as 13 native English speakers (NE) as a control group. The French and Korean groups were tested for their proficiency level using a Michigan test that was employed in the Luihaun (2012) study. The four groups of participants were tested in Korea. Most of the participants were students or lecturers from Chungnam National University (Daejeon) or Konkuk University (Seoul and Glocal campus). The background information about the participants is given in Table 1.

TABLE 1
 Summary of Background Information on Subjects

| Group | KE | FE | KEF |
|---------------------------------|-----------|-----------|-----------|
| Gender (Female/Male) | 21/5 | 11/9 | 19/1 |
| Average age (range) | 23(20-33) | 23(20-28) | 24(19-30) |
| Length of learning L2 (Year) | 14(6-20) | 14(9-20) | 15(8-23) |
| Michigan Test (30) ³ | 21(15-30) | 22(16-29) | 23(14-29) |

³ The average of the Michigan Test is written with the range of the Michigan Test scores.

This research is conducted in Korea, where participants are more exposed to L1 Korean than L2 English or L3 French for KEF participants. All participants learned their L2 and L3 in a classroom environment where their major is English or French. Both native English speakers and French speakers are those who work in Korea or study at Chungnam National University in Daejeon, Korea.

Tasks and procedures

Participants were asked to complete two experimental tasks; an acceptability judgement task (AJT) and a truth value judgement task (TVJT). Questionnaires and a Mini DELF test were done after the experimental tasks. The AJT was done to examine the general knowledge of participants' article proficiency while a TVJT was done to evaluate participants' judgement in English plural noun sentences. Moreover, questionnaires were collected to gain background knowledge of the participants. Finally, a Mini DELF test was conducted to see whether KEF participants are qualified with coherent proficiency in French. Their Mini DEFL test result showed that all the students were around DELF B1, which shows intermediate level of French skill.

The tasks were presented in the following order: the AJT, the TVJT, the Michigan test, questionnaires, and the DELF test. For native English speakers, questionnaires, the AJT, and the TVJT were conducted while KE and FE completed questionnaires, the AJT, the TVJT, and the Michigan test. The Michigan test was conducted to ascertain the level of general English proficiency of the participants. For KEF questionnaires, the AJT, the TVJT, the Michigan test and the DEFL test were completed. All the participants were tested individually in a class room environment using paper and pen. Their responses were manually entered onto a computer later on. Most of the tests were completed within 80 minutes, with respondents receiving compensation afterwards.

Acceptability judgment task

The AJT test was conducted by L2 English participants in order to ascertain their basic knowledge of the English article system. The participants were asked to choose TRUE or FALSE as to whether the sentence is correct or not. If the sentence seemed grammatically correct, participants were instructed to circle TRUE, however, if the sentence seemed to be grammatically incorrect they were required to circle FALSE. There were 36 items; nine categories with four items in each respective category. 36 filler items are included using the similar style formats. The test categories had 20 sentences that were correct as the target response should be TRUE and 16 sentences that were incorrect as the target response should be FALSE. The target DP in the second sentence is underlined for the convenience of participants for every sentence. Below is an example of the kinds of sentences that were used in the AJT task. The following question structures were first incorporated by Ionin and Montrul (2010).

- (3) a. Singular, second-mention, the: Mary has a cat. The cat is named Steve.
 b. *Singular, second-mention, a: Robin owns a dog. A dog is named Rollo.
 c. Singular, first mention, a: Sue looked out the window. A lion was standing in her garden.
 d. *Singular, second mention, bare: Louise has a kitten. Kitten is named Sheila.
 e. *Singular, first mention, bare: Tom heard a noise. Cow was standing outside.
 f. Plural, second mention, the: Leslie saw two dogs outside. The dogs were barking.
 g. *Plural, second mention, bare: Maria met four squirrels in the park. Squirrels were very cute.
 h. Plural, existential reading, bare: Thomas heard a noise outside. Puppies were playing in the garden.
 i. Plural, generic reading, bare: Roger's cat doesn't listen to him. Cats are very independent.

Truth-value judgment task

The TVJT task was modeled by Ionin and Montrul (2010) having first been used as an experiment format by Perez-Leroux et al. (2004). There are eight story lines in which each story has three sentences where participants have to judge whether each sentence is either true or false according to the context of the story. In addition to this, the context of the questions and relevant images were also given as a means of helping the participants better understand the situation. The three sentences contained definite plural, bare plural and demonstrative plural nouns. The demonstrative plural acted as the control item. There were 24 tested items as well as 36 filler items which amounted to a total 60 experimental sentences. The filler sentences were designed to ask about the actual meaning of the context or a pronoun change.


| | |
|--|--|
| <p>There are five interesting rabbits living near my house. Most rabbits eat grass, however, they like eating fish. They don't eat anything else but fish.</p> <p>a. The rabbits eat grass. TRUE / FALSE</p> <p>b. Rabbits eat fish. TRUE / FALSE</p> <p>c. These rabbits eat fish. TRUE / FALSE</p> |  |
|--|--|

Figure 5. Sample item from the TVJT.

The definite plural and demonstrative sentences indicate specific interpretation, which means the answer for the questions shown in Figure 5, part (a) should be FALSE and for (c) it should be TRUE. While the bare plural refers to a general interpretation which means that (b) should be FALSE.

Mini DELF test

The mini DELF test was followed by an official DELF test. It contained three choice questions as well as one short answer question. Participants were asked to first read the context or view the pictures before attempting to answer the questions. The format itself was based on the 2015 version of the DELF test. The test consisted of 40 questions and was only taken by KEF learners in order to establish their French proficiency level. A sample of the Mini DELF test is shown below in Figure 6.

