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**OWN-BODY USE FOR THE PERCEPTION OF THE
PARTNER'S AFFECTS, About empathy and the concept of
BODY-ANALYSER**

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The body analyser hypothesis can be formulated in the following way: during a face-to-face interaction, partner A uses his/her own body as an echo to his/her partner's body, whose "echo-ised" pattern contributes to experiencing the same feelings as the partner's, and facilitates the interpretation of the partner's thoughts.

The crucial point is that people may use their own body as the means of feeling each other's affects.

Empirical approach:

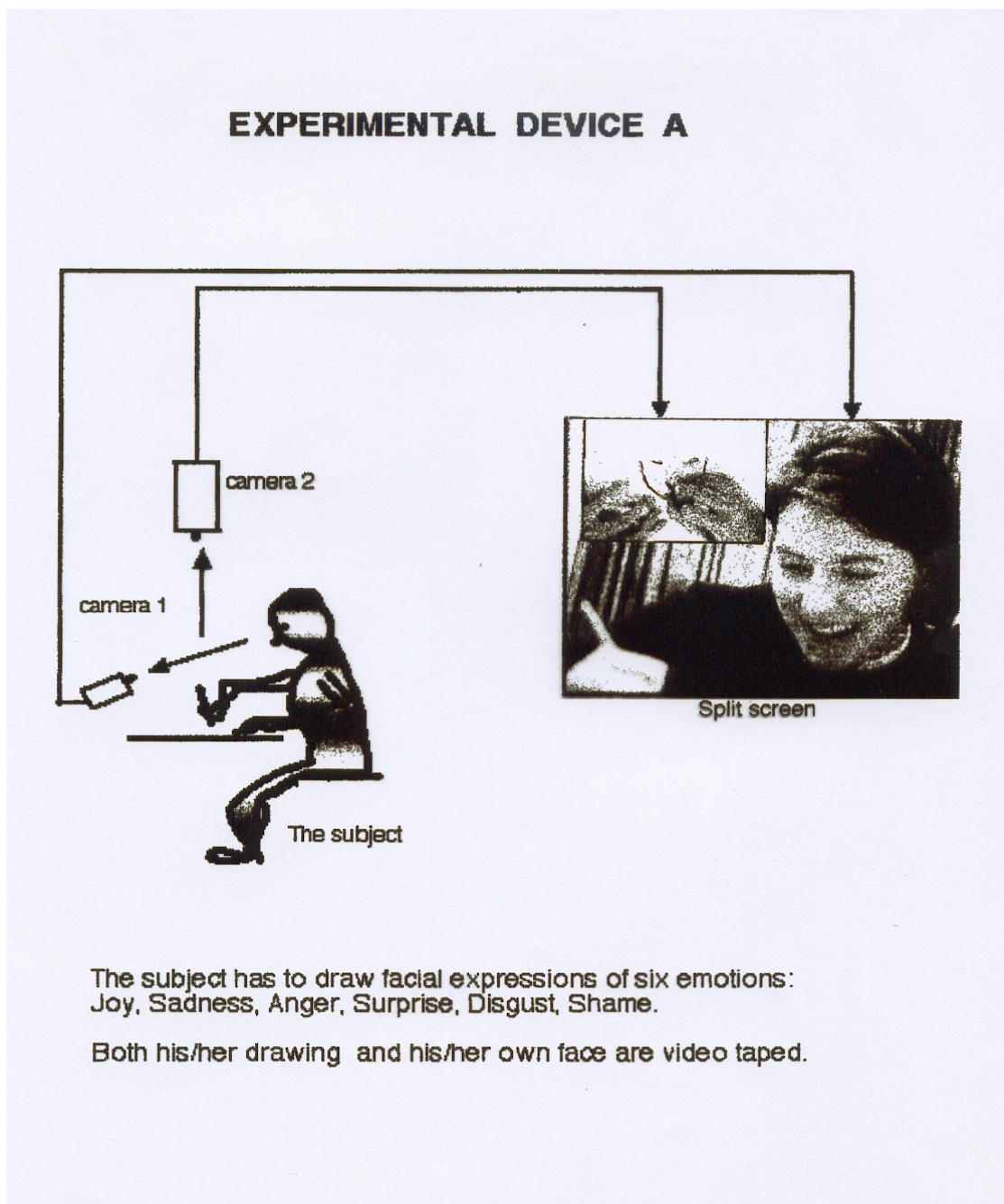
A previous approach was done by studying "mirroring" in face-to-face interaction(COSNIER,J.,BRUNEL,M.L.,1994,1996,BRUNEL,M-L.,MARTINY,C., COSNIER,J.,1996)

The present poster will show data from two other, more experimental, settings.

A-Setting- The "creator's mimics" or the self-reference of affective representations.(Sophie Huyghues-Despointes, collab.)

Hypothesis: if a subject is asked to perform a graphic representation of emotions he/she will refer to his/her own facial expressions.

