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First Language 2010 30: 354
DOI: 10.1177/0142723710370530

Article

FIRST LANGUAGE

First Language
30(3-4) 354–374

DOI: 10.1177/0142723710370530
http://fla.sagepub.com

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A comparison of bilingual and monolingual children's conversational repairs

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Abstract

This study examined the conversational repair skills of 2- and 3-year-old French–English bilingual children and monolingual French-speaking children. While the ability to respond to requests for clarification has been well researched in monolingual children, it has not been investigated among bilingual children except to examine their ability to repair breakdowns due to the use of a language not spoken by their interlocutor. The present study provides a direct comparison of bilingual and monolingual children's repairs of the types of breakdowns in conversations that are experienced by both populations, e.g., breakdowns due to ambiguity, choice of words, mispronunciations, inaudible utterances, and so on. A methodology of stacked requests for clarification was used to examine the range of response strategies and the overall response patterns of the children. The results reveal no differences between the bilingual and the monolingual children's conversational repair skills. The present findings contribute to the growing body of evidence that bilingualism does not interfere with the language development of simultaneous bilinguals. As well, they extend our understanding of their ability to repair conversational breakdowns of the type that are experienced by all children.

Keywords

bilingualism, conversational breakdown, conversational repair, language development, preschoolers

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Introduction

Young children must learn a wide array of skills in order to communicate effectively with others. They need to learn, among other skills, when to take their turn, when and how to use different registers in different contexts (e.g., formal vs colloquial language), how to interpret the meaning of figurative language, and how to construct narratives. The present study compared the conversational skills of French–English bilingual children and those of monolingual children. Specifically, we examined the ability to repair breakdowns in communication. Breakdowns in communication occur when the flow of a conversation is interrupted because one interlocutor did not understand part or all of their conversational partner's previous utterance(s). Breakdowns in communication can occur for a variety of reasons, including inaudible utterances, poor lexical choice, off-topic comments. These kinds of breakdowns are common to all young language learners. Such breakdowns are usually followed by a negotiation of the meaning of the failed communication attempt, with one individual requesting clarification, and the conversational partner reattempting to convey his or her meaning using whatever means is appropriate to repair the breakdown. Repair strategies include, for example, speaking more loudly, more clearly, or more slowly, selecting different words, or reformulating the utterance in question. Repair sequences can vary in complexity, and both the requests for clarification and the responses to them can take various forms. As such, they constitute an interesting window into the depth of children's conversational skills.

The ability to engage in such exchanges has been well documented in monolingual children. English- and French-speaking monolingual children demonstrate rudimentary conversational repair skills from their earliest communication attempts. Even pre-verbal children are capable of repeating or modifying their gestures and vocalizations in response to an experimenter's or an adult's requests for clarification and to other types of feedback from interlocutors (Golinkoff, 1986, 1993; Marcos, 1991; Wilcox & Howse, 1982). Studies of children aged 2–4 years show that older children also respond readily to requests for clarification (Anselmi, Tomasello, & Acunzo, 1986; Gallagher, 1977, 1981; Tomasello, Farrar, & Dines, 1984; Wilcox & Webster, 1980). The children observed in these studies seldom failed to acknowledge their adult interlocutors' requests, and the majority of their responses were appropriate. Like younger children, their preferred repair strategies were repetitions and revisions of their initial utterances, their non-linguistic vocalizations, or their gestures. A classic study by Garvey (1977) showed that pairs of children between 2 and 5 years of age were able to respond appropriately to each other's requests without the support of an adult. These children were capable of embedding breakdown–repair sequences in their conversations without disrupting turn-taking, much like adults do. The children who made requests for clarification gave the floor back to their conversational partner once their request was answered. Thus, it appears that even young children have a solid grasp of the basic rules for making and responding to requests for clarification.

In addition, monolingual children have the ability to respond differentially and appropriately to different types of feedback and requests. Tomasello et al. (1984) found that children often repeated their initial utterance when responding to non-specific requests such as 'What?' This is a reasonable strategy because this type of feedback could mean that the child was simply not heard. However, when responding to specific requests like 'You ate what?' they tend to produce shorter responses, providing only the information requested. Other researchers have obtained similar results with French-speaking children

(Marcos, 1991; Marcos & Bernicot, 1994, 1997; Marcos & Kornhaber-le-Chanu, 1992). These findings indicate that young children understand that breakdowns can occur for a number of reasons, are able to make hypotheses about the cause of a given breakdown and their interlocutor's information needs, and can choose their response accordingly.

Moreover, Langford (1981) and Spilton and Lee (1977) have shown that, if consecutive requests for clarification of the same utterance are made, 4-year-olds can adjust their responses several times in response to stacked requests of this sort. This suggests that children actively attempt to recast their utterance in a way that will convey their intended meaning successfully. The appropriateness of repairs to consecutive requests may be age-dependent, however. Brinton, Fujiki, Loeb, and Winkler (1986) found that children aged 5 years and older tended to respond appropriately to consecutive requests during a referential communication task, whereas 2- and 3-year-olds often responded adequately to the first request but were more likely to ignore subsequent requests than the older children were. Arguably, they lacked the linguistic resources or did not know how to further clarify their utterances. Thus, this methodology allowed the researchers to identify developmental differences that would not have been apparent if responses to single requests had been examined. These studies suggest that consecutive requests have the potential to provide a detailed picture of children's ability to repair breakdowns in conversations as well as the limits of their ability. As such, it is a sensitive tool with which to begin exploring possible similarities and differences in the conversational repairs of bilingual and monolingual children.

Comeau, Genesee, and Mendelson (2007) have examined breakdown-repair skills of young bilingual children, but focused on skills that are specific to bilinguals, namely the ability to repair breakdowns in communication that are due to language choice. For example, such breakdowns can occur when a bilingual French–English speaker uses French with someone who does not speak or understand French well. More specifically, they investigated 2- and 3-year-olds' responses to requests for clarification following their use of a language that their conversational partner did not use during the conversation and, thus, did not know as far as the child was concerned. We refer to the language that was not used by the adult interlocutor as 'the other language.' The question of interest was whether the children were able to repair breakdowns of this sort by switching to the interlocutor's language when the interlocutor requested clarification following children's utterances in the other language. To determine this, an experimenter speaking only one language played with each child for approximately 1 hour. Each time the child used the other language, the experimenter made up to five requests for clarification, going from non-specific to explicit (i.e., from 'What?' to 'Can you tell me that in French/English?'). The request types were ordered in this way to determine how explicit the request had to be for the children to understand that a switch to the other language was the appropriate repair strategy.

