

## Formulário Relatório de Progresso - Componente Científica

**Relatório de Progresso nº 3**

**Período a que o relatório diz respeito:**

**Data de início:** 01-07-2018

**Data de fim:** 30-04-2019

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### 1. Identificação do Projecto

**Referência do Projecto:** PTDC/MHC-LIN/3901/2014

**Investigador Responsável:** Sónia Marise de Campos Frota

**Instituição Proponente:** Faculdade de Letras da Universidade de Lisboa (FL/ULisboa)

**Data de Início:** 04-04-2016 **Data de Fim:** 03-12-2019

**Financiamento Concedido:** € 166.360,00

### 2. Resumo dos Trabalhos Desenvolvidos e Desvios à Proposta aprovada

#### Resumo dos trabalhos

The activities developed between July 2018 and April 2019 comprised the first 4 tasks of the project, with a focus on tasks 2 to 4. A first approach to task 5 was already attempted. Following the meeting with our consultants (June 2018), a new procedure was put forward to deal with recruitment difficulties, with promising results.

The continued focus in this period was on data collection (tasks 3 and 4) and longitudinal assessment (task 4). We have also strengthened the team's involvement in training activities, which included a training session on Eyetracking using EyeLink systems, as well as the STEM IV Summer School (Summer Training in Experimental Methods, September 3-7, 2018, <http://labfon.letras.ulisboa.pt/summerschool/2018/>).

The project's team has also started the planning and organization of the project's workshop - NeuroD-WELL, Lisbon Workshop on Early Language in Neurodevelopmental Disorders, to be held at the School of Arts and Humanities of the University of Lisbon on November 8, 2019. The workshop will include an open call for papers (oral and poster presentations), two invited speakers, and will be both a forum to discuss language development in neurodevelopment disorders from a multidisciplinary perspective, as well as an opportunity to present the results of the project, deepen knowledge transfer and contribute to the diffusion of the whole research program of Horizon21.

Contribution to the achievement of one of the main goals of the project, translational research has been particularly promoted along this period, mostly through the ongoing partnership with Diferenças ([https://diferencas.net/?page\\_id=215](https://diferencas.net/?page_id=215) ). The invited talks directed to pediatricians, psychologists, speech therapists and other clinical staff are part of this endeavor.

Finally, the project website has been maintained as platform for knowledge dissemination, both for the scientific community and the general public (<http://labfon.letras.ulisboa.pt/babylab/horizon21/>). Dissemination has also been achieved through social media, namely the Lisbon Baby Lab Facebook and Instagram, as well as Research Gate.

During the 10 months of this 3rd report, the following deliverables have been produced: 2 papers

published in international peer-reviewed journals, 1 talk presented and 4 oral/poster presentations accepted at international meetings. A proceedings paper is currently in press. These deliverables are in line with the outputs proposed in the application for the last 12 months of the project.

A summary of the activities developed by task follows.

#### Task 1: Recruitment and early assessment of participants

A new recruitment procedure has been implemented through the presence of a researcher at Diferenças once a week to ensure that potential participants are targeted, as well as promoting a direct contact with the families. Recruitment of Down Syndrome (DS) participants is thus still ongoing with 42 participants currently registered in the project's database.

#### Task 2: Looking while listening experiments

The experiments are currently running and 24 infants with DS have been tested so far in the eye-tracking experiments, and 26 in the LOOK experiments. With respect to TD participants, the experimental tasks involving eye gaze are already closed except 1 that is ongoing. Results from the TD studies were accepted for presentation at ICPHS, WILD and LCICD, and results for DS infants have been accepted for presentation at LCICD, and discussed at national meetings.

#### Task 3: ERP experiments

Given the absence of adult ERP studies for EP in the relevant domains, the results from adults have been analyzed and two papers have been recently published in *Frontiers in Psychology*. A third paper is in progress. Infant testing of TD participants, as well as DS participants, is ongoing.

#### Task 4: Assessment of later language abilities

According to plan, the language abilities of the infants tested in experimental tasks are being measured in regular intervals. Overall, 51 CSBS DP checklists, 28 CDI-I and 33 CDI-II short forms have been collected, and 18 Griffiths have been run. Most DS participants have between 2 and 6 points of measurement collected. 8 children have already fully completed the program. Pre-processing of the data of assessment of later language abilities proceeds on a regular basis upon receipt of the CSBS, CDI forms, and Griffiths reports. Analyses comparing DS infants with TD participants and infants at-risk for language impairments are ongoing.

#### Task 5: Early markers of language development

Statistical analyses focusing on the correlations between infants' performance at the experimental tasks and their language and communication abilities as shown by the CSBS, CDI and Griffiths instruments have started to be run. Preliminary findings suggest that early word segmentation abilities and speech abilities are closely linked in DS.

### **3. Publicações**

Outputs of the project available at <http://labfon.letras.ulisboa.pt/babylab/horizon21/publicacoes.html>

#### **A – Publications**

##### Papers in international journals

In prep. – Cruz, M., Butler, J., Severino, C., & Frota, S. (In prep.). Eyes or mouth? Exploring eye gaze patterns and their relation with early stress perception in European Portuguese. To be submitted for the Special Collection Laboratory Approaches to Portuguese Phonology (Eleonora Albano & Didier Demolin, eds.) of the *Journal of Portuguese Linguistics*.

