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The role of formal L2 learning experience in L3 acquisition among early bilinguals

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ABSTRACT

Early bilingualism is thought to facilitate language learning [Klein, E. C. (1995). Second versus third language acquisition: Is there a difference? *Language Learning*, 45(3), 419–466; Cromdal, J. (1999). Childhood bilingualism and metalinguistic skills: Analysis and control in young Swedish-English bilinguals. *Applied Psycholinguistics*, 20(1), 1–20]. The present study tests whether experience with formal study of an L2 conveys further advantages to early bilinguals, and whether typological similarity of previously-learned languages to L3 plays a significant role in L3 learning. Two groups of participants, Early Bilinguals (EBLs) and Early Bilinguals with formal L2 experience (EBLs+L2), were tested on acquisition of Korean case markers in four argument structures: intransitive verbs, transitive verbs with both arguments, transitive verbs with one omitted argument, and descriptive verbs. EBLs+L2 significantly outperformed EBLs and the two groups showed further differences by sentence type, with EBLs showing more difficulty with novel structures while EBLs+L2 did not. To examine the role of typological proximity, EBLs+L2 were divided into those who had studied Japanese (EBLs+Jap), which is structurally similar to Korean, and those with experience studying other languages (EBLs+non-Jap). In spite of typological similarity, EBLs+Jap did not significantly outperform EBLs+non-Jap overall. These results support the conclusion that formal study of an L2 conveys advantages to early bilinguals in L3 learning. Such experience results in greater metalinguistic awareness, allowing students to efficiently acquire structures that differ from their existing linguistic repertoire.

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Introduction

The concept of ‘second language learning’ does not necessarily refer to a ‘second’ language; rather, ‘second language’ commonly refers to any language learnt later than in early childhood (Mitchell, Myles, & Marsden, 2013). A second language may indeed be the next language learnt after the first language (L1) in a literal sense, or it may be a third, fourth, or fifth language (Gass & Slinker, 2008). Although many studies do not distinguish between second language (L2) learning and third or later language (L3) learning, previous work suggests that L2 and L3 learning differ, particularly in the acquisition of

morphosyntactic features (Cenoz, 2001, 2003; Gass & Slinker, 2008, a. o.; Rothman, 2011). This research has argued that L2 and L3 learning should be studied in different frames due to a number of variables that may influence the extent to which one of the previously acquired languages will influence the learning of an L3. Factors proposed to influence L3 learning include the age at which L3 learning begins (Gass & Slinker, 2008), formal or informal setting of learning, proficiency of L2 (Jaensch, 2009), recency (Hammarberg, 2001), frequency of use, the foreign language effect (Meisel, 1983), setting and topic of conversation (Cenoz, 2001), language distances among the three (or more) languages (Rothman, 2011), degree of bilingualism (Bialystok, 1988; Cromdal, 1999), and metalinguistic awareness (Cummin, 1978; Jessner, 2006; Klein, 1995; Thomas, 1988).

Early studies of the effect of previously known languages on L3 learning focused on lexical acquisition (Cenoz, 2001; De Angelis & Selinker, 2001; Ringbom, 1987). Recent studies, especially in the generative framework, have investigated functional categories and structures such as relative clauses (Flynn, Foley, & Vinnitskaya, 2004), complementizer phrases, determiner phrases (Leung, 2005), the null-subject parameter (Rothman & Cabrelli Amaro, 2010), case/gender inflections (Jaensch, 2009, 2012), verbal functional categories such as tense and agreement (Leung, 2003), and syntactic structure (Bardel & Falk, 2007).

The present study focuses on L3 Korean learning, and in particular the Korean case-marking system. In Korean, each noun phrase (NP) is marked with a case-marker such as 이(*i*) for nominative case and 를(*lul*) for accusative, as in (1). Case-marking is encountered in the early stages of learning Korean, but it is not an easy construction for learners to master.

(1) 제이슨이 김치를 좋아합니다.

Jason-*i* Kimchi-*lul* *joahapnida*

Jason-NOM Kimchi-ACC like

Jason likes Kimchi.

The Failed Features Hypothesis (FFH) (Hawkins & Chan, 1997) assumes full transfer of the features of L1 in the initial stages of L2 learning and predicts the non-availability in L2 acquisition of parametrized properties that are not instantiated in L1. The extended version of this prediction in L3 acquisition would be that adult L3 learners are incapable of acquiring uninterpretable features of functional categories which their L1 does not have. Leung (2005) predicts that L1 transfer effects lead to the ultimate ‘failure’ of acquisition of parametrized (functional) properties from the initial to final state in L3 acquisition. In the case of English L1 speakers, the FFH would predict that the English case-marking system is acquired during the initial L1 acquisition stage and that resetting various case-marker parameter settings later in life is impossible; the extent to which the Korean case-marking system is acquirable, therefore, would depend upon one’s theory of the underlying representation of case for L1 English speakers. Informal observations in the language classroom setting suggest that English speakers learn the Korean case-marking system with a certain degree of success. Moreover, students with L2 experience with Japanese, a language with a similar case-marking system, appear to transfer their L2 knowledge in learning the Korean system. Indeed, typological proximity in selection of the source of transfer in L3 acquisition is supported by previous empirical studies (Cenoz, 2001; Montrul, Dias, & Santos, 2011; Rothman, 2010, 2011; Rothman & Cabrelli Amaro, 2007, 2010). Relative to English, the distance between Japanese and Korean is small with regard to the case-marking system; the systems of both Japanese and Korean

mark the case of each noun explicitly with a functional morpheme, whereas English NPs are usually marked via word order.

Beyond typologically related second languages, L2 experience more generally may benefit additional language learning. Bilinguals have been found to outperform monolinguals in learning foreign languages (Cenoz, 2003; Klein, 1995; Sanz, 2000; Thomas, 1988); this phenomenon has been attributed to bilinguals' greater metalinguistic awareness (Cenoz, 2003; Klein, 1995; Thomas, 1988), stronger motivation (Sanz, 2000), and more advanced cognitive development and communicative skills (Cenoz, 2003). Bilinguals and multilinguals have consistently shown an enhanced ability to recognize and analyse linguistic input and are able to shift learning strategies and cognitive strategies in learning an additional language (Bowden, Sanz, & Stafford, 2005; Jessner, 2006; Tomasello, 2003). Studies have also found more general cognitive benefits to bilingualism, particularly for early bilinguals, in relation to executive functions (Bialystok, 2007). However, no previous studies have examined how L2 transfer in L3 acquisition operates in early bilinguals. It is therefore unknown whether bilinguals benefit in L3 acquisition from transfer of an L2 learnt later in life, or whether the general advantages of early bilingualism overwhelm any such L2 transfer effect.