Experimental device : 25 subjects were asked to draw human faces expressing anger, fear, joy, sadness, shame and surprise. Using two video-cameras and a split-screen it was thus possible to observe the subject's facial activity while he/she was sketching the mimics. This task was followed by an interview about his/her impressions.



Main results:

I- "Objective" results : observed facial activity.

Facial activity has been evaluated in expressive patterns which were themselves analysed in Action Units (from Ekman's FACS).

Since the experimental device allowed to observe simultaneously the performed drawing and the face of the performer it was possible to relate his/her facial patterns to the state of the drawing and to the nature of the evocated emotion.

A total of 426 facial patterns appeared of which 126 during the drawing-times (d.t.), and a total of 251 significative UA (i.e. UA N° 17, 12, 2, 6, 4, 15) were observed of which 160 during the d.t.(i.e. 65%, UA 17 mainly for Anger and Disgust, UA 12 and 6 for Joy, UA 2 for Surprise, UA 4 for Anger, UA 15 for Disgust).

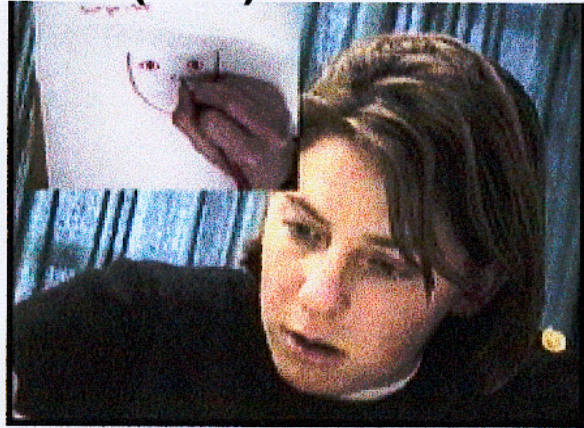
Beside the specific emotional patterns linked to drawing activity we noticed a lot of other facial of two kinds of functional categories : we call the first "cognitive" patterns, corresponding to periods of thinking, and the second "metacommunicative" patterns, since they were used to communicate with the experimentalist.

As we said, the majority of specific patterns were done during the phases of drawing and the others during para or extra phases.

Example(subject 3)



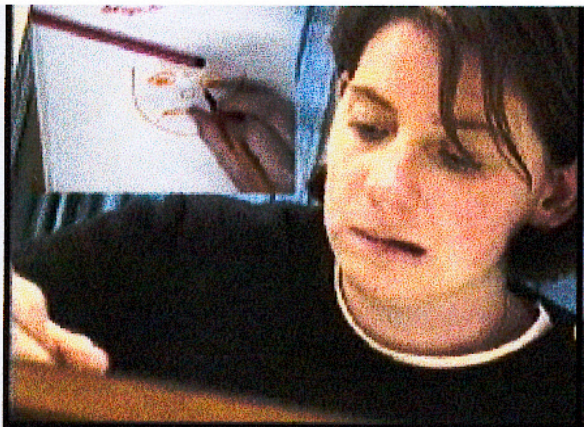
JOIE (JOY)



SURPRISE



HONTE (SHAME)



DEGOUT (DISGUST)



TRISTESSE (SADNESS)



COLERE (ANGER)

2 –Subjective results : self follow-up appraisal

After the task the subject was asked two questions :

-“ did you refer to your own facial patterns ? and did you use this reference during your drawing activity ? ”

Answers : yes :19 ; no :4 ; undecided :2

-“ did you imagine any characters or any comic strips stereotypes ? ”

Answers : yes 18, particularly for anger, sadness, joy and shame (in the case of shame by the drawing of ‘red cheeks’).

NB : specific emotional patterns were objectively perceptible for 16 subjects only.

3-Subsidiary results:

The drawings were presented to 10 judges who were asked to guess what was the represented emotion. The results were as follow :

Joy was recognized by 83% of the judges

Sadness by 70%

Surprise by 70%

Anger by 62 %

Disgust by 37 %

Shame 12%

Joy is therefore the most easily identifiable followed by sadness, surprise and anger but disgust and shame are less (shame is only recognized by the stereotype of the ‘red cheeks’).

B-Setting :The "interpretor's mimics"(Nadine Bonnet, collab.)

Hypothesis: a subject who is asked to guess what a person who he/she can observe but not hear, will use his/her own body for mirroring ("echoisation") the person and that will help him/her to hypothesis what the person is thinking and saying.

Experimental device: a set of six photos showing a person discussing and moving was presented to 20 subjects who were asked to imagine what the photographed person was saying. During the experiment the subjects's were video-taped. It was thus possible to compare the subjects'gestures to the photograhed model's gestures.

