A core component to learning a second language (L2) is vocabulary acquisition. New technologies have the potential to substantially improve vocabulary acquisition. Technological activities can elicit L2 learners’ interest, provide more verbal and multimedia exposure to the target language, and present opportunities to interact with the target language using various technological devices.

**Study Inclusion Criteria:** This meta-analysis extends prior research on this topic ([Chiu, 2013](https://bera-journals.onlinelibrary.wiley.com/doi/abs/10.1111/j.1467-8535.2012.01342.x)) by focusing on more recent research, from 2012-2018. To be included in the meta-analysis studies had to:

* use a computer- or mobile-based intervention;
* recruit English Foreign Language (EFL) students;
* recruit mainstream students (cannot be those with disability);
* have at least one experimental group and one control group (the control group must be using a traditional teaching method without technology);
* report vocabulary related learning outcomes.

**How did we code the data?** Studies were coded by two independent raters using a pre-established protocol which was developed based on the Valentine and Cooper’s ([2008](https://pubmed.ncbi.nlm.nih.gov/18557682/)) criteria for quality review. The coding protocol included the following categories:

* Study citation, author affiliation, type of publication, region of the world, technology strategy.
* Student characteristics (e.g., educational level, L2 fluency).
* Intervention and contextual features (e.g., device, game- or non-game based, study duration, setting, test format).
* Methodology characteristics (e.g., research design, reliability, measurement tool).
* Result (e.g., number of participants, means, standard deviations).

There were two outcomes of data extraction: (1) posttest information for the experimental and control groups to generate a set of effect sizes (ESs) and (2) a list of categorical codes to assess if effects were influenced by study factors.

**What are our findings?** This meta-analysis reviewed research between 2012 and 2018 focused on technology-assisted second language (L2) vocabulary learning for English as a foreign language (EFL) learners. A total of 45 studies of 2,374 preschool-to-college EFL students contributed effect sizes to this meta-analysis. Compared with traditional instructional methods, the overall effect of technology-assisted L2 vocabulary learning was large (*g* = 0.845), suggesting that technology-assisted L2 vocabulary learning was more beneficial than non-technology-assisted instruction.

Importantly, within-study comparison of immediate and delayed posttest from a subsample of studies’ results indicated that technology could enhance learners’ long-term vocabulary retention. We also find that device type, game condition, setting, test format, and reported reliability affect the effectiveness of vocabulary learning. For example, advantages were found for mobile devices and on-the-move learning, suggesting that L2 vocabulary learning may be most efficient when students use mobile phones and are not restricted by classroom settings. These variables should be considered when planning instruction in technology-assisted L2 vocabulary learning.