



HAL
open science

Embodied practice to increase L1 vocabulary acquisition in French kindergarten children

Anaïs Cauna, Maureen Astier, Marion Tellier, Pascale Colé

► To cite this version:

Anaïs Cauna, Maureen Astier, Marion Tellier, Pascale Colé. Embodied practice to increase L1 vocabulary acquisition in French kindergarten children. Conference of the European Society for Cognitive Psychology, Sep 2023, Porto (Portugal), Portugal. . hal-04249977

HAL Id: hal-04249977

<https://hal.science/hal-04249977v1>

Submitted on 19 Oct 2023

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Introduction

- **L1 Vocabulary level in preschool children** is a *predictor* of future *reading skills* (Muter et al., 2004 ; Ouelette, 2006)
- **Co-speech iconic gestures** (McNeil, 1992) : *Co-speech gesture* illustrating some *semantic properties* of the *word referent* → An *efficient tool to support L2 vocabulary learning* in both adults and children (see for example Kelly et al., 2009 ; Quinn-Allen 1995 ; Tellier, 2008)
- **Embodied Pedagogy Framework** (Macedonia, 2019)
- Previous study : Focus on the use of **iconic gestures** to support **L1 vocabulary acquisition** (action verbs & nouns) in **French Kindergarten children in comparison with picture presentation**
 - 1) The effect of learning conditions depends on the tasks : **beneficial effect of iconic gestures for free recall & recognition task**
 - 2) Learners' vocabulary skills modulates the **effect of learning conditions for definition task**
 - 3) **No difference** in the effectiveness of learning conditions depending on **word types & learners' manual dexterity level**.
- **Objectives of the current study** : **Replicate and extend** previous results obtained by **adding 1) long-term measurements and 2) a third learning method i.e. gesture visualization** → **To ensure that the (potential) benefits of the iconic gestures are explained by the children's motor engagement.**

Method

- **30 kindergarten** (12 Girls & 17 Boys) aged to $5,6 \pm 2$ months from **medium to high socioeconomic backgrounds**
- **30 new words to learn with videos** : **15 action verbs** ("to crumple") & **15 nouns** ("suspenders")
- **3 learning conditions** (see Fig.1) :
 - **Pictures (P)** presentation
 - **Visualization of iconic gestures (V-IG)**
 - **Visualization & Reproduction of iconic gestures (VR-IG)**
- Before vocabulary training : evaluation of **reasoning** (WIPSSI-IV, Wechsler, 2014), **vocabulary skills** (EVIP, Dunn & coll., 2013) and **manual dexterity** (MABC-2, Henderson & al., 2007) + **definition task**
- Vocabulary training : **2 sessions/ method in on week by group of 3 or 4 children** through **videos**
- Evaluation with **4 tasks** in short & long term (D+7 & 21) : **free recall, recognition, denomination and definition task**



Fig 1. Examples of learning session for each experimental conditions : A) Pictures (P) for « straps » ; B) Visualization of iconic gestures (V-IG) & C) Visualisation and Reproduction (VR-IG) for « to knead »

