

ADAPT

Kick-off meeting

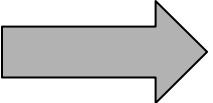
January 20-21, 2003

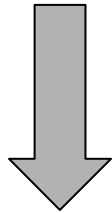
Experiments planned

Developmental Group



I. Development of haptic strategies during the first six months

- Very young Infants are more haptic than visual: is it true at birth?  **test**
- Haptic strategies become more numerous and diversified, without a clear role of visual control



Goal: Description of these strategies via the use of finger sensors for pressure as an index of specific exploratory procedures about shape or texture or size relevant to visual identification of the objects

Measures: palm and finger enclosure , digit movements

II. Development of intermodal relationships from birth to 6 months

Tactile and visual, but not auditory modalities share amodal properties (texture and shape)

Goal: identify the process by which relationships between the three modalities are established

Method: habituation

the infant will be habituated to a texture (i.e. rough versus fine) or to a size (i.e. small versus big), (to which will be arbitrarily associated a sound (i.e. low versus high pitch).

When presented another texture or shape, two sounds will be proposed (low /high pitch):

If the infant has formed a relationship, she will choose the familiar pitch..

The development of such associations is suggested to be the first step toward generalized intermodal transfer.

III. Toward unified intermodal representations and generalized transfer from 6 to 12 months

Test: stability and consistency of intermodal relationships

Method: introduction of intersensory conflicts (object looking as smooth but in fact spiky, etc.) cf. J. Lockman

Measures: facial expressions, number of trials, failure to capture the object

Conditions: production and reproduction

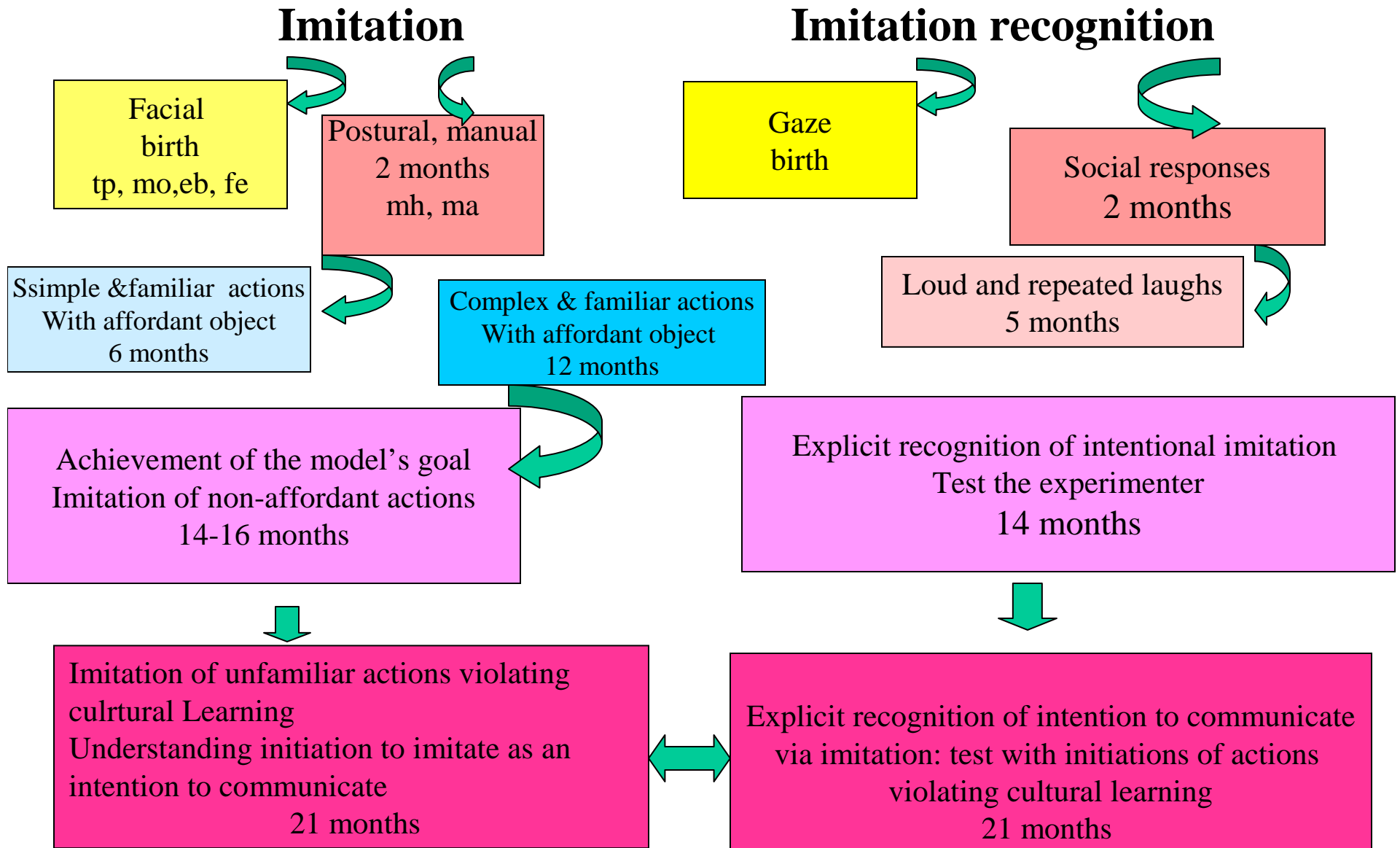
Test in the production condition : If the grasping is adapted to the visual properties, the process of generalized transfer is established

Test in the reproduction condition: Influence of intermodal processing in others

Test in the reproduction condition: compare the effect of an affordant/vs non affordant use of object, as an index of unified intermodal representation

Measures: facial expressions, number of trials, refuse to imitate

Imitation is not a unitary phenomenon



Additional test

Separate or joint contribution of vision and audition in primary social exchanges?

