

EXPERIMENTAL STUDIES ON BILINGUALISM AND LANGUAGE LEARNING

Pâmela Freitas Pereira Toassi^{1*}

¹Universidade Federal do Ceará, Fortaleza, CE, Brasil

Justin Lauro^{2**}

²Barry University, Miami, FL, United States of America

Knowing two or more languages, or being bilingual, has been an increasing demand of the current world, approximately half of the world's population is bilingual (Grosjean, 2010). Understanding the ways in which bilinguals learn (Antón & Duñabeitia, 2020; Lauro, Schwartz, & Francis, 2020), organize (Francis, 1999) and use (Lauro & Schwartz, 2017) information in each of their languages may better inform us on language learning practices. There has been an increase on empirical data showing the benefits of bilingualism and multilingualism, which provides support for language teaching and learning policies (Fox et al., 2019). This special issue, "Experimental studies on bilingualism and language learning" aimed at gathering studies that contribute to the advance of this knowledge. Fourteen articles and one interview compose this issue.

We start our series of articles with the study "Cross-linguistic priming effects during the comprehension of the passive voice: two primes are enough", by Natália Pinheiro De Angeli and Mailce Borges Mota. The authors investigated structural priming effects from participants' first language, Brazilian Portuguese, into English, participants' second language. The study consisted of a self-paced reading task and the aspect investigated was the passive voice. Intermediate (B2) and advanced (C1) English speakers took part in the study. The authors conclude

* Assistant Professor at the Department of English Studies, its Literature and Translation, and permanent professor of the Post-Graduate Programs of Translation Studies (POET) and of Linguistics (PPGLin) of the Federal University of Ceara. She was a Fulbright Visiting Scholar in the Department of Psychology at Barry University in 2023. Holds a PhD in Linguistics (Letras-Inglês) through the Federal University of Santa Catarina and post-doctoral studies at the Post-Graduate Program in Neuroscience and Cognition from the Federal University of ABC. She is the cofounder and leader of LabFoM - Laboratory of Phonetics and Multilingualism (labfom.ufc.br). Her research interests are: lexical access, vocabulary acquisition, teaching and learning of English as a foreign language, teacher formation, multilingualism, crosslinguistic influence, reading and translation. Email: pamelatoassi@ufc@gmail.com. ORCID: <https://orcid.org/0000-0003-3273-639X>.

** Assistant Professor of Psychology at Barry University, where he is the head of the cognitive psychology laboratory. He received a PhD in Psychology from the University of Texas at El Paso and post-doctoral studies at Florida Atlantic University. His main research interest is in the bilingual acquisition of novel words. He may be contacted at jlauro@barry.edu. ORCID: 0000-0003-0936-4794.



that at the proficiency levels investigated participants have a shared syntactic system for their two languages.

The next article, by Ana Beatriz Arêas da Luz Fontes, Davi Alves Oliveira, Aline Pereira dos Passos and Li-Hao Yeh, examined the influence of cross-language (lexical) coactivation on false memories. In “Semantically related words may eliminate bilingual coactivation in the Deese-Roediger-Mcdermott paradigm”, Brazilian-Portuguese English bilinguals heard lists of semantically related words, and asked to recall as many as they could from those lists. Critically, the lists contained either a cognate or noncognate lure. The results suggest that the degree of cross-language activation within this paradigm may be attenuated by strategies participants use to recall recently studied material.

The third article in this issue is “Effect of interlingual homographs and word frequency on bilingual lexical access”, by Pâmela Freitas Pereira Toassi, Justin Lauro, Liana Maria da Silva Gadelha and Maria Teresa Carthery-Goulart. The effect of interlingual homographs (Brazilian-Portuguese- English) and word frequency was analyzed in a language decision task and a multiple choice translation task. Reaction time data and accuracy were analyzed with linear mixed effects models. The results favored the interactive and non-selective view of bilingual lexical access and the influence of word frequency both in L1 and L2.

The role of bilingual and simultaneous biliteracy in education on children’s speech connectedness and reading in English and Brazilian-Portuguese was examined in “Two Languages in One Mind: Biliteracy, Speech Connectedness and Reading in 5th Grade Bilingual Children”, by Ana Clara Costa, Larissa Cury, Ingrid Finger, Natália Bezerra Mota and Janaina Weissheimer. In a sample of 5th grade children in a bilingual school, reading ability in both languages was correlated, indicating that simultaneous biliteracy is not detrimental to the academic outcomes of either language. Rather, simultaneous exposure to both languages may support growth in both languages.