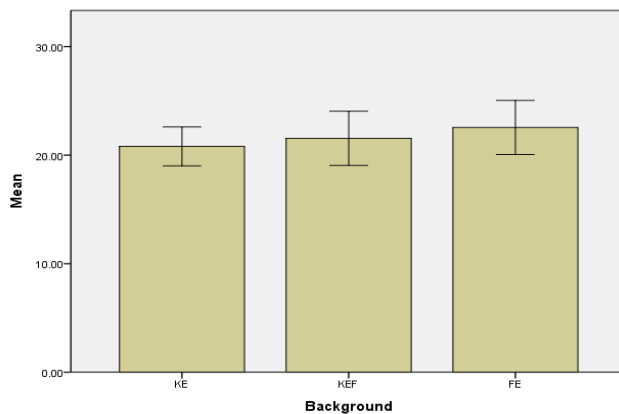
| |
|---|
| <p>Les grands-parents et les parents de Léa et Emmanuel</p> <p>ont la joie de vous annoncer le mariage de leurs enfants, et vous inviter à la bénédiction nuptiale qui aura lieu à l'église de Marillac le samedi 12 juillet 2014, à 14 heures 30.</p> <p>Les jeunes mariés seront heureux de vous retrouver pour un cocktail à la salle de fête de 17 heures 30 à 19 heures 30.</p> <p>Merci de confirmer votre présence Avant le 6 mai.</p> <p>C'est un message: a. professionnel. b. commercial. c. personnel.</p> |
|---|

Figure 6. Sample from Mini DELF test.

Results

Michigan Test

As cross-linguistic influence plays an important role in addressing the issue of language acquisition in this study, it was imperative that the cross-linguistic effect was controlled. Therefore, participants were asked to write their age and when they started studying English in order to examine whether there was any significant difference between them. The Michigan test scores were calculated to see if there was any statistical difference between the three groups of participants; Korean L2 learners of English (KE), Korean L2 English L3 French learners (KEF), and French L2 learners of English (FE).



Note:

1. KE refers to Korean L2 learners of English
2. KEF refers to Korean L2 English L3 French learners
3. FE refers to French L2 learners of English

Figure 7. Michigan Test result.

Figure 7 provides a one-way ANOVA of the Michigan test shows, there were no statistically significant differences between the three groups of participants in the Michigan test scores ($F(2, 63) = .688, p > .05, \eta_p^2 = .02$). Moreover, all the participants except for the native English speakers did not live in a native English speaking country for more than a year and they were not currently in an English speaking environment as all of the respondents were living in Korea. Therefore, their only L2 exposure was in a class room environment and most of the participants were either undergraduate or graduate school students of Chungnam National University and Konkuk University Seoul or its Glocal campus in Chungju.

AJT

The AJT scores were conducted to see the general proficiency of the respondents understanding of English articles. The results of this task show whether FE who have an article system in their L1 will do a better job in the AJT test in comparison to KE who have no article system in their L1. The AJT scores are conducted to see the general proficiency of the respondents' understanding of English articles (See Figure 8).

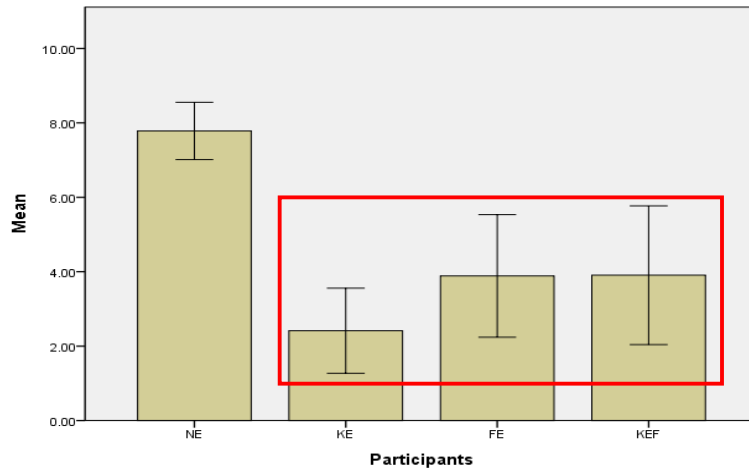


Figure 8. AJT result for Experiment 1.

As an index of discrimination accuracy, the D-prime scores (*D*'s) were calculated based on the proportion of “hits” obtained for each contrast and the proportion of “false alarms” (Macmillan and Creelman, 1991). Therefore, all of the AJT and TVJTs were conducted in this manner.

The results from the one-way ANOVAs showed the main effect of participant groups on AJT scores, $F(3, 75) = 8.309, p < .05, \eta_p^2 = .294$. Post-hoc analyses using Tukey’s HSD indicated that AJT scores for NEs were significantly higher than KE ($p < .05$), KEF ($p > .05$), and FE ($p < .05$) respondents. However, there were no significant differences between the three groups of participants (Figure 8). The TVJT was further conducted because all the participants had a similar level of background knowledge for both English in general and English article use.

TVJT

In the TVJT test, participants were presented with 8 contexts with each specific context consisting of three different sentences. In each contextual setting, respondents were then asked whether the sentences were correct or incorrect. For correct sentences they were asked to circle TRUE, while for incorrect sentences participants were required to choose FALSE. The three different types of sentences included definite plurals, bare plurals, and demonstrative plurals. The categories of plural NPs sentences are summarized in Table 2 below.

