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Brief Report

Children's use of linguistic information when learning in a bilingual context



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ABSTRACT

Children prefer to learn from people who are like themselves. However, who is considered “like themselves” is complex for bilingual children. Thus, the current study examined whether children's language experiences affect who they prefer to imitate. A sample of 3- to 5-year-old monolingual English-speaking children ($n = 16$), Japanese–English bilingual children ($n = 16$), and children bilingual in English and a non-Japanese language ($n = 16$) watched videos of a monolingual English speaker and a Japanese–English bilingual speaker playing with novel toys and were asked to play with the same novel toys. Although all children—regardless of language background—imitated the monolingual speaker at similar rates, the two bilingual groups imitated the bilingual speaker more often than did the monolingual children. Such results suggest that experience in speaking two languages affects children's imitation behaviors.

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Introduction

Children are selective about who they choose to learn from (e.g., Birch, Vauthier, & Bloom, 2008; Buttelmann, Zmyj, Daum, & Carpenter, 2012; Corriveau & Harris, 2009; Fusaro & Harris, 2008; Jaswal & Neely, 2006; Kinzler, Corriveau, & Harris, 2011; Kinzler, Dupoux, & Spelke, 2012; Kinzler, Shutts, & Spelke, 2012; Koenig & Woodward, 2010; Shutts, Banaji, & Spelke, 2010; Shutts, Kinzler, McKee, & Spelke, 2009; Vanderborgh & Jaswal, 2009; for a review, see Harris & Corriveau, 2011).

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Studies using a variety of methods indicate that children generally prefer to learn from people who are like themselves—that is, they prefer to learn from those with whom they share community membership (e.g., Kinzler et al., 2011; Meltzoff, 2011; Vanderborght & Jaswal, 2009). However, who is considered “like themselves” is complex for bilingual children; bilingual children’s community membership can be based on shared languages or the shared experience of being bilingual. Thus, this study examined who bilingual children prefer to imitate—those who speak the same two languages as them or those who share the experience of being bilingual but do not necessarily speak the same two languages.

Research with monolingual children indicates that when two social partners provide different information, children prefer to learn from the person who shares community membership with them (e.g., Birch et al., 2008; Corriveau & Harris, 2009; Fusaro & Harris, 2008; Jaswal & Neely, 2006; Kinzler et al., 2011; Koenig & Woodward, 2010; Shutts et al., 2010; Vanderborght & Jaswal, 2009). For example, monolingual infants and 2-year-olds imitate the actions of and show preferences for foods and toys endorsed by adults speaking their native language over adults speaking a foreign language (Buttelmann et al., 2012; Kinzler, Dupoux, & Spelke, 2012; Kinzler, Shutts, & Spelke, 2012; Shutts et al., 2009). Furthermore, monolingual preschoolers prefer to play with novel toys used by an adult speaking their native language in a native accent over an adult speaking their native language in a foreign accent (Kinzler et al., 2011).

Community membership based on language background may be particularly relevant for bilingual children during learning. Because bilinguals must learn different information specific to the demands of their different linguistic environments (e.g., De Houwer, 2009), bilingual children may be especially sensitive to learning from social partners who share language-based community membership. That is, bilingual children may prefer to attend to bilingual social partners who speak the same two languages as them because those are the social partners who provide relevant information for a specific linguistic environment (e.g., Buttelmann et al., 2012; Kinzler et al., 2011; Kinzler, Dupoux, & Spelke, 2012; Kinzler, Shutts, & Spelke, 2012; Souza, Byers-Heinlein, & Poulin-Dubois, 2013). In other words, bilingual children—more so than monolingual children—may be aware of and differentiate between social partners who do or do not share their same native languages. Differentiation of social partners based on language background may lead bilingual children to different preferences for whom to learn from than monolingual children.