Another study focusing on syntactic processing of English as an L2 by native speakers of Brazilian Portuguese is the one by Matheus de Almeida Barbosa, “Similarity-Based Interference Effects In Reflexive Processing By Brazilian Speakers Of English As L2”. The task applied in the study was the same as in the first article of this issue, the self-paced reading, however, the focus was on anaphoric processing. Participants’ proficiency in the L2 was also divided into intermediate and advanced. The results showed that, initially anaphoric processing is guided by lexico-semantic information of the antecedent and suggested some similarity-based interference effects.

The article, “The processing of English caused-motion constructions by Efl Learners”, by Rodrigo Garcia Rosa examines the use of caused-motioned actions in English by Brazilian-Portuguese speakers, with B2 and C1 levels of English proficiency. Two types of literal caused-motions (instantiation or modifying verbs) and figurative caused-motions (instantiation or modifying verbs) were embedded in sentences and rated by participants on how natural each sentence sounds. The results demonstrate that as caused-motion actions

become more complex, the ratings of naturalness declined. But this effect was modulated by L2 proficiency.

Felipe Flores Kupske, Ronaldo Manguiera Lima Jr. and Ubiratã Kickhöfel Alves, in “A comparison between Full Time Equivalent and Length of Residence as measurements of time in bilingual speech research: the case of first language attrition” analyzed speech data from L1 Brazilian Portuguese speakers living in Britain. The authors favor a complex, dynamic view of language development. Analysis compared the metrics LOR (length of residence) and FTE (Full Time Equivalent). Statistical analysis of the data was carried out with Bayesian linear regression models with mixed effects. The authors argue in favor of using the FTE metric for immigration studies instead of LOR.

The next article in this special edition, by Cesar Teló and Hanna Kivistö de Souza, focuses on examining the factors that influence L2 acquisition, such as input related factors (e.g., the quality and/or quantity of L2 input), and individual factors (e.g., phonological awareness), as well as the interaction between the two. In the study “The acquisition of a novel phonetic category in a foreign language setting: Input versus phonological awareness”, the authors examined the role of each on the acquisition of a phonetic category that exists in participants’ L2, but not their L1. Participants read aloud paragraphs in their L2, and their pronunciation of this phonetic category were assessed. Both input quality and participants’ phonological self-awareness predicted their pronunciation accuracy, as measured by a separate listener. This indicates that both input and individual difference variables may influence perceived L2 phonetic production accuracy.

The article by Leonardo Antonio Silva Teixeira, “A Multidimensional Analysis of English-L2 Rhythm Development” presents data from 5 Brazilian learners of English, collected within 4 semesters of distance, in which the development of rhythm in the L2 was evaluated through rhythmic metrics and acoustic parameters. Participants were recorded reading a text in English in their first semester of college (Degree in Letras Inglês) and after four semesters, when they had already taken the Phonology Course. Data was compared to a control group of 4 native speakers of English. The study supports the idea of a dynamic and nonlinear L2 system. The results suggest that the explicit teaching of pronunciation may have had a positive effect on participants’ L2 rhythm development.

Another article that examined the role of broader language context(s) on normal and abnormal linguistic development (e.g., dyslexia) comes from Rebecca Reina, Marije Soto, Jéssica Marques, Márcia Reina. In the study “Dyslexia, bilingualism and education: influence on reading processing in L1 and L2”, bilingual (Brazilian-Portuguese and English) dyslexic children (aged 8-11) demonstrated that high exposure to L2 in an immersive and educational context can improve reading ability. Bilingual dyslexics may make use of L2 strategies during L1 reading.

Likewise, the article, “Dyslexia and the perks of being bilingual: A study on the neurobiology of reading with the use of fMRI”, by Aline Fay de Azevedo, Augusto Buchweitz, Nathalia Bianchini Esper and Mirna Wetters Portuguese

also demonstrated similar processing of sentences in bilingual dyslexics and monolingual controls. Furthermore, the brain imaging data sheds light into the different brain activation patterns of bilingual and monolingual dyslexics and controls. The behavioral data demonstrates that bilingual dyslexics outperformed monolingual dyslexics on all measured reading components, providing further evidence that bilingualism may improve reading performance for dyslexics.