L3 learning research

In the last decade, considerable work has been carried out investigating the role of L1 and L2 on learning L3, particularly regarding the transfer of functional features from L1 and L2. Since the initial proposal that L2 and L3 learning should be studied separately, several new models of L3 learning have been put forward. The three models that will be discussed here specifically address L3 learning of morphosyntactic features from a generative perspective.

The Cumulative Enhancement Model (CEM) was proposed by Flynn et al. (2004) in response to the previous emphasis on L1 as the only resource influencing L3 learning. Flynn et al. (2004) investigated whether the properties of the L1 grammar alone can account for L3 learning or whether the grammatical properties of all previously learnt languages potentially transfer in the learning of subsequent languages. The study examined the acquisition of English restrictive relative clauses by three groups: Japanese learners of L2 English, Spanish learners of L2 English, and Kazakh learners of L2 Russian learning L3 English. Kazakh and Japanese share subject-object-verb (SOV) word order and head-final, left-branching structure, whereas Russian, Spanish, and English share SVO word order and head-initial, right-branching structure. It was found that the Kazakh learners, with prior knowledge of Russian, patterned with the Spanish group rather than with the Japanese group. The authors therefore posited that prior complementizer phrase development in an L2 can enhance L3 learning. Further, it was proposed that L1 is not the only source for L3 transfer, particularly with regard to formal syntactic features and functional categories; experience in any previously acquired language can influence the acquisition of any subsequent language. However, this study failed to explain how the properties of each language were transferred to L3 and how the source of transfer is selected if there is more than one option.

The Typological Primacy Model (TPM) was proposed by Rothman (2011) and is consistent with the CEM from Flynn et al. (2004) in that it emphasizes the role of typological proximity. The major argument of the TPM is that the typologically closest language to L3

between L1 and L2 has priority to be selected as a source of transfer to L3, even when this transfer is not facilitative and causes errors in the production of L3. Typological proximity in this case refers to perceived similarity on the part of the learner, as suggested by Kellerman (1983). The TPM assumes that learners have some awareness of language typology and the typological proximity between two languages, although it is not clearly stated to what extent the learner must be consciously aware of these factors. The TPM also makes no predictions in cases where all three languages are equally distant or equally close. In the case of the present study, the TPM would predict that Korean L3 learners who have prior L2 learning experience with a language that is typologically similar to Korean, such as Japanese, would select this language as a source of transfer to Korean.

The L2 Status Factor model, proposed by Bardel and Falk (2007), argues that L2 has a greater impact than L1 in L3 acquisition because both L2 and L3 are acquired after early childhood. In other words, the model predicts that the typological proximity between L1 and L3 is not as strong a factor as L2 and L3's shared non-native status, termed the 'L2 status factor.' The model also proposes that typological proximity only favours transfer from L2 to L3, not from L1 to L3, and moreover that L2 blocks even positive transfer from L1 to L3. This proposal was the result of examining two L3 learner groups acquiring negation constructions. The first group consisted of L1 speakers of a V2 language (Dutch or Swedish) and L2 English (non-V2) but learning a V2 L3 (Dutch or Swedish) while the second group was L1 speakers of a non-V2 language (English, Hungarian, Italian, or Albanian) with a V2 L2 (German or Dutch) and learning a V2 L3 (Dutch or Swedish). The results showed that the second group, in which L2 and L3 were both V2, outperformed the first group, in spite of the typological proximity of their L1 to L3. The authors thus concluded that the L2 status factor is stronger than the typological proximity factor in L3 learning. Bardel and Falk (2012) suggest a neurolinguistic account for this model in which L2 is selected as a source of transfer to L3 because L1 and L2 knowledge is neurolinguistically distinctive in storage. In this account, knowledge of the linguistic structure of L1 is stored in procedural memory, whereas knowledge of L2 structure is based on explicit knowledge, and therefore it is stored in declarative memory (Paradis, 2009). This model is inconsistent with cases in which L1 is selected for transfer to L3, as in Rothman (2011). The L2 Status Factor model would predict that L3 Korean learners with L2 Japanese experience will outperform others, including L3 Korean learners with prior experience learning other L2s that are not typologically similar to Korean.

All three of the models introduced above, while making different predictions about the various impacts of L1 versus L2 on L3 learning, make similar predictions regarding typological proximity with regard to L2: prior L2 learning experience with a typologically similar L2 will enhance L3 learning more than experience with a typologically different L2. It is important to keep in mind, however, that all three of the models discussed are based on data drawn from late bilinguals, meaning individuals who acquired one language in infancy and only later studied an L2. It is unknown how these models apply to early bilinguals, the population examined in the present study.

Bilingualism and additional language learning

Previous work on bilingualism, cognition, and language learning suggests that early and late bilingualism yield distinct cognitive benefits. For early bilinguals, numerous studies

point to advantages in the development of certain cognitive skills, including those involved in language learning (see Bialystok, 1988; Cromdal, 1999 for a review). Early bilinguals are thought to achieve greater metalinguistic awareness, meaning an ability to contemplate language and understand linguistic constructs, rules, norms, and patterns (González, 2008). Early bilinguals also develop advanced control of linguistic processing (Bialystok, 1988, Bialystok & NetLibrary, 2001; Cromdal, 1999) and a greater analytic orientation to linguistic input (Cummin, 1978; Cromdal, 1999).

One weakness of many previous studies in this area is the lack of a clear distinction between bilingual and multilingual subjects. Klein (1995), for example, groups bilinguals and multilinguals into a single category, only some of whom have experience with additional formal language study. While she finds that bi/multilinguals have advantages over monolinguals in learning a new language, it is unclear whether this advantage is enhanced for multilinguals, or for those multilinguals with formal language learning experience. More recent studies (Cenoz, 2003; Jaensch, 2009; Sanz, 2000) have distinguished between L2s and L3s to investigate the role of each language in L3 acquisition. Jaensch (2009) analysed proficiency in L2 and L3 and found that higher L2 proficiency correlates with higher achievement in L3. Jaensch concluded that language learners who have already studied one or more non-native languages exhibit heightened metalinguistic expertise, better lexical knowledge and more developed cognitive skills.