Evidence suggests that bilinguals can better differentiate social partners based on language background than can monolinguals; children who have experience with multiple languages demonstrate better metalinguistic awareness than monolingual children. For instance, young children who speak two languages better understand others’ language backgrounds; bilingual children understand that a monolingual speaker lacks knowledge of another language, whereas monolingual children do not (Byers-Heinlein, Chen, & Xu, 2014; Diesendruck, 2005). Similarly, exposure to multiple languages during early childhood makes English-speaking children more likely to learn novel words from a foreign speaker than from an English speaker (Akhtar, Menjivar, Hoicka, & Sabbagh, 2012). Preschool-aged bilinguals are also aware of their own language background; when asked what language they speak, most bilingual children answer correctly, whereas most monolingual children do not (Akhtar et al., 2012). In addition, children who speak different languages are capable of differentiating between and using the appropriate language in a given context by the time they start speaking (e.g., Nicoladis, 1998; Petitto et al., 2001; Slobin, 1978). These findings suggest that early experience with two languages shapes children’s ability to conceptualize language and understand the language backgrounds of themselves and others. Such enhanced metalinguistic awareness may help bilingual children to be more cognizant of language-based community membership than monolingual children.

The current study examined how children with different language experiences use linguistic information about a speaker when deciding who to imitate. Preschool-aged children from three different language backgrounds were shown video clips of two actors—one English monolingual speaker and one Japanese–English bilingual speaker—playing with novel toys in different ways. Children were subsequently observed to see whether they played with those toys in the same way as the monolingual speaker, the bilingual speaker, or both speakers. Children’s three different language backgrounds were monolingual English (*Monolingual*), bilingual English and Japanese (*Japanese–English Bilingual*), and bilingual English and a non-Japanese language (*Other Bilingual*). The goal of this study was to determine how young children’s different language experiences influence children’s preference for

imitating the actions of a monolingual or bilingual speaker. Moreover, we aimed to determine whether Japanese–English Bilingual and Other Bilingual children's imitation preferences differed as a function of whether or not they shared the same languages as the Japanese–English bilingual speaker. Understanding how different language experiences affect children's social preferences—including imitation preferences—is important because language is a particularly salient and rich source of social information (e.g., Labov, 2006) that can help children to identify social groups with whom they share community membership. To our knowledge, our study is the first to examine bilingual children's social preferences for monolingual versus bilingual speakers.

Different outcomes were predicted for the three language background groups. Because studies have found community membership based on shared native language to influence monolingual children's imitation preferences (e.g., Buttelmann et al., 2012; Kinzler, Dupoux, & Spelke, 2012; Kinzler, Shutts, & Spelke, 2012; Shutts et al., 2009), we expected Monolingual children—all of whom spoke English—to prefer to imitate the monolingual English-speaking actor. For bilingual children, however, there were two possible outcomes. If, like monolingual children, community membership based on shared native languages is important for bilingual children, we expected Japanese–English Bilingual children to prefer to imitate the Japanese–English bilingual actor and Other Bilingual children to show no systematic imitation because no actors shared the same two native languages with the Other Bilinguals. If, however, the shared experience of being bilingual is important for bilingual children, we expected both Japanese–English Bilinguals and Other Bilinguals to prefer to imitate the Japanese–English bilingual actor. Although the Other Bilinguals do not speak the same two languages as the Japanese–English bilingual actor, the Other Bilinguals may be able to recognize—via enhanced metalinguistic awareness (Akhtar et al., 2012; Byers-Heinlein et al., 2014; Diesendruck, 2005)—that they share a bilingual language experience with the bilingual actor.

Method

Participants

The participants were 48 children recruited from preschools in a Southern California metropolitan area (southwestern United States) and fit into one of three language background categories: Monolingual (spoke only English; $n = 16$, 8 girls, 0 Asian), Japanese–English Bilingual (spoke Japanese and English; $n = 16$, 9 girls, 14 Asian), or Other Bilingual (spoke English and a non-Japanese language; $n = 16$, 7 girls, 1 Asian). Children were between 36 and 64 months of age (Monolingual: $M = 52.50$ months, $SD = 8.74$; Japanese–English Bilingual: $M = 52.69$ months, $SD = 7.46$; Other Bilingual: $M = 52.63$ months, $SD = 6.97$), $F(2,46) = 0.002$, $p = .998$.

