

Formulário Relatório de Progresso - Componente Científica

Relatório de Progresso nº 2

Período a que o relatório diz respeito:

Data de início: 01-10-2019

Data de fim: 30-09-2020

1. Identificação do Projecto

Referência do Projecto: PTDC/LLT-LIN/29338/2017

Investigador Responsável: Sónia Marise de Campos Frota

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

Data de Início: 14-06-2018 **Data de Fim:** 13-06-2021

Financiamento Concedido: € 227.473,02

2. Resumo dos Trabalhos Desenvolvidos e Desvios à Proposta aprovada

The activities developed between October 2019 and September 2020 comprised the first 5 tasks of the project, with a focus on Tasks 2 to 5. Meetings were held with the project consultant Dr. Miguel Palha, as well as with the team from Centro de Estudos do Bebê e da Criança (CEBC) of Hospital D. Estefânia (Lisbon's pediatric hospital). The CEBC was established as a regular collaborator of PLOs and the Lisbon Baby Lab, and a protocol was signed. Meetings were also held with the heads of the Pediatric Department and the Neurodevelopment unit of Hospital Santa Maria to foster collaboration among the different parties.

The PLOs team co-organized NeuroD-WELL, the Workshop on Early Language in Neurodevelopmental Disorders (<http://labfon.letras.ulisboa.pt/NeuroD-WELL/index.html>), held on November 8, 2019. The workshop included 9 oral talks, a poster session, and two keynote speakers. Some of the presentations, including one of the keynotes, addressed language development in infants and toddlers at risk for language and communication impairments. The workshop aimed at bringing together researchers and practitioners working on language development and neurodevelopmental disorders, from a multidisciplinary perspective, successfully joining academics, researchers, pediatricians, psychologists and speech therapists, from the US and Europe. The team was also involved in two other translational meetings, namely the *XXVI Jornadas de Pediatria do Centro Hospitalar Universitário Lisboa Norte* (Theme: *Pediatria Translacional 2020*) and *The 2nd Lusíadas Clinical Summit – The Circle of Life*. Importantly, the PLOs team is among the

major organizers of the Speech Prosody 2022 conference devoted to the theme *Getting the prosody right: Acquisition, Impairment, Interventions, and Beyond*.

Despite the pandemic, advanced training was promoted through the annual Summer School on Experimental Methods, STEM VI, that joined 14 registered participants from 7 different countries (<http://labfon.letras.ulisboa.pt/summerschool/2029/>).

Beyond the organization of scientific meetings and advanced training activities, and the project website (<http://labfon.letras.ulisboa.pt/babylab/PLOS/>), dissemination and outreach were also achieved through the media. The research conducted in the Lisbon Baby Lab, and within the PLOs project, was featured on the news via the participation in the TV series *As novas escolas* (RTP2), and an interview for the Facebook Channel Saúde+. Additional means of dissemination were the social media (Lisbon Baby Lab Facebook, Instagram and Twitter), and the Lisbon Baby Lab Newsletter.

During the time span of this 2nd report, the job positions planned within the project were finally fulfilled. Naturally, this delay (see report 1) required adjustments in the development of the scientific activities of the project and respective milestones.

The following deliverables were produced during the second year of the project: 3 articles and 1 conference paper published, 10 talks/posters presented at international meetings and 5 at national meetings. These deliverables outnumber the planned outputs (note that the PhD thesis planned for year 2 was in fact accomplished in year 1, although the defense occurred in year 2). Beyond the initial planning, 3 papers were published in the scientific domains of RIS3 (1 Proceedings paper and 2 articles in Applied Psycholinguistics and Frontiers in Psychology).

A summary of the activities developed by task follows.

Task 1.

Given the recent access to birth registries, and the continued work with hospitals and other health institutions, recruitment continued during the year 2 of the project. The 3-month lock down due to COVID-19 leads to the need to pursue recruitment efforts beyond year 2, namely for the completion of CSBS-DP norming study.

A total of 166 participants have been already registered, together with 108 participants from the PLOs-EBELa sample. Screening with the CSBS DP and the CDI is progressing (CSBS: 185 forms for the TD and 102 for the at-risk babies collected; CDI: 89 forms for the TD and 100 for the at-risk).

Task 2.

The EP-CDI SFs scoring program is already available for Windows and Mac operating systems, and is currently being tested by researchers. The development of the EP-CDI app is ongoing, including advanced facilities for clinicians and professionals from the health sector.