The question of whether early or late bilingualism is more advantageous in subsequent language learning has not been extensively addressed in previous research. In his discussion of previous works by Bialystok, Craik, and Ryan (2006) and Bialystok and Shapero (2005), Rothman (2015) concludes that early bilinguals outperform late bilinguals in L3 learning due to having two activated grammatical systems that have been developed by acquiring two languages from an earlier age. On the other hand, other research on transfer in L3 learning points to certain advantages for learners with L2 experience beginning at an older age; these advantages may stem from enhanced metalinguistic awareness. Jaensch (2012), in an investigation of the role of previously known languages in L3 learning, found that L3 German learners who began studying L2 English later in life (Japanese–English bilinguals) demonstrate a stronger ability to formulate new grammatical rules than learners who began L2 English learning at a younger age (Spanish–English bilinguals). One possible explanation for this difference is that the more explicit English learning environment of the older learners resulted in enhanced metalinguistic awareness, in contrast to the more implicit learning environment of younger learners. Cenoz (2001) found a similar effect when comparing learners of ages 7–14 years, concluding that older children transferred more patterns from previously learnt languages than younger children because older children have a greater awareness of linguistic similarity between two languages.

In summary, previous research suggests that both early and late bilingualism hold potential benefits for subsequent language learning: early bilingualism is achieved in a more implicit language learning environment but gives learners access to two more developed grammatical systems, while late bilingualism is more explicit and facilitates the acquisition of formal rules in a subsequent language. While both accounts appeal to enhanced metalinguistic awareness, the route of acquisition of this awareness, and the particular type of metalinguistic awareness under discussion, appears to be distinct for early and late bilingualism. As a result, we expect that early and late bilingualism each

yield distinct advantages that are additive in nature: early bilinguals with additional formal L2 experience will receive further benefits beyond those of early bilingualism alone.

Case-marking systems

Different languages mark case in various ways, most frequently by word order and/or explicit markers. In English, Chinese, and Malay, which are all analytic languages, the case of the NP is determined by its position in the sentence.

- (2) a. Tom eats an apple. (English)
 b. *tangmusi chi yi ge pingguo.* (Chinese)
 c. *Tom makan epal.* (Malay)
 [NOM] [VERB] [ACC]

In simple declarative sentences with a transitive verb as in (2), a noun before a verb is assigned a nominative case (e.g. 'Tom') and a noun after verb is assigned an accusative case (e.g. 'an apple').

On the other hand, languages such as Korean and Japanese (both agglutinative SOV languages) mark the case of each NP with explicit case-markers.¹

- (3) a. *Tom-i sagua-lul meok-neun-da.* (Korean)
 b. *Tomu-ga ringo-o tabe-ru.* (Japanese)
 Tom-NOM apple-ACC eat
 Tom eats an apple.

For speakers of analytic languages, such as English and Chinese, the case-marking system of Korean and Japanese is quite different from their L1 system. Nonetheless, case-marking must be mastered at an early stage of language learning, as it is crucial to the construction of sentences.

Research questions and hypotheses

The present study addresses three main questions:

- (1) Does experience with formal study of an L2 influence L3 learning among early bilinguals?
- (2) Does typological proximity of previously known language(s) affect L3 learning among early bilinguals?
- (3) Does the familiarity of particular structures influence performance in L3 learning among early bilinguals?

Early bilinguals are defined here as those who acquired two languages simultaneously or consecutively as young children (up to eight years old) (González, 2008). Among the early bilinguals investigated here, only a subset has also studied an additional non-native language in a formal setting later in life. For ease of reference, 'early bilinguals' (EBLs) will refer here to those early bilinguals with no additional language experience; 'early bilinguals with L2 learning experience' (EBLs+L2) will refer to early bilinguals with additional formal language learning experience. While both groups have knowledge of more than one language, a distinction is expected in performance because their language learning experiences have occurred in implicit versus explicit learning settings. Hulstijn (2005) defines 'explicit learning' as input processing with the conscious intention to identify regularities in the input; 'implicit learning' is input processing without such an intention, taking place unconsciously. In short, early bilinguals and early bilinguals with L2 learning

experience are grouped according to the existence of prior experience of explicit learning of non-native languages: EBLs have no experience of explicit learning of a non-native language, whereas EBLs+L2 do have such experience. Therefore, regarding the first research question, EBLs+L2 are predicted to outperform EBLs.

The language backgrounds of EBLs and EBLs+L2 are summarized in [Table 1](#).

In this study, we follow Hammarberg (2001) and Falk, Lindqvist, and Bardel (2015) in using L3 to refer to the language that is currently being studied. L1 here refers to any languages learnt early in life, and L2 any other languages learnt later in life (aside from L3). Hence, EBLs and EBLs+L2 have two L1s which are learnt in their early stage of life and EBLs+L2 have one or more L2s studied prior to studying L3. Korean, in the present study, is L3 for both groups.

The second research question to be addressed is whether L3 Korean learners who have L2 experience with languages featuring similar case-marking systems, such as Japanese, will transfer their knowledge and thus outperform other learners. This is the prediction of such theories as the Typological Proximity Model (Rothman, 2011). We hypothesize that learners with Japanese knowledge will outperform others in learning Korean case-marking.²

Finally, the present study will compare a range of argument structures, only some of which are analogous to L1 and L2 structures. We hypothesize that learners will show a difference in case-marking performance among the argument structures due to transfer of their previous knowledge of familiar structures from their L1 and L2.

The hypotheses to test in this study may be summarized as follows:

- (1) EBLs+L2 will outperform other EBLs.
- (2) Learners with L2 Japanese experience will outperform those without such experience, given the close typological proximity of Japanese to Korean.
- (3) Learners will perform better in structures similar to those in their L1s or L2s.

Participants and methodology

Participants

The data used in this study were gathered in 2013–2014 from 112 participants, all students of ages 18–22 years attending the National University of Singapore.³ Participants completed a language background questionnaire in which details regarding home language, prior language experience, and language proficiency were collected. Based on their reported language experiences, four participants who were late bilinguals were eliminated from the data, leaving 108 remaining participants who were classified as early bilinguals; this classification was made following González (2008) in which ‘early bilinguals’ are those who acquired two languages simultaneously or consecutively before eight years old. Those participants with prior experience in formal study of an L2 were further classified as EBLs+L2 ($n = 31$) while those without such experience were classified as EBLs ($n = 77$), as described in the previous section. The EBLs+L2

Table 1. Language background of Early Bilinguals and Early Bilinguals with L2 learning experience.