Each child's bilingualism was rated by an adult familiar with the child's language background (e.g., preschool teacher, parent) on a 5-point scale (1 = *strictly monolingual*, 5 = *fluently bilingual*). For the purposes of this study, we were interested in whether children spoke one or two languages—not whether children were exposed to or fluent in two languages. Thus, this rating scale was not intended to be a precise measure of children's proficiency in language; rather, it simply measured whether production was in one or two languages. Children were considered monolingual only if they were rated “1” to ensure that monolingual children spoke only one language. Children were considered bilingual if they were rated “3” or higher (Japanese–English Bilingual: $M = 3.88$, $SD = 0.81$; Other Bilingual: $M = 3.84$, $SD = 0.81$), $t(30) = -0.11$, $p = .91$. Children rated “2” ($n = 15$) were excluded from the study so as not to include native English speakers who knew only select words (e.g., colors, numbers) in another language. Among Other Bilinguals, there were 6 Spanish–English speakers, 4 Hebrew–English speakers, 3 French–English speakers, 1 Farsi–English speaker, 1 Thai–English speaker, and 1 Greek–English speaker. Children who spoke more than two languages ($n = 3$) were excluded.

Materials

Children were presented with a series of short video clips of two actors playing with novel toys. A narrator (who was only heard and never seen) was included in parts of these video clips. Although the

narrator presented one of the actors as “only speaks English” and the other actor as “speaks both English and Japanese,” both actors were college-aged women who were actually native speakers of both Japanese and English, as was the narrator. Both the actors’ English and narrator’s English were judged for degree of native accent by five independent raters—all monolingual native English-speaking adults—using a 5-point scale (1 = *not native-like at all*, 5 = *extremely native-like*) (Mattock, Polka, Rvachew, & Krehm, 2010). Native-ness ratings for both the actors’ and narrator’s English were similar to those for a comparison monolingual native English-speaker (all $ps > .95$).

Introduction of actors

In a series of video clips, children were introduced to two actors; see [Appendix A](#) for an example script. Each actor made two statements about what they liked (e.g., “I like to play outside,” “I like to read books”). The monolingual actor said both statements in English; the bilingual actor said one statement in English and one statement in Japanese. Actors also stated that they either spoke only English (monolingual actor) or spoke both English and Japanese (bilingual actor). To control for the amount of information children in each language background group received about the actors, the narrator first made all statements in English before the actors said each statement in English or Japanese. Because the bilingual actor spoke English only 75% of the time during the actors’ introductions, the narrator provided the children who did not understand Japanese (i.e., Monolinguals and Other Bilinguals) with the same amount of information about each actor as the Japanese–English Bilinguals. Furthermore, the narrator called the actors by aliases—“Mia” and “Emmy.” These names were selected because they are names in both English and Japanese and include only phonemes that exist in both languages.

Demonstration and test trials

Each demonstration trial began with two “I like” statements to remind children which actor was monolingual and which actor was bilingual; see [Appendix B](#) for an example script. Although “I like” statements conveyed the same information for the two actors, the narrator again made all statements in English before the actors said each statement in English or Japanese. The monolingual actor said both “I like” statements in English, whereas the bilingual actor said one “I like” statement in English and the other statement in Japanese. Thus, the bilingual actor spoke Japanese in 50% of the “I like” statements.

Four novel toys appeared in the demonstration trial video clips and in person. Toys were made of real objects not regularly encountered by children—a paint roller, a dog toy, a sprinkler cover with a dryer ball, and a funnel. Video clips showed each actor playing with each novel toy in a novel way. [Appendix C](#) shows an example of a novel toy and the different ways in which actors played with it.

During test trials, the experimenter gave children each novel toy and asked in English, “Now can you play with this toy for me?”

Counterbalancing and randomizing

Children were randomly assigned to see only one of eight random orders of video clips, which counterbalanced actors for (a) sitting on the left or right side of the table, (b) being presented as monolingual or bilingual, (c) which alias they were given, and (d) how they played with each of the novel toys. Furthermore, all “I like” statements used in each of the eight orders were pseudo-randomly selected and randomly paired for each trial, such that no two orders had the same two “I like” statements before each novel toy. In all video clips, the narrator and monolingual actor spoke only English.

Procedure

Each random order of the video clips had the following sequence: (1) introduction of actors, (2) demonstration trial with two “I like” statements by each actor and one novel toy, and (3) test trial with the same novel toy. The test trial ended when the child placed the novel toy back on the table or handed the toy to the experimenter after playing with it. Children’s behaviors were recorded as

imitating the monolingual actor (i.e., playing with the toy in the same way as the monolingual actor), the bilingual actor (i.e., playing with the toy in the same way as the bilingual actor), or both actors (i.e., playing with the toy in the ways of both actors). Children's non-imitations—instances when children did not imitate either actor by declining to play with the toy or playing with the toy in their own way (e.g., looking through the paint roller)—were not a main focus of this study but were coded to ensure that no one group of children performed fewer imitations than other groups. The demonstration and test trials were repeated until all four novel toys were presented. All children were tested individually in the laboratory or a quiet area at their preschool. Testing took less than 5 min per child.

