Vocabulary and development of processing speed in word learning

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Conclusion

The decrease in processing time (PT) in a word learning task as age increases shown in this study, implies an improvement in linguistic abilities at early ages, and replicates previous studies concerning word recognition at later ages using similar procedures.

In conclusion, despite the variability of the vocabulary and PT performance of the infants at early ages, PT is a reliable measure for discriminating information processing in tasks with different levels of difficulty, such as word recognition and word learning.

Taking into account the results that show that the high vocabulary group presents the longest PT, this study supports the thesis that longer PT does not necessarily mean slower cognitive processes.

Introduction

Previous literature shows that processing speed (*processing time* PT) and efficiency in word recognition increases during the 2nd year of life and that it is linked to vocabulary growth at later ages (Fernald, Pinto, Swingley, Weinberg & McRoberts, 1998; Fernald & Marchman, 2011; Rose, Feldman, Jankowski & Van Rossem, 2012).

The aim of the present study was to study PT in word recognition in infants of 9-15 months of age and included a word learning task, in order to determine differences in PT depending on task demand.

METHOD

Participants were 75 infants of 9 (X=9.03), 12 (X=12.10) and 15 (X=15.04) months of age, whose native language was Spanish and without visual or auditory problems reported by parents.

Instruments and Apparatus.

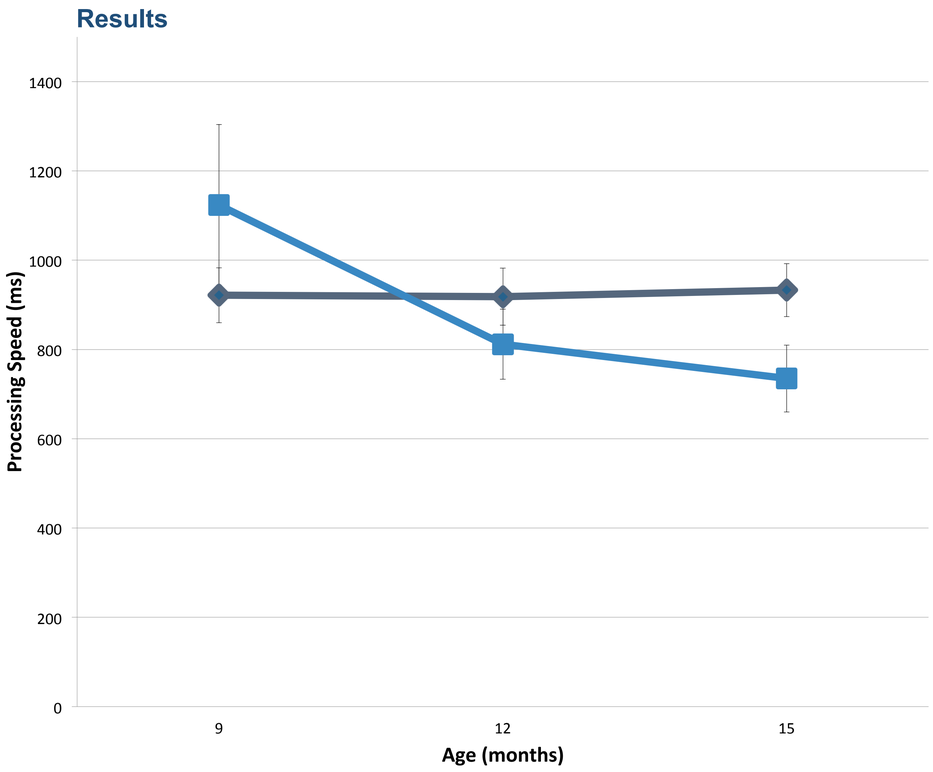
- Inventario de Desarrollo Comunicativo MacArthur (CDI) Versión I, (Jackson-Maldonado, et al. 2003).
- Intermodal Preferential Looking Paradigm IPL (Golinkoff, Hirsch-Pasek, Cauley & Gordon, 1987).

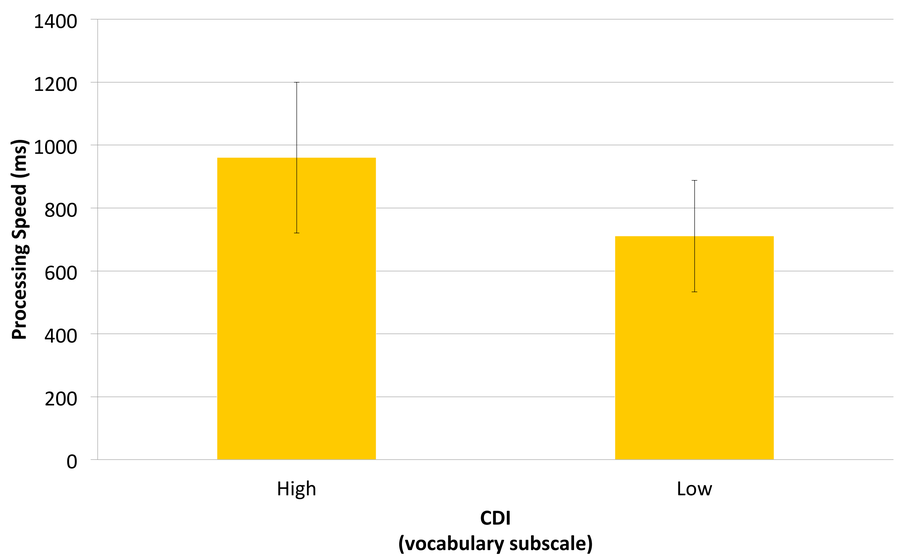
Procedure.

Parents were recruited through the university newspaper, answered the vocabulary inventory and then two IPL tasks were presented. A word recognition task based in Fernald et al (2006), and a word learning task based in Schaffer & Plunkett (1998). The presentation of the tasks was counterbalanced.

PT measure consists of the time required for to direct their gaze to the named object once the name was presented and a 367-1800 miliseconds window was used for the data analysis. In return for the visit a small present was given to the child.

Results





There were no significant differences in word recognition (F= .016 (gl=2), p= .984) between the three groups of age. However, in the word learning task, PT decreases with age from 1123.69 ms (SD= 475.93) at 9 months and 811.91 ms (SD= 248.49) at 12 months, to 734.84 ms (SD= 279.90) at 15 months of age. One way ANOVA showed a significant difference between age groups (F= 3.45 (gl=2), p= .046).

Further analyses were performed on the word learning task, and a significant difference in PT was found between high and low (according to CDI's 50 percentile) vocabulary groups. The high vocabulary group showed a longer PT (960.23 ms, SD= 373.31) compared with the low vocabulary group (710.64 ms, SD= 270.26).

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