Group	L1	L2 in formal setting	L3 in formal setting
Early Bilinguals (EBLs)	A and B	None	Korean
Early Bilinguals with L2 learning experience (EBLs+L2)	A and B	C	Korean

participants include 28 English–Chinese bilinguals, two English–Malay bilinguals and one English–Tamil bilingual. Of these, a subset had studied L2 Japanese ($n = 15$) while the others had L2s of Malay ($n = 5$), Mandarin Chinese ($n = 3$), French ($n = 1$), German ($n = 2$), Thai ($n = 2$), Bahasa Indonesia ($n = 2$), and Cantonese ($n = 1$). Based on self-report in a language background questionnaire, L2 proficiencies ranged from upper intermediate ($n = 6$), lower intermediate ($n = 10$), upper novice ($n = 11$) to lower novice ($n = 4$). Five of the EBLs+L2 were male and 26 were female. Among the 77 EBLs, 74 were English–Chinese bilinguals, two were English–Malay bilinguals, and 1 was an English–Indonesian bilingual, with 22 male and 55 female participants.

At the time of participation, all participants had been studying beginner-level Korean for two months at the university level.

Methodology

The study was presented online via the Qualtrics platform (www.qualtrics.com). Participants were asked to fill out a language background survey and then to complete an untimed grammaticality judgement task (GJT) designed to test participants' explicit knowledge of the Korean case-marking system (Ellis, 2005). Thirty-six sentences were presented in randomized order. For each item, participants rated the sentence on a four-point scale of 'Correct/Probably Correct/Probably Wrong/Wrong'.⁴

Stimuli were constructed for four sentence types: (1) intransitive verb with full argument structure, (2) transitive verb with full argument structure, (3) transitive verb with one dropped argument, and (4) descriptive verb with full argument structure. Korean descriptive verbs are a special class of verb semantically equivalent to adjectives. Descriptive verbs do not require a copula to form a complete Verb Phrase but do require an argument, usually a nominative (see (4)). In Korean linguistics, descriptive verbs are contrasted with 'action verbs', meaning transitive and intransitive verbs, which use various argument structures appropriate to the verb, as in (5).

(4) Descriptive verb: 'to be tired'

Megan-*i pigonhada*.

[NOM] [D. VERB]

'Megan is tired.'

(5) a. Action verb (intransitive verb): 'to sleep'

Megan-*i janda*.

[NOM] [A. VERB]

'Megan sleeps.'

b. Action verb (transitive verb): 'to eat'

Megan-*i sagua-lul meok-neun-da*.

[NOM] [ACC] [A. VERB]

'Megan eats an apple.'

The transitive verbs were tested with two types of argument structure: full arguments and one argument out of two explicitly realized. While dropped arguments are frequent in Korean sentences (Kim, 2000), such structures are uncommon in English and increase the complexity of the GJT.

Within each category, three grammatical sentences and three ungrammatical sentences were presented (see Table 2).

The selection of sentence content was motivated by a number of considerations. First, the vocabulary was selected based on its usage and frequency in the textbook used for the Korean course at the National University of Singapore, to ensure that all the participants were aware of the meaning of the verbs and the nouns. Second, the number of verbs was evenly distributed between transitive verbs (e.g. *meokda* ('to eat'), *boda* ('to see')), intransitive verbs (e.g. *utda* ('to smile'), *anda* ('to sit')), and descriptive verbs (e.g. *cupda* ('to be cold'), *jaemiitda* ('to be interesting')). Third, the sentences were composed to avoid the most typical combinations of subjects and predicates such as 'a teacher is teaching' or 'a student is studying', to reduce participant's reliance on memorized sequences.

The grammatically incorrect sentences among the test items all featured errors involving case-marking (see example 6). Grammatically incorrect filler sentences had errors elsewhere (e.g. other case-marking errors, irregular verb errors, and conjugation errors). Sample sentences are shown in (6)a–h.

(6)

a. Intransitive verb, grammatically correct sentence

회사원이 학교에 갑니다.

The office worker–NOM school–LOC go

'The office worker goes to school.'

b. Transitive verb with full arguments, grammatically correct sentence

어머니가 한국어를 가르칩니다.

Mother–NOM Korean–ACC teach

'Mother teaches Korean.'

c. Transitive verb with dropped argument, grammatically correct sentence

닭을 먹습니다. (Nominative dropped)

Chicken–ACC eat

'(Someone) eats a chicken.'

d. Descriptive verb, grammatically correct sentence

핸드폰이 작습니다.

The mobile phone–NOM be small

'The mobile phone is small.'

e. Intransitive verb, grammatically incorrect sentence

*한국에 토미 씨를 삽니다.

Korea–LOC Tommy–ACC live

'Lives Tommy in Korea.'

f. Transitive verb with full arguments, grammatically incorrect sentence

*영화가 선생님을 봅니다.

The film–NOM the teacher–ACC watch

'The film watches the teacher.'

g. Transitive verb with dropped argument, grammatically incorrect sentence

*피아노가 배웁니다. (Accusative dropped)

The piano–NOM learn

'The piano learns (something).'

h. Descriptive verb, grammatically incorrect sentence

*도서관을 덥습니다.

The library–ACC be hot

'Is hot the library.'

Table 2. Test items in GJT (untimed).

Type	Arguments required	Arguments realized	Correct sentences	Incorrect sentences
Intransitive verb (IVA)	One	One	$n = 3$	$n = 3$
Transitive verb (TVA)	Two	Two	$n = 3$	$n = 3$
Transitive verb (TVB)	Two	One	$n = 3$	$n = 3$
Descriptive verb (DVA)	One	One	$n = 3$	$n = 3$
Distractor (fillers)	Various	Various	$n = 6$	$n = 6$

