Early identification and prevention of dyslexia

Heikki Lyytinen

Professor, Department of Psychology, University of Jyväskylä, Finland

A substantial portion of children faces difficulties on learning to read during the beginning school years. The Jyväskylä Longitudinal study of Dyslexia (JDL) comprised an intensive effort to open the mysteries of dyslexia by starting to follow from infancy children from families where one of the parents and his/her relatives had faced dyslexia. JLD made an attempt to understand the developmental precursors of dyslexia by comparing in relevant detail the development of 100 such at risk children and similar number of children whose familial history did not show any. All appropriate methods were used starting from experimental research of the working brain and via observations and assessments relevant developmental domains such as language and cognition as well as motor skills. Repeated measurements were made almost every year from birth to school age. Additionally e.g. temperament, child's interaction with parents and environmental factors were observed almost with a comparable intensity. The observations of the predictive factors of the development associated with the risk could be made efficient because almost half of the children at familiar risk ended up facing difficulties and a fourth several ones. Three separate developmental routes preceded facing difficulties in the acquisition of the basic reading skill. At the top of the classical phonological delays and struggling in rapid naming tasks some children simply did not learn the small number letter-sounds of fully transparent reading without severe difficulties. Additionally an unexpectedly behaving route was observed showing interesting predictive results. The earlier statistically significant signs could be observed using brain measures 3-5 days after birth. Late talking was associated with the predictive factors especially if it included receptive difficulties which anticipated – but only in the at risk group - compromised development towards full literacy. The very easy to assess knowledge of letter names was a reliable predictor facing problems in the initial acquisition of the reading skill and compromised rapid naming anticipated especially difficulties in practicing the reading fluency.

Today our efforts are concentrated on preventive training using Graphogame (see www.graphogame.com) which is now shown to be helping efficiently most children facing

difficulties in learning to read. Plans are that this science-based training regiment will be defined via empirical efficiency studies to help so many children as possible in the world. First steps towards this goal has been made in close to 30 countries with our emphasis being first in Africa where most children need help due to compromised opportunities to have optimal reading instruction due to challenges associated with multilingual living environments.