ORAL PAPER

Cross language learning disabilities and verbal versus spatial memory

John Everatt • Sharman Jeffries • Gad Elbeheri • Ian Smythe • Kazuvire Veii

Abstract The research reported in this talk involves comparisons of verbal and spatial memory tasks across groups of children (and adults) with different types of learning difficulties. The research focuses on children with literacy acquisition problems and investigates whether such problems are related to specific areas of deficit. In the first piece of research, children with dyslexia (literacy learning problems) and dyspraxia (motor deficits) were contrasted on measures of memory (for example, tasks that required the retention of sequences of verbal material or spatial movements) and additional measures of literacy (reading and spelling), phonological (awareness of sounds within words) and motor (fine and gross motor tasks) functioning. The data were consistent with a dissociation between tasks/groups such that dyslexics showed weak phonological processing but intact visuo-spatial processing, whereas children with dyspraxia showed weaknesses on task involving visuospatial information, but average levels of performance on tasks that required phonological processing. Similar results were identified amongst adult groups, consistent with a deviant level of functioning rather than a developmental delay. A second line of research contrasted children with or without literacy problems across language backgrounds (English, Arabic, Chinese and bilingual children). Consistent with the dyslexia data, children with poor English literacy skills showed weaknesses in verbal/phonological memory tasks but not in visuo-spatial memory. However, for Chinese-language children, visuo-spatial memory differed between good and poor literacy learners, but

there was little evidence for verbal memory differences. In contrast, the Arabic and bilingual children showed differences in both verbal and visuo-spatial areas, although the evidence was consistent with enhanced visual/spatial skills amongst the good literacy groups, rather than poor literacy children showing weaknesses in those tasks. These data suggest that the influence of memory skills on learning may vary with the language of instruction. A final line of enquiry considers whether teaching strategies to children with learning difficulties may overcome some of the identified memory deficits and lead to better levels of learning. English language children with learning difficulties were taught visual and verbal strategies to support retention of materials in short-term memory tasks. In the majority of cases, learning was improved when it focused on visuo-spatial strategies but not when verbal strategies were used. These data support the relationship between learning difficulties and different aspects of short-termmemory that may lead to poor levels of learning. It also presents evidence that memory (particularly those related to visuo-spatial) processes are influenced by the context within which learning is taking place, both in terms of the language of instruction and the strategies used to support learning. For some children with educational difficulties based around language-related deficits, visuospatial strategies may support acquisition.

Keywords Learning disabilities • Verbal versus visuospatial memory • Cross-language comparisons.

J. Everatt (\boxtimes)• S. Jeffries • I. Smythe

Department of Psychology, University of Surrey,, UK e-mail: j.everatt@surrey.ac.uk

G. Elbeheri Kuwaiti Dyslexia Association, Al-Farwaniya, Kuwait

