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BRIEF RESEARCH REPORT

Exposure to Foreign Languages through Live Interaction Can Facilitate Children's Acceptance of Multiple Labeling Conventions across Languages

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Abstract

The current research examined whether children's expectations about labeling conventions can be influenced by limited exposure to a foreign language. Three- to four-year-old Korean children were presented with two speakers who each assigned a novel label either in Korean or Spanish to a novel object. Children were asked whether both labels were acceptable for the object. Children who had more exposure to a foreign language through live social interaction, but not through media, were more likely to accept both Korean and Spanish labels. These findings indicate the influence of social interaction in foreign language exposure on children's understanding of different labeling conventions.

Keywords: foreign language exposure; word learning; conventionality

Introduction

Every language community has its own agreements on how to use the language – that is, conventions of the language (Clark, 2007). For example, a round, edible fruit with shiny red or green skin is referred to as an "apple" in English, but it is referred to as "sakwa" in Korean and "manzana" in Spanish. To learn a foreign language, one must accept that different languages have different labeling conventions. Do young children understand that an object can have multiple labels across languages? What kind of linguistic experience might help children to develop an awareness of different labeling conventions across languages? The current research investigated how experience with foreign languages influences children's awareness of different labeling conventions across languages.

Previous research has explored children's understanding of different labeling conventions by assessing whether they can override mutual exclusivity (i.e., the assumption that each object has only one label (e.g., Markman & Wachtel, 1988)) when inferring the meaning of a novel word from a foreign language (Au & Glusman, 1990; Byers-Heinlein, Chen & Xu, 2014; Haryu, 1998; Merriman & Kutlesic, 1993). From early in development,

young children readily rely on this assumption to constrain the meaning of new words (Diesendruck & Markson, 2001; Markman, Wasow & Hansen, 2003; Merriman & Bowman, 1989). However, preschoolers can suspend mutual exclusivity when inferring the meaning of a novel word from a foreign language (Au & Glusman, 1990; Byers-Heinlein et al., 2014; Haryu, 1998; Lee, Kim, & Song, 2016; Merriman & Kutlesic, 1993). For example, in Au and Glusman's (1990) experiment, 3–5-year-old children were asked to find the referent of a novel word from a foreign language in the presence of two objects, one of which already had a name in their native language and the other of which was nameless. If they had not understood that an object can have multiple labels across languages, they should have chosen the nameless object under the mutual exclusivity assumption. However, the children chose objects randomly, suggesting that preschoolers have some implicit understanding that an object can have different labeling conventions across languages.

Children's acceptance of different labels across languages is influenced by their linguistic experiences (Akhtar, Menjivar, Hoicka, & Sabbagh, 2012; Byers-Heinlein et al., 2014; Menjivar & Akhtar, 2017; Rojo & Echols, 2018). Specifically, bilingualism has been proposed to modulate children's use of mutual exclusivity from infancy. In contrast to their monolingual peers, bilingual infants are less likely to use the mutual exclusivity strategy when interpreting the meaning of new words (Byers-Heinlein & Werker, 2009; Houston-Price, Caloghiris, & Raviglione, 2010). When a novel label is presented with a familiar object, bilingual infants accept it as a second label whereas their monolingual counterparts interpret the word as describing a salient property of the object (Kandhadai, Hall, & Werker, 2017). Furthermore, bilingual toddlers have a better understanding of the fact that object labels differ across languages than monolingual children (Byers-Heinlein et al., 2014).

Not only bilingual but also monolingual children who have mere exposure to (but not fluency in) a foreign language more readily accept different labels from foreign languages compared to those who have not had such exposure (Akhtar et al., 2012; Menjivar & Akhtar, 2017; Rojo & Echols, 2018). For example, Rojo and Echols (2018) tested English-speaking children who had been merely exposed to a nonnative language. In their experiment, children were asked whether a novel object can have two different novel labels, one from English and the other from Spanish. The results showed that children who had greater exposure to foreign languages were more likely to accept both the English and Spanish labels compared to children with less foreign language exposure.

