MIRIAM SARID
Western Galilee College, Israel

VERED VAKNIN-NUSBAUM
Western Galilee College, Israel

READING ABILITIES AS PREDICTORS OF ACHIEVEMENTS IN STATISTICS AMONG SECOND LANGUAGE COLLEGE STUDENTS

Abstract:

Previous research suggest that students in postsecondary education have difficulties in learning statistics as part of their academic studies. The statistical literacy is part from the total numerical literacy and refers to the ability to comprehend, interpret and be critical consumer of statistical knowledge (Gal, 2012).
Statistical information is often presented through text and ideas, and therefore requires also language comprehension more than just numerical reasoning. Research show that there is an overlap between deficits in mathematics and reading achievement such as reading comprehension and spelling. There is no consensus why language and numeric knowledge overlap each other.
Most of studies examined the difficulties of mathematics and language among young students, or students who have learning difficulties. Little is known about the overlap between statistical achievements and reading, in specific among second language (L2) compared with first language (L1) college students.

The study rationale
Despite the importance of statistical literacy in everyday life, for academic performance, and for success in the workplace, relatively little has been done to investigate the role of language in statistical literacy and achievements. In particular, research conducted in L2 in this regard is sparse. This is an important issue because in the global world, most of academic institutions face with the challenge of teaching L2 students who learn in a second language. In order to gain statistical knowledge, L2 students first need to master basic skills in language of instruction and based on these skills, he or she can more easily learn statistical terms.
The purpose of the present study was to examine the relation between statistical achievements and language - reading measures among college students for whom Hebrew is their first language (L1, n=46) and Arabic students for whom Hebrew is their second language (L2, n=29). In order to control other possible variables involved in the process of learning statistics, we also examined cognitive (working memory) and meta cognitive abilities (error detection in text).
Results showed that in both L1 working memory and orthographic ability (parsing) predicted statistics scores. Among L2 student orthographic parsing skill in addition to non-words decoding, reading comprehension, metacognition (error detection in text) were found to be related with statistics achievements. The findings may indicate that L2 readers need reading skills and metacognitive skills that require attention to details and self-monitoring in the processing of numbers and formulas in learning statistics.

Keywords:

language; reading; metacognition; statistical achievements; cognitive abilities; second language; college students

JEL Classification: I29