

# An app for improving reading: Word-Matrices for morphological Instruction

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Today's young learners often fall behind in reading, leading to significant drop-out rates and less educational involvement, especially as they advance from one grade to another. Recent studies stressed the impact of morphological awareness in reading competency. Simply put, Morphology plays a critical role in binding letters, meanings and sounds. It describes how words are made up of *morphemes*, which are the atomic units of a word reflecting a certain meaning. For example, "hang + er" is built from two morphemes. There are many tools being developed to teach morphology, and increase students' awareness at an earlier age to improve reading comprehension and potentially their prospects in education.

In this project, you will develop a comprehensive Word-matrix game for morphological instruction, varying different prefixes, suffixes and word roots to help students in early grades. The application should be both easy to use and simple to vary by the instructor (to adapt to the class). It should also collect statistics on users' performance, noting their current "morphological knowledge", their advancement, and alert the instructor about struggling students.

## **Educational background**

Understanding basics of morphology, morphemes as building blocks, and a basic understanding of Etymology.

## **Computing background**

Developing mobile applications (on tablets/ smartphones) and developing modular interfaces to adapt to morpheme data bases, and enable active reporting of results to a centralized DB (possibly hosted on a 3<sup>rd</sup> party Cloud server).

## **Co-supervision and collaboration**

This project will require close collaboration with supervisors from Computing and Education. Namely: **Sharief Oteafy, John Kirby and Hossam Hassanein**

## **Available resources**

- <http://educ.queensu.ca/research/spotlights/morphology>
- <http://educ.queensu.ca/sites/webpublish.queensu.ca.educwww/files/files/People/Faculty/Kirby's%20Prize%20for%20Excellence%20in%20Research%20presentation.pdf>
- [www.affixes.org](http://www.affixes.org)