What causes persistent reading difficulties in primary school? A PhD linked to the Aston Literacy Project

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As skilled readers, we are largely unaware of the extraordinary mental feat required to process written words. In fact, fluent reading involves a complex integration of information from orthographic (written form), phonological (speech sounds) and semantic (meaning) features, tapping into perceptual, memory and language processes. Given the range of processes involved, it is inevitable that there are many possible routes to reading difficulties. This leads to heterogeneity in the cognitive profiles associated with reading difficulties. When examining such a heterogeneous population, the frequency with which different cognitive profiles are observed to be associated with, and independent from, reading difficulties becomes critical. However, for frequency to be measured accurately, large and representative samples are necessary.

This PhD is linked to the Aston Literacy Project, in which we’ve been tracking the reading progress of large samples of primary school children. The PhD project will use our large data sets as a launchpad for an independent investigation into the nature of the underlying cognitive difficulties that cause poor reading outcomes. Linking to our larger project enables the student to begin with some straightforward analyses on our existing data, and provides the opportunity to follow up subgroups from our longitudinal sample. The first objective of the PhD project will be to use existing data to identify the extent to which different cognitive profiles appear to be causally related to reading difficulties (testing specific phonological processing deficit vs. multiple-deficit causal accounts). Specifically, a high frequency of co-occurrence with reading difficulties, and low frequency of independence suggests a causal pattern is possible. Later stages of the project will then allow considerable flexibility in terms of analyses and study design, enabling the student to conduct original research which will stand alone from the main project.

The project has clear implications for early identification of children at risk of reading difficulties, and there is the potential for a standardised test battery to be developed based on the measures found to be most powerful early predictors of reading difficulties. Since the student will gain skills relevant to both research and practice, it will provide an excellent basis for a research career in reading development or developmental disorders, or a career in psychological practice, via the clinical or educational doctorate.

The student would be supported within the Basic and Applied Neurosciences Research Group, supervised by Dr Laura Shapiro, in collaboration with Dr Caroline Witton, Prof Joel Talcott and Prof Adrian Burgess

For further details on the background project, see the Aston Literacy Project website: http://www.aston.ac.uk/alp/