(Preliminary) Results

FREE RECALL TASK

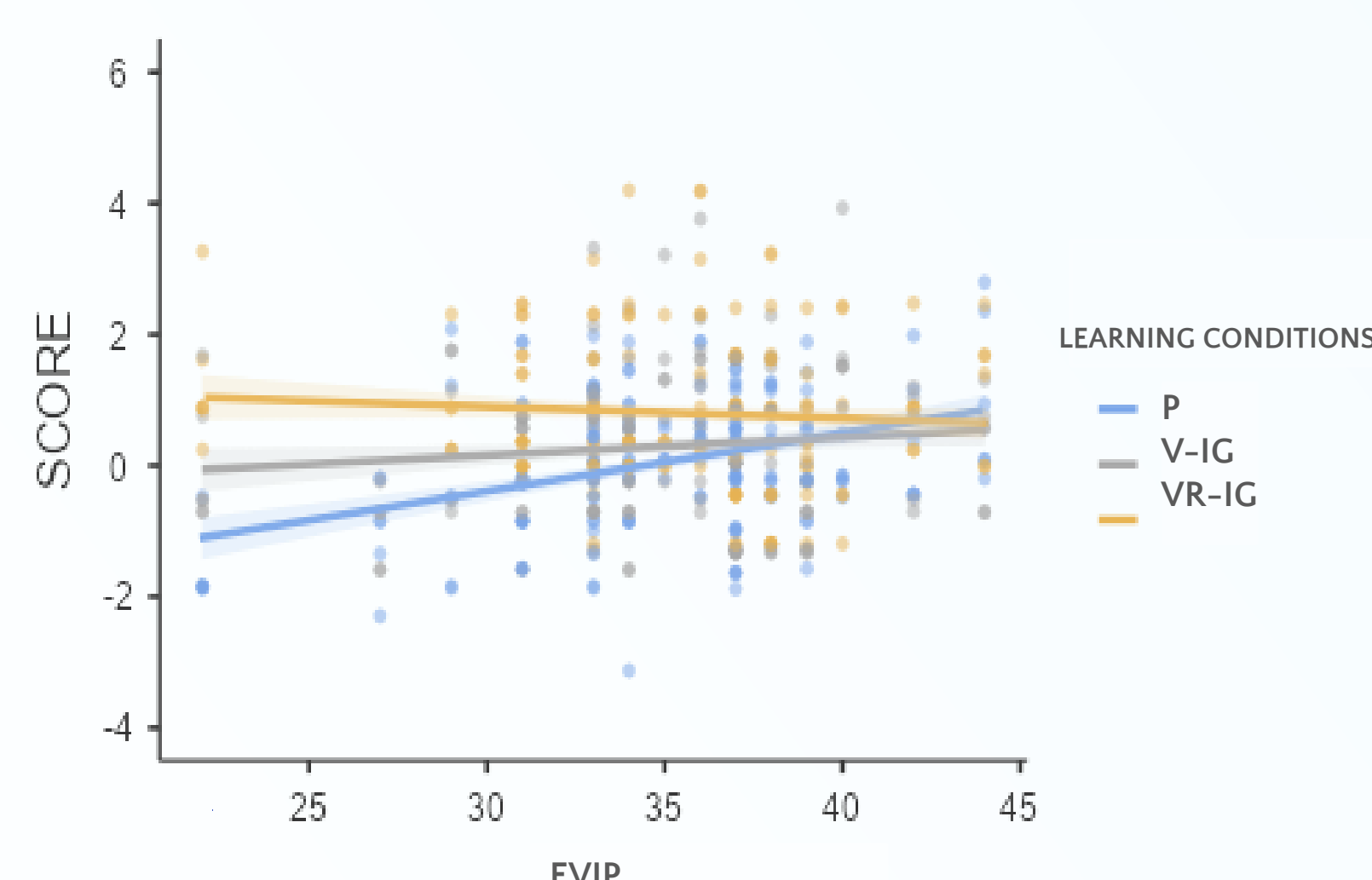


Fig 2. Rash scores for Recall task as a function of vocabulary skills (EVIP) and learning conditions

An **interaction effect** between **learning conditions** and **vocabulary skills** ($p=0.001$) i.e. For children with a **low/medium level of vocabulary** :

- 1) **More words recalled in gesture conditions (V-IG & VR-IG) than in picture condition (P)** ($p < 0,001$)
- 2) **More words recalled in VR-IG condition than in V-IG** ($p < 0,05$)

RECOGNITION TASK

Main effect of learning conditions i.e. :

- 1) **No difference** between **gesture (V-IG & VR-IG) and picture conditions (P)**
- 2) **For gesture conditions, more words recognised in VR-IG than in V-IG.**