Results

The current study's goals were to determine (a) whether children with different language experiences have different preferences for whom to imitate and (b) whether bilingual children's imitation preferences differed based on whether or not they speak the same two languages as a social partner. To ensure that the three groups of children did not differ in their overall rates of non-imitations, we first examined whether the groups differed in the number of trials in which they did not imitate either speaker; the three groups did not differ in rates of non-imitations, $F(2,46) = 2.43$, $p = .10$. In addition, no effects of order, trial number, or child's age were observed for any of the three language background groups (all $ps > .10$); no effects of degree of bilingualism were observed among Japanese–English Bilinguals or Other Bilinguals either (all $ps > .10$). Next, to address the main goals of this study, we examined whether Monolinguals, Japanese–English Bilinguals, and Other Bilinguals differed in their preferences for imitating a monolingual English speaker or Japanese–English bilingual speaker. A repeated-measures analysis of covariance (ANCOVA) with language background as a between-participants factor, imitation as a within-participants factor, and age as a covariate revealed a significant interaction between language background and imitation, $F(4,88) = 3.82$, $p = .007$, $\eta^2 = .148$, suggesting that children's rates of imitating the different speakers varied by language background over

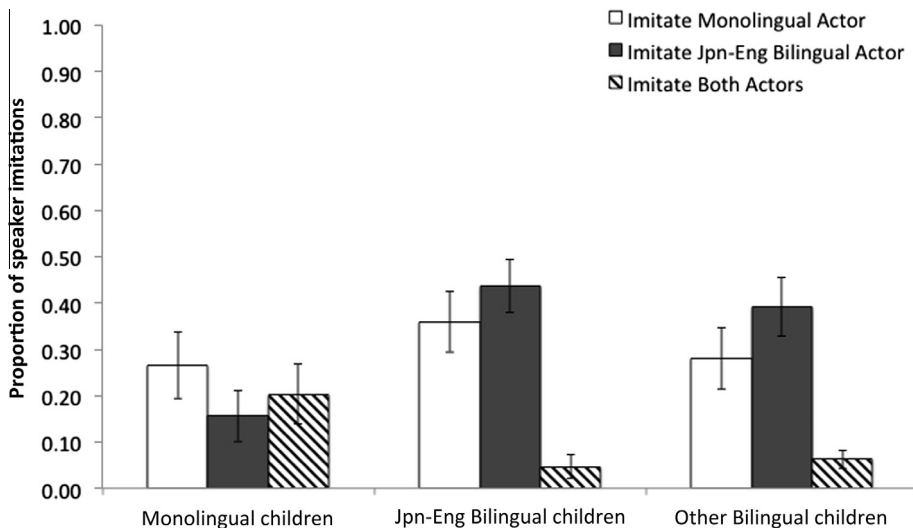


Fig. 1. Proportions of Monolingual, Japanese–English Bilingual, and Other Bilingual children's imitations of the monolingual speaker's actions, the bilingual speaker's actions, or both speakers' actions. Whereas Monolingual children showed no differences in who they imitated, Japanese–English Bilingual and Other Bilingual children preferred to imitate one of the speakers rather than both speakers. In addition, Japanese–English Bilingual and Other Bilingual children imitated the bilingual speaker significantly more often than did Monolingual children. Jpn-Eng, Japanese–English.

Table 1
Frequency of children imitating both speakers.

Language background	Total number of trials imitating both speakers	Number of trials imitating monolingual speaker first	Number of trials imitating bilingual speaker first
Monolingual	13	4	9
Japanese–English Bilingual	3	2	1
Other Bilingual	4	4	0

and above the effect of age. No significant main effects of language background or imitation were found. Fig. 1 shows the proportions of Monolingual, Japanese–English Bilingual, and Other Bilingual children's imitation of the monolingual speaker, the bilingual speaker, or both speakers. In addition, Table 1 provides descriptive statistics of how often children imitated the monolingual or bilingual speaker first when imitating both speakers. Although children did not frequently imitate both speakers, monolinguals generally imitated the bilingual speaker first when imitating both speakers, whereas Japanese–English Bilinguals and Other Bilinguals generally imitated the monolingual speaker first when imitating both speakers.