TABLE 2
Summary of Test Sentences

| Test Sentence Type | Implication | | |
|--------------------------|-------------|-----------------------|-----------------------|
| | English | Korean | French |
| Definite plural NPs | specific | non existence | both specific/generic |
| Bare plural NPs | generic | both specific/generic | grammatically wrong |
| Demonstrative plural NPs | specific | specific | specific |

In terms of definite plural NPs, English and French share different interpretations. The results of the Truth Value Judgement task are presented in the following sectors in accordance with the categories presented in the table. However, in this study, the focus was only on definite plurals. Therefore, only the definite plural NP sentences were considered in TVJT scores. The total number of the questions was 60, however, of these only 8 questions were considered. Parallel to the AJT analysis, as an index of discrimination accuracy, the D-prime scores (*D*'s) were also calculated based on the proportion of “hits” obtained for each contrast and the proportion of “false alarms” (Macmillan & Creelman, 1991).

The results from the one-way ANOVA test displays the main effect of the participant groups on definite

plural NPs ($F(3, 75) = 15.713, p < .05, \eta^2 = .386$). The post-hoc analyses using Tukey’s HSD indicated that the TVJT scores for the definite plural NPs were significantly lower for the FEs and KEFs than that of the NEs and KEs. However, there were no difference between the KEF/FE groups ($p > .05$) and the NE/KE groups’ TVJT scores ($p > .05$). As the TVJT results for the KEs do not show any similar patterns to that of the KEFs’ results, this implies that for the KEF learners, L2 English was significantly impacted by L3 French (See Figure 9).

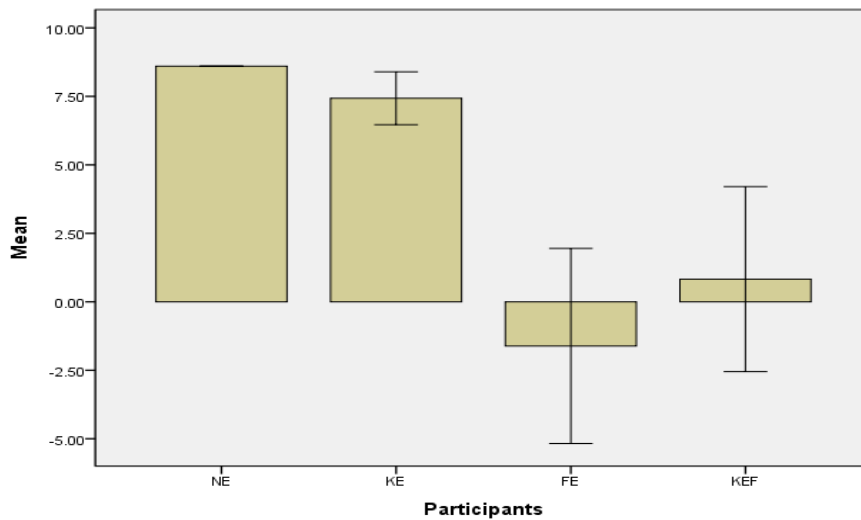


Figure 9. TVJT result for Experiment 1.

DELF

The DELF scores are conducted to see the general proficiency of the KEFs’ understanding of French (See Table 3).

TABLE 3
DELF Result for KEFs

| | Test Value = 12 | | | | 95% CI | |
|------|-----------------|----|----------------|-----------------|--------|--------|
| | t | df | Sig (2-tailed) | Mean Difference | Lower | Upper |
| DELF | 1.610 | 19 | .124 | .60000 | -.1802 | 1.3802 |

One-sample t-test indicated that KEFs did not show any significant difference than the low intermediate French proficiency level of 12⁴ ($M = 12.60, SD = 1.66, t(19) = 1.610, p = .124$).

The results for Experiment 1 point to a clear difference among the different groups of speakers. The groups were matched for proficiency and had equal levels of overall article accuracy, yet the KEs and NEs were significantly more accurate at interpreting definite plurals as specific rather than generic for the KEFs and FEs for the TVJT test. The study also showed that FEs interpreted English definite plurals as generic, which would be appropriate for French but not in English. Therefore, in terms of L2 learners, negative L1 transfer was shown especially for FEs. Interestingly the KEFs showed similar patterns of results to that of the FEs’, where they interpreted English definite plurals as generic.

This shows the effects of L3 transfer in treating definite plurals as generic for L3 learners. This result supports both the Foreign Language Effect and Typological Primary Model since it does not clearly explain whether this L3 transfer was due to the Foreign Language Effect or structural similarity between

⁴ A low intermediate French proficiency level of 12 is decided according to the guidelines stipulated in the DEFL proficiency test level 3.

French and English. Hence, more research needs to be done to examine languages which lack articles to verify the effects of L2A for L3 learners. In order to tease apart these possibilities, Experiment 2 was conducted to see how the languages without an article system will affect their English second language.

Experiment 2

As indicated in Section 2, unlike English, both the Korean and Chinese languages do not have an article system. Given this, Experiment 2 investigates whether structurally distant languages can affect a typologically dissimilar language. It explores whether L2 acquisition of English plural NPs can be influenced by L2 learners and L3 learners, in particular, whether KECs will show L3 transfer. Moreover, the study also investigated how this phenomenon can be explained by four different models of language transfer: Absolute L1 Transfer, Foreign Language Effect, the Cumulative Enhancement Model, and the Typological Primacy Model.

Participants

The participants of the study consisted of four groups, 1) native speakers of English (NE), 2) L1-Korean L2-English learners (KE), 3) L1-Korean L2-English L3-Chinese learners (KEC), and 4) L1-Chinese L2-English learners (CE). The experiment materials for NEs and KEs are brought from Experiment 1. The background information on subjects is summarized in Table 4.