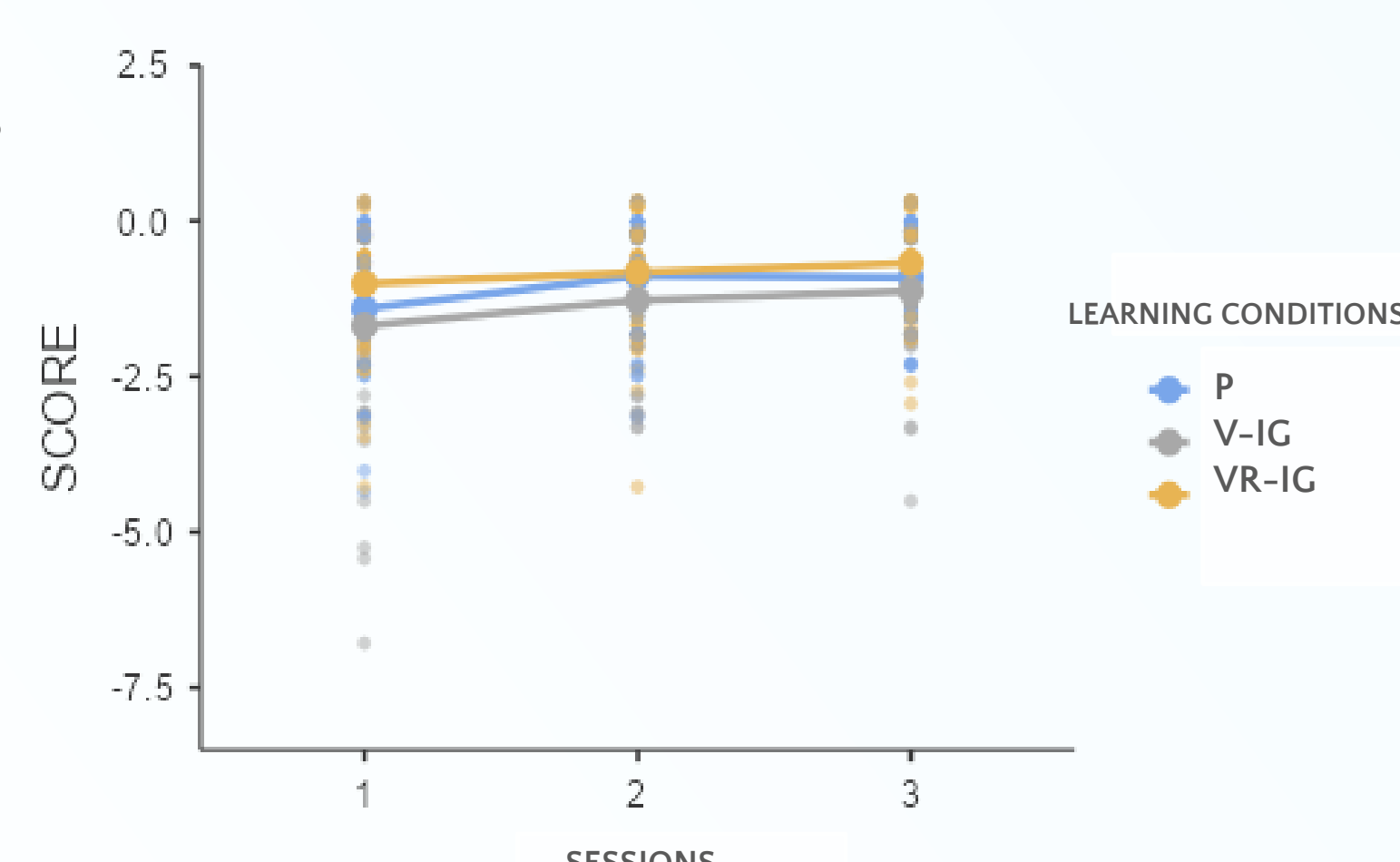


Fig 3. Rash scores for recognition task as a function of sessions and learning conditions