Taken together, previous studies suggest that children's amount of foreign language exposure influences their acceptance of different labeling conventions across languages. However, these studies do not address the characteristics of foreign language exposure that contribute to children's understanding of different labeling conventions. The current research thus examined whether social aspects of foreign language exposure may be important for children to learn different communicative conventions across different languages, following theoretical considerations that traditionally consider social experience a critical factor that guides early language learning (Goldstein, King, & West, 2003; Kuhl, 2007; Nelson, 2007; Sage & Baldwin, 2010; Vygotsky, 1962; Yusa, Kim, Koizumi, Sugiura, & Kawashima, 2017). Infants are more attentive to a human speaker than a non-human source of speech (e.g., an audio-speaker or TV monitor; Kuhl, Tsao, & Liu, 2003). Social capacities such as sensitivity to others' eye gaze, establishing joint attention with others, and understanding others' referential intentions are found to be the key building blocks of language acquisition (Baldwin, 1995; Bloom, 2002; Moll & Tomasello, 2007). These findings suggest that language exposure in social interaction is very critical for children's language learning in general.

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Most of the previous evidence on the importance of social interaction in language learning comes from controlled experiments (Krcmar, Grela, & Lin, 2007; Roseberry, Hirsh-Pasek, & Golinkoff, 2014; Roseberry, Hirsh-Pasek, Parish-Morris, & Golinkoff, 2009). Children are typically presented with some pseudo-words from social or non-social sources in experimental settings and then their word learning is assessed. However, less is known about the effects of social interaction on children's language learning in natural language situations. There is much more complexity and variation in natural language than in the limited linguistic input provided in laboratories for research. Although rare, there are relevant studies on the effect of social interaction on language learning in natural language-learning settings (DeLoache et al., 2010; Kuhl et al., 2003). For example, in Kuhl et al. (2003), American 9-month-old infants heard large amounts of the natural complex language of Mandarin in three different ways, by live speakers, videos, or audio-only recordings. Infants were able to learn the phonetic features of Mandarin when they were exposed to it by live speakers but not when exposed via video or audio recordings. These findings suggest that live interaction exposure in natural language settings plays a critical role in children's phonetic learning in a foreign language. More research is needed to investigate if live interaction exposure in natural language affects other aspects of language learning besides phonetic learning. It is possible that naturalistic foreign language exposure through social interaction may support not only children's ability to discriminate different phonetic features of a foreign language but also children's acquisition of labeling conventions across different languages.

The Current Research

The goal of the current study was to identify the types of foreign language experience that contribute to children's acceptance of different labeling conventions across languages. Three- to four-year-old monolingual children who varied in their amounts of foreign language exposure were tested. We chose to test 3- and 4-year-olds because from the age of three, children understand that native and foreign language speakers do not share word knowledge (Diesendruck, 2005; Lee et al., 2016; Schell, 2016). Children's foreign language exposure was categorized into two different types: live interaction and media. A modified version of the paradigm developed by Rojo and Echols (2018) was used to assess children's acceptance of different labeling conventions. It was hypothesized that if foreign language exposure through social interaction supports children's understanding of different labeling conventions, the extent of foreign language exposure through live interaction, but not through media, would be associated with children's understanding of different labeling conventions.

Additionally, we examined the influences of other factors that are considered potential contributors to children's acceptance of non-native words, such as foreign language fluency (Rojo & Echols, 2018), native language vocabulary (Koenig & Woodward, 2012), and age (Haryu, 1998).