Double video experiment

Test: detect a delay between vocal signals and mother's Response versus visual signals and mother's response.

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Night thoughts



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I. Yes, embodiment is crucial, BUT

for a developing infant, thus **for a biological model of developing self**, the primary and decisive embodiment is a social one, not a physical one: why focusing on the interaction between a robot and a physical object?

Of course a person is **ALSO** a physical object, but **newborns prefer**

- **human** face
- **human** voice
- **human** smell

-What does this mean? Maybe that persons are not only multi-sensorial objects but dynamically interactive (i.e. contingent) and autosynchronic (i.e. redundant).

← Very young infants prefer redundancy (cf. Rochat,)



Yes, a piagetian view of hierarchical stages of development makes sense sometimes: but is it true for the development of perception-action coupling ?

Cf. facial imitations decrease, vocal imitations start

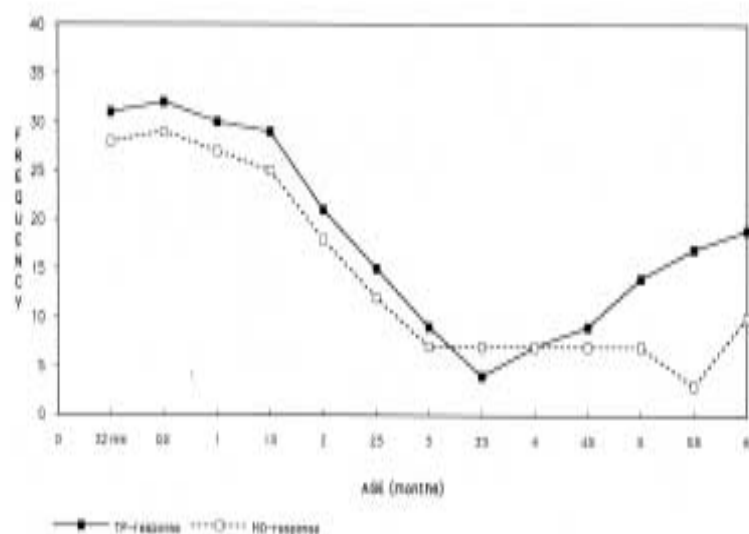
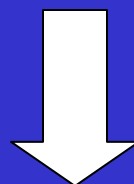


Figure 2.1. TP-response to TP model and MD responses to MD model at each age (in months, except the first one).

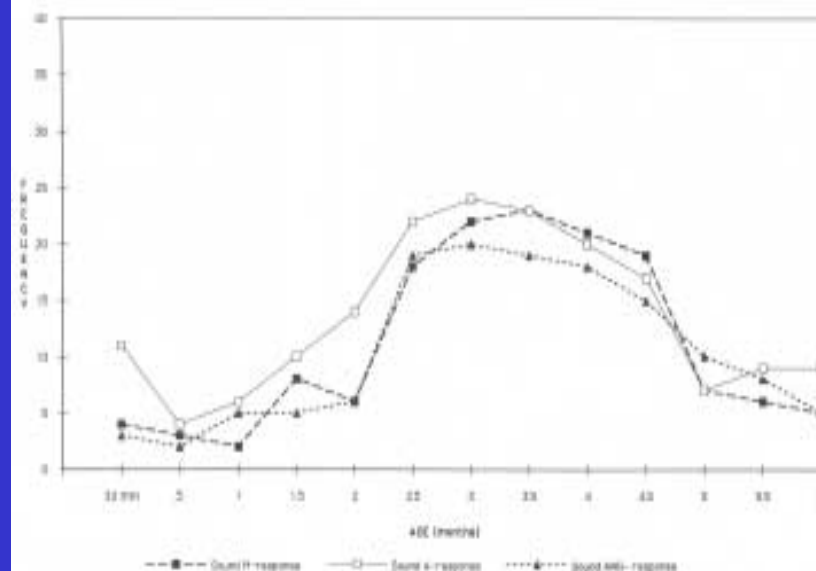


Figure 2.2. Vocal /m-/, /n-/, and /ang-/ responses to /m-/, /n-/, and /ang-/ model, respectively, at each age (in months, except the first one).

Yes, a view of development as a hierarchy of stages makes sense sometimes: but how does it account for transitory adaptations?



*Imitate and be imitated :
A primary way to share intentions*

Cf. Thelen's transitory adaptations

cf. Synchronic imitation: a communicative function which disappears when language is mastered

Development is better described as a dynamics between disappearing and emergent adaptive behaviours

Imitation is not the other facet of
intermodal transfer