DENOMINATION TASK

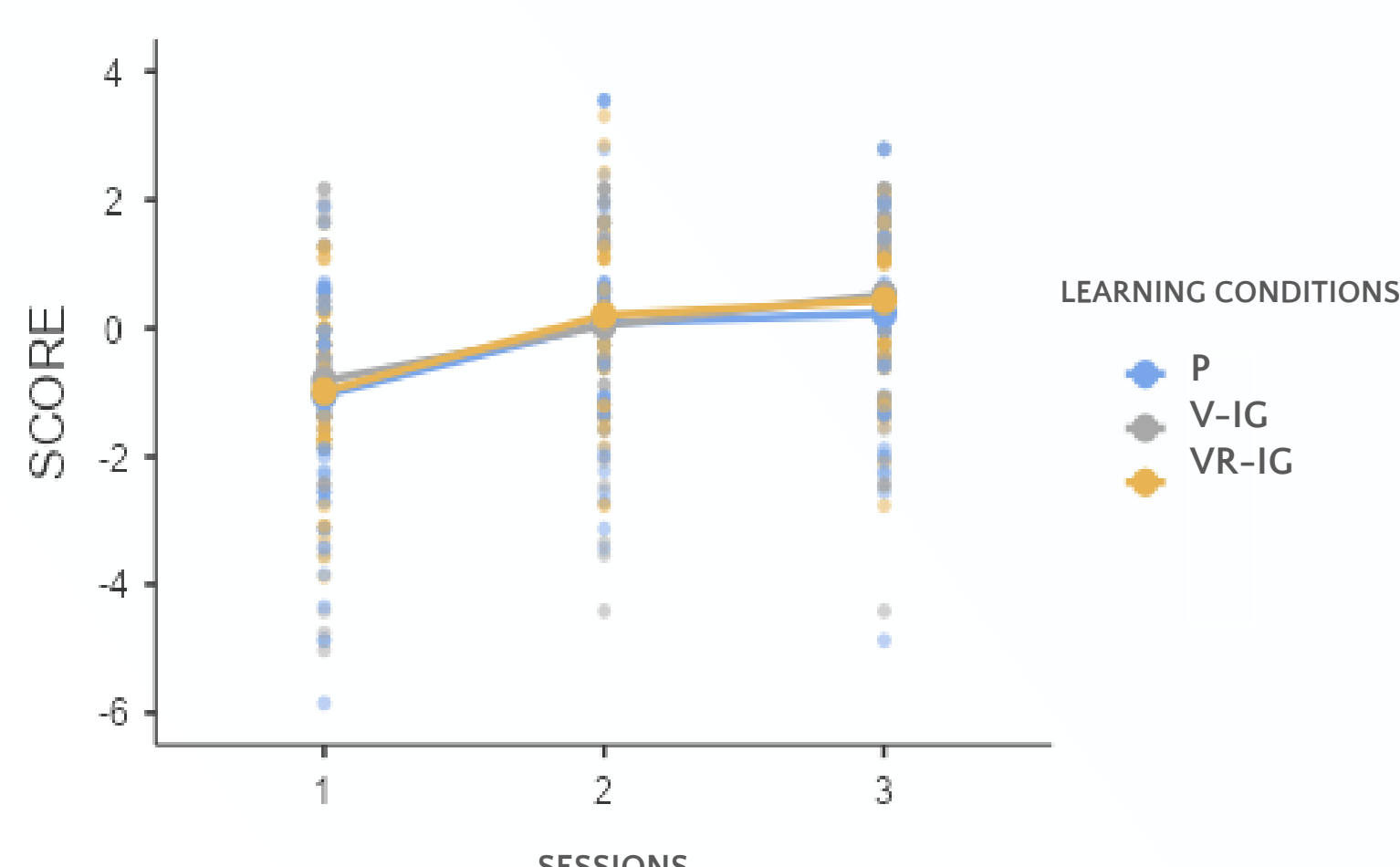


Fig 4. Rash scores for Denomination task as a function of sessions and learning conditions

No main effect of learning conditions, only an effect of sessions with more named words :

- 1) In S2 than in S1
- 2) In S3 than in S2

Discussion

- **Results corroborate those of the first study** : **benefit of the gesture conditions depends on the tasks** → **superior effect for recall and recognition tasks**
- **For recall task** : **modulation of the effect of learning conditions according to learners' initial vocabulary skills** → **children with a low/medium level benefit most from the gesture conditions. To be seen for the definition task ?**
- **Benefits of gestures are due to the learners' physical engagement** : in line with the **"embodied pedagogy" framework** (Macedonia, 2019)
- **Effects maintained at D+7** : what about at D+21 ?
- Interestingly, **no difference** in the effectiveness of enrichment conditions depending on **word types**
- Next steps :
 - **Contextualization** of vocabulary learning (story reading)
 - Include **children from low socioeconomic backgrounds**

Bibliography

- Kelly, S. D., McDevitt, T., and Esch, M. (2009). Brief training with co-speech gesture lends a hand to word learning in a foreign language. *Lang. Cogn. Process.* 24, 313–334. doi: 10.1080/01690960802365567
- Macedonia M. (2019) Embodied Learning: Why at School the Mind Needs the Body. *Front. Psychol.* 10:2098. doi: 10.3389/fpsyg.2019.02098
- Mcneill D. (1992). *Hand and Mind: What gestures reveal about thought.* The University of Chicago Press, Chicago
- Sweller, N., Shinooka-Phelan, A., & Austin, E. (2020). The effects of observing and producing gestures on Japanese word learning. *Acta Psychologica*, 207, 103079. <https://doi.org/10.1016/j.actpsy.2020.103079>
- Quinn-Allen, L. (1995). The effects of emblematic gestures on the development and access of mental representations of French expressions. *Mod.Lang. J.* 79, 521–529. doi: 10.1111/j.1540-4781.1995.tb05454.x
- Tellier, M. (2008). The effect of gestures on second language memorization by young children. *Gesture*, 8(2), 219–235. <https://doi.org/10.1075/gest.8.2.06tel>

Acknowledgements & contact

- *Operation supported by the State in the framework of the action "Territoires innovation pédagogique"*



anaïs.cauna@univ-amu.fr