To examine the interaction between language background and imitation, post hoc *t*-tests were conducted with Bonferroni corrections. Monolinguals did not significantly differ in their rates of imitating the monolingual speaker, the bilingual speaker, or both speakers (all *ps* > .13). In contrast, both Japanese–English Bilinguals and Other Bilinguals imitated the monolingual speaker significantly more often than both speakers (Japanese–English Bilinguals: $t(15) = -4.70$, $p < .001$; Other Bilinguals: $t(15) = -2.78$, $p = .014$) and imitated the bilingual speaker significantly more often than both speakers (Japanese–English Bilinguals: $t(15) = -5.17$, $p < .001$; Other Bilinguals: $t(15) = -4.39$, $p = .001$); however, both bilingual groups did not significantly differ in their rates of imitating the monolingual and bilingual speakers (all *ps* > .23). Altogether, these results demonstrate that although Monolinguals did not show differences in who they imitated, Japanese–English Bilinguals and Other Bilinguals preferred to imitate *one* of the speakers, as opposed to both speakers, regardless of the speakers' language background.

Post hoc *t*-tests with Bonferroni corrections to compare imitation across language background groups were also conducted. Rates of imitating the monolingual speaker and imitating both speakers did not significantly differ across language background groups (all *ps* > .0167). Thus, all children—regardless of language background—showed similar rates of imitating the monolingual speaker and both speakers. Most notably, however, Japanese–English Bilinguals and Other Bilinguals imitated the bilingual speaker significantly more often than did Monolinguals (Japanese–English Bilinguals vs. Monolinguals: $t(30) = -3.83$, $p = .001$; Other Bilinguals vs. Monolinguals: $t(30) = -3.27$, $p = .003$). However, Japanese–English Bilinguals and Other Bilinguals did not differ from each other in how often they imitated the bilingual speaker, $t(30) = -0.54$, $p = .593$. Overall, such results suggest that bilingual children—regardless of their specific language background—preferred to imitate those who share a bilingual language experience with them, whereas monolingual children showed no specific imitation preferences.

Discussion

This study aimed to determine (a) how language experience influences who children prefer to imitate and (b) whether sharing the same native language background or sharing a bilingual language experience may affect bilingual children's imitation preferences. We found no differences in whether the Monolingual children imitated the monolingual speaker, the bilingual speaker, or both speakers. In addition, although all three groups of children imitated the monolingual speaker at similar rates, the Japanese–English Bilingual and Other Bilingual children imitated the Japanese–English bilingual speaker more often than did the Monolingual children. Thus, the two groups of bilingual children

imitated speakers in ways that were similar to each other but differed from the Monolingual children; this finding suggests that community membership based on the shared experience of being bilingual is important for bilingual children during learning.

One possible reason why monolingual children imitated all speakers equally may be that these children did not distinguish speakers' different language backgrounds. Because this study used a narrator who made all statements in English before the monolingual and bilingual actors spoke, it is possible that it was particularly difficult for monolingual children to identify the difference between the two actors' language backgrounds. In previous studies that examined monolingual children's ability to distinguish two speakers' language backgrounds, children needed to differentiate between a monolingual *native* speaker and an *accented* speaker of the shared language (Kinzler et al., 2011) or between a monolingual speaker of the *shared* language and a monolingual speaker of a *foreign* language (e.g., Buttelmann et al., 2012; Kinzler, Dupoux, & Spelke, 2012; Kinzler, Shutts, & Spelke, 2012; Shutts et al., 2009). Unlike previous studies, however, this study required monolingual children to differentiate a *monolingual* speaker of English from a *bilingual* speaker of English (and another language). Thus, monolingual children in this study needed to identify that one of the speakers was bilingual—which may have been difficult for monolingual children.