Marcus Guilherme Pinto de Faria Valadares, Ricardo Augusto de Souza and Juliane Venturelli Silva Lima, in “Validation Of A Language Use Questionnaire For Users Of English As L2 Immersed In A Brazilian Context” present the results of the validation of a Language Use Questionnaire For Users Of English As L2 Immersed In A Brazilian Context. For the design of the questionnaire, linguistic dominance was operationalized in terms of frequency and specific domains of use. Data analysis showed a positive and significant correlation between the items of the questionnaire and the score of the vocabulary size test. The authors suggest the use of the questionnaire to assess dominance of English as an L2 in the Brazilian context.

In the article “Language separation in Teletandem: what corpus analysis can tell us”, Solange Aranha and Rodrigo E. de Lima-Lopes analyzed Teletandem oral sessions of Brazilian students learning English as a foreign language and US citizens learning Portuguese as a Foreign Language to verify if the participants relied on language separation, one of the principles for tandem learning. The authors focused on participants’ lexical choices during their conversation. Analysis showed that the principle tends to be respected and when the cross-language use occurs it is usually about vocabulary or phonetics questions or requests for clarification. Interestingly, the authors point out that English speakers used more English during the Portuguese sessions than the Portuguese speakers in the English ones. They conclude that the use of the non-target language was responsible for promoting continuity in the interaction.

The final empirical study included in this special issue examined the role of translanguaging, or the practice of moving fluidly between two languages, in bilingual education classrooms. The article, “Translanguaging in Brazilian bilingual education: analyzing oral practices in fifth graders’ interactions”, by Maryvone Cunha de Moraes, Lilian Cristine Hübner, Anamaria Welp, measured students’ translanguaging practices during an oral task based on a short video. This study examined the frequency and usage of the most common translanguaging processes, including gestures, task management, meaning negotiation, lexical creativity, syntactic translanguaging, peer correction, and form negotiation. The findings demonstrate the pedagogical value of translanguaging in bilingual contexts as a means to develop greater understanding and complexity of the weaker language.

To finish our special issue we have an interview “Bilingual education in Brazil: reflections upon teacher education”, by Patrícia de Oliveira Lucas, with Profs. Dr. Camila Höfling and Dr. Luciana C. de Oliveira, authors of the chapter *Bilingual Education in Brazil in the Policy Development in TESOL and*

Multilingualism Past, Present and the Way Forward book, organized by Kashif Raza, Christine Coombe e Dudley Reynolds. The interview raises important issues on bilingual education in Brazil.

We hope that the readers will enjoy this special issue and that it will help us consolidate and broaden the studies on bilingualism and language learning involving experimental techniques, mainly, in the Brazilian scenario. We feel that this collection of articles represents a broad spectrum of theoretical and practical implications of bilingualism and language learning. This is particularly important as the world becomes more connected, and as a result multilingual. The editorial team is thankful to all of the authors for their high-quality research, and the reviewers for their invaluable time and insights.

References

- Antón, Eneko, & Duñabeitia, Jon Andoni (2020). Better to Be Alone than in Bad Company: Cognate Synonyms Impair Word Learning. *Behavioral Sciences*, v. 10, n. 8, 123.
- Fox R, Corretjer O, Webb K. (2019). Benefits of foreign language learning and bilingualism: An analysis of published empirical research 2012–2019. *Foreign Language Annals*. 52 (4), 699–726. <https://doi.org/10.1111/flan.12424>
- Francis, W. S. (1999). Cognitive integration of language and memory in bilinguals: semantic representation. *Psychological bulletin*, 125(2), 193.
- Grosjean, F. (2010). Bilingualism's best-kept secret: More than half of the world's population is bilingual. *Psychology Today*, 1.
- Lauro, Justin; Schwartz, Ana I. (2017). Bilingual non-selective lexical access in sentence contexts: A meta-analytic review. *Journal of Memory and Language*, v. 92, p. 217-233.
- Lauro, J., Schwartz, A. I., & Francis, W. S. (2020). Bilingual novel word learning in sentence contexts: Effects of semantic and language variation. *Journal of Memory and Language*, 113, 104123.