The bilingual children switched to the interlocutor's language about 25% of the time in response to these clarification requests, and most of these language changes were made in response to the first or second requests, which did not provide specific reasons for the breakdowns. Thus, in these cases, the children had to infer that it was their language choice that was the source of the breakdown and that they needed to use their other language to repair the conversation. Moreover, the children virtually never changed their language when requested to repair breakdowns that were due to other reasons, such as speaking too softly or not pronouncing words clearly. Their ability to change language

only when it was appropriate to do so suggests that young bilingual children can correctly infer the meaning of non-specific feedback regarding their language choice and can switch to their other language in response to such feedback. While both the 2- and 3-year-olds were able to do this, the pattern of responses across age groups varied. The 3-year-olds were more likely than the younger children to favor complex strategies such as reformulating one's utterance over relatively simpler ones like repetition of one's utterance.

Repairs of breakdowns that were not due to language choice were examined only insofar as they provided grounds for contrasting the children's responses to breakdowns that were due to their choice of language versus some other reason, as this provided supporting evidence of their ability to distinguish different breakdown types. The children's repairs of breakdowns not due to their language choice, however, constitute a substantial data set that can provide additional insight into bilingual children's abilities to repair communication breakdowns that monolinguals also encounter. The present study reports the results of further analyses of these repairs. A comparison group of monolingual children was added in order to allow for a direct comparison of bilingual and monolingual children's conversational repair skills.

The participants lived in Montreal, Canada, a city where French and English are both spoken in many spheres, both privately and publicly. Although there is no systematic empirical evidence concerning the conversational styles of French- and English-speakers in Montreal, intuitively, we are not aware of differences in the types of requests for clarification or the types of repair strategies that are used by these two language groups. As such, children's acquisition of these conversational skills is not likely to differ significantly whether they are raised in English or in French. The absence of a confounding variable in this respect means that the main distinction between the bilingual and the monolingual participants in this study is that the former speak two languages and the latter speak one. Whether this results in differences in the acquisition of general conversational repair abilities is the key question of this study.

On the one hand, bilingualism might be expected to have no effect on the acquisition of such skills. A growing body of research on children who acquire two languages simultaneously during the preschool years shows that their language development is similar to that of their monolingual peers in some important respects and, in particular, with respect to general language acquisition milestones, such a babbling, first words, and syntactic development (De Houwer, 1990; Deuchar & Quay, 2000; Döpke, 1998, 2000; Genesee & Nicoladis, 2006; Hulk & Müller, 2000; Paradis & Genesee, 1996; Yip & Matthews, 2000). Bilingual children with equal exposure to both languages during infancy have been found to exhibit the same patterns and rates of syntactic development as children acquiring the same languages monolingually. While age of production of first words and word combinations is largely the same for bilingual children as monolinguals, the size of bilingual children's vocabulary in each language is often smaller than that of monolinguals of the same age acquiring the same languages. Their combined conceptual vocabulary, however, is as large or larger than that of monolinguals. Moreover, their vocabulary in each language often catches up with that of monolingual children over time, provided they have sufficient exposure to each language (Genesee & Nicoladis, 2006; Pearson & Fernandez, 1994; Umbel, Pearson, Fernandez, & Oller, 1992). In any case, these findings provide little systematic basis for hypothesizing that there would be differences in bilingual and monolingual children's repair strategies.

On the other hand, bilingual children's experience with conversations where they are required to switch back and forth between languages, and, more importantly, their acquisition of strategies to repair breakdowns in communication based on language choice, may influence the types of hypotheses they make about the cause of other types of breakdowns (i.e., those not due to language choice). These factors may also influence which types of repairs they consider appropriate when requests for clarification vary in their explicitness. Under this logic, bilingual children might be expected to exhibit different patterns of repair in comparison to monolinguals. Moreover, conversational skills in general and breakdown-repair skills in particular do not entail only linguistic ability, but call upon a wide range of cognitive, pragmatic, and social skills that may be influenced to some extent by the acquisition of two languages. Numerous studies have reported that there are positive or negative sequelae associated with bilingualism in diverse domains of children's development, including intelligence and performance in school (Cummins, 1976; Macnamara, 1966; Peal & Lambert, 1962), metalinguistic awareness (Bialystok, 2001; Bruck & Genesee, 1995), and, most recently, cognitive processing (Bialystok, Craik, Klein, & Viswanathan, 2004; Bialystok & Majumder, 1998). Exploring whether bilingualism interferes with the development of conversational skills in bilingual children in comparison to monolingual children would contribute to this line of research (see Bialystok, 2001, for a thorough review).

The present study also has implications in applied settings, insofar as it is often thought by speech-and-language pathologists and educators that bilingualism in early childhood increases the risk of developing language and communicative disorders (Juarez, 1983; Thordardottir, 2002). One possible reason for this is that there is no evidence concerning the communication skills of bilingual children that is directly comparable to that on monolinguals, leaving speculation about the possible negative consequences of bilingualism on children's communicative competence unchallenged. This study helps fill this gap in our knowledge by drawing direct comparisons between monolingual and bilingual children in domains of communicative competence that are common to all language learners.

Method

Participants

Data from the 25 French–English bilingual children studied by Comeau et al. (2007) were analyzed for the present study. The sample consisted of ten 2-year-olds (9 girls and 1 boy) and fifteen 3-year-olds (7 girls and 8 boys). Their average ages were 2;7 and 3;3, respectively. These children were learning both languages at home and had ample opportunity to hear and use both in the community at large. According to parents' responses on a language background questionnaire, the bilingual children had been exposed continuously and regularly to French and English since birth or early infancy, mostly with their parents but also, for some, with childcare personnel. All parents of the bilingual children also reported that their children used both languages spontaneously and regularly at the time of the study. The first author and the research assistants also confirmed from observations of the children's interactions with family members during home visits that the bilingual children were capable of producing utterances of two words or more in both languages. Parents reported that the children were not regularly exposed to other

languages, although three of the children had some infrequent exposure to a third language through childcare or grandparents.

