

Gesturing While Pausing In Conversation: Self-oriented Or Partner-oriented?

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Abstract

This paper presents a study involving future French teachers performing a lexical explanation task with both a native and a non-native partner. We are particularly looking at gestures that appear during pauses in speech. What are their functions? Are they self-oriented or partner-oriented? Is there a difference whether the speaker is addressing a native or a non-native interlocutor? Do these “silent” gestures have pedagogical purposes?

Keywords: teaching gestures; foreigner talk; pauses; gesture adaptation.

Theoretical framework

Speech Pauses and Gestures

Speech pauses have a long tradition of being regarded as markers of speech disfluency in linguistics (for a review, see Rühlemann, Bagoutdinov, & O'Donnell, 2011). In addition, proponents of the lexical retrieval hypothesis have argued that the primary function of gestures produced during pauses is to aid with lexical retrieval (Butterworth & Hadar, 1989; Krauss, Chen & Gottesman, 2000). However, in recent years, pauses have been viewed not solely as disfluencies but as important aspects of interaction, and more attention has been paid to the different functions of pauses and the gestures that occur with them in various communication contexts: narrative, conversation, and speakers' modified speech (foreigner talk) and unmodified speech.

For example, Osada (2003) compared audio recordings of modified and unmodified speech on speech rate, articulation rate, pause unit length, individual pause length, and percentage of pauses. She found that speech rate and articulation rate were slower, pause unit length was shorter, individual pause length was longer, and the percentage of pauses was higher in modified speech than in unmodified speech. Rühlemann, Bagoutdinov, and O'Donnell (2011) compared pauses in conversational narrative with pauses in non-narrative from a narrative corpus. They found that pauses are more frequent in conversational narrative except for long pauses, which are more frequent in non-narrative.

They conclude that “pauses offer an immense potential for the study of speech and cognition: they open up a window on the mind” because they indicate thought units (Rühlemann, Bagoutdinov, & O'Donnell, 2011, p. 226). Regarding pauses and gestures, Chui (2005) looked at natural Chinese conversation to determine where stroke onset of iconic gestures occurred (preceding, synchronizing, or following speech) and found that the majority of speakers began their gestures during speech. Esposito and Marinaro (2007) examined pauses and gesture holds to see if they perform similar functions. They pointed out that there are several different types of pauses: physical, socio-psychological, communicative, linguistic, and cognitive pauses. They found that there was a high frequency of overlap between pauses and gesture holds in narrations for both children and adults. They concluded that their results support the theory that speech and gesture are a single unified-system (Kendon, 2004; McNeill, 2005).

The purpose of this paper is to expand the recent investigations into the function of pauses and the gestures that occur with them to the domain of foreign language teaching. In particular, we are interested in whether the gestures occurring in pauses are self-oriented or partner-oriented.

Foreigner Talk and Gesture

Foreigner talk is a register in which speakers adapt their speech to an interlocutor (Ferguson, 1975). When speakers engage in foreigner talk they attempt to make their speech more comprehensible (use of basic vocabulary, shorter sentences, and present tense). They articulate more, speak more slowly, talk more loudly, and use gestures. Gesture in foreigner talk has only been examined by Adams (1998) and Tellier and Stam (2012). Adams showed that gesture production and the types of gestures speakers use are affected by the presence of non-native interlocutors. However, he found only significant differences for deictic gestures in the two conditions. Tellier and Stam (2012) found that the speakers produced more iconic and deictic gestures, gestures that were longer in duration, and larger gestures in the non-native condition. There were two

differences between the study by Adams and that by Tellier and Stam. Adams used a narrative task, and Tellier and Stam used a vocabulary explanation task where the native speaker participants were future teachers of French.

Teachers' Gestures

Teaching gestures (i.e. gestures used deliberately by teachers to help their students) capture attention, make the lesson more dynamic, and support comprehension (Tellier, 2008). They help the learner, whose proficiency in the target language is weaker, to understand what is being said. The question then arises as to whether future teachers inherently know how to make their speech and gesture comprehensible to learners. To investigate this question, we have conducted a study of future teachers of French engaged in a vocabulary explanation task with native and non-native speakers of French (Tellier & Stam, 2012). We now turn to the question of the amount of pauses in the two conditions and the types of gestures that occur with these and their functions.

Methodology

Participants

There were three types of participants: 10 students in Master 1, FLE/S Program at the University of Aix-Marseilles (the principal participants – future teachers), 20 non-native speakers of French (foreign students learning French, level B1/B2 according to the CEFR), and 20 native speakers of French, (students in another program).

Procedure

The Masters of FLE students (also named here as future teachers) were asked to explain 12 French words, which they randomly drew from a box, to both a native speaker and a non-native speaker of French, and the interlocutor was instructed to guess the word. The only constraints were that the Masters students were not to use any words from the same word family or translations of words from another language. There was no time restriction.

