

Introduction to the special issue of reading and writing: “Lexical representations in reading and writing”

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Human beings were not born to read or write and, for many, the process of acquiring the skills associated with this cultural invention is arduous. Our species took 2,000 years to arrive at the alphabet but individuals born into the modern world are expected to master this complex code in around 2,000 days (Wolf, 2008). Despite the difficulties associated with learning to read and write, these processes provide the foundation for higher-level cognitive skills and have allowed the species to prosper.

Throughout history, interest in reading and writing has been universal and has led to many great debates, which will be familiar to this journal’s readership. For example, philosophers in ancient Greece speculated about the consequences of a transition from oral to written culture, many have argued about the interpretation of religious texts, the best way to teach literacy in schools has become a pressing concern for governments and parents, discussion of the underpinnings of dyslexia have evolved from psychoanalysis to neuroscience and we now wonder about the nature and impact of text messaging via mobile phones.

While the science of reading and writing is, today, a mature area of inquiry there is continuing controversy regarding many topics. In particular, there remains a great many gaps in our understanding of lexical representations. It is valuable to reflect upon the populations being assessed, and the techniques being used, by researchers in disciplines such as Psychology, Linguistics and Speech Pathology in order to further our knowledge of lexical representations. The papers included in this special issue address questions such as: Which aspects of word learning are associated with risk of reading problems in young children? How do adult readers distinguish nouns from verbs? What are the mechanisms that allow so-called ‘lexical experts’ to excel at reading? What are the unique characteristics of story writing in adults with a history of language impairment?

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The first paper in this special issue reports on a study within a larger project that is designed to examine the cognitive and linguistic characteristics of pre-readers. The goal is to elucidate the factors that contribute to difficulties in learning to read. A unique feature of this study is the assessment of reading-risk in a large number of young children using an amalgam of performance measures. Preschool children were tested on a range of measures including letter knowledge, vocabulary, phonological awareness, working memory and rapid naming. Children also participated in tests of novel word learning. Gilliver and Byrne's results highlight the importance of working memory in word learning by at-risk children. This study is part of a solid body of work indicating that a comprehensive understanding of literacy development must include consideration of the preschool years (e.g., see the review by Dickinson & McCabe, 2001).

The paper by Kemp and colleagues reports on adults' sensitivity to probabilistic cues to grammatical category in English orthography. This study draws on earlier corpus and behavioral research showing that the endings of disyllabic English words provide information as to whether a word is a noun or a verb, beyond obvious inflectional patterns. For instance, *-oon* is probabilistically associated with noun status while *-erge* is associated with verb status. Adults are sensitive to these cues in their reading of pseudowords that contain particular spellings in their endings. This study used a large set of pseudowords and a wide variety of tasks to provide converging evidence of sensitivity. A particularly novel finding was that greater sensitivity to probabilistic cues was associated with higher reading ability. This study is part of a larger body of work that challenges the privileged role of phrasal, morphological and semantic information in distinguishing between nouns and verbs (see Arciuli & Monaghan, 2009, for further discussion). It is also one of a growing number of studies pointing to a possible link between statistical learning and reading.

The third paper explores the resolution of ambiguities during sentence reading. Andrews and Bond showed that lexical experts (as indexed by accurate spelling) are more effective at bottom-up identification of words, and rely less on top-down context, compared with readers who have lower quality lexical knowledge. These results are in line with the view that high-quality lexical representations underpin the kind of rapid and efficient word-level processing that enables mental resources to be devoted to other aspects of reading, such as comprehension.

The two final papers in this special issue are companion papers reporting on the characteristics of story writing by adults with a history of language impairment (LI). The first paper, by Smith-Lock et al. reports on lexical analyses (including measures of grammatical complexity, spelling accuracy and punctuation) and the second paper, by Mortensen et al., reports on analyses of coherence. Together, these papers provide a thorough investigation of how language impairment in childhood can affect written narratives in adulthood. The results demonstrated that, although there was variability within the LI group, the written narratives of this group differed from those of controls. Interestingly, this difference was evident only in the lexical analyses—suggesting that generic structure and cohesion is a relative strength in adults with a history of LI. Lexical analysis of writing holds great promise as a window into cognitive function and can be used for a variety of purposes such as the

detection of pre-clinical markers of dementia (e.g., Garrard, Maloney, Hodges, & Patterson, 2005).

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