

Subtypes of dyslexia in Arabic

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Research Topic: My investigation focuses on the question of dyslexia subtyping in the Arabic language. Specifically, it addresses the degree of convergence between the Wolf and Bowers Double-deficit model of dyslexia and M. Shany's rate-accuracy subtyping scheme (Shany & Share, 2011), in which dyslexics are classified on the basis of word reading *accuracy* and/or word reading *rate* into selectively rate-disabled, selectively accuracy-disabled, or doubly disabled dyslexics. My study follows up on Shany's original findings (in Hebrew) that the rate-only subtype is characterized by Rapid Automatized Naming (RAN) deficits whereas the accuracy-only-disabled subtype display a range of linguistic deficits, most notably in phonological awareness (PA) and morphological awareness (MA). Thus, Shany's subtypes resemble the Wolf and Bowers subtypes in many but not all ways.

Because RAN, PA, and MA are constructs that can be measured reliably in kindergarten, this raises the possibility of early identification and prevention. Four main question are addressed in this study:

- 1) Is the dissociation between PA+MA and RAN apparent in kindergarten? If so, do these profiles persist over the first two years of reading instruction?
- 2) Will kindergartners who show selective deficits in RAN or PA+MA develop into selectively rate-disabled and accuracy-disabled readers, respectively, over the first two years of schooling?
- 3) Does the accuracy-only-disabled subgroup constitute a mild form of developmental language disorder (DLD), formerly Specific Language Impairment (SLI)?
- 4) What will be the overlap between Wolf and Bowers' DDH-defined RAN-only and PA-only subtypes of poor readers and Shany's rate-only and accuracy-only subtypes in 2nd grade (2021), when schools will have completed initial reading instruction?

Why is my study unique? The question of heterogeneity and subtyping within the LD population is currently at the forefront of contemporary LD research (see, e.g., Snowling & Hulme, 2020). This will be the first longitudinal study of dyslexia subtyping in the Arabic language. Furthermore,

if validated in this study, the accuracy/rate subtyping framework developed by Shany and colleagues, has potentially universal application across languages and orthographies.

Planned analyses: I am now analyzing the kindergarten data for evidence for a double dissociation (between RAN and PA+MA) *before* children have learnt to read. This analysis will look for children who are poor on RAN but have intact PA and MA, as well as children poor on PA and MA, but unimpaired on RAN. I will then cross-tabulate the kindergarten subtypes with the 2nd grade subtypes using confusion matrices.

Why is my research important for education and/or clinical practice? Arabic is the native tongue of nearly 300 million people worldwide, yet literacy levels are consistently low across the Arabic-speaking world (irrespective of GDP). The source of this problem is often attributed to a combination of diglossia and the unique features of the Arabic writing system. Early identification of the sources of later reading difficulties (in reading accuracy, rate, or both) will lay the foundations for developing effective tools for diagnosis and intervention/prevention tailored to specific profiles of at-risk children.