Published - Silva, S., Vigário, M., Leone-Fernandez, B., Jerónimo, R., Alter, K., & Frota, S. (2019). The sense of sounds: Brain responses to phonotactic frequency, phonological grammar and lexical

meaning. *Frontiers in Psychology* 10, 681, 28 March 2019. <https://doi.org/10.3389/fpsyg.2019.00681>

Published - Lu, S., Vigário, M., Correia, S., Jerónimo, R., & Frota, S. (2018). Revisiting Stress “deafness” in European Portuguese – A Behavioral and ERP Study. *Frontiers in Psychology* 9, 2486, Dec 10 2018. doi: 10.3389/fpsyg.2018.02486

## **B – Talks and posters**

### Talks in international meetings

Accepted – Frota, S. Severino, C., Butler, J., & Vigário, M. (Accepted). Emerging word segmentation abilities in Down Syndrome. Talk to be presented at the 4th Lancaster Conference on Infant and Early Child Development, August 21-23, 2019, Lancaster, UK. [acceptance date: March 29, 2019].

Invited talk – Frota, S. Early markers of language development in typically and atypically developing infants and toddlers. Invited talk to be presented at Workshop on Language and the Brain, October 3-4, 2019, University of Vigo Language and Cognition Lab, Spain.

### Talks in national meetings

Invited talk – Frota, S. Escuta bebé! A descoberta da língua falada, antes da fala. Invited talk to be presented at 2<sup>as</sup> Jornadas do Centro de Estudos do Bebê e da Criança - Comunicação e Linguagem na Infância, May 20, 2019, Fundação Calouste Gulbenkian, Lisbon, Portugal. <https://neuropediatria.pt/programafinalissimo.pdf>

Invited talk – Frota, S. Desenvolvimento da linguagem na trissomia 21: sinais precoces. Invited talk to be presented at Trissomia 21: 3 Décadas a fazer a Diferença, October 26, 2019, Auditório do IPDJ, Lisbon, Portugal.

Presented - Vigário, M., Severino, C., Cruz, M., Filipe, M., Butler, J., & Frota, S. (2018). Marcadores precoces de desenvolvimento da comunicação e linguagem. Talk given at Ciência 2018 – Encontro com a Ciência e Tecnologia, July 2-4, Centro de Congressos de Lisboa, Portugal.

### Posters in international meetings

Accepted - Czeke, N., Zahner, K., Rimpler, J., Braun, B., & Frota, S. (Accepted). German infants fail to discriminate Portuguese rising vs. falling contours. Poster to be presented at the 4th Workshop on Infant Language Development (WILD), June 13-15, 2019, Potsdam, Germany. [acceptance date: February 5, 2019].

Accepted – Frota, S., Butler, J., Severino, C., Uysal, E., & Vigário, M. (Accepted). Infant perception of prosodic boundaries without the pause cue: An eye-tracking study. Poster to be presented at the International Congress of Phonetic Sciences (ICPhS 2019), August 5-9, 2019, Melbourne, Australia. [acceptance date: February 11, 2019].

Accepted - Vigário, M., Butler, J., Severino, C., Uysal, E., & Frota, S. (Accepted). Infants discriminate utterances with and without internal prosodic boundaries: An eye-tracking study with delexicalized speech. Poster to be presented at the 4th Lancaster Conference on Infant and Early Child Development, August 21-23, 2019, Lancaster, UK. [acceptance date: March 29, 2019]

## **C – Reports**

Report of the 3rd Year of the project Horizon 21 - Early language development in Down Syndrome [PTDC/MHC-LIN/3901/2014].

#### **D – Organization of seminars, courses, conferences, and workshops**

Lisbon Workshop on Early Language in Neurodevelopmental Disorders (NeuroD-WELL), November 8, 2019, FLUL, Lisboa, Portugal. Workshop of the project Horizon 21 - Early language development in Down Syndrome [PTDC/MHC-LIN/3901/2014].

Eyetracking using EyeLink systems: software and training (Kurt Debono, Research Support Specialist), FLUL, November 26-27, 2018.

STEM IV – Summer Training in Experimental Methods, Phonetics and Phonology Lab, Departamento de Linguística Geral e Românica, CLUL, Faculdade de Letras, Universidade de Lisboa, Lisboa, Portugal, September 3-7, 2018.

Ongoing partnership with Diferenças, promoting translational research ([https://diferencas.net/?page\\_id=215](https://diferencas.net/?page_id=215)).

#### **E - Advanced Training**

##### Other

May 2017 – April 2019. Cátia Severino, Post-Doc Researcher within the project Horizon 21 - Early language development in Down Syndrome [PTDC/MHC-LIN/3901/2014]. Supervisor: Sónia Frota (FLUL); Co-supervisor: Marina Vigário (FLUL).

#### **4. Indicadores de Realização Física**

Indicadores	Quantidade realizada
<b>A - Publicações</b>	
Livros	0
Artigos em revistas internacionais	2
Artigos em revistas nacionais	0
<b>B - Comunicações</b>	
Comunicações em encontros científicos internacionais	0
Comunicações em encontros científicos nacionais	1
<b>C - Relatórios</b>	1
<b>D - Organização de seminários e conferências</b>	3
<b>E - Formação avançada</b>	
Teses de Doutoramento	0
Teses de Mestrado	0
Outras	1
<b>F - Modelos</b>	0
<b>G - Aplicações computacionais</b>	0

<b>H - Instalações piloto</b>	0
<b>I - Protótipos laboratoriais</b>	0
<b>J - Patentes</b>	0
<b>L - Outros</b>	
Database of early markers of language development	0