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## One Teacher, Two Instructional Contexts. Same Teaching Gestures?

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### Abstract

Despite the increasing interest in gesture studies for teachers' gestures, it seems that no research has yet been carried out to analyze the impact of the instructional context on a teacher's gestures. This study provides the opportunity to add to our understanding of teachers' non verbal pedagogical repertoire by observing a French teacher in two different contexts : FL1 (French for native speakers) and FL2 (French for NNS).

**Keywords** : instructional context; pedagogical repertoire; teacher's gestures

Over the past few years a considerable body of research has highlighted the importance of gestures in the teaching process (Allen, 1999; Antes, 1996, Hostetter et al., 2006; Lazaraton, 2004; Roth 2001; Sime, 2008). It has also been proven that gestures do play a role in understanding and learning a new language (Sime, 2008; Tellier 2010). Other studies have shown how gestures are adapted to the learners' level (Goldin-Meadow, 2003) or to the linguistic proficiency of the addressees (Adams, 1998; Tellier & Stam, 2010).

Yet, to our knowledge, there exists no empirical study comparing the gestures of the same teacher in two different instructional contexts. In the FL1<sup>1</sup> situation, the learners are native speakers (NS) who have always attended school in France whereas in FL2 classrooms, the students are non-native speakers (NNS) newly arrived in France. Their understanding of French and of the French school system and expectations are quite basic. It seems interesting to analyze how the teacher's *pedagogical repertoire* (Cicurel, 2002; Sime, 2008) is performed according to these contexts and learners. It is hypothesized that the context has an impact on the teacher's use of non-verbal modalities in terms of gesture rate, gesture dimensions and functions.

Basing our work on two particular previous studies comparing the use of gestures in face-to-face interactions with NNS (Adams, 1998; Tellier & Stam, 2010), we will focus on deictics (D), metaphoric (M), iconics (I) in a mceillian perspective. Gestures and speech being part of a single process, they cannot be analyzed separately.

We will also consider emblems (E) as they are known for being sensitive to cultural variations, which prevails in our FL2 context.

### Methodology

Our data consists of approximately 9 hours of videotaped FL1 and FL2 classrooms in a secondary school in Toulouse (France) in 2011. In FL2, the students were aged 11-14<sup>2</sup>, and the lesson was mainly language-focused, though there were times informal communication prevailed. In the FL1 context, the students were aged 14-15, and they worked on a text by F. Pavloff (1998) entitled "Matin brun" ; the class was more meaning oriented.

Let's bear in mind that because of the low linguistic proficiency of the NNS and the specific educational objectives to each context, it was impossible to have the same lesson done to the two classes by the same teacher.

Despite this difference we consider that recording the same teacher in two classroom situations with their own specificity would allow us to have access to some aspects of her pedagogical repertoire and see how it was put into practice in different situations.

Four of the nine videotaped hours were integrally transcribed with ELAN, ie. the utterances of both the teacher and the students, plus the gestures and mimics of the teacher. We selected the recordings to transcribe following various criteria : i) the quality of the sound and video, ii) the occurrence of sufficiently numerous multimodal elements to analyze, iii) the type of interactions had to be identifiable as FL1/FL2 teaching activities, ie. teacher/student interaction comprising questions, answers and evaluation, and grammar reflection.

We designed our typology of utterance functions, gesture and mimic dimensions and functions based on various works (Heylen et al., 2007; Lyster & Ranta, 1997; McNeill, 1992, Tellier & Stam, 2010). Once the transcription was complete and revised we proceeded to the tokenization of the teacher's utterances for the calculation of the gesture rate.

### Results

#### Context impact on gesture rate<sup>3</sup>

Table 1 shows the impact the instructional context has on the teacher's gesture rate.

<sup>1</sup> French as a first language - ie. for French speakers - vs. FL2 : French as a second language, French taught to new-comers schooled in France

<sup>2</sup> The same class for every newly arrived immigrant, whatever his aged from 11 to 14.

<sup>3</sup> Number of gestures divided by number of words

Table 1 : Gesture rate

	FL1	FL2
Number of words	8089	8818
Number of gestures	412	783
Gesture rate (gesture per word)	0.051	0.088
Relative gap <sup>4</sup>	72%	

The first two lines of the table present the number of words and gestures produced in each context, which enabled us to calculate the gesture rate. The difference between FL1/FL2 was then evaluated thanks to the calculation of the relative gap.

