Effects of written translation experience on executive functions

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A key mission of the study of bilingualism is to understand how different linguistic experiences impact executive functions – namely, abilities that regulate and guide multiple behaviors and mental processes. Although more than half of the population speaks both a native language (L1) and a foreign language (L2), not everyone has the same experiences with them. In particular, a subgroup of bilinguals is characterized by the sustained practice of written translation (TE), a task that involves the reformulation of a written text (in L1 or L2) using the resources of the other language (L2 or L1) and which places marked demands on various executive functions. When practicing written text, bilinguals must manage their attentional ability, cognitive flexibility, and inhibitory capacity to focus on the relevant information in each segment of the source text, alternate successively between L1 and L2, and avoid interference between them. Over time, these demands could enhance these executive domains, but not others. Given this background, the present study seeks to carry out the first empirical characterization of the cognitive impact of the written text experience. We propose, as a general objective, to determine the impact of experience in written text on three domains distinctively required by this type of translation (attentional system, cognitive flexibility, inhibitory control) and, as control conditions, two not distinctively required by written text (short-term memory, working memory). To this end, we intend to establish, through an inter-subject convenience sample design, whether the possession of written text experience impacts the five executive domains, comparing written text students with low written text experience and high written text experience with their peers of the same level of a program that trains teachers of English as an L2. Furthermore, we will examine, through a correlational design, whether the level of performance achieved in written translation tests is associated with performance in the five executive domains over the years of training. To select the sample, we will apply the Translation and Interpreting Competence Questionnaire (TICQ), a validated instrument to assess translation profiles and capabilities. To evaluate different executive functions, five tasks from the PEBL-2 battery will be provided, validated to measure attentional abilities (Flank Task), cognitive flexibility (Wisconsin Card Sorting Test), inhibitory control (Simon Task), short-term memory (Digit Span) and working memory (n-back task). Performance in TE will be weighted by actual direct translation assessments. We expect to find differential effects of translation experience on the observed outcome variables.

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