THE SET OF PHOTOS



1



2



3



4



5



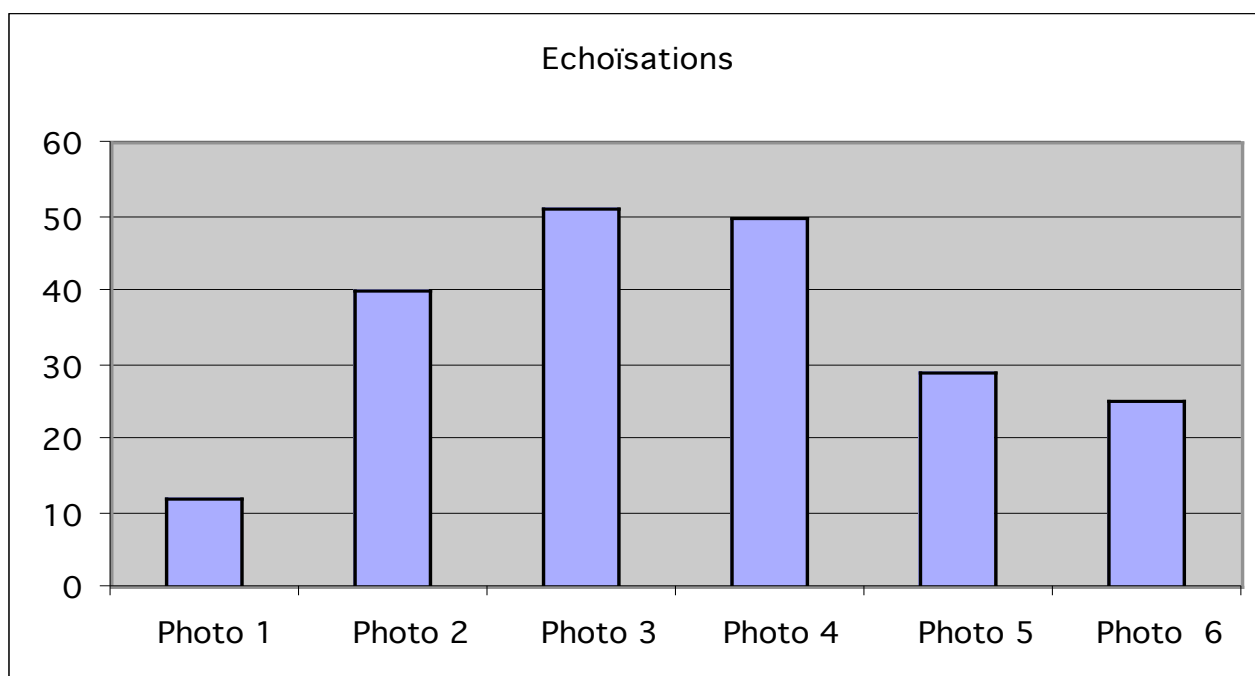
6

Voici 6 images d'une personne en conversation. Pouvez-vous imaginer ses paroles ? *(Can you guess what is saying this woman ?)*

Results:

During each session, each of the 20 subjects produces speech and gestures . Among a total of 432 gestures, 207 are reproducing, totally or partially, the photographed woman's gestures (= " echo-isations ").

The most frequent echo-isations were done for photo number 3 and 4, as shown by the following histogram .



Examples : (the photo-stimulus is on the right, on the left is the interpreting person. Under her picture is written her speech,

the echoed gesture corresponds to the underlined part of her speech).



1-"tu me trouves jolie?"(Do you think I am pretty?)



2-là on voit qu'elle demande quelque chose(there she is asking something)



3-il lui a dit quelque chose qui lui a pas plu(he has said something unpleasant)



4-je sais pas bien dire pour celle-là (I don't know for this one)



5-là il y a que ses mains qui parlent (there only speak her hands)



6-sur la dernière photo elle attend (on the last photo she waits)

As seen in these examples three types of linked-speech can be distinguished:

- speech in direct style, imagined and referring back to the woman on the set of photos.(1,2bis)
- speech describing the woman's gestures(4,5)
- speech interpreting the woman gestures(2,3,6)

GENERAL CONCLUSIONS:

The mimetic activities, overt or covert, explicit or subjective, have given way to the concept of "body-analyser" put forward by several arguments :

- Experimental data emphasizing the use of one's own body to convey or to recognize affects, as shown in our experiments "Creator's mimics" and "Interpreter's mimics". The results of these experiments follow a similar focus along the same line as many other observations concerning facial echoisations of subjects who are asked to identify emotions expressed on comic strips or photos (from Titchner 1909...).
- Different psychophysiological data brought to the fore by Ekman and col.(1983): if one is asked to display such or such a facial expression the following will be revealed:(1)specific emotional vegetative phenomena (2)related specific feelings.
- Neurophysiological data perception of gestures performed by another subject is followed by brain activities similar to the ones that the subject him/herself would have produced if he/she had accomplished the same gestures(Jeannerod,1999).

Therefore, both the speaker's body and his/her partner's body are used in an empathico-inferential process allowing inductions and attributions of reciprocal affects.

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