Task 3.

Data collection is proceeding in good pace, although adjustments have been required due to the pandemic. 181 children have been tested, 121 (of which 52 are at-risk) in the eye-tracking experiments, and 60 (of which 37 are at-risk) in the traditional looking experiments. Three papers have been published: one on stress perception, one on eye gaze patterns to talking faces, and one on word segmentation abilities. The first two focus on TD infants and set a reference for at-risk infants' performance; the third compares at-risk

children with TD children.

Task 4.

Data collection is now proceeding in good pace, although adjustments have been required due to a malfunctioning of the equipment, and the pandemic. 35 children have been tested so far.

Task 5.

The language and communication abilities of the infants tested in the experimental tasks are measured at the moment the task is performed and at different subsequent points in time, following the waves defined in the flowcharts of the prospective longitudinal design. 287 CSBS DP, 83 CDI-I, 106 CDI-II and 187 DCQ forms have been collected so far, and 7 new Griffiths administered. A first study of language and communicative development profiles, based on the CSBS DP and the CDI data, has been presented at an international conference.

Task 6.

A first systematic review of early predictors of language impairments has been presented at an international conference. The first explorations on early predictors have been pursued, and have been discussed at national and international meetings.

Equipa de Investigação

Nome	Cargo Função	Tarefas	%Tempo	Dt Entrada	Dt Saída	Desistiu
Sónia Marise de Campos Frota	Inv. Responsável	Recruitment and early assessment of participants f(...) *** Tools for e-health: scoring programs and app for e(...) *** Looking while listening experimental tasks: sounds(...) *** ERP tasks *** Longitudinal assessment of language abilities *** Prospective evidence for predictors of language ou(...)	40%			

Joseph Butler	Investigador	Looking while listening experimental tasks: sounds(...) *** Prospective evidence for predictors of language ou(...)	25%			
Kai Alter	Investigador	ERP tasks *** Prospective evidence for predictors of language ou(...)	25%			
Marisa Alexandra Sousa da Cruz	Investigador	Looking while listening experimental tasks: sounds(...) *** Prospective evidence for predictors of language ou(...)	25%			
Marisa Gomes Filipe	Investigador	Recruitment and early assessment of participants f(...) *** Looking while listening experimental tasks: sounds(...) *** ERP tasks *** Longitudinal assessment of language abilities *** Prospective evidence for predictors of language ou(...)	30%			
Nuno Miguel Ribeiro Paulino	Investigador	Recruitment and early assessment of participants f(...) *** Longitudinal assessment of language abilities	25%			

Pedro Filipe Jesus Rosa Silva	Bolsheiro	Tools for e-health: scoring programs and app for e(...) *** Prospective evidence for predictors of language ou(...)	100%			
Ricardo Miguel Costa Sousa	Bolsheiro	Recruitment and early assessment of participants f(...) *** ERP tasks	100%			
Marina C P V Afonso Vigário	Co-investigador Responsável	Recruitment and early assessment of participants f(...) *** Tools for e-health: scoring programs and app for e(...) *** Looking while listening experimental tasks: sounds(...) *** ERP tasks *** Longitudinal assessment of language abilities *** Prospective evidence for predictors of language ou(...)	40%			
Claudia Rute de Barros Viana Macarico bandeira de lima	Técnico	Recruitment and early assessment of participants f(...) *** Longitudinal assessment of language abilities	25%			

Sofia Lopes Clérigo	Técnico	Recruitment and early assessment of participants f(...) *** Longitudinal assessment of language abilities	20%			
Cátia Sofia Severino	DL 57/2016 - Regime de dedicação exclusiva	Recruitment and early assessment of participants f(...) *** Tools for e-health: scoring programs and app for e(...) *** Looking while listening experimental tasks: sounds(...) *** ERP tasks *** Longitudinal assessment of language abilities *** Prospective evidence for predictors of language ou(...)	100%			

3. Publicações

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

A - Publicações científicas

Proceedings (Contabilizado em 4. como 'Artigo em Revista Internacional')

Published - **Frota, S.**, Pejovič, J., **Severino, C.**, & **Vigário, M.** (2020). Looking for the edge: Emerging segmentation abilities in atypical development. *Proceedings of the 10th International Conference on Speech Prosody 2020*, 814-818, DOI: 10.21437/SpeechProsody.2020-166.