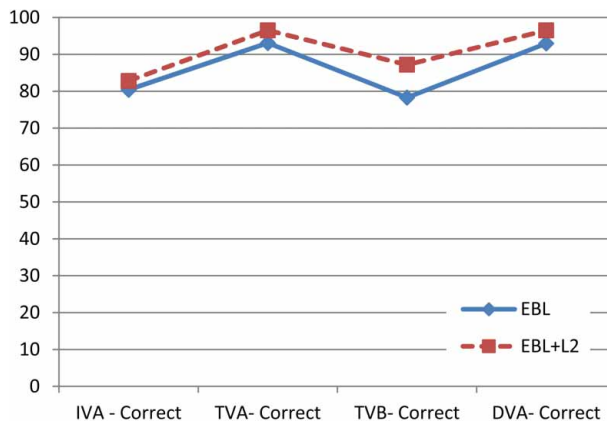
Results

Overall Performance

Participants' overall accuracy on the GJT was calculated based on the distance of each response from the correct answer, ranging from 4 (correct answer) to 1 (wrong answer). Thus, participants who were more confident in their correct answers on the 4-point scale received higher scores. The performance of EBLs+L2 and EBLs is shown in Figure 1 for grammatically correct sentences and Figure 2 for grammatically incorrect sentences. Overall, the difference between the two groups is statistically significant ($t(106) = 2.9482, p = .0039$). It is therefore supported that EBLs+L2 ($M = 87.3, SD = 10.2, n = 31$) perform better than EBLs ($M = 81, SD = 10.2, n = 77$) in learning the Korean case-marking system.⁵ Moreover, the difference between two groups is larger in grammatically incorrect sentences (EBLs+L2 ($M = 83.9, SD = 14.2, n = 31$) and EBL ($M = 75.7, SD = 15.7, n = 77$)) than in grammatically correct sentences (EBLs+L2 ($M = 90.8, SD = 8.7, n = 31$) and EBLs ($M = 86.2, SD = 9.4, n = 77$)).

EBLs+L2 outperformed EBLs within each sentence type. This difference is larger for ungrammatical TVB and DVA sentences compared to the other categories. These sentence type differences will be addressed in the following section (Performance by Sentence Type).

A potential L2 typological effect was investigated by comparing the performance of the EBLs+L2 who had studied Japanese (EBLs+Jap) ($n = 15$) versus the EBLs+L2 who had learnt other L2s that are not typologically related to Korean (EBLs+non-Jap) ($n = 16$). While EBLs+Jap slightly outperformed EBLs+non-Jap ($M = 90.0$ versus $M = 84.8$), this difference was

**Figure 1.** GJT accuracy of EBLs+L2 and EBLs in grammatically correct sentences by sentence type.

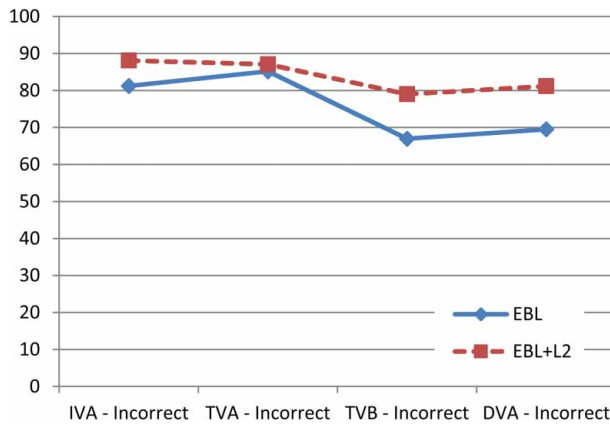


Figure 2. GJT accuracy of EBLs+L2 and EBLs in grammatically incorrect sentences by sentence type.

not significant ($t(29) = 1.45, p = .1580$). Nonetheless, a consistent trend was seen for the two groups, in the sense that EBLs+Jap ($M = 92.8, SD = 5.9, n = 15$) outperformed EBLs+non-Jap ($M = 88.8, SD = 10.6, n = 16$) in both grammatically correct and incorrect sentences (EBLs+Jap ($M = 87.2, SD = 13.7, n = 15$) and EBLs+non-Jap ($M = 80.7, SD = 14.4, n = 16$)). Comparisons of EBLs+Jap versus EBLs+non-Jap are shown in [Figure 3](#) for grammatically correct sentences and [Figure 4](#) for grammatically incorrect sentences.

Performance by sentence type

Further analysis of the results according to sentence type and grammaticality reveals more differences among the participant groups. A significant difference between EBLs+L2 and EBLs was noted in TVB and DVA ungrammatical sentences (see [Table 3](#)). TVB sentences are those that have a transitive verb with a dropped NP while DVA sentences have a

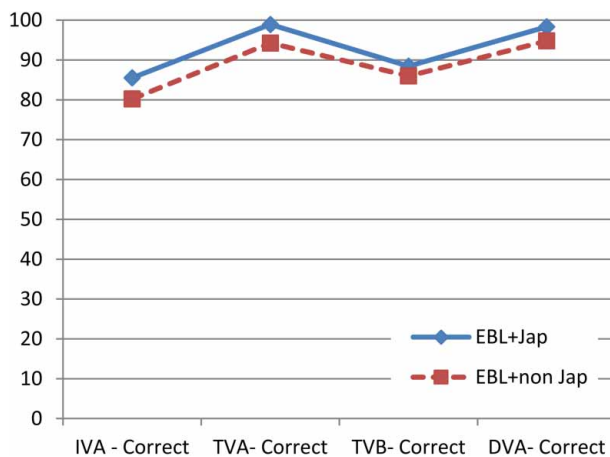


Figure 3. GJT accuracy of EBLs+Jap versus EBLs+non-Jap in grammatically correct sentences by sentence type.

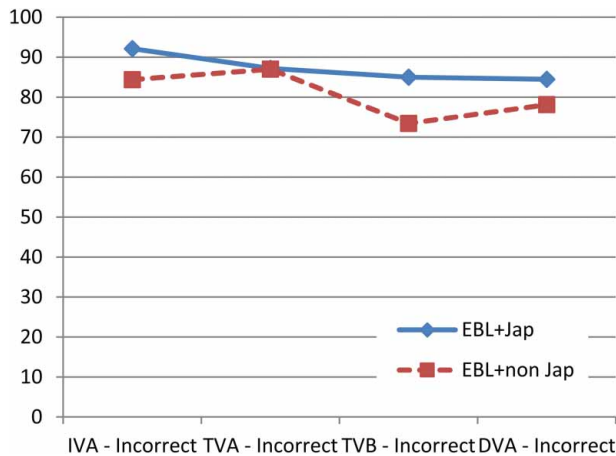


Figure 4. GJT accuracy of EBLs+Jap versus EBLs+non-Jap in grammatically incorrect sentences by sentence type.

descriptive verb as the head of its predicate. The grammatical error in these test items was created by swapping the accusative and nominative case-markers.

To understand the performance in different categories more thoroughly, a one-way between-subjects ANOVA was conducted using the variable of verb types as grouping factor and the dependent variable of GJT performance for grammatically incorrect sentences. A repeated-measures ANOVA testing for differences in sentence categories of ungrammatical sentences for EBLs found a significant difference between types, $F(3228) = 21.74$, $p < .0001$. EBLs+L2 performance showed a marginally significant difference between sentence types ($F(3,90) = 2.53$, $p = .0622$). However, no significant difference was found in the comparison of EBLs+Jap versus EBLs+non-Jap in each sentence type. The performance of these two groups by sentence category is given at Table 4.