According to our results the number of gestures per word is 72% higher in the FL2 context than in the FL1 one. The teacher adapts herself to the context by gesturing more in FL2, which is coherent with the findings of studies related to face-to-face interactions between native and non-native speakers. She may indeed need to compensate the lack of understanding by gesturing more to help students assimilate the words, actions or explanations.

### Context impact on gesture type and duration

If we now pay attention to the occurrences and duration of the different types of gestures, the comparison of the data is quite interesting. We decided to concentrate on four gestures as defined by authors like McNeill (1992), plus what we called Pedagogical Emblems, ie. emblems particularly used within instructional contexts, like the cupped hand behind the ear to ask the student to repeat a sentence (Muramoto, 1998).

Table 2 : Gesture type occurrence and duration

	Occurrence (in %)		Average gesture duration (in seconds)	
	FL1	FL2	FL1	FL2
D	43.45	49.90	1.74	1.92
E	20.65	21.60	1.74	1.26
PE	4.60	5.75	1.92	2.24
I	5.35	13.55	1.17	1.5
M	25.95	9.20	1.17	1.17
Total average			1.5	1.6

First, table 2 shows that the context has no effect on the teacher's total gesture duration as calculated by ELAN (1.5 s in FL1 vs. 1.6 s. in FL2). It is rather surprising since we could have expected the gestures addressed to NNS to last much longer than with the NS (Tellier & Stam 2010). Gesture rate being greater in FL2 (see table 1) may account for these results : more gestures but shorter in time in FL2 vs. less gestures lasting longer in FL1. Amongst NNS' linguistic

<sup>4</sup> Calculated as follow : ((higher rate - lower rate) / lower rate) x 100 = (0.088-0.051)/0.051 = 0.72 x 100 = 72 %

characteristics, it is a fact that their lexical repertoire is limited. The teacher's words or explanations are potentially still unknown to the NNS, so we could suppose the teacher may unconsciously favor a *regular* production of gestures to make her utterances/actions explicit and prevent misunderstanding in the FL2 context. Their duration would then be less essential.

If we now consider gestures separately, there is also almost no difference in the production of emblems between the two contexts (FL1 : 21.6% vs. FL2 : 20.6%) although the FL2 class consists of NNS. But on average emblems last longer in FL1 (1.74 s.) than in FL2 (1.26 s.). She often holds those gestures when managing the class, which tends to help calm down the students (see illustration 1a), or when she is summing up the ideas mentioned by the students and holds the gesture as long as the *students* speak.

In the wake of Adams's study (1998), we can notice that deictics are more numerous in the FL2 situation. It seems the teacher needs to accompany the words she mentions with a pointing gesture to indicate the students what she is verbally referring to, hence reinforcing the comprehension of her utterance. Making things clearer for NNS may also account for a bigger production of iconic gestures in the FL2 context.

Conversely, the production of metaphoric gestures is more important in the FL1 teaching context. Different reasons may account for those data : i) the students in the class she is teaching are aged 14, which means they are being prepared for the French BEPC exam where they will need to know how to use literary concepts and to understand a literary text with abstract notions, ii) metaphoric gestures refer to abstract notions such as she cannot use with the NNS, whose proficiency is still quite basic (A1-A2 levels of the CEFR<sup>5</sup>), iii) the students in FL1 are from the same culture as the teacher, so they have the same cultural metaphors, iv) her FL2 class was then mainly language-focused, not really favorable to the production of metaphoric gestures.

Though the contexts are different in terms of the type of instruction they focus on (language vs. meaning) our findings empirically confirm Tellier & Stam's (2010) in their experimental study which compared and analyzed the gestural and verbal strategies used by NS (future foreign language teachers) to explain the same words to NS and to NNS.

### Context impact on teaching gesture functions

There have been various attempts to define the different functions of instructional gestures. The one we will consider is Tellier's classification (Tellier, 2008) based on Dabène's taxonomy (1984). She argues that teaching gestures serve to inform, assess learners, and organize<sup>6</sup>

<sup>5</sup> The Common European Framework of Reference for Languages, for details see [http://www.coe.int/t/dg4/linguistic/cadre\\_en.asp](http://www.coe.int/t/dg4/linguistic/cadre_en.asp)

<sup>6</sup> Informateur, évaluateur et animateur

the lesson. Each of the gesture types can perform any of these functions as table 3 illustrates.

