

Referência do projeto

Project reference

EXCL/MHC-LIN/0688/2012 (Lacrado a 02-05-2012 às 12:01)

Domínio Científico

Scientific Domain

Ciências Sociais e Humanidades

Área científica principal

Main Area

A Mente Humana e a sua Complexidade - Linguística

Área científica Secundária

Secondary area

(Vazio)

(Void)

Acrônimo

Acronym

EBELa

Título do projeto (em português)

Project title (in portuguese)

Do Olhar ao Cérebro – Marcadores Precoces no Desenvolvimento da Linguagem

Título do projeto (em inglês)

Project title (in english)

Eyes and Brain – Early Markers of Language Development

Financiamento solicitado

Requested funding

266.767,00€

Palavra-chave 1

Desenvolvimento da Linguagem

Keyword 1

Language Development

Palavra-chave 2

Perturbações da Linguagem

Keyword 2

Language Impairment

Palavra-chave 3

Registo do Movimento dos Olhos

Keyword 3

Eye-tracking

Palavra-chave 4

Potenciais Evocados

Keyword 4

Event-related Potentials (ERPs)

Data de início do projeto

Starting date

01-04-2013

Duração do projeto em meses

Duration in months

36

3.1. Sumário

3.1 Abstract

3.1.b Em inglês

3.1.b In English

Research on early markers of language development, both using standard behavioral measures and ERP measures, has largely been centered on a very few languages and especially on Germanic languages (English and German). Given that the infant's task in learning a language is characterized by a stronger commitment to the native language as development proceeds [1], it is crucial to study markers of early language acquisition in languages with different phonological and prosodic properties. Such studies have the potential of making a strong contribution to our understanding of how language is acquired, as cross-language data is many times decisive to choose between perceptually general explanations and more language-specific explanations for the same facts. In addition, such studies have great social relevance: markers of early language acquisition have been shown to predict later language development, either in the case of normally developing children with varying pace in development [2-5], or in the case of later language impairment [6, 7]. This project aims at contributing to this field of research by focusing on the yet largely unstudied early acquisition of European Portuguese (EP), and

providing a multi-methodology approach to a set of potential early markers, using both eye-tracking (ET) and ERP measures.

EP, in its standard variety, is a language of special interest for the study of early language acquisition, given its phonological and prosodic properties. Unlike Germanic languages, it combines properties of stress- and syllable-timed rhythm; the distribution of word stress is less correlated with the beginning of the lexical word; and the language is proclitic. On the other hand, EP is unlike other Romance languages, due to rhythmic properties and vowel reduction in unstressed position [8, 9]. EP intonation also stands out from other Romance languages due to low co-variation between pitch accent and stress, and size of intonational phrases [10]. The presence of both Romance and Germanic-like properties in the phonology and prosody of EP raises challenging questions for language acquisition, especially under the prosodic bootstrapping hypothesis [11].

With the main goal of establishing early markers of language development in EP, we will examine four linguistic domains and focus on two groups of subjects (plus a control adult group): infants/toddlers with no known risk for Autism Spectrum Disorder (ASD) and/or Specific Language Impairment (SLI), and infants/toddlers with high risk for ASD and SLI. The four domains under study are: (1) phonetic discrimination; (2) stress pattern discrimination; (3) pitch processing as a prosodic boundary cue; (4) word learning. The language abilities of the infants and toddlers tested for (1) to (4) will be measured later, in intervals of 6 months up to 30 months of age, using the Portuguese Communicative Development Inventory (CDI). On the basis of previous findings reported in the literature (mostly on English and German), our general hypothesis is that presence of and/or performance relative to early markers of language acquisition is correlated to later language outcomes. However, both the kind of early markers to be found and the exact nature of that correlation at a given timepoint in later development are expected to be modulated by the language-specific properties of EP. For example, the particular properties of stress in EP (which are distinct from either English and German or French) may promote an early language-specific effect in the ERP measures for Portuguese. As Intonation Phrase (IP) marking is a very prominent feature of the EP prosodic system, with most intonational variation packed close to IP-edges, we expect early sensitivity to IP boundaries in EP, even if a pause is not present.

Importantly, on the basis of this large prospective study, we aim to provide the impact of each type of eye movement and neural responses in language development, both in the case of normal development, and in the case of ASD and SLI. In the latter case, early markers of risk for ASD and SLI are expected to be defined.

The project joins a multidisciplinary team from 4 institutions (Center of Linguistics, University of Lisbon; LaPso, ISCTE; Center of Psychology, Oporto University; Psychology Faculty, University of Lisbon), and explores and combines resources already available, namely equipment (ET and EEG) and evaluation tools. It builds on prior work of the members of the research team in the fields of phonology, phonetics, language acquisition, language impairment and neurophysiology [A,B,C,D,E,8,9,10,22,23,24]. This research has the collaboration of a network of private and public institutions in the social, educational and health care fields, such as Unidade de Desenvolvimento do Centro Hospitalar Lisboa-Norte, Unidades de Ensino Estruturado dos Agrupamentos de Escolas da rede pública, Centro de Desenvolvimento Infantil LogicaMentes, EMDIIP (IPSS).