The picture-naming task in normal children: towards a developmental model of word retrieval

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Introduction

Word retrieval consists of several processes that authors try to model since many years (Levelt, 1999). Frequently used in both research and clinical practice, the naming task is an experimental situation which allows characterizing the cognitive processes involved in the word retrieval and their time course. Used with children, the naming task allows either collecting norms (e.g. AoA) or providing clinical information (e.g. characteristics of word-finding difficulties in aphasic children) by comparison with the models of word retrieval. However, today, clinicians are constraint to use adults-based models, due to the lack of childhood-centered models. We postulate that using adults' models is not adapted to correctly understand the word retrieval in children nor to define the origin of word-finding difficulties, notably because children have their linguistic abilities in constant evolution and that this dynamical process is currently not considered.

The aim of our study is then to create a dynamical model of word retrieval centered on the child. The model will consider both visual and psycholinguistic variables that influence this process as well as linguistic and pre-linguistic developments that characterize the child.

Methodology

We created a new picture-naming task composed of 110 items. This battery, constructed from the Snodgrass and Vanderwart (1980) and Bonin (2003) items, contains updated and colored pictures. Several objective psycholinguistic variables were considered simultaneously: frequency, cumulative frequency, AoA, frequency trajectory, phonological complexity, phonological neighbors and number of phonemes. Based on this battery, specific tasks that evaluate each cognitive process implied during the word retrieval were created. The concerned cognitive processes are the visual recognition, the semantic memory, semantic features, the mental lexicon and phonological processes.

Population

Our population is composed of 252 children ranging from 5 years, 0 month old to 11 years, 11 months old. Children are divided up in 10 age classes. The participants were recruited from schools in the French-speaking part of Belgium. The criteria for participation were: 1/ no diagnosed or suspected disabilities (e.g. language delay or perceptual disorder), 2/ French as the native language, 3/ no repeated school year.

Results and relevance

Data are still collecting on the remaining sample. Final results are not yet known. However, some analyses were already conducted in order to identify first tendencies. For example, analyses on children performances indicate that our picture-naming task discriminates young and old children (χ^2 = 97,48 ; p < .001). Concerning the semantic memory organization, analyses show that children present the same type of organization whatever their age (χ^2 = 8,470 ; p = .488). Interestingly, this is inconsistent with most of previous studies.

Although our study is not completed yet, we think that it has to be highlighted because of its future implications. From a fundamental point of view, our study will make possible to lead to a model of word retrieval specifically adapted for children, currently nonexistent. From a clinical point of view, the creation of this model will allow to conceive more pertinent and updated diagnostic tests.

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