Method

Participants

Participants were 73 three- to four-year-old native Korean-speaking children (36 boys and 37 girls; age range = 3.56–4.89, M = 4.26 years, SD = 0.36 years). Another

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17 children were excluded due to a parental report of language delay ($n = 1$), or failure to complete the task ($n = 1$) or to answer the test questions properly ($n = 15$). The last 15 children, who did not answer the test questions properly either, always said, "I don't know." ($n = 2$), said nonsense words that were never used in the current experiment ($n = 3$), or provided responses that were irrelevant to the test question (i.e., "My name is …"). There was no significant difference in mean age or foreign language exposure between these 15 participants and the final sample ($ps > .21$), but these 15 participants had significantly lower receptive and expressive vocabulary than the participants in the final sample (Receptive Vocabulary, $t(80) = 3.54$, $p = .001$; Expressive Vocabulary, $t(82) = 2.89$, $p = .01$).

Participants were recruited from Seoul, South Korea, and its surrounding areas. This study was conducted in accordance with the ethical guidelines and approval of the Institutional Ethics Review Board at the authors' affiliated organization. The parents were offered reimbursement for their transportation expenses, and the children were given their choice of a book from a collection of age-appropriate books.

Design

To assess the effect of the types of foreign language exposure on children's acceptance of different labeling conventions across languages, children's weekly foreign language exposure was categorized into two different types (i.e., live interaction and media). Additionally, data on children's native language vocabulary, fluency in a foreign language, and age were collected to investigate potential influences of these variables on children's willingness to accept different labeling conventions. To measure children's acceptance of different labels across languages, we used the labeling convention task, which was a modified version of the task from Rojo and Echols (2018). The task had two test trials, and each trial tested children's willingness to accept two different labeling conventions (Korean and Spanish) for a novel object.

Materials

Objects and Labels

Three familiar objects (a shoe, a teddy bear, and a toy bus) and two novel objects (unfamiliar, toy-like objects created for this study; see Figure 1) were used in the labeling convention task. The Korean labels for the familiar objects were "sinpal," "komtoli," and "pesu," respectively, while the Spanish labels for these objects were "zapato," "oso," and "bus," respectively. Novel pseudo-words described the two novel objects. The Korean labels for the two novel objects were "mwuppi" and "kkati," and the corresponding Spanish labels were "bufo" and "chisa."

Video Stimulus

The labeling convention task also used a video stimulus. In the video, two female Korean–Spanish bilingual speakers appeared in succession and took turns labeling the objects. Throughout the video, one speaker consistently spoke Korean, while the other consistently spoke Spanish. The language each speaker spoke and the order in which the two languages were presented were counterbalanced across participants.

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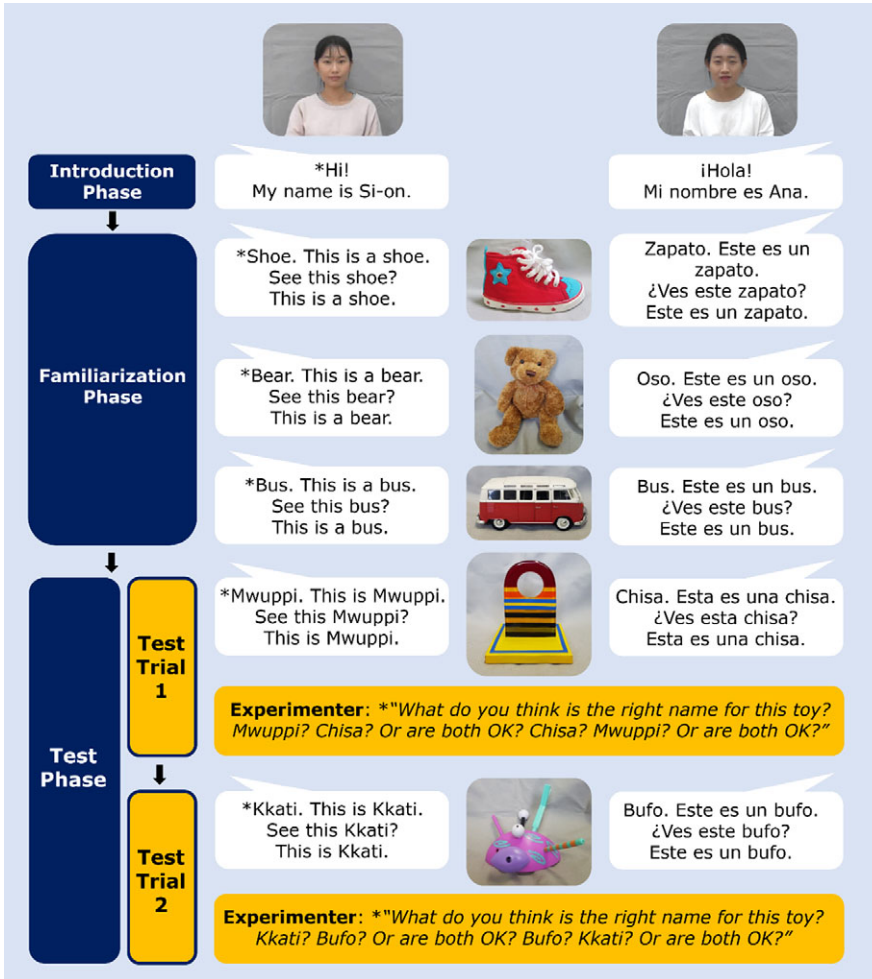