Table 3 : Gesture functions



	Gesture functions in %							
	Organizing		Assessing		Classroom management		Informing	
	FL1	FL2	FL1	FL2	FL1	FL2	FL1	FL2
D	31	28	27	18	1	0	41	55
E	26	28	19	28	27	7,5	28	37
PE	69	54	11	20	11	18	11	9
I	18	13	5	0	0	0	77	87
M	22	33	6	3	0	0	72	64

First let's note that these data confirm our previous analysis of the use of deictics in FL2. They help the teacher better inform (54.5%) the learners by referring to what she is saying. The results illustrated in table 3 also confirm our interpretation of the metaphoricis in FL1. Most of them are produced to convey information (72%), which is coherent with the topic of her lesson, ie. the analysis of a literary document which raises questions related to abstract notions such as friendship and feelings.

Emblems and deictics can be regarded as the two sides of one continuum based on the "semantic transparency" of the gestures. Deictics are semantically transparent gestures (Adams, 1998) whereas emblems' meaning is culturally sensitive. We shall now analyze them simultaneously.

FL1 emblems represent 1/4 of the classroom management function (27% in FL1 vs. 7.5% in FL2) which can be accounted for by the students' restlessness in the 2<sup>nd</sup> videotaping (from 4 to 5 pm, last session of the school day).


Illustration 1 : FL1 classroom management emblems

	
00 :15.315 - 00 :16.691 T <sup>7</sup> : where does it take place um where does the story take place L : we don't know T : very good ++ [now there's too much talk] + we won't make it	01 :17.750 - 1 :19.220 T : so I've just heard totalitarian regime ++ [you are// L : I said it first]

<sup>7</sup> T = teacher / L = learner ; + = pause ; // = interruption  
[...] = gestured part of the utterance

In FL2 emblems are produced to assess the students and to convey information, which may be rather unexpected when one knows their semantic nature and the possible misunderstanding/misinterpretation of these gestures for cultural reasons.

Illustration 2 : Example of emblems in FL2 context



45:03.700 - 45:04/990

L : at school we play not with the mobile phone  
T : [almost correct + who] can make the sentence again

This raises various questions : did the teacher mean to teach some cultural aspect of the language she is using? Did she intend to make unknown assessing words clearer ("almost correct<sup>8</sup>"), or was she simply not aware of the cultural aspects of these gestures?

In a different perspective, an explanation could be posited. NNS may feel linguistically insecure as they regularly take a risk to lose their face when they speak in the foreign language. FL2 teachers are obviously aware of this situation, and their production of multimodal praise (emblems + verbal) may be determined more by their perceptions of the students' needs than by the quality of their real performance (Brophy, 1981). This could account for our teacher praising the NNS both gesturally and verbally, even though the performance of the student is not so high. In FL2, it seems that helping the student feel more secure sometimes prevails over linguistic correctness or performance (Brophy, 1981).

<sup>8</sup> « presque », in French

The number of deictics in FL1 exceeds that in FL2 in the assessing function but not in the informing one. We can speculate the teacher needs less to “show and tell” to help the learners follow her argument. However, if we consider the number of students in ordinary classes such as the FL1 (n=26 vs n=13 in FL2), we can easily understand the need to point to the student she is assessing. It enables her to single out among the whole students in the class the one she is mentioning or repeating the words of. By doing so, she also builds some sort of joint attention necessary for cooperative learning.

## Conclusion

Our study offered the opportunity to compare the gesture production of the same teacher in two different instructional contexts.

It has been observed first that her gesture rate is 72% higher in FL2 context than in FL1. Her gesture production shows some similarities in the gesture duration and in the production of emblems, and differences in terms of gesture types (metaphorics) and teaching gesture functions (more emblems to assess in FL2 but more deictics in FL1 oral assessment). Various explanations were proposed to understand these findings.

Globally, we could suppose that the teacher uses gestures either in a supportive way (iconics, metaphorics), to motivate (emblems), or to contribute to cooperative learning by building some kind of joint attention (deictics).

The theoretical implication for foreign studies is quite obvious inasmuch as this study has contributed in some measure toward adding to our understanding of the pedagogical repertoire variation of teachers as they adapt to classroom situations and learners.

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