Investigating The Eye Movements Of English L1 And Arabic L1 Speakers While Reading English Sentences.

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Abstract
Eye movements are now widely used to investigate cognitive processes during first language (L1) reading. However, comparatively few studies have been conducted on second language reading (L2). This presentation will describe a study which used eye tracking technology to investigate the differences in eye movements between English L1 and Arabic L1 speakers when reading English texts. A total of 75 participants were involved in the study: 36 faculty and staff members and 39 students from the College of the North Atlantic in Qatar. Reading materials were presented on a 23-inch monitor attached to an HP Z400 Workstation PC interfaced with a Tobii TX 300 eye tracking system. Participants were presented with 16 images of common signs such as street signs or shop signs. They were then asked to read at their own pace and say which of two ensuing sentences referred to the sign they had just seen. Data were exported into R, a system for statistical computation and graphics, and outcomes from 6 metrics were calculated using Wilcoxin rank-sum tests. The critical value for hypothesis tests, p, was set at 0.05.

Results showed that the two groups differed significantly in 5 of the 6 metrics calculated: 1) number of fixations per individual 2) fixation duration 3) saccade length 4) number of saccades per individual and 5) length of regressions. The sixth metric calculated (number of regressions per individual) approached but did not meet significance levels. The study found that the Arabic L1 participants displayed eye movement patterns that were significantly different from, and potentially less effective than, the patterns executed by the skilled English L1 speakers. The aim of the presentation is to illustrate the results, discuss the pedagogical implications and suggest possible classroom interventions to help Arabic L1 students develop effective word-level reading skills in English.