Journal editions

Accepted (proposal) - Lowit, A., **Frota, S.**, & **Vigário, M.** (eds.) (in preparation). Special Issue "Motor Speech Disorders and Prosody". Accepted proposal for a special issue of *Brain Sciences* (ISSN 2076-3425), section *Clinical Neuroscience*. Info: https://www.mdpi.com/journal/brainsci/special_issues/Motor_Speech_Disorders

Papers in international journals

Published – **Cruz, M., Butler, J., Severino, C., Filipe, M., & Frota, S.** (2020). Eyes or mouth? Exploring eye gaze patterns and their relation with early stress perception in European Portuguese. *Journal of Portuguese Linguistics*, 19(1), 4. Special Collection *Laboratory Approaches to Portuguese Phonology* (Ed. by E. Albano & D. Demolin). DOI: <http://doi.org/10.5334/jpl.240>
<https://jpl.letras.ulisboa.pt/articles/10.5334/jpl.240/>

Published - **Frota, S., Butler, J., Uysal, E., Severino, C., & Vigário, M.** (2020). European Portuguese-Learning Infants Look Longer at Iambic Stress: New Data on Language Specificity in Early Stress Perception. *Frontiers in Psychology*, 11, 1890. DOI: [10.3389/fpsyg.2020.01890](https://doi.org/10.3389/fpsyg.2020.01890)

Published - Vidal, M. M., Lousada, M., & **Vigário, M.** (2020). Music effects on phonological awareness development in 3-year-old children. *Applied Psycholinguistics*, 41, 299–318. DOI: <https://doi.org/10.1017/S0142716419000535>
<https://www.cambridge.org/core/journals/applied-psycholinguistics/article/music-effects-on-phonological-awareness-development-in-3yearold-children/CE4DEAEC5E0DE84A47F71212544AA88D>

B – Talks and posters

Talks in international meetings

Presented - **Filipe, M., & Frota, S.** (2020). A systematic review of early predictors of language impairments in neurodevelopmental disorders. Talk presented at the 28th Annual World Congress on Learning Disabilities (online), September 4-5, 2020.

Presented - **Frota, S., Pejović, J., Severino, C., & Vigário, M.** (2020). Looking for the edge: Emerging segmentation abilities in atypical development. Talk presented at the 10th International Conference on Speech Prosody 2020 (online), May 25-28, 2020, Tokyo, Japan.

Presented - **Frota, S., Pejović, J., Severino, C., & Vigário, M.** (2020). Emerging word segmentation skills in atypical development. Talk presented at the 28th Annual World Congress on Learning Disabilities (online), September 4-5, 2020.

Presented - **Vigário, M., Filipe, M., Severino, C., Paulino, N., Sousa, R., & Frota, S.** (2020). Early language and communicative development profiles in Down Syndrome and in children at risk for language impairments. Talk presented at the *28th Annual World Congress on Learning Disabilities* (online), September 4-5, 2020.

Presented - **Frota, S.** (2019). Early markers of language development in typically and atypically developing infants and toddlers. Invited talk presented at the *Workshop on Language and the Brain (WoLB 2019)*, October 3-4, 2019, Vigo, Spain. <https://tv.uvigo.es/video/5dd4fa601e19c03d1649a7cc>

Presented - Pejovic, J., **Cruz, M., Severino, C., & Frota, S.** (2019). *Selective attention to audiovisual communicative cues in infants with Down syndrome. An eye-tracking study.* Talk presented at *NeuroD-WELL – Workshop on Early Language in Neurodevelopmental Disorders*, November 8, Lisbon, Portugal.

Presented - **Vigário, M., Paulino, N., Severino, C., & Frota, S.** (2019). Early language development in European Portuguese-learning infants and toddlers with Down Syndrome measured with the CDI. Talk presented at *NeuroD_WELL - Workshop on early language in neurodevelopmental disorders.* November 8, Lisbon, Portugal.