Because the 2-year-olds were still in the early stages of language acquisition, it was deemed necessary to ensure that their expressive abilities in each language were sufficient to warrant inclusion in the study. It was felt that the children needed to be able to speak in utterances of two or more words, on average, in order for them to express a variety of responses to requests for clarification. In order to assess their level of proficiency in each language, the 2-year-olds were videotaped for approximately 30 minutes while they played with each parent on two separate occasions. This was not necessary for the 3-year-olds, who were talkative during our visits. Because they consistently produced utterances in both languages in the researcher's presence, additional observations would have been an unnecessary imposition on the families.

Twenty minutes from each session with the 2-year-olds and their parents were transcribed using the CHAT system (MacWhinney, 2000) and the children's utterances were coded as English only, French only, Mixed (utterances containing French and English elements), and Unintelligible. The children's fully intelligible utterances in each parent's preferred language during the session with that parent were used to compute their MLUs (Mean Length of Utterance) and MWUs (percentage of Multi-Word Utterances). In French, the mean MLU was 2.6 (range 1.8–3.7) and the mean MWU was 51.7% (range 33.3–75.2%). In English, the mean MLU was 2.8 (range 1.4–3.6) and the mean MWU was 51.6% (range 13.8–73.5%). Mixed and Unintelligible utterances were excluded from these calculations. The MLU results place these children in Brown's Stage II or III.

Monolingual comparison groups were comprised of 10 French-speaking 2-year-olds (8 girls and 2 boys) and 11 French-speaking 3-year-olds (3 girls and 8 boys). Their average ages were 2;5 and 3;4, respectively. We decided to include only one monolingual comparison group because of the labor-intensive nature of the data collection, transcription, and analysis procedures and because we did not expect that there would be differences between monolingual English- and monolingual French-speaking children, as noted earlier. Moreover, the dependent variables examined in the study can be categorized in the same ways in both languages and, in fact, have been observed in both French- and English-speaking populations, as discussed earlier. Monolingual French-speaking children were recruited because they were more readily available than English-speaking children in this predominantly French-speaking city.

While research on monolingual children's repair strategies does not point to specific age differences for the age range examined here, two different age groups were nonetheless included because Comeau et al. (2007) observed differences in the way 2- and 3-year-old bilingual children repaired breakdowns in communication that were due to language choice. Specifically, the younger bilingual children did not identify their language choice as a cause of breakdowns as readily as the older children, and they favored relatively simple responses to requests for clarification (i.e., repetition) over more complex ones (i.e., reformulation). This raises the possibility that they were generally less advanced than the older children in their ability to repair these kinds of breakdowns. Younger bilingual children may, therefore, respond differently than older bilingual children or monolingual peers when attempting to repair breakdowns in communication due to other causes.

For all groups, MLU (Mean Length of Utterance) and MWU (the percentage of utterances comprised of two or more words) indices were calculated; these were based on the children's language use during the first 20 minutes of the play sessions with the child's conversational partner in this study (either the first author or a female research assistant); see Table 1. Only the children's fully intelligible utterances in the interlocutor's language were used to compute these indices. The children also completed receptive vocabulary tests in order to provide additional information regarding their level of linguistic development. The Peabody Picture Vocabulary Test-Revised (PPVT-R; by Dunn & Dunn, 1981) was administered to the bilingual children only, and its French-Canadian adaptation, the EVIP (Echelle de vocabulaire en images Peabody, by Dunn, Thériault-Whalen, & Dunn, 1993) was administered to both the bilingual and monolingual children. These vocabulary tests were used because normative data are available for French and English, and they can be administered relatively easily. Average measures and scores are provided in Table 1.

Although caution is called for when using monolingual norms to interpret the scores of bilingual children (see Umbel et al., 1992), it is noteworthy that the average receptive vocabulary score for both of the bilingual children's languages was close to or within the normal range of 85 to 115 (as defined by monolingual norms). This suggests that their receptive vocabulary in each language was not greatly influenced by the simultaneous acquisition of another language. Similar findings have been reported by Pearson, Fernandez, and Oller (1993) and Umbel et al. (1992). The monolingual groups scored within the normal range.

While there was some variation in SES status, according to parents' responses to a sociodemographic questionnaire requesting their occupation, income range, and education, most families were middle-class, with at least one parent having completed a university education.

Procedure

Each bilingual 2-year-old was visited on four occasions, in total. The object of the first two visits was to observe and record the children using their two languages with their parents, as described earlier. On the third visit, the vocabulary tests were administered by a trained bilingual research assistant or by the first author, who is also bilingual. On the

Table 1. Descriptive data on the bilingual and monolingual children

Subjects	Average age	MLU	MWU	PPVT**	EVIP**
2-year-old bilinguals	2;7	2.5 (137)	46.1%	92.7	84.0
3-year-old bilinguals	3;3	3.0 (215)	56.7%	102.9	103.4
2-year-old monolinguals	2;5	2.6 (129)	54.1%	NA	104.5
3-year-old monolinguals	3;4	4.4 (178)	70.5%	NA	114.9

Note: MLU and MWU are based on the number of fully intelligible utterances in the experimenter's language produced by each child during the play session (the average number per child, of such utterances for each group is provided in parentheses).

** Standardized scores.

fourth and last visit, the children were videotaped for up to 1 hour by an observer (the person who administered the vocabulary tests) while playing with an unfamiliar experimenter (either the first author or a trained research assistant; the choice of adult interlocutor depended on whom the child had already met during the previous session). For the play session, the researchers brought some toys to the families' homes (e.g., puzzles, sticker books, and stuffed animals), and the children's own toys were also used. Most parents left the room once the children felt comfortable with the experimenter. Those who preferred to stay nearby were asked to limit their interactions with their child as much as possible and they were instructed not to help their child answer the experimenter's clarification requests.