The order of explanations was counter-balanced. Half the participants explained the words first to a native speaker, and the other half explained them first to a non-native speaker. Two hundred and forty explanations (10 Masters students explaining 12 words to 2 interlocutors: 10x12x2) were gathered. The explanation of one word (“emballer”, i.e. to wrap) has been analyzed for pauses and co-occurring gestures (20 explanations: 10 with a native and 10 with a non-native partner).

Coding

General coding. The data were coded using ELAN software (Max Planck Institute, Nijmegen). This included the transcribing of the speech of both the future teachers and the interlocutors on separate tiers, the annotating of primary and secondary gesture dimensions for each gesture, and the annotating of gesture space (Tellier & Stam, 2012).

Extracting data for pauses. The annotation procedure for selecting pauses with gestures consisted of two steps: the first one was an objective/automatic filtering, followed by a manual selection.

The automatic extraction of gestures during pauses was performed by using the « Filtering » and « Combine » tools included in SPPAS (Bigi, 2012). First, the pauses were extracted from the time-aligned token tiers of the corpus. Silent pauses lasting more than 200ms and filled pauses (« euh » and « hum ») lasting more than 100ms were extracted. These pauses were combined with the « Main Gesture Type » tier by using Allen's relations (see Table 1).

Table 1: Timing relation between pause (P) and gesture (G)

<i>equals</i>	a P corresponds exactly to a G
<i>contains</i>	a P contains/includes a G
<i>during</i>	a G is produced during a P
<i>overlaps</i>	a P begins before a G and stops during it
<i>overlapped</i>	a P begins during a G and stops after it
<i>starts and started by</i>	a P and a G are beginning at the same time
<i>finished and finished by</i>	a P and a G are finishing at the same time

Then, this automatic detection was manually filtered by 3 annotators because some irrelevant pauses were detected. One annotator had experience in gesture coding and knew the purpose of the study (A), a second one was naïve about gesture coding but knew the study (B), and the third annotator was familiar with gesture coding but not with the current study (C). They had to check every detected pause with gesture and had to answer the question “is there a gesture during this automatically detected pause?” This enabled us to delete irrelevant pauses such as those containing the end of the retraction of a gesture, for instance. The average pair-wise percent agreement was high (85.26%) and the Cohen’s kappa was also high t (coders A and B = 0.87; coders A and C = 0.85 ; coders B and C = 0.83).

Coding scheme for gesture and pauses. We developed a coding scheme for all the relevant occurrences of gestures with pauses in the speech of the future teacher. Some functions are partner-oriented, and others are more self-oriented (Table 2). These functions were created *ad-hoc* for this specific interaction (with a NAT or a NN partner in an explanation task). These functions are partly based on literature on gestures, especially gestures in interaction (Bavelas et al, 1995) and on the functions of teaching gestures (Tellier, 2008). Even if some self-oriented gestures (like gestures produced in word search) may serve a communicative function (Holler et al., 2012), the specific context of this task prevents the interlocutor from helping the future teacher in speech production (for instance when the interlocutor is a NN whose proficiency in French is average). This function is different from “eliciting an

answer” where the future teacher clearly points towards his/her partner (palm up gesture) and is thus partner-oriented.

Table 2 Functions of gestures in pauses

Function	Description
Helping interlocutor (partner-oriented)	Gesturing while the interlocutor speaks.
Eliciting answer (partner-oriented)	Indicating to the interlocutors they should answer
Marking the word (partner-oriented)	Emphasizing a key word of a sentence by a gesture during the pause after the word was said.
Filling in a sentence (partner-oriented)	Gesturing to replace a word that cannot be said (i.e. the target word)
Word searching (self-oriented)	Gesturing while looking for a word or the end of a sentence.
Anticipating speech (self-oriented)	Gesturing before starting to speak.
Retracting in pause (self-oriented)	The gesture ends after speech or while the interlocutor is speaking.

Research questions and hypothesis

As stated in the literature, gestures often appear during pauses as markers of disfluency and/or to help lexical retrieval, they are thus mainly self-oriented. In this study, we hypothesize that gestures produced during speech pauses might have other functions and could be partner-oriented. Therefore, since our Master students are doing the same task both with a native and a non-native partner, we assume that some difference will appear in gestures during pauses. Previous studies (Tellier & Stam, 2012) have shown that the future teachers adapt their gestures and speech to the non-native partner in order to provide them with comprehensible speech. We therefore hypothesize that gestures and pauses are also used as a teaching strategy with the French learners.

Results

The following results have to be considered as preliminary since they only concern 20 explanations out of 240. However, they provide us with good indicators as what to look at in future examination of our data.

The first noticeable thing is the difference in both conditions in terms of duration of the explanation. Indeed, the native (NAT) condition is always shorter than the non-native (NN) since the task is easier for the native interlocutor and requires less explanation from the master student and thus leads to fewer gestures produced and fewer pauses. In the 10 interactions with a NAT partner, we coded 31 occurrences of gestures in pauses, and in the 10 interactions with a NN partner, we found 150 occurrences. Therefore, the following results will be given in the form of percentage so that both conditions can be compared. We took into account both silent and filled pauses (with “euh” or “hum”). In both

conditions most pauses with gestures are silent (76.8% in the NN condition and 87% in the NAT condition).