Talks in national meetings

Accepted - **Frota, S. Cruz, M., & Vigário, M.** (Accepted) E-health: screening language and communication development in early infancy. Demo to be presented at *Encontro Ciência 2020*, November, 2-4, Lisbon, Portugal. <https://www.encontrociencia.pt>

Accepted - **Frota, S., Severino, C., Pejovič, J., Paulino, N., Cruz, M., Sousa, R., & Vigário, M.** (Accepted). Early language development in Down Syndrome: Basic and translational research. Talk to be presented at *Encontro Ciência 2020*, November 2-4, 2020, Lisbon, Portugal. <https://www.encontrociencia.pt>

Presented - **Frota, S., Severino, C., Pejovič, J., Paulino, N., Cruz, M., Sousa, R., & Vigário, M.** (2020). Desenvolvimento da linguagem nos dois primeiros anos de vida: Marcadores precoces. Invited talk presented at *XXVI Jornadas de Pediatria do Centro Hospitalar Universitário Lisboa Norte (Theme: Pediatria Translacional 2020)*, February 13-14, 2020, Lisbon, Portugal.

Presented - **Frota, S.** (2019). Desenvolvimento da linguagem na trissomia 21: sinais precoces. Invited talk presented at *Trissomia 21: 3 Décadas a fazer a Diferença*, October 26, Auditório do IPDJ, Lisbon, Portugal.

Presented - **Paulino, N., & Frota, S.** (2019). Measuring early development of language skills in infants and toddlers learning Portuguese and an Additional Language: Implications for language assessment in Bilinguals. Talk given at *XXXV Encontro Nacional da Associação Portuguesa de Linguística*, October 9-11, 2019, UMinho, Braga, Portugal.

Posters in international meetings (Contabilizados em 4. como 'Comunicações em encontros científicos internacionais')

Accepted - **Cruz, M., Pejovic, J., Severino, C., & Frota, S.** (Accepted). Eye-gaze patterns in early infancy and later language and communication outcomes. Poster to be presented at the *45th Boston University Conference on Language Development (BUCLD)* (online), November 5-8, 2020.

Presented - **Cruz, M., Pejovic, J., Severino, C., & Frota, S.** (2020). Eye-gaze patterns to communicative cues in early infancy and later language and communication outcomes. Poster presented at *vICIS 2020 Congress – Virtual International Congress on Infant Studies* (online), July 6-9, 2020.

Presented - **Frota, S., Pejović, J., Severino, C., & Vigário, M.** (2020) Prosody facilitates word segmentation in infants at risk for language impairment. Poster presented at *vICIS 2020 Congress – Virtual International Congress on Infant Studies* (online), July 6-9, 2020.

Presented - **Frota, S., Vigário, M., Alter, K., Cruz, M., Severino, C. & PLOs Research Team** (2019) The PLOs project: Predictors of Language Outcomes in infants and toddlers at risk for language impairment. Poster presented at *NeuroD-WELL – Workshop on Early Language in Neurodevelopmental Disorders*, November 8, Lisbon, Portugal.

Posters in national meetings (Contabilizados em 4. como 'Comunicações em encontros científicos nacionais')

Presented - **Frota, S., Severino, C., Pejović, J., Butler, J., & Vigário, M.** (2019). Competências de segmentação de palavras em bebés com Trissomia 21. E-Poster presented at *2nd Lusíadas Clinical Summit* (online), November 16, Estoril, Portugal.

Presented - **Frota, S., Cruz, M., Severino, C., Pejovic, J., Sousa, R., & Vigário, M.** (2019). Projeto PLOs: Preditores de Desenvolvimento de Perturbações da Linguagem e Comunicação. E-poster presented at *The 2nd Lusíadas Clinical Summit – The Circle of Life*, November 16, Centro de Congressos do Estoril, Estoril, Portugal.

Presented - **Vigário, M., Paulino, N., Pejovic, J., Cruz, M., Severino, C., Sousa, R., João, V., & Frota, S.** (2019). Avaliação do desenvolvimento da linguagem: Questionários do Desenvolvimento Comunicativo para o Português Europeu (CDI-PE FR). E-Poster presented at *The 2nd Lusíadas Clinical Summit – The Circle of Life*, November 16, Centro de Congressos do Estoril, Estoril, Portugal.

C – Reports

Relatório de Progresso 2 do Projeto PLOs (PTDC/LLT-LIN/29338/2017).

D – Organization of seminars, courses, conferences, workshops...