The bilingual 3-year-olds received two visits only because we did not need to observe their language use with their parents, for reasons presented previously. The vocabulary tests were done on the first visit, and the play session with the unfamiliar experimenter occurred on the second visit.

The 2- and 3-year-old monolingual children, for their part, received only one visit each, during which the vocabulary test and the play session with the unfamiliar experimenter took place. Since the monolingual children were only required to complete one vocabulary test, it was possible to accomplish all tasks within a single visit without losing the children's interest.

The main purpose of collecting the data on the bilingual children, as reported in Comeau et al. (2007), was to examine their repairs of breakdowns due to their language choice. During these sessions, the experimenter used only the children's less proficient language. It was thought that by placing the children in a situation where they were required to use their less proficient language, they would be more likely to err in their language choice and thereby trigger a number of clarification requests from their interlocutor. The assessment of the relative language proficiency of each bilingual child was based on: (1) their parents' reports from the language background questionnaire of which language their child spoke less well and less often; (2) the first author's or assistants' observations of each child's language use while visiting the home and during the play sessions; and (3) in the case of the 2-year-olds, their English and French MLU and MWU indices based on the recording sessions with their parents. As a result, 14 of the bilingual children were observed while interacting with an interlocutor who used only French and 11 were observed while interacting with an interlocutor who used only English. Even though the experimenters set a monolingual context during these play sessions by acting as though they only spoke and understood one language, they were in fact bilingual. It was evident during pilot testing that monolingual interlocutors found it difficult or impossible to determine whether the child had accurately repaired breakdowns due to language choice.

The adult interlocutors were also instructed to request clarification of children's utterances, even when they used the interlocutor's language, if it was impossible or difficult to hear or interpret them for a number of reasons, including the child speaking too softly, mispronouncing words, inappropriate choice of words, or utterances whose meaning or intent was unclear, and so on. In all cases, there was a real or apparently natural reason to request clarification. These constitute the breakdowns of interest for the present study. The sequence of requests for clarification used was similar to the one used for breakdowns due to language choice, in that the interlocutor made up to five

requests for clarification. The first three were the same for all breakdowns, but the wording of the last two was adapted to reflect the cause of each breakdown, as shown below; the requests in this example are in response to a child's inaudible utterance; but requests 4 and 5 can be modified to reflect the specific cause of any breakdown.

1. 'What?'/'*Quoi?*' This is a non-specific request that provides no indication as to the cause of the breakdown.
2. 'I don't understand.'/'*Je ne comprends pas.*' This second non-specific request indicates that the child's first response was not sufficient to repair the breakdown, but provides no clue as to what would constitute an appropriate response.
3. 'Can you say that so I can understand?'/'*Est-ce que tu peux me dire ça pour que je comprenne?*' This question indicates that the child's initial utterance needs to be modified in some way, but does not specify whether a reformulation, a change in pronunciation, or some other kind of modification is required.
4. 'I didn't hear you.'/'*Je ne t'ai pas entendu.*' The experimenter provides the reason for the breakdown in communication. In this example, the breakdown occurred because the experimenter did not hear the child.
5. 'Can you speak more loudly?'/'*Peux-tu parler plus fort?*' The experimenter explicitly states how the breakdown should be repaired. In this example, the child is told to speak more loudly since the experimenter could not hear him/her.

The purpose of making several requests was to give the children as many opportunities as possible to demonstrate their ability to repair breakdowns. As well, giving the children more than one chance to respond allowed us to observe a higher rate of responses and a wider range of response strategies than would be possible if only one request had been made. Making the requests in the order specified above allowed us to examine the children's abilities in greater depth. Specifically, the first three requests are non-specific and, therefore, do not specify the source of the breakdown or the nature of the response required to repair it. Requests 4 and 5 made the source of the breakdown explicit and, thus, allowed us to see if the children required explicit feedback to make a further repair.

In the present study, requests for clarification were only made up to the point where the child repaired the breakdown; if non-specific requests were sufficient to elicit an appropriate response, the sequence of requests was terminated. Indeed, once children provide an appropriate response, they have shown that they do not need additional information about the cause of the breakdown. Continuing to make requests after the child has successfully repaired the breakdown would have been unnatural and perhaps confusing to the child. The sequence was interrupted before the child produced an appropriate repair in a few instances because the child left the room while being questioned, changed the subject, initiated a new activity, or became visibly annoyed with the experimenter's continued questioning.

Transcription and coding

Approximately 20 minutes of each recorded play session with the experimenter were fully transcribed in accordance with the CHAT system (MacWhinney, 2000). The children's

utterances were coded for language, namely French, English, Mixed (utterances containing both French and English), and Unintelligible; these transcripts were use to assess the children's proficiency in the experimenter's language, as described earlier and as shown in Tables 1. In addition, the children's responses to the clarification requests made by the experimenter over the course of the entire play session were transcribed and coded as follows:

Serial position: the position of the request to which the child was responding (i.e., 'What?' was coded as '1,' 'I don't understand.' was coded as '2,' and so on)
Repair strategy: the strategy used by the child in response to a request for clarification. The main strategies of interest were Repetition, Reformulation, and Subject Change/No Response. Definitions and examples of each of these strategies are provided in Table 2. The percentage of use of each strategy can be found in Appendix. Other strategies were observed, but were seldom used. For example, the children sometimes answered the question 'Can you say that so I can understand?' literally with a 'yes' or a 'no,' asked a third party for help, and in the case of some bilingual children, answered in the wrong language. Because of their low frequencies, these strategies were not included in the analyses reported in the Results section.

