

The role of cognitive individual differences in digital versus pen-and-paper writing

Olena Vasylets, M. Dolores Mellado & Luke Plonsky

Both the processes and outcomes of L2 writing are contingent on cognitive traits such as language aptitude and working memory (Ahmaddian & Vasylets, 2021; Papi, Vasylets & Ahmaddian, 2021). However, it is still an open question whether the role of cognitive individual differences may differ in digital vs. pen-and-paper writing. Provided differential involvement of the brain activity when writing on paper or using the computer (Berninger, 2012; James, 2012) or the differences in the learning outcomes stemming from digital and handwriting instruction (Wollscheid et al., 2016), one might hypothesize that cognitive resources would play out differently in computer-mediated and handwritten performance. The basis for this hypothesis can also be found in the theories of embodied cognition, which posit that language learning is largely contingent on the way we interact with time and space and engage our body in language production (Atkinson, 2011; Vasylets, submitted). In this exploratory study, we compare the role of working memory and language aptitude in digital versus pen-and-paper writing. Following a between-learner design, 42 Spanish learners of advanced L2 English proficiency performed a problem-solving task either digitally (n= 24) or in handwriting (n= 18). The participants also took a language aptitude test (LLAMA test; Meara, 2005) and a working memory test (N-back test; Jaeggi et al., 2009). Written production was assessed in terms of the CAF measures, and a regression analysis was performed to explore the contribution of the individual differences to the CAF of the digitally-produced versus handwritten L2 texts. The results of the study contribute to our understanding of the role of individual differences in L2 writing and provide theoretical and practical implications for the use of writing as a path to L2 development.