TABLE 4

Summary of Background Information on Subjects

| Group | KE | CE | KEC |
|------------------------------|-----------|-----------|-----------|
| Gender (Female/Male) | 21/5 | 14/6 | 18/2 |
| Average Age (Range) | 23(20-33) | 25(20-30) | 24(22-32) |
| Length of learning L2 (Year) | 14(6-20) | 15(12-22) | 16(13-25) |
| Michigan Test (30) | 21(15-30) | 23(18-27) | 23(20-29) |

L1-Korean L2-English L3-Chinese learners

The KEC group consisted of 20 L1-Korean L2-English L3-Chinese learners. The participants were Korean adults currently studying at Universities in Korea. All of the participants have completed their high school education in Korea and had only started studying Chinese at University.

L1-Chinese L2-English learners

The CE group consisted of 20 L1-Chinese L2-English learners. The subjects were Chinese adults who were studying at university as either undergraduate or graduate students. All of the participants did not have any knowledge of Korean. All the participants were recruited from China and the test was conducted in China.

Materials and procedures

The procedure is the same as that of Experiment 1, in which participants were required to complete AJT and TVJT as well as questionnaires and a Michigan test. In addition to this, the KECs were also required to complete a HSK test to ensure they have a coherent level of proficiency in Chinese.

Mini HSK Test

The HSK test is a recognized Chinese language test that assesses a respondent's level of Chinese proficiency. The mini HSK test was matched to the level of HSK level 3 which is a low intermediate level of Chinese proficiency for KECs. Figure 10 provides an example of the HSK taken by respondents. The test consisted of 26 questions.

第1-5题：选词填空

A 熟悉 B 后悔 C 理发 D 坚持 E 停 F 千万

例如：她每天都(D)走路上下班，所以身体一直很不错。

1. 电脑问题你最好去问小王，他是这方面的高手，肯定比我（ ）。
2. 明天的面试是上午九点钟正式开始，（ ）别迟到。
3. 参加面试之前，我要先去（ ），显得精神一些。
4. 我把车（ ）在学校里了，我们走路去植物园吧。
5. 什么时候结婚不重要，重要的是结婚后不要（ ）。

Figure 10. Sample item from the mini HSK test.

Results

This experiment examined how L3 learners, which lack an article system in both L1 and L3 (no article systems in both Chinese and Korean unlike English), differ from those L3 learners with different article system in L3 and L2 (French and English have different article system).

Michigan Test

A Michigan Test was conducted to make sure that all of the participants have the same background understanding in English. As Figure 11 shows, there was no significant difference among the KEs, KECs and CEs, which suggests this experiment has controlled the English proficiency to prevent interference of L2 proficiency in the empirical study.

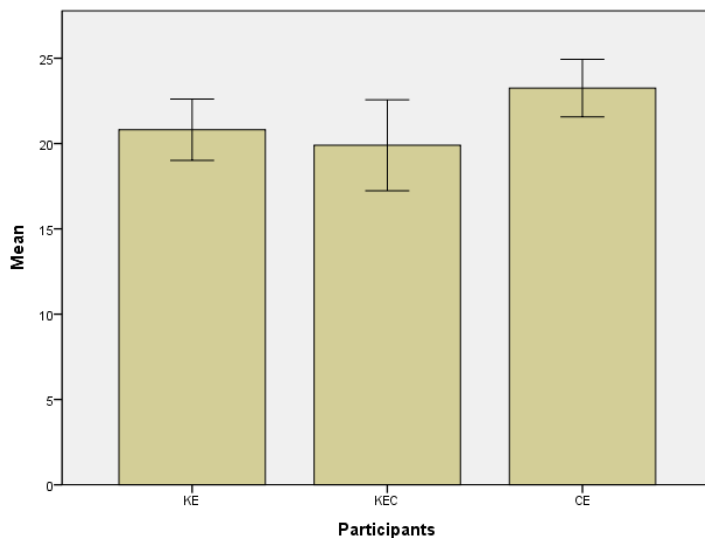


Figure 11. Michigan Test result.

Figure 11 illustrates the Michigan test results among the participants. A one-way ANOVA test has shown

that there were no significant differences among the participant groups ($F(2, 63) = 2.819, p > .05, \eta p^2 = .082$). In other words, the participants' Michigan test scores among the KE, KEC, and CE groups did not differ.

HSK

The HSK test was conducted to evaluate the KECs' understanding of Chinese to make sure the level of Chinese proficiency was not different.

TABLE 5
 HSK Result for Experiment 2

| | Test Value = 17 | | | | | |
|-----|-----------------|----|----------------|-----------------|--------|--------|
| | t | df | Sig (2-tailed) | Mean Difference | Lower | Upper |
| HSK | .442 | 19 | .664 | .25000 | -.9347 | 1.4347 |

The one-sample t-test indicated that the results for the KEC's were not significantly different than the low intermediate Chinese proficiency level of 17⁵ ($M = 17.25, SD = 2.53, t(19) = .442, p = .664$) (See Table 5).

AJT

The AJT task was conducted to evaluate the participants' understanding of the article system in English. The one-way ANOVAs show that although KE, KEC, CE scored significantly lower than that of the NE's, there were no significant differences among the KE, KEC and CE groups ($F(3, 75) = 8.557, p = .000, \eta p^2 = .255$). As Figure 12 illustrates below, there is a clear difference shown for the NEs, however, the KEs, KECs, and CEs shared a similar level of understanding in English article use.