Figure 1. Schematic for Labeling Convention Task
Note. *Korean translation into English.

Foreign Language Exposure Survey

The children's parents were asked to complete a foreign language exposure survey in which they reported the average number of minutes that their child was exposed to a foreign language for each exposure type (live social interaction and media) per week. Each exposure type was further divided into three subtypes for live interaction (reading storybooks, having conversations, and taking language classes) and two subtypes for media (watching video content and listening to audio materials). Parents also indicated their children's fluency in a foreign language on a 5-point scale ranging from 1 (the child cannot understand any foreign languages) to 5 (the child can join a conversation in a foreign language).

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Procedure

The experiment took place in a university laboratory. Parents were informed of the nature of the tasks and written informed consent was obtained from each child's parents prior to the experiment. Parents also completed the foreign language exposure survey, while their child participated in the experiment in a separate room.

During the experiment, the experimenter sat next to the participant and conducted the labeling convention task which consisted of three phases: introduction, familiarization, and test. During the introduction phase, the experimenter presented a video in which a Korean speaker and a Spanish speaker appeared in succession and introduced themselves by using either a Korean name or a Spanish name. During the following familiarization phase, the speakers on the video took turns labeling three familiar objects (shoe, teddy bear, toy bus) in each language. Each speaker displayed one object at a time and labeled each object while holding it in both hands (see Appendix A). The speakers presented the object labels both in isolation and in a sentence. Each time they uttered an object label, the speaker moved the object slightly up and down once to draw the child's attention to the referent. After both speakers labeled an object, children were presented with a scene in which the object was in the center and each of the speakers appeared in the upper-left or upper-right portions of the screen, respectively. Each speaker uttered the label twice in isolation in succession (e.g., "신발! 신발!" or "Zapato! Zapato!"). It was easy to tell which speaker was labeling the object from their mouth movement. The experimenter then asked the children to recall each of the labels to verify that they had attended to the video and had an opportunity to reflect on the different labels before being asked to endorse them in the test phase.

During the test phase, the children completed two test trials. In each test trial, children watched a video in which one novel object appeared, and each speaker labeled it either with a novel Korean or Spanish label. Once both speakers had labeled each object, the children were asked by the experimenter to recall the labels for the novel objects. Then, the experimenter tested the children's willingness to accept the different labeling conventions. The experimenter asked the question twice, with the presentation of the novel labels in the question being reversed the second time. The following is an example sequence:

I cangnankam-uy olbalun irum-un mwe-ra-ko sayngkak-hay?
This toy-GEN right-ADJ name-NOM what-COP-COMP thought-do
'Which do you think is the right name for this toy?
Mwuppi? Chisa? Ani-myen twul-ta kwaynchanh-a?
[Korean novel label]? [Spanish novel label]? not-if two-all okay-SentEnder
[Korean label]? [Spanish label]? Or are both okay?
Chisa? Mwuppi? Ani-myen twul ta kwaynchanh-a?"
[Spanish novel label]? [Korean novel label]? not-if two-all okay-SentEnder
[Spanish label]? [Korean label]? Or are both okay?