Responses consisting of a repetition or a reformulation were of particular interest because, of all possible repair strategies, these are the most commonly reported in studies

Table 2. Repair strategies: definitions and examples[a]

Repair strategy	Definition and example
Repetition:	Repeating the initial utterance verbatim.
	KEL: *Arrose les fleurs*. [Water the flowers.]
	Experimenter: *Quoi?* [What?]
	KEL: *Arrose les fleurs*. [Water the flowers.]
Reformulation:	Rephrasing the initial utterance in some way, either by adding, removing, or substituting elements.
	CEC: *Ah ah un mouton.* [Ah ah a sheep.]
	Experimenter: What?
	CEC: *Ah chèvre chèvre*. [Ah goat goat.]
Subject Change:	Introducing a new topic of conversation or activity.
	ANA: No I just I don't I just don't like, um, the video but I like the thing.
	Experimenter: What?
	ANA: Hey you wanna read these two books? They're funny.
No Response:	Providing no verbal or non-verbal response to a clarification request.
Other:	This category includes strategies that were seldom used: answering a request by saying 'yes' or 'no,' asking a third party for help, using two or more verbal strategies in response to a single request, or using gestures such as pointing to an object or miming an action.
Language Change:	Switching to the inappropriate language (bilingual children only).
	JUL: Screwdriver, it's too big it's for, um, because . . .
	Experimenter: What?
	JUL: Because it's too hard for not ***perdre le screwdriver*** [to not lose the screwdriver]. It cannot fall the screwdriver.

[a] French utterances, when applicable, are in italics. Glosses are provided in square brackets.

of young monolingual children's conversational repairs (see, for example, Anselmi et al., 1986; Gallagher, 1977; Tomasello et al., 1984; Wilcox & Webster, 1980). They are also arguably the most effective. Although Repetition is a minimal repair strategy that requires little effort, it is often sufficient to repair breakdowns that occur when the interlocutor simply fails to hear or is not paying attention to the child's initial utterance, or when the interlocutor is not accustomed to a child's pronunciation. In contrast, Reformulation encompasses a wide range of responses, including the addition of elements to one's initial utterance, or substitution of some or all of the elements of the initial utterance. A reformulation can be simple, or very complex, as in example 1. In this example as well as the other examples that follow, French utterances are in italics and glosses are provided in square brackets. Comments on non-verbal aspects of the interaction are provided in parentheses.

(1) CAT (3;06, monolingual, playing with plastic farm animals)

Child:	*Mais mais mais c'est maman elle va aller chercher va grimper sur la clôture après va venir les chercher avec la bouffe.* [But but but it's Mommy she is going to climb the fence after will come get them with the food.]
Experimenter:	*Quoi?* [What?]
Child:	*La maman cochon elle va venir chercher la nourriture pour donner à tous les petits bébés.* [The mommy pig is going to go get food to give to all the little babies.]

This example shows how CAT transformed her unclear initial utterance in a number of ways: portions were omitted, words were added, and some words were replaced with synonyms. The end result is a well-constructed and coherent utterance.

The strategies that children used in response to every request for clarification were coded by the first author or by a trained research assistant. A different assistant independently coded the responses of five bilingual children and five monolingual children. The inter-rater reliability rate was 90.5% and 88% for the bilingual and monolingual children, respectively. Disagreements were resolved by discussion.

Results

Number of breakdowns

The majority of breakdowns consisted of one or two requests per clarification. This was true of both the bilingual and the monolingual children, regardless of their age. The number of breakdowns consisting of one through five requests for clarification is provided in Table 3.

There was variation in the number of breakdowns experienced by each child. For the bilingual 2-year-olds, the mean number of breakdowns was 8.7 (range: 2–20); for the bilingual 3-year-olds, the mean number of breakdowns was 6.2 (range: 1–19); for the monolingual 2-year-olds, the mean number was 10.8 (range: 6–17); and for the monolingual 3-year-olds, the mean was 12.5 (range 6–23). These differences were due to individual characteristics of the children, such as the accuracy of their pronunciations, their talkativeness, and whether they generally spoke loudly or quietly. As a group, the

Table 3. Number of breakdowns comprised of one to five requests

Language	No. of clarification requests	2-year-olds		3-year-olds	
		Total no. of breakdowns	Total no. of requests	Total no. of breakdowns	Total no. of requests
Bilingual	1	60	60	73	73
	2	18	36	13	26
	3	9	27	4	12
	4	0	0	1	4
	5	0	0	2	10
	Total	87	123	93	125
Monolingual	1	68	68	109	109
	2	29	58	19	38
	3	11	33	8	24
	4	0	0	1	4
	5	0	0	1	5
	Total	108	159	138	180

bilingual children experienced fewer breakdowns than the monolingual children, possibly because they sometimes used the other language, thereby experiencing language-based breakdowns and, as a result, fewer opportunities for breakdowns due to reasons other than language choice.

Preliminary analyses

Before comparing the bilingual and the monolingual children's repair strategies and examining their response patterns in detail, the bilingual children's responses were subjected to preliminary analyses comparing the responses of the bilingual children observed while speaking English to those who were observed while speaking French. This was done to ensure that the language of the play session did not influence the children's choice of repair strategies. A repeated-measures ANOVA with Age and Language as independent variables and Repair Strategy as the repeated measure was carried out to determine whether the French-speaking and the English-speaking children differed in their choice of the three most common responses to their interlocutor's requests for clarification (Repetition, Reformulation and Subject Change/No Response).

There was no main effect for either Age, $F(1,42) = 1.6$, $p > .05$ or, more importantly, Language, $F(1,42) = 0.25$, $p > .05$. There was a main effect, however, for Repair Strategy, indicating that not all strategies were used equally often, $F(1,42) = 19.57$, $p < .05$. For the purposes of the present analysis, this effect is of little relevance, but similar results are explored in detail in subsequent analyses. Finally, none of the interactions was significant: Repair Strategy by Age, $F(1,42) = 0.002$, $p > .05$; Repair Strategy by Language, $F(1,42) = 0.42$, $p > .05$; Repair Strategy by Age by Language, $F(1,42) = 1.02$, $p > .05$. Given the absence of any significant difference between the French- and English-speaking children's choice of repair strategies, the data from both subgroups of bilingual children were aggregated for all subsequent analyses.