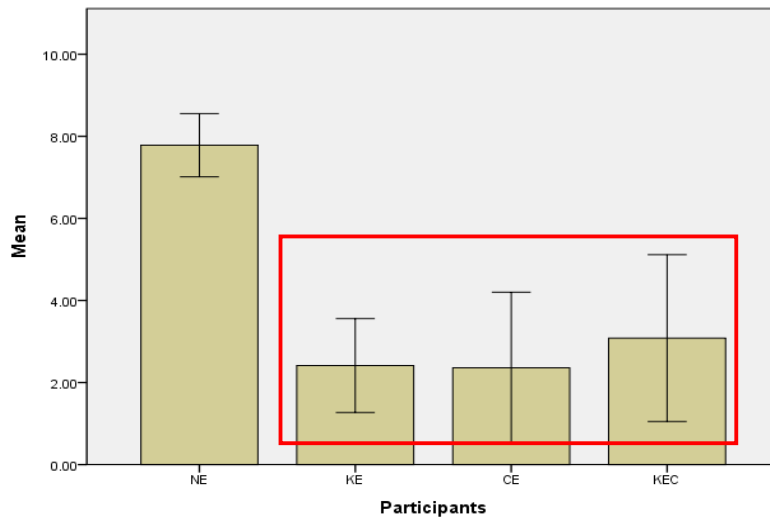


Figure 12. AJT result for Experiment 2.

⁵ Low intermediate Chinese proficiency level of 17 is decided according to the guidelines of HSK proficiency test level 3. As HSK level 3 is considered as low intermediate, when the participants get the score around 12, it can assume that they have low intermediate proficiency level of Chinese.

TVJT

The three different types of sentences included definite plurals, bare plurals, and demonstrative plurals were conducted in TVJT to verify the understanding of English plural NPs for participants. The types of plural NPs involving in test sentences are summarized in Table 6 below.

TABLE 6
Types of Plural NPs in Test Sentences

| Test Sentence Type | Implication | | |
|--------------------------|-------------|-----------------------|-----------------------|
| | English | Korean | Chinese |
| Definite plural NPs | specific | non existence | non existence |
| Bare plural NPs | generic | both specific/generic | both specific/generic |
| Demonstrative plural NPs | specific | specific | specific |

Notice, however, that in terms of analyzation, only those definite plurals were considered. As in Figure 13, one-way ANOVAs have shown a main effect of participant groups on definite plural NPs ($F(3, 75) = 10.213, p < .05, \eta p^2 = .290$). Post-hoc analyses using Tukey’s HSD indicated that TVJT scores for definite plural NPs were significantly lower for CEs/KECs than NEs/KEs. However, there were no differences between the CEs/KECs ($p > .05$) and the NEs/KEs ($p > .05$).

In terms of the definite plural NPs, Figure 13 clearly shows that the KEs successfully acquired definite plural NPs as being specific, while both the KECs and the CEs did not. In this regard, both the KECs and the CEs interpreted the definite plural NPs as being generic. As the result for the KECs showed the same pattern as that of the KEs and not the CEs, one can argue that the L3 of the KECs influences their interpretation of the definite plural NPs. The CEs also showed that all of the plural NPs have a generic meaning, which was an interested result, worthy of further inquiry in the future.

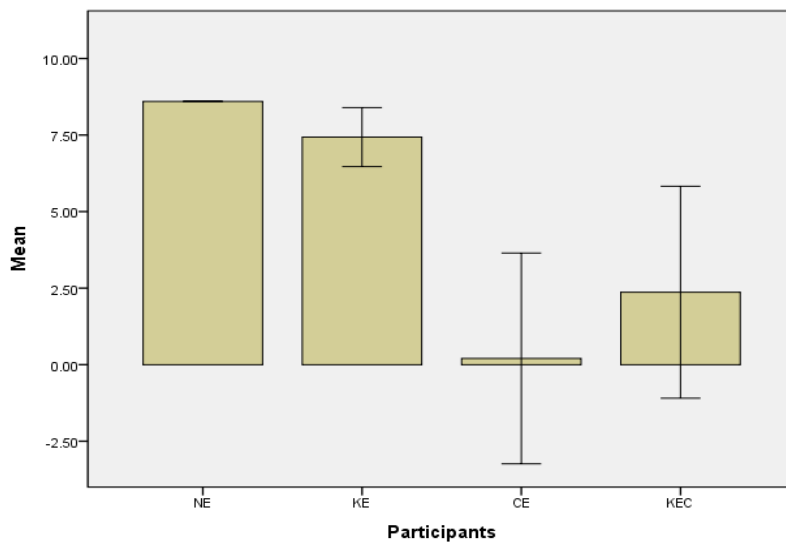


Figure 13. TVJT result for Experiment 2.

The results of Experiment 2 displayed similar patterns to that of Experiment 1. In this instance, the KEs and NEs were significantly more accurate at interpreting definite plurals as being specific rather than generic meanings than the KECs and the CEs did during the TVJT test. The CEs and the KECs interpreted the English definite plurals incorrectly as generic meanings, and the subsequent results can be explained as L3 transfer for the KECs. This supports the Foreign Language Effect, but not the Typological Primary Model as both the Chinese and Korean languages do not share similar typological patterns to that of English. In order to verify whether the CEKs’ results are also compatible with Foreign

Language Effect, Experiment 3 was conducted as a mirror study.

Experiment 3

Experiment 3 was conducted as a mirror study to that of Experiment 2. By observing the KEs, CEs, and CEKs' responses, this experiment aims to identify the possible source of L1 influence on L2A and L3 influence on L2A by comparing the results of CEKs and KECs (from Experiment 2). Experiment 3 investigated whether L3 transfer would be more significant than that of L1 transfer for L3 learners in L2A. If CEKs turn out to pattern with KEs, L3 plays more significant role than L1 on L2A.

Participants

The participants of the study consisted of four groups, 1) native speakers of English (NE), 2) L1-Korean L2-English learners (KE), 3) L1-Chinese L2-English L3-Korean learners (CEK), and 4) L1-Chinese L2-English learners (CE). The NEs, KEs and CEs are the same participants as Experiment 2. The background information on the test subjects is shown in Table 7.