The objects and labels used in the test phase differed between the two test trials. Figure 1 depicts a schematic of this task. After the labeling convention task, children's Korean vocabulary was assessed by the Receptive and Expressive Vocabulary Test (REVT; Kim, Hong, Kim, Jang, & Lee, 2009). The test is subdivided into the Receptive (REVT-R) and the Expressive (REVT-E) Vocabulary Test, and the children completed the REVT-E and REVT-R in order, after which the experimenter thanked them and invited them to choose a book as a gift.

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Coding

For each test trial, a score of 1 was assigned if a child accepted both labels, with a maximum score of 2 across the two test trials. Only responses made after the experimenter had finished asking the question (e.g., "What do you think is the right name for this toy? Mwuppi? Chisa? Or are both okay?") were counted as children's answers. Children's responses to the test questions were coded by the experimenter in real time and videotaped as well for further off-line coding. Approximately 50% of the responses (n = 36) were coded again by an off-line coder watching the recorded video. The intercoder agreement was 100%.

Results

Labeling Convention Task

In the labeling convention task, 31 out of 73 children (42.5%) received a score of 2 by accepting both the Korean and Spanish labels in both test trials. Nineteen children (26.0%) received a score of 1 by accepting both the Korean and Spanish labels in one of the two test trials, and 23 children (31.5%) received a score of 0 by accepting only one label in both of the test trials. When children accepted only one label, children chose the Korean label (i.e., "mwuppi" or "kkati") in 83.1% of the trials.

Foreign Language Exposure Survey

Most of the 73 children had been exposed to a foreign language. Seventy children (95.9%) had been exposed to English, and eight of them had also been exposed to Japanese or Chinese. Three children (4.1%) had no prior exposure to any foreign languages.

Regarding types of exposure, 46 children (63.0%) had been exposed to a foreign language through live interaction and media, 12 children (16.4%) through live interaction only, and 12 children (16.4%) through media only. The amount of exposure varied across the different types of exposure. On average, children's amount of weekly foreign language exposure was 100 minutes (range = 0–600) through live interaction and 167 minutes (range = 0–1,260) through media. Table 1 shows the mean amount of foreign language exposure by subtype.

In terms of fluency, 15 children (20.6%) did not understand any foreign languages, 13 (17.8%) could understand only a few words in a foreign language, 39 (53.4%) could speak a few words in a foreign language (but could not understand a conversation in a foreign language), four (5.5%) could understand a conversation in a foreign language, and two (2.7%) could join a conversation in a foreign language. Fluency in a foreign language was considered as a continuous variable ranging from 1 (the child did not understand any

Table 1. Mean Amount of Weekly Foreign Language Exposure in Minutes by Type and Subtype

	Exposure through live interaction				Exposure through media		
	Reading storybooks	Having conversations	Taking classes	Total	Watching video	Listening to audio	Total
M	25.59	14.04	60.21	99.84	86.44	80.55	166.99
SD	43.93	37.61	84.96	117.76	106.18	176.67	206.77

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foreign languages) to 5 (the child could join a conversation in a foreign language) in a later analysis.

Foreign Language Exposure and Acceptance of Labeling Conventions

The goal of the present study was to examine the types of foreign language exposure that predict children's acceptance of different labeling conventions across languages. Before running an ordinal logistic regression, correlations among the potential independent variables were examined (see Appendix B). There was a strong correlation between REVT-R and REVT-E scores, $r(67) = 0.73$, $p = .00$. When the correlation coefficient is higher than .7, the multicollinearity problem may occur (Nijsse et al., 2017; Yu, Jiang, & Land, 2015). Therefore, in order to minimize the multicollinearity, only REVT-E was included in the subsequent analyses as there were fewer missing data in REVT-E ($n = 4$) than in REVT-R ($n = 6$).

