

The predictive role of memory and RAN in Greek school-aged children with dyslexia learning English as a second language

Gkountakou, M.I.¹, & Talli, I.^{1,2}

¹Aristotle University of Thessaloniki, Department of Italian Language and Literature, PhD Candidate, marigkou@itl.auth.gr

²Assistant Professor, talli@itl.auth.gr

The purpose of the present study is to investigate the relationship between phonological and verbal short-term memory (PSTM and VSTM respectively), working memory (WM) and reading skills in Greek (L1) and English (L2) in children with and without dyslexia. In particular, forty (DYS=20; TD=20) school-aged children (9-12 years old), basic users of English (level ranging from A1 to A2), carried out a battery test in L1 and L2 respectively. Reading (word/nonword decoding, fluency) tasks were assessed along with the cognitive measures of VSTM, PSTM, WM (forward digit span, non-word repetition, backward digit span) and rapid naming (RAN) in both L1 and L2. Between groups comparisons indicated statistically significant differences in all tasks. Correlation analysis revealed significant and strong relationships between memory and reading concerning DYS and TD participants. Regression analysis contributed significantly for both groups. Specifically, for the DYS group L1 predictors for L2 reading were PSTM, RAN and WM, while L2 predictors for L1 reading were PSTM and RAN. Regarding the TD group, L1 predictors for L2 reading were PSTM and WM, whereas L2 predictors for L1 reading were PSTM, RAN, VSTM and WM. Differentiations for DYS among predictors are indicated by higher R-squared values due to their memory deficits. The most significant finding is that L1 and L2 RAN predicted both L1 and L2 reading in DYS, while in TD only L2 RAN predicted L1 and L2 reading. Thus, RAN is a stronger predictor in DYS in both languages. The present results shed light on the Linguistic Coding Deficits Hypothesis and the Linguistic Interdependence Hypothesis supporting a language transfer effect from L1 and L2, in which underlying cognitive processes play a vital role, in line with the Central Processing Hypothesis. Finally, we highlight the significant role of memory as a strong predictor even for two different language systems, i.e. transparent vs. opaque.