TABLE 7
Summary of Background Information on Subjects

| Group | KE | CE | CEK |
|------------------------------|-----------|-----------|-----------|
| Gender (Female/Male) | 21/5 | 14/6 | 14-6 |
| Average Age (Range) | 23(20-33) | 25(20-30) | 22(20-24) |
| Length of learning L2 (Year) | 14(6-20) | 15(12-22) | 14(10-20) |
| Michigan Test (30) | 21(15-30) | 23(18-27) | 23(17-29) |

L1-Chinese L2-English L3-Korean learners

The CEK group consisted of 20 L1-Chinese L2-English L3-Korean learners. All the participants were recruited from China and they were all majoring in Korean language at a university. The test was also conducted in China.

Materials and procedures

For Experiment 3, the tasks were presented in an almost identical manner to that of Experiments 1 and 2: the AJT, the TVJT, the Michigan test, questionnaires, and the TOPIK test. The TOPIK was required for CEKs to evaluate their Korean Language Proficiency. The mini TOPIK was followed by an official TOPIK test. It contained four choice questions as well as one short answer question. Participants were asked to first read the context or view the pictures before attempting to answer the questions. The format itself was based on the 2015 version of the TOPIK test. The test consisted of 15 questions and was only taken by the CEK learners in order to establish their Korean proficiency level. A sample of the Mini TOPIK test is shown below in Figure 14.

Mini TOPIK Test

The TOPIK test is a recognized Korean language test that verifies the level of Korean proficiency. The mini TOPIK test was matched to the level of TOPIK level 3, which is low intermediate level of Korean proficiency.

※ 1. 다음을 읽고 맞지 않는 것을 고르십시오.

2017년 5월 5일

부산 → 서울
 Busan → Seoul
 9:00 → 11:30

7호차 9A석

요금 59,000원

① 부산으로 갑니다.
 ② 표는 오만 구천 원입니다.
 ③ 아침 아홉 시에 출발합니다.
 ④ 오월 오일에 기차를 탑니다.

Figure 14. Sample item from the mini TOPIK test.

Results

Michigan Test

A Michigan test was conducted to make sure all the participants in Experiment 3 share the same fundamental background of English understanding. As Figure 15 describes, the one way ANOVA found no significant differences among the various participant groups ($F(2, 63) = 4.61, p = .075, \eta p^2 = .079$). The figure also shows that the results for KEs, CEs, and CEKs did not differ in English proficiency. As De Angelis (2007) noted, proficiency matters in L2A and L3A, and the current study made sure the proficiencies of L2 were all consistent.

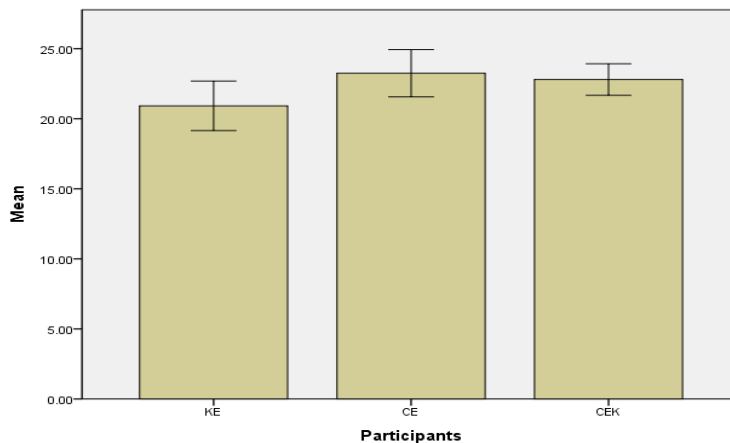


Figure 15. Michigan Test results.

TOPIK

The TOPIK test was conducted to evaluate the CEKs' proficiency level of Korean. A one-sample t-test indicated that CEKs did not show any significant difference than the low intermediate Korean proficiency level of 14⁶ ($M = 14.15, SD = .67, t(19) = 1, p = .330$) (see Table 8).

⁶ As TOPIK level 3 is considered as being low intermediate, when the participants obtain a score around 14, we

TABLE 8
TOPIK Result for Experiment 3

| | Test Value = 14 | | | | | |
|-------|-----------------|----|----------------|-----------------|--------|-------|
| | t | df | Sig (2-tailed) | Mean Difference | 95% CI | |
| | | | | | Lower | Upper |
| TOPIK | 1.000 | 19 | .330 | .15000 | -.1640 | .4640 |

AJT

The AJT task was conducted to evaluate the participants’ understanding of the article system in English. The one-way ANOVAs show that although KEs, CEs and CEKs scored significantly lower than that of the NEs’ ($F(3, 75) = 8.992, p < .05, \eta p^2 = .265$), there were no significant difference among the KEs, CEs, and CEKs. Figure 16 reveals that although the results for KEs ($p < .05$), CEs ($p < .05$) and CEKs ($p < .05$) have shown significantly lower understanding in article use than that of NEs, the three non-native English speaking groups showed a similar level of understanding in English article use.