An ordinal logistic regression was conducted in order to evaluate whether the following variables predicted participants' response scores: age, REVT-E score, fluency in a foreign language, foreign language exposure through live interaction, and foreign language exposure through media. Ordinal logistic regression analyses require that there be no missing data; therefore, data from children who did not complete the REVT-E ($n = 4$) were excluded. The results showed that only foreign language exposure through live interaction significantly predicted children's response scores ($p = .03$, Nagelkerke pseudo-$R^2 = .13$). See Table 2 for the model summary of this analysis.

Discussion

What types of foreign language exposure facilitate children's awareness of different labeling conventions across languages? The current research explored this question by expanding the work of Rojo and Echols (2018) in terms of the range of foreign language exposure sources. Previous research uncovered an association between exposure to foreign languages and children's increased willingness to accept different labels across languages, but it only measured exposure through social interaction (Rojo & Echols, 2018). We gathered information on children's foreign language exposure via media as well as through live social interaction and assessed whether each type of exposure has different effects on children's acceptance of labels across languages. The results showed that 3–4-year-old children with more exposure to a foreign language through live social interaction were more likely to accept both the Korean and Spanish labels for an object.

Table 2. Ordinal Regression Results

	Estimate	SE	Wald	*P*
Age	0.64	0.67	0.92	.34
REVT-E score	0.00	0.02	0.00	.97
Fluency in a foreign language	−0.21	0.30	0.51	.48
Foreign language exposure through live interaction	0.01	0.00	4.56*	.03
Foreign language exposure through media	0.00	0.00	0.10	.75

Note. REVT-E = Expressive Vocabulary Test. *$p < .05$.

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However, foreign language exposure through media was not related to children's acceptance of different labeling conventions across languages. Thus, live interaction, but not media, appears to be the critical source of foreign language exposure that can help children better understand different labeling conventions across languages.

The current finding is consistent with theories describing the crucial contributions of social interaction to language acquisition (e.g., Kuhl et al., 2003; Roseberry et al., 2009). Although media can provide easy access to native-speaker input, children's understanding of labeling conventions in our study was only supported by exposure to foreign language through live interaction, which is assumed to be provided by Korean parents or teachers who are not always native speakers of the foreign language.

Then, what differentiates the experiences of live interactions and media in terms of their contributions to children's understanding of different labeling conventions? Kuhl (2007) suggested two broad mechanisms to explain the advantage of social interaction in language learning: motivation and information. Social interactions enhance children's attention and arousal. Although the current research did not measure children's attention levels according to the type of exposure, relevant research suggests that children pay more attention to a live person than to other media sources (Kuhl et al., 2003). Additionally, social interaction may provide more information for children to use when learning words. Joint attention (Baldwin, 1995; Moll & Tomasello, 2007), eye gaze (Baldwin, 1993; Bloom, 2002), and contingent responses (Kuhl, 2007; Roseberry et al., 2014) in live social interactions are known to facilitate children's language learning. In contrast, traditional media do not provide these social cues. Thus, our participants may have been more attentive to the foreign language and received richer information when they were exposed to it through live social interaction compared to media.

Our research participants had very limited foreign language exposure, and none of them was fluent in a foreign language. Prior research has suggested that bilingual children are more likely than monolinguals to accept multiple labels across languages (e.g., Byers-Heinlein et al., 2014). Our findings suggest that relatively limited exposure to foreign languages can have impacts on children's acceptance of multiple labels that are similar to the effects of bilingualism, regardless of children's fluency in a foreign language. Like bilingual children, children with just a small amount of exposure to a foreign language might notice that, across the two languages, different labels are used for the same object. Furthermore, children who have just started to learn another language may be particularly interested in the fact that different languages can use different words to label the same objects (Akhtar et al., 2012). Notably, none of the children in our study had any prior exposure to Spanish. This implies that children accepted novel Spanish words as the labels for the novel objects not because they could use their previous knowledge of the language, but because they could infer that any language can provide valid labels for objects.