Comparison of the bilingual and monolingual children's repair strategies

Figures 1 and 2 show the overall distribution of the bilingual and monolingual children's use of Repetition (REP), Reformulation (REF), and Subject Change/No Response (SC/NR) across all requests for clarification, in percentages. A repeated-measures ANOVA was carried out on these percentages to determine whether the bilingual and monolingual children preferred different strategies, whether there was a relationship between age and the children's responses, and whether certain strategies were generally used more often than others. There was no main effect for the independent variables of Language Group (bilingual vs monolingual), $F(1,42) = 1.2$, $p > .05$, and Age, $F(1,42) = 1.2$, $p > .05$. However, there was a main effect for the repeated measure, Repair Strategy, $F(2,84) = 25.3$, $p < .05$, indicating that the children used certain strategies significantly more often than others, regardless of their age or language group. There were no significant interactions between Repair Strategy and Age, $F(2,84) = 0.73$, $p > .05$, between Repair Strategy and Language Group, $F(2,84) = 0.27$, $p > .05$, nor was the three-way interaction of Repair Strategy by Age by Language Group significant, $F(2,84) = 0.78$, $p > .05$. Thus, it appears that the children's choice of responses was not influenced by their age or their ability to speak one versus two languages.

Follow-up repeated-measures *t*-tests were carried out to determine which responses accounted for the Repair Strategy main effect. The alpha level was adjusted to .016 to compensate for the number of pair-wise comparisons (.05 divided by 3 comparisons). These tests revealed that the children used Repetition and Reformulation in greater proportion than Subject Change/No Response, $t(45) = 5.56$, $p < .016$, and $t(45) = 7.27$, $p < .016$,

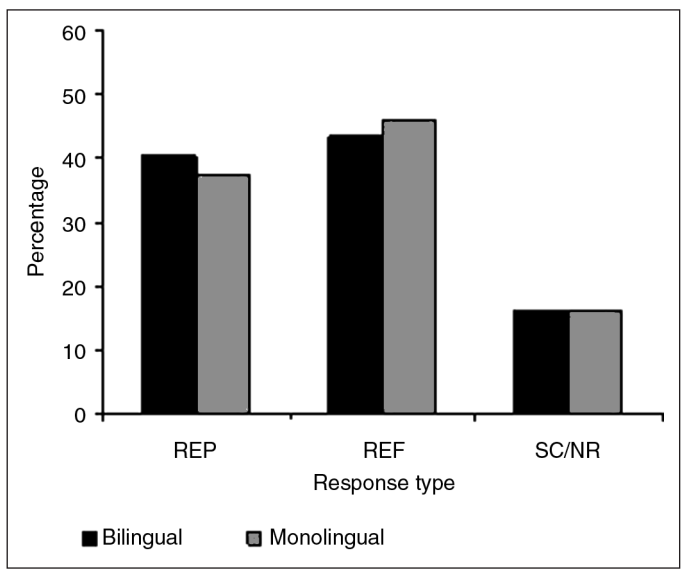

Figure 1. Percentage of Repetition (REP), Reformulation (REF), and Subject Change/No Response (SC/NR) used by the bilingual and monolingual 2-year-olds

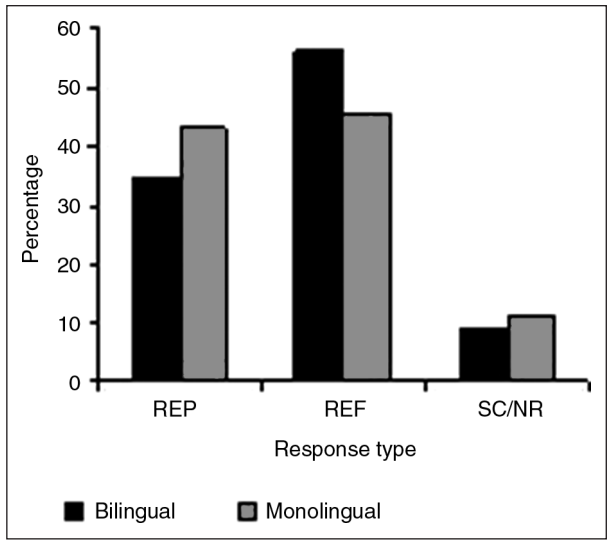

Figure 2. Percentage of Repetition (REP), Reformulation (REF), and Subject Change/No Response (SC/NR) used by the bilingual and monolingual 3-year-olds

respectively, thereby demonstrating a preference for appropriate repair strategies. There was no significant difference between their use of Repetition and Reformulation, $t(45) = -1.97$, $p > .016$, indicating that the children used these two strategies equally often.

While these analyses reveal patterns in the data set as a whole, they do not take the serial position of the children's responses into account and, therefore, do not indicate whether the children's responses changed as the experimenter made additional requests for clarification. To explore this possibility, the analyses were repeated on two subsets of the data. All analyses consist of repeated-measures ANOVAs, with Repair Strategy as the repeated measure, and Age and Language Group as the two independent variables. The first analysis involved the children's responses to the first request only (namely 'What?'), which account for about half of all responses. The second set of analyses involved their responses to the four remaining requests. These were aggregated because there were too few responses to each of the subsequent requests to analyze them individually.

The children's pattern of responses to the first request was similar to the pattern observed for the entire data set. There were no main effects for Language Group, $F(1,42) = 0.56$, $p > .05$, or Age, $F(1,42) = 0.56$, $p > .05$. Nor was there a significant interaction between these variables and Repair Strategy, $F(2,84) = 0.63$, $p > .05$, and $F(2,84) = 0.66$, $p > .05$, respectively. The Age by Language Group by Repair strategy interaction was also non-significant, $F(2,84) = 0.45$, $p > .05$. There was, once again, a main effect for Repair Strategy, $F(2,84) = 29.76$, $p < .05$. Follow-up t-tests yielded the same results as the previous analyses: the children used Repetition and Reformulation equally often, $t(45) = -0.65$, $p > .016$, but used both of these strategies significantly more often than Subject Change/No Response, $t(45) = 7.23$, $p < .016$, and $t(45) = 8.15$, $p < .016$, respectively.