Types of gestures

In terms of types of gesture occurring during pauses, we find mostly iconics (64.8% with a NN and 59.3% with a NAT) which can be partly explained by the fact that the word the speakers had to make their partner guess (to wrap) is a concrete action verb. It is interesting to notice that Butterworth, lexical search gestures, (1.8% with a NN and 3.1% with a NAT) as well as aborted gestures, gestures begun but not completed, (3.6% with a NN and 1.64% with a NAT) are very rare in pauses although these are the kind of gestures that can appear with disfluencies and are produced for self. We may, thus, infer that most gestures occurring in pauses serve another function. Overall, the condition does not seem to affect the type of gesture produced in pauses.

Functions of gestures in pauses

As far as functions are concerned, in the NN condition, 29% of the functions are “marking the word” (Figure 1). The future teachers use this function to make sure their NN partner understands the key word of their sentence before they proceed with the explanation. It is highly partner-oriented and is a typical teaching action to help a learner understand the foreign language. Most of the gestures produced with this function are iconics, but there are a few metaphoric as well. The second most used function (15.33%) in the NN condition is “word searching” which is fairly self-oriented. The task and the condition elicit a lot of disfluencies since the future teachers are looking for different easy ways to explain things to their NN interlocutor. They have to conceptualize what they are saying and it often leads to pauses or hesitations. The third most frequent function is “eliciting an answer” (12%) which is definitely task dependent.

As for the native condition, since there are only 31 occurrences of gestures in pauses, the percentage should be viewed carefully. All the functions are represented, and there is no real typical function in this condition. The most used is “eliciting an answer” (25.8% or 8/31 occurrences).

When merging all the partner-oriented functions (eliciting an answer, marking the word, filling in sentence and helping interlocutor), we can see that in the NAT condition 58% of the gestures in pauses are partner-oriented and 56% in the NN condition. It thus seems that the condition does not really affect the functions of gestures in pauses. The only noticeable difference may be in the use of “marking the word” function which appears frequently with a NN partner.

Qualitative analysis

In all the following examples the future teachers (on the left) are making their partner guess the word *emballer* “to wrap”.



(il l'a caché en fait sous le papier) {1170ms}
 (he has actually hidden it under the paper) {1170ms}

Figure 1: Marking the word with a non-native



{420ms} je fais avant de l'offrir {910 ms}
 {420ms} I do before presenting it {910 ms}

Figure 2: Eliciting an answer with a native

In the example of Figure 1, the future teacher is talking about Christo, an artist who is famous for wrapping monuments. While she is saying “he has actually hidden it under the paper,” she produces an iconic gesture depicting the wrapping of the top of the monument. Then, as we see in the picture, she pauses for 1170ms while producing a different iconic gesture of wrapping but this time around the object. This way, she is marking the idea of hiding a monument with paper, without speaking.

In the example of Figure 2, there are two pauses during which the future teacher gestures while pausing to elicit an answer from his partner. He produces successively two iconic gestures: the first one represents wrapping and the second one is giving a present. The picture shows the second one (produced during the pause) oriented towards the interlocutor and which invites him to give the answer.



(on dit) qu'on euh {2268ms}
 (one says) that one hum {2268ms}

Figure 3: Word searching with a non-native

Before the example in Figure 3, the speaker first talks about Christmas presents, and then she tries to elicit an answer

from her interlocutor by producing an iconic gesture for wrapping. However, since the NN does not answer, she looks for another way of saying things. The pictures show her looking for a synonym of “emballer.” She is saying “euh” and then a long pause of 2268ms while she is miming the act of wrapping with both hands without looking at the interlocutor. The hesitation, the vocal and verbal context, the gesture and the gaze show that the future teacher is gesturing during the pause mainly for her own sake.

Conclusion

This study is a first attempt to look at gestures in pauses in an explanation task with two different partners: native vs. non-native, an area that has not been researched before. This study is based on 20 samples of explanation in a corpus that comprises 240; therefore, these results should be taken as preliminary.

Overall, the results show that a lot of gestures are produced during pauses and that they serve different functions. Previous work on gestures in pauses has mainly focused on the idea that gestures in pauses are self-oriented. In our study, gestures in pauses seem to serve both speakers and their interlocutors. They can be addressed to the partner to insist on a key word, to elicit an answer, to complete a sentence and make it clearer, etc. In a situation such as ours (where the partner must guess a target word) the interactive function of gesture is highly solicited. However, contrary to our primary hypothesis, the level of proficiency of the partner does not seem to affect the functions of gestures in the pauses (in terms of partner-oriented vs. self-oriented) except for the “marking the word” function that enables the future teacher to stress the key word in the sentence after it has been uttered so that the NN partner has time to assimilate it. Thus, the gesture provides the learner with comprehensible input and shows that the future teachers in our study have already assimilated teaching techniques.

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