Among the sentence types tested, certain sentence patterns are analogous to English (IVA and TVA) while others are unique relative to English (TVB and DVA). A repeated-measures ANOVA test shows that EBLs performed significantly better ($t(306) = 6.1528$, $p < .0001$) on familiar structures (IVA and TVA) than on previously unknown structures (TVB and DVA). EBLs+L2 also show a statistically significant difference between these two groups ($t(122) = 2.1459$, $p = .0339$). However, we should note that there is a significant interaction between participant groups and sentence types ($F(1214) = 4.03$, $p = .045956$) such that the difference between types is larger in EBLs, meaning that EBLs performed more differently according to sentence type compared to EBLs+L2.

Table 3. Performance of EBLs+L2 versus EBLs in grammatically incorrect sentences.

Sentence type	IVA		TVA		TVB		DVA	
	EBL	EBL+L2	EBL	EBL+L2	EBL	EBL+L2	EBL	EBL+L2
Participant group	EBL	EBL+L2	EBL	EBL+L2	EBL	EBL+L2	EBL	EBL+L2
Mean	81.22	88.13	85.18	87.1	66.96	79.03	69.52	81.19
SD	18.47	17.12	18.89	19.37	25.0	20.86	22.33	20.82
N	77	31	77	31	77	31	77	31
t Value	$t(106) = 1.79$		$t(106) = 0.4731$		$t(106) = 2.3746$		$t(106) = 2.5044$	
p Value	.756		.6371		.0194		.0138	

Table 4. EBLs+Jap and EBLs+non-Jap in grammatically incorrect sentences.

Sentence type Participant group	IVA		TVA		TVB		DVA	
	Jap	Non-Jap	Jap	Non-Jap	Jap	Non-Jap	Jap	Non-Jap
Mean	92.13	84.38	87.2	87.0	85.0	73.44	84.47	78.12
SD	15.07	18.53	22.54	16.61	21.59	19.13	19.08	22.51
<i>N</i>	15	16	15	16	15	16	15	16
<i>t</i> Value	$t(29) = 1.2739$		$t(29) = 0.0283$		$t(29) = 1.5802$		$t(29) = 0.8433$	
<i>p</i> Value	.2128		.9777		.1249		.4060	

The role of primary home language in GJT performance was also investigated. While all participants were early bilinguals, variance was found in participants' self-report of primary home language: 51 participants reported using primarily Chinese at home and 54 reported using primarily English.⁶ We might expect that participants who speak Chinese as their primary home language would view TVB as a familiar structure, given that arguments are often dropped in Chinese. No significant differences, however, were found in the performance of participants in TVB by primary home language ($t(103) = 1.1442$, $p = .2552$). This phenomenon may result from the particular linguistic situation of Singapore; while some participants reported using primarily Chinese at home, the universal English-medium education system produces students who are highly proficient in English and use it on a daily basis outside of the home as their primary academic and social language. Moreover, the distinction between participants who use primarily Chinese and primarily English at home is not clear-cut, as many Singaporeans use both Chinese and English at home (Zhao & Liu, 2007). On the other hand, previous work on L2 learners of null-subject languages suggests that learners do not straightforwardly transfer their L1's argument-dropping features to L2 (Liceras & Díaz, 1999); this suggests that Chinese-dominant learners of Korean may not in fact perceive these dropped-argument constructions in Korean as familiar.

Discussion

Our study finds that EBLs+L2, who have experience with formal language learning in addition to an early bilingual background, outperform EBLs who have no such formal learning experience in a Korean case-marking GJT. In other words, it appears that formal second language learning experience, rather than experience of knowing more than one language, particularly aids in the learning of a subsequent language. One explanation for this difference is that EBLs have lower levels of metalinguistic awareness compared to EBLs+L2, who develop such awareness as part of the formal language learning process. This interpretation is supported by the previous finding of Thomas (1988) that formal L2 study experience, as opposed to informal learning, gives an advantage to English–Spanish bilinguals studying French as L3. As metalinguistic awareness was not explicitly tested in the present study, however, it cannot be definitively concluded that this is the mechanism underlying the superior performance of the EBLs+L2 group; we also cannot be sure that formal language study has led to this higher metalinguistic awareness. For example, it is also possible that participants with higher general academic aptitude or higher innate language learning aptitude are more likely to have formally studied languages in the past.

The issue of transfer from typologically close L2s was also investigated. Among the EBL+L2 participants in the study were individuals with diverse L2 backgrounds, including

Japanese, Malay, Chinese, French, German, and Thai. If typological proximity affects performance in L3 as previous research suggests (Cenoz, 2001; Rothman, 2011), learners with L2 Japanese experience should outperform others. The present study, however, found no significant difference in overall performance between EBLs+Jap and EBLs+non-Jap, although trends were seen in the expected direction. This finding suggests that L2 typological proximity does not play a strong role in learning an additional language, at least among early bilinguals. On the contrary, any language learning experience in a formal setting is advantageous in learning a subsequent language. This result also indicates that transfer of previous language knowledge is not the primary mechanism underlying the benefits of multilingualism in language learning; rather, this advantage may stem from general metalinguistic awareness developed by learning languages in a formal setting.

Several crucial differences in performance were found according to sentence type, suggesting further differences between EBLs+L2 and EBLs. Sentence types TVB ($t(106) = 2.3746, p = .0194$) and DVA ($t(106) = 2.5044, p = .0138$) were significantly more difficult than other sentence types in incorrect sentences for EBLs. This finding is particularly notable because none of the L2s studied by the EBLs+L2, including Japanese, have a structure analogous to the descriptive verb pattern of Korean. In other words, this demonstrates that EBLs+L2 are able to acquire entirely novel structures just as effectively as structures familiar from previously learned languages, while EBLs struggle more with new patterns. Given the between sentence-type effects on EBLs versus EBLs+L2, it appears that EBLs+L2, perhaps due to higher metalinguistic awareness, are more sensitive to new structures and can acquire them more efficiently, whereas EBLs show an effect of positive transfer for argument structures they are familiar with. These findings therefore suggest that EBLs are affected more significantly than EBLs+L2 by knowledge of previously learned languages.