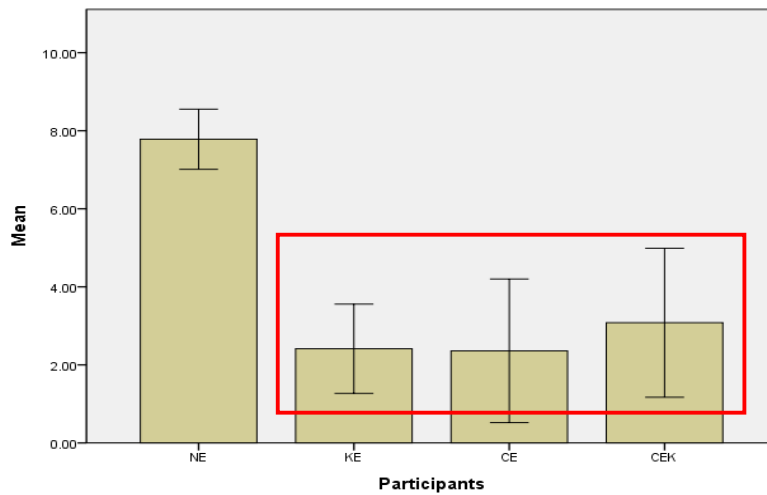


Figure 16. AJT result for Experiment 3

TVJT

The same TVJT was conducted in order to verify how the participants interpret definite plural NPs, bare plural NPs and demonstrative plural NPs. Figure 17 shows the results from the TVJT scores on definite plural NPs. The one-way ANOVAs showed the main effect of the participants groups on definite plural NPs ($F(3, 75) = 14.023, p < .05, \eta p^2 = .359$). The post-hoc analyses using Tukey’s HSD indicated that TVJT scores for definite plural NPs were significantly lower for CEs ($p < .05$) than NEs, KEs and CEKs. However, there were no significant differences between the NEs/KEs ($p > .05$), and between the NEs/CEKs ($p > .05$). In addition, it clearly states that CEs ($p < .05$) have failed to give specific interpretation to the definite plural NPs, while the KEs ($p > .05$) and KECs ($p > .05$) have correctly given specific reading to them.

can assume that they have a low intermediate proficiency level of Korean.

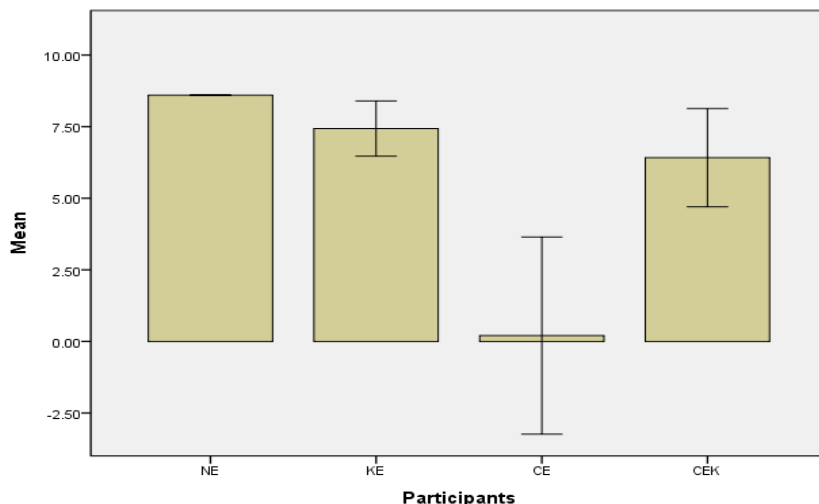


Figure 17. TVJT result for Experiment 3.

The findings of Experiment 3 also point to a clear difference between the speakers of Korean and Chinese languages. The groups were matched for proficiency and had an equal level of overall article accuracy, yet the KEs, CEKs and NEs were significantly more accurate at interpreting definite plurals as specific than the CEs. This is interesting, as the CEKs showed a significantly different result than that of CEs in definite plurals, which suggests the effect of L3 Korean. Such a finding lends another support to the Foreign Language Effect where, in this case, L3 had a greater influence than that of L1 for L2A.

In sum, although both the Korean and Chinese languages do not have an article system like English and French, the more recently learned language, which had more foreignness to it, had a profound effect when acquiring the English definite plurals for KECs and CEKs.

Discussion

The primary aim of this study was to see what effects L2A had by L3 learners; in particular, the possible transfers from L1, L3, both L1 and L3, or structurally similar language to L2. The results from the Truth Value Judgement Tests presented some interesting findings which we now discuss in connection to the four transfer models (for full discussion of more comprehensive statistics results, see Jang, 2017).

Firstly, in regards to definite plurals for L2 learners, our study showed that L2 learners exhibit L1 transfer effects. Our study revealed the KEs interpreted definite plural NPs correctly as a specific meaning, while the FEs wrongly permitted the generic meaning in definite plural NPs. This is due to the fact that French native speakers do not share the same interpretation of definite plurals to that of English native speakers. In the case of Korean and Chinese, these two languages do not have article systems like French and English. Therefore, it is hard to say if there was any L1 transfer in acquiring the interpretation of definite plural NPs. Interestingly, unlike the KEs, the CEs were shown to have a generic interpretation in all of the TVJT questions, which suggests that they had a significantly lower understanding in both definite plural NPs and demonstrative plural NPs. This indicates that even for those languages that do not have article systems in their L1, they nevertheless do show some L1 transfer, although it is not clear why that kind of phenomenon has occurred (See Table 9).

TABLE 9
Summary of the Experiment 1 and 2 Results for L2 Learners

| | Participants | Plural NPs | TVJT Scores ⁷ | Implications |
|-------------|--------------|-----------------------|--------------------------|------------------------|
| L2 learners | KE | Definite plurals | Good | |
| | | Demonstrative plurals | Good | |
| | FE | Definite plurals | Poor | Negative L1 Transfer |
| | | Demonstrative plurals | Good | |
| | CE | Definite plurals | Poor | Negative L1 transfer/? |
| | | Demonstrative plurals | Poor | Negative L1 transfer/? |

Overall, it can be said that in terms of definite plural NPs, for L1-French L2-English learners, negative transfer was shown due to the typological proximity, a finding which supports the earlier assertions made by Ionin et al. (2010). However, the Chinese and Korean languages, which have no article systems in their first language, displayed some interesting results. While the KEs acquired definite plurals correctly, the CEs failed to acquire definite plurals. This difference gives rise to the interesting contrasts in Korean and Chinese L3 learners' L2A of English.

