

Processing Semitic writing systems: Introduction to a special issue of *Writing Systems Research*

“Humankind is defined by language, civilization is defined by writing” (Daniels, 1996). Modern civilisation is defined by mass literacy, first made possible by the invention of printing, and today, the electronic media and the internet. A reflection of the civilising aspects of literacy is the well-known correlation between overall literacy levels of a society and its social and economic well-being. The study of literacy has captured the attention of scholars from every discipline concerned with human behaviour, from genetics and neurobiology to cultural studies. At the centre-point of this spectrum, psychologists and linguists seek to illuminate the foundational processes of reading and writing, the units of language represented in writing and how humans go about processing these forms. While reading researchers have long acknowledged that writing represents language, only recently have they come to appreciate that writing is not a mere shadowy reflection of spoken language but a free-standing independent variable in the literacy equation (see, e.g., Olson, 1994). The exciting new field of writing systems research and the cross-disciplinary insights emerging from this work hold great promise for the field of literacy research.

In this special issue we present papers from the first Haifa Conference on Writing Systems and Literacy, which took place in April 2012. The location of the conference is significant for several reasons. First, the Middle East was the birthplace of segmental writing systems (first developed nearly four thousand years ago by Semitic speakers) and the progenitor of writing systems—abjads, alphabets and alphasyllabaries, now used daily by billions (Daniels & Bright, 1996; Diringer, 1968; Naveh, 1975). Second, the Semitic languages spoken in the Middle East do not belong to the Indo-European family of languages (that includes English) that have so dominated the language and literacy research agenda (Share, 2008). Most of the world’s languages are not English-like (Evans & Levinson, 2009), and most readers and writers around the world use writing systems that are neither alphabetic (i.e., full and equal status for consonant and vowel signs) nor European. Third, as a result of social and historical events, a sizeable proportion of the population in Israel uses two or more different writing systems on a daily basis. This phenomenon has generated intense interest in research on reading and writing with different orthographies.

The conference brought together researchers from a variety of disciplines on reading and literacy learning including psycholinguists, neuropsychologists and linguists. Interestingly, all but one of the papers included in this issue focus on reading and writing in Arabic. The reasons for this are many. First, whereas illiteracy and poverty go hand in hand in most parts of Asia and Africa, curiously, in the Arabic-speaking world, literacy levels are uniformly and distressingly low in wealthy and impoverished societies alike. Even highly educated expert readers of Arabic read their native Arabic more slowly than they read non-native languages such as English, Hindi or Arabic’s Semitic cousin Hebrew. Why is literacy learning so difficult in Arabic? Recently, research on literacy acquisition in Arabic has burgeoned, perhaps as an antidote to the many years in which this topic was

neglected. The second reason is pragmatic: Arabic is the official language of 27 countries and the fourth most common language in the world with over 300 million speakers. As a result, the Arabic script is the second most widely used segmental script after Roman.

It is our hope that the scholarship presented here will not only help inform researchers and practitioners working on Semitic languages and literacy learning, but any theory that aspires beyond language-specific status. The papers in this special issue are organised in a roughly developmental progression commencing with pre-school reading and writing. Iris Levin, Dorit Aram, Liliana Tolchinsky, and Catherine McBride-Chang present a fascinating cross-cultural comparison of how Spanish and Israeli mothers help their kindergarten children to write vowels and consonants. Whereas Spanish is an alphabetic writing system with vowels and consonants granted equal status, Hebrew is an abjad with vowels marked incompletely and inconsistently. Levin and her colleagues found that Spanish and Israeli mothers were equally helpful for consonants, but the Hebrew-speaking mothers provided much less assistance and encouragement in the case of vowel letters. These findings are the first to demonstrate that writing systems can significantly alter the way parents respond to their child's literacy development. These data also support the validity of the abjad/alphabet distinction. Moving on to the early grades of elementary school, Hanan Asaad and Zohar Eviatar report intriguing findings from a developmental study of speed and automaticity in reading Arabic. Focusing on orthographic complexity and diglossia, their data re-affirm the difficulties created not only by diglossia in learning to read Arabic, but also the unique challenges posed by a complex orthography that contains visually and phonologically confusable letters which also vary in shape (sometimes drastically) depending in their position in a word (initial, medial or final). These data served to remind literacy researchers that there are dimensions of writing system complexity which can impede literacy acquisition that are not captured by the conventional deep/shallow distinction that focuses on spelling-to-sound consistency alone. Focusing on language production, Elinor Saiegh-Haddad takes advantage of the properties of Arabic to examine the way in which young children utilise morphological knowledge to solve dilemmas in spelling. Morphological structure is highly salient in printed Arabic, where, like Hebrew, consonantal roots are inserted into predefined word templates or patterns. Arabic script includes emphatic versions of some sounds, which are represented by unique letters. This paper deals with the high-frequency letter **ت**, which has a less frequent emphatic allophone that is represented by a different letter, **ط**. Saiegh-Haddad shows that very early in the process of literacy acquisition, children can take advantage of morphological knowledge as a guide to acoustically ambiguous situations. Also focusing on the early acquisition of reading and writing, Jumana Dai, Raphiq Ibrahim and David Share present some elegant experiments that carefully disentangle different sources of difficulty in the process of reading acquisition. They show that different features of Arabic orthography, such as the ligaturing of letters versus the number of letters with multiple diacritics, have different effects on both initial decoding and on orthographic learning. This paper emphasises the interactions between the cognitive processes of literacy acquisition and the unique demands that specific orthographies make upon these processes. Asaid Khateb, Haitham Taha, Inas Elias and Raphiq Ibrahim extend the findings of the effects of letter ligaturing to both skilled and disabled adult readers. Converging with the findings of Dai et al. in children, they find that both groups show a recognition advantage for words in which all the letters are connected compared to words in which only some, or none of the letters are connected. This is especially intriguing because words made up of unconnected letters are considered by reading educators to be less visually taxing. In spite of this, all readers of Arabic, irrespective of skill level, show an advantage for fully ligatured words. These findings are not predicted by models of reading based on English. On this note,

Share (2008) has pointed out that the language and literacy research agenda has been overwhelmingly dominated by English. This special issue, together with other recent publications (notably Saiegh-Haddad & Joshi, [in press](#)) goes some way to redress this bias. Our final contribution by Dennis Kurzon, addresses another lacuna in literacy studies. Partly owing to the Anglo-American domination of the literacy research agenda coupled with the fact that English, unlike most writing systems, has few diacritics, research into diacritics is practically non-existent. Dennis Kurzon takes us on a guided tour through the world of diacritics with special attention to Perso-Arabic writing, offering a wide-angled view of the fascinating variety of supplementary markings common to the world's writing systems. The theme of richness and diversity reminds literacy researchers that diacritics in many writing systems are by no means marginal embellishments but convey essential information and therefore warrant serious scholarship.

Finally, we report, with great sadness, that shortly after completion of her paper, Iris Levin passed away. Professor Levin was a scientist of the highest calibre and integrity, a caring and giving human being who worked hard for the advancement and application of scientific knowledge of literacy in the young and the betterment of the under-privileged. She was not only a revered colleague and mentor but a true and dear friend. Her loss to her colleagues and her community is irreplaceable. We dedicate this special issue to her memory.

Zohar Eviatar and David Share
 University of Haifa, Israel

zohare@research.haifa.ac.il; dshare@edu.haifa.ac.il

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