

# Evaluating Brain-Based Learning Strategies for Vocabulary Acquisition: Experimental and Quasi-Experimental Studies

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This study aims to evaluate the efficacy of brain-based-learning principles (Caine and Caine, 1990; Sousa, 2001; Folta-Schoofs & Ostermann, 2019) in enhancing vocabulary learning. Although neurodidactics has received considerable attention in scientific and popular discourse, detailed research findings and implementation guidelines of these principles are scarce. Moreover, the approach is controversial: the results appear trivial, the recommendations obvious and partly unjustified (Bowers 2016), or the brain is too complex and our understanding too incomplete (Dougherty & Robey 2018) to inform teaching. Here, a systematic approach to applying learning and memory research findings (Müller et al., 2021) to educational contexts will be provided. The study employs a 2x2x2 experimental research design with two phases: (1) an experimental study followed by (2) a quasi-experimental study employing a pre-test/post-test/follow-up design. Initially, 120 students will be randomly assigned to an experimental group (EG) and a control group (CG) based on their English language proficiency. The EG will learn vocabulary in a positive atmosphere (Musliu, Berisha & Latifi, 2017) with music (Vigl et al., 2023) taking the arousal-mood-hypothesis (Husain et al., 2002) into account; incorporating movement breaks to facilitate memory consolidation (Hilman, Erikson & Kramer, 2008; Kao et al., 2020), and embedding words in meaningful contexts (Frances, Martin & Duñabeitia, 2020). Conversely, the CG will employ conventional methods. The group's vocabulary learning will be evaluated using a computerized recognition task (RT, ACC) using SDT (Macmillan & Creelman, 2005), and a vocabulary test. I hypothesize that the EG outperforms the CG. Subsequently, a quasi-experimental study follows in schools.

## Are you currently an Early Career Researcher?

Yes, I am still a student or have not yet received my Ph.D.

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