There were also similarities between the overall pattern of responses and children's aggregated responses to the four remaining requests. Once again, there were no main

effects for Language Group, $F(1,42) = 1.67$, $p > .05$, or Age, $F(1,42) = 3.89$, $p > .05$. The main effect for Repair Strategy was significant, $F(2,84) = 4.82$, $p < .05$. None of the interactions were significant: Repair Strategy by Age, $F(2,84) = 0.16$, $p > .05$; Repair Strategy by Language Group, $F(2,84) = 1.8$, $p > .05$; Repair Strategy by Age by Language Group, $F(2,84) = 0.80$, $p > .05$. Follow-up *t*-tests comparing the use of each repair strategy revealed that the pattern of these responses differed somewhat from those observed in the previous analyses. Unlike before, the children used Reformulation significantly more than Repetition, $t(45) = –2.63$, $p < .016$. They also used Reformulation more often than Subject Change/No Response, $t(45) = 2.8$, $p < .016$. Finally, in contrast to the previous comparisons, the children did not use Repetition significantly more often than they used Subject Change/No Response, $t(45) = 0.34$, $p > .016$.

These findings indicate that the bilingual and monolingual children, regardless of age, responded in the same way to requests for clarification. Their overall response patterns were similar, as were their responses to the first and subsequent requests. Moreover, they demonstrated a preference for appropriate strategies (Repetition and Reformulation). Reformulation was particularly favored as a response to requests 2 through 5 (it was used more often than Repetition and No Response). Increased preference for this strategy beyond the first request for clarification suggests that the children were adapting their response patterns to the demands of the situation. Given that the children's previous attempts to repair the breakdown had been unsuccessful, trying to convey their intended meaning by reformulating is an appropriate and potentially more effective strategy than a simple repetition.

To further investigate how the children changed their responses when they were asked more than once for clarification, breakdowns that consisted of two or more requests were subjected to additional analyses. These analyses are qualitative in nature and, in contrast to the previous analyses, they treat the whole breakdown as the unit of analysis, rather than treating each response as an independent data point. As a first step, each breakdown was categorized as belonging to one of three response patterns: (1) Abandonment (the child changes the subject or provides no responses beyond the first request); (2) No Modification (the child provides at least two responses, but simply repeats his/her initial response verbatim), and (3) Modification (the child provides two or more responses, and at least one of them differs in some way from the child's initial utterance). Table 4 shows the distribution of these patterns across age and language groups.

It appears that the bilingual and monolingual children's patterns of responses are quite similar for both age groups. Interestingly, for the sample as a whole, there are few responses in the Abandonment category. This indicates that for most breakdowns involving more than one request for clarification, the children attempted to repair the breakdown by using an appropriate strategy at least twice over the course of a single breakdown. They sometimes simply repeated their initial utterance, as in example 2, but the majority of repair sequences involve at least one instance of modifying their initial utterance, as in examples 3 and 4. That is, the children often attempted to convey their intended meaning in an alternate way when their first attempt failed.

(2) GAB (2;7, monolingual, looking at photo album)
Child: *Un déjeuner.* [A breakfast.]
Experimenter: *Quoi?* [What?]

Table 4. Distribution of bilingual and monolingual children's response patterns of breakdowns involving two or more requests for clarification

Language	Response pattern	2-year-olds	3-year-olds	Total
Monolinguals	Abandonment	4	1	64
	No Modification	7	7	
	Modification	29	16	
Bilinguals	Abandonment	1	2	43
	No Modification	4	8	
	Modification	18	10	
	Total	63	44	107

Child: *Un déjeuner. Un déjeuner.* [A breakfast. A breakfast.]
Experimenter: *Je comprends pas.* [I don't understand.]
Child: *Un déjeuner.* [A breakfast.]

In example 2, GAB simply repeats her initial utterance without making any modification to it. She responds in this way to both the first and the second request for clarification made by the experimenter.

(3) TRI (3;3, monolingual. Child is talking about an action figure)
Child: *Regarde va monter.* [Look will go up.]
Experimenter: *Quoi?* [What?]
Child: *Monter.* [*Go up.*]
Experimenter: *Je comprends pas.* [I don't understand.]
Child: (no response)
Experimenter: *Est-ce que tu peux dire ça pour que je comprenne?* [Can you say that so I understand?]
Child: *Oui regarde va monter comme ça.* [Yes look will go up like that.]

In example 3, TRI initially repeats only a portion of his initial utterance (the action being performed by the action figure) in response to the experimenter's first request, perhaps assuming that the repetition of the critical portion of his initial utterance will suffice to repair the breakdown. He then provides no response at all to the second request. Finally, in response to the third request, he expands on his initial utterance, by adding a clause that qualifies the action expressed in the main verb.

(4) NIS (3;5, bilingual, describing a picture in his book)
Child: *Non le le lapin* (unintelligible speech) *lapin lui lui.* [No the the rabbit (unintelligible speech) rabbit him him.]
Experimenter: *Quoi?* [What?]
Child *(gesturing)*: *Courent après lui* (pause) *lapin.* [Run after him (pause) rabbit.]
Experimenter: *Je comprends pas là.* [I don't understand.]
Child *(gesturing)*: *Eux y courent après après le lapin.* [They run after after the rabbit.]

It is difficult to determine exactly how NIS modified his initial utterance in this last example because part of the utterance is unintelligible. However, it is clear that he makes changes in the overall organization of the sentence in both of his responses. His response to 'What?' begins with the verb, rather than the object, and his final response consists of a clear and well-constructed utterance. Also, the word '*lui*' [him] in his initial utterance is replaced by '*eux*' [them]. This is more accurate, as the picture he is describing depicts a group of people. Finally, the subject and object of the sentence are now in the typical order for French sentences. In sum, his last response is more informative than his previous utterances, and there appears to be a gradual improvement in the form of the utterance. In addition, the child's verbal responses are complemented by gestures – in response to both requests, he pointed to the characters in the storybook.