Our study has several limitations. First, we used parental self-reports to measure children's foreign language exposure through live interaction and media. We acknowledge that it might have been difficult for parents to provide accurate assessments of their children's media exposure. Second, children's attention levels might have varied depending on the content and context of exposure, but the current research did not include a measure of children's attention level during foreign language exposure. Live interaction, unlike video or audio, could provide children with explicit and focused demonstration of labeling an object in another language. For instance, parents can point to an object and mention that it has a different name in another language while reading a book. On the other hand, media exposure usually involves less parent-child interaction (Kirkorian, Pempek, Murphy, Schmidt, & Anderson, 2009), and media might be played in the

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background, resulting in children's reduced attention. Future studies should consider examining the effects of live exposure and focused media exposure on children's acceptance of different labeling conventions after controlling for children's attention level and the content of the foreign language exposure.

To conclude, the current research has shed light on how foreign language experiences may shape children's understanding of different languages. Although the influence of the amount of foreign language exposure has been well studied, limited work has focused on the effect of the quality of such exposure on children's language development. Our findings provide the first explicit assessment of the claim that social interaction in foreign language exposure is critical in shaping children's understanding of different labeling conventions. Moreover, the current study has practical implications for foreign language education in linguistically homogeneous communities, highlighting the importance of social interaction in foreign language experience.

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Declarations of Interest Statement. None

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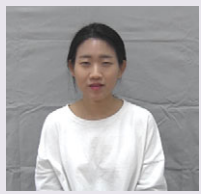
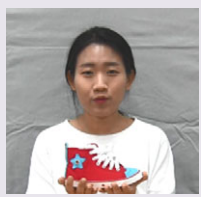
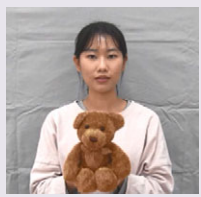
Appendix A
Example Script of the Speakers and the Experimenter

Screen	Script
	Korean speaker: “안녕! 내 이름은 시온이야.” (“Hi! My name is Si-on.”)
	Spanish speaker: “¡Hola! Mi nombre es Ana.” (“Hi! My name is Ana.”)
	Korean Speaker: “신발. 이건 신발이야. 이 신발 보이니? 이건 신발이야.” (“Shoe. This is a shoe. See this shoe? This is a shoe.”)
	Spanish speaker: “Zapato. Este es un zapato. ¿Ves este zapato? Este es un zapato.” (“Shoe. This is a shoe. See this shoe? This is a shoe.”)
	Korean speaker: “신발. 신발.” (“Shoe. Shoe.”) Spanish speaker: “Zapato. Zapato.” (“Shoe. Shoe.”)
	Korean speaker: “곰돌이. 이건 곰돌이야. 이 곰돌이 보이니? 이건 곰돌이야.” (“Teddy bear. This is a teddy bear. See this teddy bear? This is a teddy bear.”)

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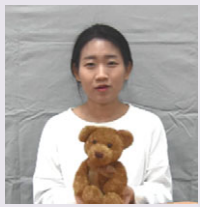
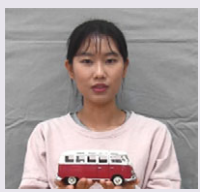
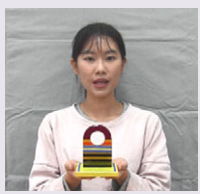
Screen	Script
	Spanish speaker: “Oso. Este es un oso. ¿Ves este oso? Este es un oso.” (“Teddy bear. This is a teddy bear. See this teddy bear? This is a teddy bear.”)
	Korean speaker: “곰돌이. 곰돌이.” (“Teddy bear. Teddy bear.”) Spanish speaker: “Oso. Oso.” (“Teddy bear. Teddy bear.”)
	Korean speaker: “버스. 이건 버스야. 이 버스 보이니? 이건 버스야.” (“Bus. This is a bus. See this bus? This is a bus.”)
	Spanish speaker: “Bus. Este es un bus. ¿Ves este bus? Este es un bus.” (“Bus. This is a bus. See this bus? This is a bus.”)
	Korean speaker: “버스. 버스.” (“Bus. Bus.”) Spanish speaker: “Bus. Bus.” (“Bus. Bus.”)
	Korean speaker: “무삐. 이건 무삐야. 이 무삐 보이니? 이건 무삐야.” (“Mwuppi” (Korean novel label). “This is a mwuppi. See this mwuppi? This is a mwuppi.”)