Secondly, our study showed that L3 transfer occurs in interpreting definite plural NPs in L2A. The results demonstrate that all of KEFs, KECs, and CEKs were more significantly influenced by their L3 than their L1. This supports the hypothesis that a non-foreign language, i.e., L1, cannot interfere on L2A due to the later learned language L3. In particular, learners tend to similarize L2 and L3 more than L1 and L3. Moreover, as for the L3 learners the third language is perceived as being more foreign. Therefore, the foreignness of the third language influences the second language (English in this case) more than their first language. This phenomenon can be explained by the *Foreign Language Effect*. As Bardel and Falk (2012) mentioned, the Foreign Language Effect is an outcome which explains the higher degree of cognitive similarity that exists between two non-native linguistic systems (L2 and L3) as opposed to between a native system and a non-native system (L1 and L2). L3 learners have a tendency to approach L2 and L3 in a same way, as both languages are foreign to them. On the contrary, L1 is acquired and exposed in a natural environment from birth. Therefore, L3 learners process L2 and L3 (which are both a foreign language to them) in a different way than L1 (which is a non-foreign language to them). In conclusion, a formally learned language, in this case L3 rather than L1, has more cognitive and situational features in common with L2 than that of L1 as it is non-foreign to the learners. The findings of this study support the claim that L3 transfer outperformed L1 transfer due to the Foreign Language Effect. As a result, for those L3 learners, who process both L2 and L3 as the non L1 system, L3 transfer occurs when acquiring L2.

In addition, for all three groups of L3 learners, L3 transfer was shown either in positive or negative ways. The obvious transfer was shown for KEFs where French had a different interpretation method than that of English and Korean, and as such played a vital role in acquiring definite plurals for L3 learners. For those who were learning Korean as a third language (CEK), a positive transfer from Korean was attested, while those who were learning Chinese as a third language (KEC) received a negative transfer from Chinese, where they have interpreted definite plurals as generic like CEs. This again indicates the existence of the Foreign Language Effect, where the transfer comes from the non-native language which is their third language rather than the non-foreign language which is their first language. The results of which are summarized in Table 10.

⁷ TVJT scores refer to the scores that they got from the TVJT.
Good indicates that compare to the NE's TVJT scores, there are no significant difference.
Poor indicates that compared to the NEs' TVJT scores, there are significant difference.

TABLE 10
Summary of the Experiment 1, 2 and 3 Results for L3 Learners

| Participants | | Plural NPs | TVJT Scores | Implications | |
|--------------|-------|------------|-----------------------|--------------|----------------------|
| L3 learners | Exp 1 | KEF | Definite plurals | Poor | Negative L3 Transfer |
| | | | Demonstrative plurals | Good | |
| | Exp 2 | KEC | Definite plurals | Poor | Negative L3 Transfer |
| | | | Demonstrative plurals | Good | |
| | Exp 3 | CEK | Definite plurals | Good | Positive L3 transfer |
| | | | Demonstrative plurals | Good | |

Conclusion

This study showed that *Absolute L1 transfer* failed to explain any of the L3 learners' results as no L3 learners showed L1 transfer on L2A. Furthermore, although the *Typological Primacy Model* was able to explain the findings of Experiment 1, it was unable to explain the results of both Experiment 2 and Experiment 3 as the Korean and Chinese languages are typologically distant from that of English. Moreover, the *Cumulative Enhancement Model* can be used to explain Experiment 3, where the CEKs' results showed the existence of positive transfer from L3 to L2A. However, the model failed to explain the results from both Experiment 1 and 2, as both L3 learners in those experiments showed "negative" L3 transfer. Finally, the *Foreign Language Effect* can be applied in all three experiments, as all of the KEFs, the KECs, and the CEKs exhibited L3 transfer and not L1 transfer. Consequently, L3 had a significant influence on L2A than L1 for L3 learners in our study.

In conclusion, our study provided evidence of the L3 (backward) transfer on L2A for L3 learners crosslinguistically. This shows that multilinguals are more influenced by their L3 rather than by their L1 as newly acquired languages are more vulnerable to be transferred than their first language. This is a great breakthrough as at least on the backward transfer for L3 learners, the result demonstrates the importance of L3 in L2A. Such a finding contributes to multilingualism, particularly from an acquisition perspective. Furthermore, our findings suggest that L2A and L3A are different and that the transfer sources differ depending on how many languages you have acquired.

Nonetheless, despite this study's ability to examine new areas of L3 research, more needs to be done to examine the different stages of development of L3 acquisition. As Wirbatz and Buttkewitz (2017) note, different levels of L3 proficiency can lead to different features of transfer being detected. Also, because this study has controlled the proficiency of L2 and L3, it would be interesting to see what kind of results it will yield for respondents that have different levels of L2 and L3 proficiency.

Finally, this study has contributed to the field of backward transfer research by successfully demonstrating the role that the Foreign Language Effect has on L3 learners in backward transfer. Additionally, by focusing not only on forward transfer but also on backward transfer in L2A and L3A, this study has provided opportunities from which future empirical studies may abound.

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The Authors

Hee-don Ahn (First author) lectures in the Department of English at Konkuk University in Seoul, Korea. He earned his PhD in linguistics from University of Wisconsin, Madison. He has been conducting various research projects on multilingual acquisition, language processing, and comparative syntax.

Department of English
Konkuk University
120 Neungdong-ro, Gwangjin-gu
Seoul 05029, Korea
Email: hdahn@konkuk.ac.kr

Haejin Jang (Corresponding author) is currently a lecturer in James Cook University, Department of English Language in Singapore. Her research interests include second language acquisition and third language acquisition of articles.

Department of English Language
James Cook University Singapore
149 Sims Drive, Singapore 387380
Email: haejin.jang@jcu.edu.au

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