Conclusion

Bilinguals are generally advantaged in learning an additional language. This study has investigated the role of previously known languages and bilingualism in learning an L3 with two groups of participants: early bilinguals and early bilinguals who have formally studied an additional language. Hypotheses are repeated here:

- (1) EBLs+L2 will outperform other EBLs.
- (2) Learners with L2 Japanese experience will outperform those without such experience, given the close typological proximity of Japanese to Korean.
- (3) Learners will perform better in structures similar to those in their L1s or L2s.

Hypothesis 1 is fully supported. We further propose that EBLs+L2 are advantaged in learning a subsequent language due to their enhanced sensitivity in recognizing new grammatical structures, a skill that develops while learning a foreign language in a formal setting. This skill aids in the control and analysis of linguistic input in learning L3 or later languages. Further research explicitly examining metalinguistic awareness will clarify whether this account is supported.

Hypothesis 2 is not strongly supported, although trends were seen in the expected direction. We conclude that formal language learning experience is generally advantageous in learning an additional language regardless of typological proximity between learners' previous language(s) and the target language.

Hypothesis 3 is supported primarily in the case of learners with no prior formal language learning experience. Early bilinguals with formal L2 learning experience showed an ability to control negative transfer of a previously acquired linguistic system to L3 and enhanced sensitivity in analysing new linguistic inputs which resulted in showing more consistent performance over four Korean verb structures, although some effect of familiar versus unfamiliar structures was still observed. In contrast, early bilinguals without any formal L2 learning experience showed significantly better performance for familiar structures than unfamiliar structures, indicating a greater reliance on transfer from previously known languages.

In conclusion, previous formal study of a non-native language is beneficial in L3 learning among early bilinguals. However, this benefit is not limited to languages that are typologically close to L3. Formal language learning experience with any previous language, regardless of typological proximity, is associated with enhanced performance in learning a subsequent language. While early bilinguals performed significantly differently between familiar and unfamiliar structures in a target language, early bilinguals with L2 learning experience performed more consistently over familiar and unfamiliar structures and outperformed early bilinguals overall. One possible account for these findings is that learning a language in a formal setting later in life develops metalinguistic awareness and facilitates subsequent language learning, even among those who have simultaneously acquired two languages early in life. Thus, while early bilingualism does benefit language learning, we propose that additional formal language study contributes different but significant benefits to subsequent language learning performance.

Disclosure statement

No potential conflict of interest was reported by the authors.

Notes

1. Although case-marking in Korean is optional, explicit marking is generally used in the more formal register of the classroom (Kim, 1990).
2. Although various other languages have case-marking systems similar to Japanese and Korean, there are no such languages studied as L2s in the learner population under investigation in the present research. Therefore, the only typologically relevant L2 distinction here is between Japanese and other L2s (Chinese, Thai, etc.).
3. Singapore presents an excellent opportunity to contrast various types of bilingualism, as exposure to multiple languages from a young age is the societal norm. Particularly among the university educated, English is often spoken in the home as the primary language in addition to heritage languages, including Mandarin, Malay, Hokkien, Cantonese, Tamil, and others (Siemund, Schulz, & Schweinberger, 2014). Although all government schools in Singapore are of English medium, Singaporean children are exposed to bilingual education through compulsory heritage language classes to reinforce bilingual language ability. Only a subset of those children, however, goes on to engage in formal study of an L2 beyond their heritage language. This distinction yields two classes of participants: EBLs and EBLs+L2.
4. A scalar judgement was used for the GJT to capture more fine-grained distinctions between participants regarding certainty. A similar scalar approach to a non-native speaker judgement task is used in Iverson and Rothman (2011). This method is particularly relevant for the present task, as nominative and accusative case-marking is a relatively basic element of Korean that participants are anticipated to perform well on in a binary judgement task. We anticipated that learners with

prior experience in Japanese, with its similar case-marking system, would report higher certainty than learners without such experience.

5. All scores have been converted to a scale with a maximum of 100 for greater clarity. The unadjusted maximum score for the GJT accuracy measure was 36.
6. Of the remaining three participants, one reported using English and Chinese equally at home, one spoke primarily Indonesian at home, and one primarily Malay at home. These participants were excluded from the home language analysis.

References

- Bardel, C., & Falk, Y. (2007). The role of the second language in third language acquisition: The case of Germanic syntax. *Second Language Research*, 23, 459–484.
- Bardel, C., & Falk, Y. (2012). The L2 status factor and the declarative/procedural distinction. In J. A. Amaro, S. Flynn, & J. Rothman (Eds.), *Third language acquisition in adulthood* (pp. 165–194). Philadelphia, PA: John Benjamins.
- Bialystok, E. (1988). Levels of bilingualism and levels of linguistic awareness. *Developmental Psychology*, 24, 560–567.
- Bialystok, E. (2007). Cognitive effects of bilingualism: How linguistic experience leads to cognitive change. *International Journal of Bilingual Education and Bilingualism*, 10(3), 210–223.
- Bialystok, E., Craik, F., & Ryan, J. (2006). Executive control in a modified antisaccade task: Effects of aging and bilingualism. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 32, 1341–1354.
- Bialystok, E., & NetLibrary, I. (2001). *Bilingualism in development: Language, literacy, and cognition*. Cambridge: Cambridge University Press.
- Bialystok, E., & Shapero, D. (2005). Ambiguous benefits: The effect of bilingualism on reversing ambiguous figures. *Developmental Science*, 8, 595–604.
- Bowden, H. W., Sanz, C., & Stafford, C. A. (2005). Individual differences: Age, sex, working memory, and prior knowledge. In C. Sanz (Eds.), *Mind and context in adult second language acquisition: Methods, theory, and practice* (pp. 105–140). Washington, DC: Georgetown University Press.
- Cenoz, J. (2001). The effect of linguistic distance, L2 status and age on cross-linguistic influence in third language acquisition. In J. Cenoz, B. Hufeisen, & U. Jessner (Eds.), *Cross-linguistic influence in third language acquisition: Psycholinguistic perspectives* (pp. 8–20). Clevedon: Multilingual Matters.
- Cenoz, J. (2003). The additive effect of bilingualism on third language acquisition: A review. *The International Journal of Bilingualism*, 7(1), 71–87.
- Cromdal, J. (1999). Childhood bilingualism and metalinguistic skills: Analysis and control in young Swedish-English bilinguals. *Applied Psycholinguistics*, 20(1), 1–20.
- Cummins, J. (1978). Bilingualism and the development of metalinguistic awareness. *Journal of Cross-Cultural Psychology*, 9(2), 131–149.
- De Angelis, G., & Selinker, L. (2001). Interlanguage transfer and competing linguistic systems in the multilingual mind. In J. Cenoz, B. Hufeisen, & U. Jessner (Eds.), *Cross-linguistic influence in third language acquisition: Psycholinguistic perspectives* (pp. 42–58). Clevedon: Multilingual Matters.
- Ellis, R. (2005). Measuring implicit and explicit knowledge of a second language. *SSLA*, 27, 141–117.
- Falk, Y., Lindqvist, C., & Bardel, C. (2015). The role of L1 explicit metalinguistic knowledge in L3 oral production at the initial state. *Bilingualism*, 18(2), 227–235.
- Flynn, S., Foley, C., & Vinnitskaya, I. (2004). The cumulative-enhancement model for language acquisition: Comparing adults' and children's patterns of development in first, second and third language acquisition of relative clauses. *The International Journal of Multilingualism*, 1, 3–16.
- Gass, M. S., & Selinker, L. (2008). *Second language acquisition: An introductory course* (3rd ed.). New York, NY: Routledge/Taylor and Francis Group.
- González, J. M. (Ed.). (2008). *Encyclopedia of bilingual education* (Vols. 1–2). Thousand Oaks, CA: SAGE Publications. doi:10.4135/9781412963985