These examples show that both the bilingual and the monolingual children had a wide range of breakdown-repair strategies at their disposal and that they drew upon these strategies in various ways when responding to their interlocutor's consecutive requests for clarification. When their attempts to repair breakdowns were met with additional requests for clarification, both the monolingual and the bilingual children were able to persevere in their attempt to repair the breakdown by repeating or modifying their utterances. Moreover, in every example presented here, the modifications that the children made were appropriate, and it can be argued that in examples 3, and especially 4, the children's responses to the second or third requests were improvements upon their initial utterances and/or their responses to the first request.

Thus, although the children's proportion of Subject Change/No Response was proportionally higher in their responses to the second request and beyond, as shown by the quantitative analyses, a closer look at breakdown sequences reveals that the children seldom failed to respond to all the requests within a breakdown. While they sometimes provided no response to one or more requests – as in example 3 – they often repeated or modified their utterance at least once over the course of a given breakdown.

Discussion

The results of the present study show that both the bilingual and monolingual children observed had a good grasp of conversational repairs by approximately two-and-a-half years of age. Regardless of language or age, they responded appropriately to the majority of requests for clarification, and there were no significant differences between the bilingual and monolingual children's use of each of the main strategies examined (i.e., Repetition, Reformulation, and Subject Change/No Response). Moreover, the bilingual children's responses were consistent with those observed in previous studies on French- and English-speaking monolingual children (Anselmi et al., 1986; Gallagher, 1977, 1981; Marcos, 1991; Marcos & Bernicot, 1994, 1997; Marcos & Kornhaber-le-Chanu, 1992; Tomasello et al., 1984; Wilcox & Webster, 1980). The fact that the bilingual children's performance was similar in many ways to that of the monolingual comparison groups is particularly impressive because they were observed while speaking their less developed language. This made the task

more challenging than if they had been using the language in which they were more proficient.

All children were also able to respond appropriately to consecutive requests for clarification. While they appeared to have some difficulty providing effective responses beyond the second request for clarification, qualitative analyses of their responses showed that they sometimes persevered over two or more conversational turns and that they had a tendency to recast their utterances rather than simply repeat them. The fact that they chose this more complex strategy over a simpler one suggests that they were actively attempting to communicate their intended meaning to their interlocutor. Like other studies that have made use of consecutive requests for clarification, these results suggest that consecutive requests constitute a more sensitive measure of children's abilities than single requests for clarification, which may not reveal the full extent of their abilities (Brinton et al., 1986; Langford, 1981; Spilton and Lee, 1977).

Like the monolingual comparison groups, the bilingual children did not exhibit any age differences in their responses to requests for clarification. Although Comeau et al. (2007) found differences in the way these bilingual 2- and 3-year-olds repaired breakdowns due to the language choice, no age differences were apparent in their repairs of the breakdowns examined here. This further suggests that the bilingual-specific abilities investigated by Comeau and colleagues develop independently from the abilities investigated in the present study, and that bilingual children interpret breakdowns due to language choice differently from other types of breakdowns, and respond to them in different ways.

This study extends our understanding of bilingual children's communicative competence in a unique way because it investigates an ability that is unrelated to their ability to make appropriate language choices. Unlike many other studies (Comeau, Genesee, & Lapaquette, 2003; Comeau, Genesee, & Mendelson, 2007; Deuchar & Quay, 2000; Genesee, Boivin, & Nicoladis, 1996; Genesee, Nicoladis, & Paradis, 1995; Lanza, 1997, 2001), this study investigated bilingual children in a situation that both bilingual and monolingual children encounter. The comparisons of bilingual and monolingual children's repairs of breakdowns in communication presented here suggest that the acquisition of this communication skill is fundamentally unperturbed by the simultaneous acquisition of two languages in the first years of life. Despite the fact that bilingual children must acquire unique communication skills to accommodate the demands of bilingual communication, they appear to have no difficulty mastering the conversational repair skills they require in a monolingual context.

This finding is not surprising insofar as it concurs with other research which has found no differences between bilingual and monolingual children in other aspects of language development. However, it extends such findings to include a language skill that goes beyond the acquisition of language per se to include a range of other cognitive and social-pragmatic skills. As such, it provides evidence for similarities in the development of communication skills where there previously was none. In particular, these results indicate that the additional cognitive challenges associated with learning and using two languages are well within the cognitive capacity of typically developing toddlers.

From a clinical perspective, the results also suggest that clinicians should not interpret any differences in communication skills that individual bilingual children exhibit relative

to monolinguals as evidence of learning difficulty or impairment. Rather, such differences are more likely due to individual children's exposure to the two languages, communication patterns in the home, and/or their level of competence in each language. Likewise, other professionals working closely with families, such as early childhood educators, should be mindful of the solid body of evidence suggesting that simultaneous bilingualism does not represent a risk factor for children.

Acknowledgments

This research was made possible by a grant from the Social Sciences and Humanities Research Council to Fred Genesee and a graduate scholarship to Liane Comeau from the National Science and Engineering Research Council. We also wish to thank the families of the children who participated in this study for welcoming us into their homes. Finally, we wish to thank Julie Bélanger, Jessica Little, Marie-Claude Besner, Véronique Dupont-Chalaoui, and Sandra Shapiro for their invaluable help in carrying out this study.

Appendix

Percentage use of various strategies by bilingual and monolingual children (frequencies are provided in parentheses)

Strategy	Bilingual	Monolingual
2-year-olds	35% (43)	36.5% (58)
Repetition	45.5% (56)	48.4% (77)
Reformulation	4.1% (5)	5% (8)
Subject Change	12.2% (15)	6.9% (11)
No Response	None	N/A
Inappropriate language change	3.2% (4)	3.2% (5)
Other strategies[a]	*100% (123)*	*100% (159)*
Total		
3-year-olds	30.4% (38)	41.7% (75)
Repetition	50.4% (63)	44.4% (80)
Reformulation	3.2% (4)	3.9% (7)
Subject Change	7.2% (9)	5% (9)
No Response	1.6% (2)	N/A
Inappropriate language change	7.2% (9)	0.6% (1)
Other strategies[l]	*100% (125)*	*100% (180)*
Total		

[a] Other strategies: low-frequency strategies such as yes/no, asking for help, unintelligible utterances and all combinations of two or more strategies.

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