Monolingual children have indeed been found to have difficulties with metalinguistic awareness, especially in understanding their own and others' language backgrounds (Akhtar et al., 2012; Byers-Heinlein et al., 2014). For monolinguals, a speaker's language background may be irrelevant information to consider as long as there is a common language between the monolingual child and speaker. In other words, because the bilingual speaker in this study shared a common language—English—with the monolingual children *and* spoke without an accent, monolingual children did not need to consider language background in their imitation decisions. Future work will examine whether monolingual children can differentiate between monolingual and bilingual speakers.

Bilingual children, on the other hand, may have imitated the bilingual speaker more often than did monolingual children because of an enhanced ability to distinguish the two speakers and, thus, to identify that they shared the experience of being bilingual with the bilingual speaker. Bilingual children have been found to attend and respond more to social partners' communicative cues than have monolingual children (e.g., Brojde, Ahmed, & Colunga, 2012; Yow & Markman, 2011); such greater attention to communicative cues may have helped bilingual children in this study to better attend to information that signaled differences between the two speakers' language backgrounds (e.g., when the bilingual speaker spoke in Japanese). In addition, bilingual children's greater understanding of others' language knowledge (e.g., Akhtar et al., 2012; Byers-Heinlein et al., 2014; Diesendruck, 2005) may have also allowed the bilingual children in this study to better differentiate the two speakers' language backgrounds. That is, bilingual children's greater attention to social partners and enhanced metalinguistic awareness may have allowed bilingual children to differentiate the speakers, identify with whom they shared community membership, and form a preference for whom to imitate.

Conclusion

Our results fit with the growing literature on how language experience shapes language and cognitive development (for a review, see Bialystok, 2009). This study demonstrated that children's preferences for imitating monolingual and bilingual speakers differ as a function of children's language experience. In addition, our results suggest that bilingualism is not an important factor for monolingual children to consider when learning from those with whom they share a common language. Thus, future work will examine how different aspects of language experience (e.g., exposure, fluency) affect monolingual and bilingual children's understanding of community membership and who is linguistically "like them." In addition, future work should examine monolingual and bilingual children's imitation and learning when there is only one speaker (e.g., a teacher)—that is, when no conflicting information is provided. Altogether, our results show that children's various language experiences—whether monolingual or bilingual—contribute to their imitation of and learning from monolingual and bilingual speakers.

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Appendix A

Example script of the introduction of actors.

Narrator:	Let me introduce you to Mia.
Mia:	Hi, I'm Mia.
Narrator:	Mia likes to draw pictures.
Mia:	I like to draw pictures.
Narrator:	Mia only speaks English.
Mia:	I only speak English.
Narrator:	Mia likes to sing songs.
Mia:	I like to sing songs.
Narrator:	Let me introduce you to Emmy.
Emmy:	Hi, I'm Emmy.
Narrator:	Emmy likes to draw pictures.
Emmy:	I like to draw pictures.
Narrator:	Emmy speaks both English and Japanese.
Emmy:	I speak both English and Japanese.
Narrator:	Emmy likes to sing songs.
Emmy:	私は 歌を歌うのが好きです。 [Note: This translates to "I like to sing songs."]

Appendix B

Example script of the "I like" statements.

Narrator:	Mia likes to eat candy.
Mia:	I like to eat candy.
Narrator:	Mia likes to go to the park.
Mia:	I like to go to the park.
Narrator:	Emmy likes to eat candy.
Emmy:	私はお菓子を食べるのが好きです。 [Note: This translates to "I like to eat candy."]
Narrator:	Emmy likes to go to the park.
Emmy:	I like to go to the park.

Appendix C

Example of a demonstration and test trial.

Demonstration

1.



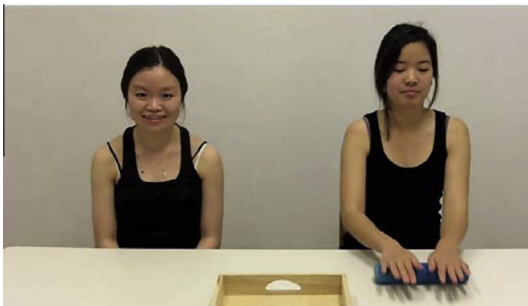
Two “I like” statements (See [Appendix B](#) for example script.)

2.



Narrator: Mia plays with this toy like this.

3.



Narrator: Emmy plays with this toy like this.

Test

4.



Experimenter: Now can you play with this toy for me?

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