- Hammarberg, B. (2001). Roles of L1 and L2 in L3 production. In J. Cenoz, B. Hufeisen, & U. Jessner (Eds.), *Cross-linguistic influence in third language acquisition: Psycholinguistic perspectives* (pp. 21–41). Clevedon: Multilingual Matters.
- Hawkins, R., & Chan, C. Y-h. (1997). The partial availability of Universal Grammar in second language acquisition: The failed functional features hypothesis. *Second Language Research*, 13, 187–226.
- Hulstijn, J. H. (2005). Theoretical and empirical issues in the study of implicit and explicit second-language learning. *Studies in Second Language Acquisition*, 27, 129–140.
- Jaensch, C. (2009). L3 enhanced feature sensitivity as a result of higher proficiency in the L2. In Y.-k. I. Leung (Eds.), *Third language acquisition and universal grammar* (pp. 115–143). Bristol: Multilinguals Matters.
- Jaensch, C. (2012). Acquisition of L3 German. In J. A. Amaro, S. Flynn, & J. Rothman (Eds.), *Third language acquisition in adulthood* (pp. 165–194). Philadelphia, PA: John Benjamins.
- Jessner, U. (2006). *Linguistic awareness in multilinguals: English as a third language*. Edinburgh: Edinburgh University Press.
- Kellerman, E. (1983). Now you see it, now you don't. In S. Gass & L. Selinker (Eds.), *Language transfer in language learning* (pp. 112–134). Rowley, MA: Newbury House.
- Kim, Y.-J. (1990). *The syntax and semantics of Korean case: The interaction between lexical and syntactic levels of representation*. Doctoral dissertation. Harvard University.
- Kim, Y. (2000). Subject/object drop in the acquisition of Korean: A cross-linguistic comparison. *Journal of East Asian Linguistics*, 9(4), 325–351.
- Klein, E. C. (1995). Second versus third language acquisition: Is there a difference? *Language Learning*, 45(3), 419–466.
- Leung, Y.-K. I. (2003). *Failed features versus full transfer full access in the acquisition of a third language: Evidence from tense and agreement*. In J. M. Liceras, H. Zobl, & H. Goodluck (Eds.), *Proceedings of the 6th Generative Approaches to Second Language Acquisition Conference GASLA 2002:L2 Links* (pp. 199–207). Somerville, MA: Cascadilla Proceedings Project.
- Leung, Y.-K. I. (2005). L2 vs. L3 initial state: A comparative study of the acquisition of French DPs by Vietnamese monolinguals and Cantonese–English bilinguals. *Bilingualism: Language and Cognition*, 8, 39–61.
- Liceras, J. M., & Díaz, L. (1999). Topic-drop versus pro-drop: Null subjects and pronominal subjects in the Spanish L2 of Chinese, English, French, German and Japanese speakers. *Second Language Research*, 15(1), 1–40.
- Meisel, J. M. (1983). Transfer as a second-language strategy. *Language and Communication*, 3(1), 11–46.
- Montrul, S., Dias, R., & Santos, H. (2011). Clitics and object expression in the L3 acquisition of Brazilian Portuguese: Structural similarity matters for transfer. *Second Language Research*, 27, 21–58.
- Mitchell, R., Myles, F., & Marsden, E. (2013). *Second language learning theories* (3rd ed.). London: Routledge.
- Paradis, M. (2009). *Declarative and procedural determinants of second languages*. Philadelphia, PA: John Benjamins Pub.
- Ringbom, H. (1987). *The role of the first language in foreign language learning*. Clevedon: Multilingual Matters.
- Rothman, J. (2010). On the typological economy of syntactic transfer: Word order and relative clause attachment preference in L3 Brazilian Portuguese. *International Review of Applied Linguistics (IRAL)*, 48, 243–271.
- Rothman, J. (2011). L3 syntactic transfer selectivity and typological determinacy: The typological primacy model. *Second Language Research*, 27(1), 107–127.
- Rothman, J. (2015). Linguistic and cognitive motivations for the typological primacy model (TPM) of third language (L3) transfer: Timing of acquisition and proficiency considered. *Bilingualism*, 18(2), 179–190.
- Rothman, J., & Cabrelli Amaro, J. (2007). *On the initial state of L3 (Ln) acquisition: Selective or absolute transfer?* Paper presented at the 5th International Conference on Third Language Acquisition, Stirling.

- Rothman, J., & Cabrelli Amaro, J. (2010). What variables condition syntactic transfer? A look at the L3 initial state. *Second Language Research*, 26, 189–218.
- Sanz, C. (2000). Bilingual education enhances third language acquisition: Evidence from Catalonia. *Applied Psycholinguistics*, 21(1), 23–44.
- Siemund, P., Schulz, M. E., & Schweinberger, M. (2014). Studying the linguistic ecology of Singapore: A comparison of college and university students. *World Englishes*, 33(3), 340–362.
- Thomas, J. (1988). The role played by metalinguistic awareness in second and third language learning. *Journal of Multilingual and Multicultural Development*, 9(3), 235–246.
- Tomasello, M. (2003). *Constructing a language: A usage-based theory of language acquisition*. Cambridge, MA: Harvard University Press.
- Zhao, S., & Liu, Y. (2007). Home language shift and its implications for language planning in Singapore: From the perspective of prestige planning. *The Asia-Pacific Education Researcher*, 16(2), 111–126.