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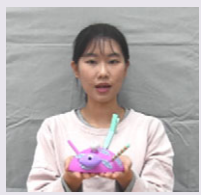
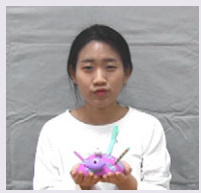
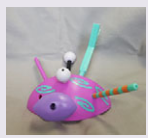
Screen	Script
	Spanish speaker: “Chisa. Esta es una Chisa. ¿Ves es ta Chisa? Esta es una Chisa.” (“Chisa” (Spanish novel label). “This is a chisa. See this chisa? This is a chisa.”)
	Korean speaker: “무삐. 무삐.” (“Mwuppi. Mwuppi.”) Spanish speaker: “Chisa. Chisa.” (“Chisa. Chisa.”)
	Experimenter: “이 장난감의 올바른 이름은 뭐라고 생각해? 무삐? Chisa? 아니면 둘 다 괜찮아? Chisa? 무삐? 아니면 둘 다 괜찮아?” (“What do you think is the right name for this toy? Mwuppi? Chisa? Or are both okay? Chisa? Mwuppi? Or are both okay?”)
	Korean speaker: “까티. 이건 까티야. 이 까티 보이니? 이건 까티야.” (“Kkati” (Korean novel label). “This is a kkati. See this kkati? This is a kkati.”)
	Spanish speaker: “Bufo. Este es un bufo. ¿Ves este bufo? Este es un bufo.” (“Bufo” (Spanish novel label). “This is a bufo. See this bufo? This is a bufo.”)
	Korean speaker: “까티. 까티.” (“Kkati. Kkati.”) Spanish speaker: “Bufo. Bufo.” (“Bufo. Bufo.”)
	Experimenter: “이 장난감의 올바른 이름은 뭐라고 생각해? 까티? Bufo? 아니면 둘 다 괜찮아? Bufo? 까티? 아니면 둘 다 괜찮아?” (“What do you think is the right name for this toy? Kkati? Bufo? Or are both okay? Bufo? Kkati? Or are both okay?”)

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Appendix B
Correlations among the variables

Variables	1	2	3	4	5	6	7
1. Age (range: 3.56-4.89)	1						
2. REVT-R Score (range: 1-75)	.399**	1					
3. REVT-E Score (range: 24-79)	.344**	.731**	1				
4. Foreign Language Exposure Through Live Interaction (total minutes per week) (range: 0-600)	.008	−.028	.007	1			
5. Foreign Language Exposure Through Media (total minutes per week) (range: 0-1260)	.031	−.015	.016	.406**	1		
6. Fluency in a Foreign Language (range: 1-5)	.061	−.078	−.031	.508**	.269*	1	
7. Labeling Convention Task Score (range: 0-2)	.121	−.065	.025	.286*	.165	.097	1

Notes. Fluency in a foreign language 1 = the child does not understand any foreign languages, 2 = the child can understand a few words in a foreign language, 3 = the child can speak a few words in a foreign language, 4 = the child can understand a conversation in a foreign language, 5 = the child can join a conversation in a foreign language
**$p < .01$, *$p < .05$.

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