Frota, S. (Chair) (Ongoing). *Speech Prosody 2022*. Theme: Getting the prosody right: Acquisition, Impairment, Interventions, and Beyond. To be held in May 23-26, 2022, Lisbon, Portugal. Organizing committee (members of PLOs project): S. Frota (Chair), M. Vigário (Co-Chair), C. Severino, M. Cruz, M. Filipe, N. Paulino, R. Sousa.

http://labfon.letras.ulisboa.pt/sp2022_test/

Frota, S. (Chair) *NeuroD_WELL - Workshop on early language in neurodevelopmental disorders*. November 8, Lisbon, Portugal. Organizing committee (members of PLOs project): S. Frota, M. Vigário, C. Severino, M. Cruz. <http://labfon.letras.ulisboa.pt/NeuroD-WELL/index.html>

Vigário, M. & Frota, S. (Org.) (2019) *FALAS NO LABFON*. Working sessions of Laboratório de Fonética e Fonologia & Lisbon BabyLab (CLUL), October 9, Lisbon, Portugal.

http://labfon.letras.ulisboa.pt/files/Falas_no_Labfon_OUT_2019.pdf

E - Formação avançada/Advanced Training

Teses de Doutoramento/PhD Theses

In progress – **Paulino, N.** (In progress). *Effects of prosodic systems in bilingual acquisition of sandhi*. PhD Thesis, Universidade de Lisboa (started February, 2019) [FCT: SFRH/BD/138535/2018]. Supervisor: **Sónia Frota**; Co-supervisors: Tjerk Hagemeijer and Laura Bosch.

Teses de Mestrado/MA Theses

In progress - Antypenko, V. (In progress). *Contributo para a caracterização da fala dirigida à criança: estudo longitudinal*. Universidade de Lisboa, MA Thesis. Supervisor: **M. Vigário**.

G – Aplicações computacionais

Published - **Frota, S. Cruz, M., & Vigário, M.** (2020). *MacArthur-Bates CDI para o Português Europeu Formas Reduzidas: Programa de Cotação Automática*. Software for Windows and Macintosh OS. ISBN 978-989-54771-0-4.

Under development - Frota, S., Cruz, M., Silva, P., & Vigário, M. (under development). *CDI-PE App: Aplicação online para avaliação de competências de linguagem e seu desenvolvimento baseada no MacArthur-Bates CDI para o Português Europeu Formas Reduzidas*.

N – Integração do conhecimento em atividades de formação superior/Integration of acquired knowledge in advanced training activities

Frota, S. & Martins, F. (Coordinator) *STEM VI - Summer Training in Experimental Methods*. Labfon Summer School, Organization and monitors involved (members of PLOs team): S. Frota, M. Vigário, M. Cruz, C. Severino, N. Paulino, R. Sousa.

Outreach activities (Não contabilizado em 4)

TV program ‘Tenho um bebé. E agora?’ (Canal Saúde+), Reportagem sobre as Perturbações do Espectro do Autismo (e o Projeto PLOs), December, 2019:

<https://www.saudemais.tv/video/140112-tenho-um-bebe-e-agora-t05-e011-02?fbclid=IwAR1wzYMG-Luj9-Jt2HBM6VO64UwhcHyKuhfCdnDvDpYMPdW5zMHf6yPtBzw%20%20target=>

Lisbon Baby Lab na série documental "Outra Escola" dedicada ao mundo dos bebés e as aprendizagens dos 0 aos 3 anos (RTP2, 15 Dez 2019):

<https://www.rtp.pt/play/p6335/e445094/outra-escola%20target=>

Newsletter no. 4 of Lisbon Baby Lab, 2018/2019.

http://labfon.letras.ulisboa.pt/babylab/pt/files/news/Newsletter_4_2019.pdf

4. Indicadores de Realização Física

Indicadores	Quantidade realizada
A - Publicações científicas	
51 - Publicações científicas em domínios científicos enquadráveis na RIS3	3
Livros ou capítulos de livros	
Artigos em revistas internacionais	4
Artigos em revistas nacionais	
B - Comunicações	
Comunicações em encontros científicos internacionais	10
Comunicações em encontros científicos nacionais	5
C - Relatórios	1

D - Organização de seminários e conferências	3
E - Formação avançada	0
52 - Pedidos de patentes europeias (EPO)	0
Teses de doutoramento	0
Teses de mestrado	0
Outras	0
F - Modelos	0
G - Aplicações computacionais	1
H - Instalações piloto	0
I - Protótipos	0
J - Produtos	0
K - Produções/criações artísticas	0
L - Processos inovadores	0
M - Bases de dados curadas	0
N - Integração do conhecimento em atividades de formação superior	1
O - Patentes	0
Patentes EPO	0
Outras patentes	0