

Commentary report on

Joanna Durlík Doctoral thesis Jagiellonian University in Kraków Institute of Psychology 2023

*“How do language proficiency and immersion experience modulate interference between languages? Mechanisms underlying language processing in multilinguals”.*

Granada, 06. 10.2023

The aim of the present thesis was to understand the effect of long-term L2 or L1 immersion on language activation, cross-language interference, and inhibition as mechanisms of interference resolution in bilinguals, as well as the interaction with individual differences in domain-general cognitive control.

With this aim, two groups of late highly proficient Polish-English bilinguals were tested: immersed bilinguals (living in the UK) and non-immersed bilinguals (living in Poland).

The method included a series of tasks to measure the processes of interest in L1 and L2:

- To assess the ease of lexical access in language production, semantic and phonological verbal fluency tasks, and picture naming tasks were used.
- To assess receptive vocabulary size, the Lexical Decision Task - LexTALE was used.
- As the main experimental tasks to measure cross-language interference in comprehension and its resolution, the semantic relatedness judgment task with Polish-English interlingual homographs was used, with two versions: the English homograph task (measuring interference from L1 to L2) and the Polish homograph task (measuring

interference from L2 to L1).

To assess the tendency towards proactive versus reactive control, a version of the Continuous Performance Task (AX-CPT) was used.

The research questions, hypotheses, and predictions of the study are clearly and precisely detailed a priori.

The results showed a clear L1 dominance in the non-immersed group and a relative balance between languages in the immersed group in three production tasks. Differences in the patterns of cross-language interference (from L1 to L2 and from L2 to L1) were also observed, suggesting the role of everyday linguistic immersion and practices in the two bilingual groups. No relationships with domain-general cognitive control were found. Regarding this unexpected result, the candidate demonstrates a strong capacity for reflecting on the reasons behind the null result, emphasizing the importance of adopting an "ecological approach" to bilingualism research and considering the broad background of bilingual participants: exposure, everyday language practices, and language learning history

In my opinion, the scientific objective of this doctoral thesis is highly relevant. It offers valuable insights in an attempt to comprehend the implications of long-term language immersion in bilinguals for language-specific mechanisms and their interaction with domain-general cognitive control.

I have separated my comments between the more theoretical part and the experimental part of this work.

For the theoretical part: This thesis included a comprehensive analysis of the factors related to bilingualism and cognitive control, with a thoughtful integration and review of the existing literature. I found the introduction to be well-structured, clear, and easy to follow.

As points for further consideration, it might have delved deeper into the motivations behind changes in cognitive control associated with bilingualism and explored how immersion in L2 can influence specific changes in L1 or affect the dynamics

of inhibitory mechanisms. On another note, the dissertation's title references "multilingual speakers," although the experiments presented in the thesis focus on bilingual participants. In my view, the qualitative distinctions between bilingualism and multilingualism should not be overlooked, especially when the objective of the study is to examine the complexities of linguistic context effects and the dynamics of linguistic interference mechanisms and their resolution.

For the experimental part: The dissertation follows previous research conducted in the field, but at the same time introduced important novel aspects. For instance, to explore cross-language interference and resolution in Polish-English bilinguals, in both directions and within the same participant groups, this study developed a reversed language version of a task previously created by the same authors in the LangUsta Psychology of Language and Bilingualism Laboratory at the Jagiellonian University (Durlík, Muszyński, Szewczyk, Wodniecka, 2016).

Thus, the starting point of this work is a solid methodology, which is used to explore additional questions, including linguistic activation, the direction of interference, the impact of immersion, and cognitive control. Moreover, the present work delves deeper into the examination of immersion effect, isolating it from other potentially related factors such as L2 proficiency. Additionally, in an effort to comprehend the complexity of cross-linguistic interference resolution effects, this research investigates individual differences in cognitive control and the efficiency of bilingual language processing among immersed and non-immersed speakers. Finally, one additional important aspect of this study is the use of a less commonly explored language pair, such as Polish-English, which contributes to the field by providing unique evidence of bilingual interference between languages.

I would like to particularly emphasize the meticulous attention devoted to the selection of experimental materials, which included rigorous normative studies to gather information on material characteristics and pilot studies to ensure the robustness of the paradigm. Additionally, there was a thorough evaluation of the linguistic and demographic characteristics of the participants. Furthermore, supplementary analyses were conducted to control for the effects of certain variables that

couldn't be fully controlled. Nevertheless, when comparing the immersed and non-immersed groups, it became evident that they exhibited comparable passive proficiency but differed significantly in almost all other 'active' aspects. Since the primary experimental task is clearly an active one, that demands optimal switching skills, it raises questions about whether this might be the key differentiating factor between the two groups, more so than immersion or proficiency.

The research questions, hypotheses, and predictions of the study are clearly and precisely detailed a priori and are well-theoretically motivated. The analyses are well-conceived, and the outcomes are sensibly interpreted. As a suggestion, I would have recommended an analysis of stimuli F2 or the use of mixed-effects models that allow researchers to consider both participants and stimuli as random variables.

However, in my opinion, one potential concern, also discussed by the candidate in the limitations section, is the organization of the experimental session and the task order. The Polish homograph task (L1) is always presented as the second task in the session, following the English homograph task (L2). This structure may have led to greater activation of L2 and an increased chance of participants noticing the presence of homographs in the second L1 task. For example, the heightened activation of homographs in Pair 1 may be associated with slower responses by participants to Pair 2 (in both Translation and NoTranslation conditions) when it followed the homograph condition in Pair 1. Therefore, in future research, it would be interesting to investigate if this effect is replicated with counterbalancing controls.

Lastly, I wonder if an additional factor could be associated with the detection of homographs: the influence of the typology of L1 (Polish) and its distance from L2 (English), given the differences in language families and the divergent cultural and geographical histories of these two languages. English and Polish have minimal lexical and grammatical similarities when compared to English and Spanish language pairs used in Macizo et al., (2010) and Martin et al., (2010).

In conclusion, this thesis demonstrates a deep understanding of the theoretical, methodological, and statistical requirements for effective experimentation and progress in psycholinguistic research. Moreover, the candidate exhibits keen ability to reflect on the study's limitations and emphasizes the importance of adopting an 'ecological approach' to

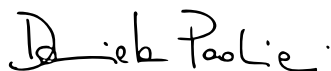
bilingualism research, taking into account the diverse backgrounds of the participants.

Therefore, in my opinion, the candidate displays resourcefulness as an independent researcher and a strong grasp of the implications of complex theoretical models.

I firmly believe that this work meets the high standards required for a doctoral degree in psychology, and I have no reservations in recommending the award of a doctorate to *Joanna Durlík*, subject to an anticipated satisfactory *viva voce*

Sincerely

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