



'Spaceship' unlocks kids' brains

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RESEARCHERS are closer to discovering why children learn languages much faster than adults.

Thanks to a child-friendly version of the brain-imaging system called magnetoencephalography or MEG, cognitive scientists from Macquarie University will be able to discover how much of our language is learned by experience and how much is down to biological make-up.

The MEG measures magnetic fields generated by the human brain whenever information is being processed.

Previously, the size of the adult version made it difficult to obtain good brain signals from children.

The new MEG is a "revolutionary" whole-head system, specially designed for children's smaller

head sizes.

The \$1 million system is the first of its kind and sits alongside the adult version installed at the KIT-Macquarie Brain Research Laboratory.

Professor Stephen Crain, Director of the Centre of Language Sciences and Deputy Director of the Macquarie Centre for Cognitive Science (MACCS), said that until now it has been very difficult to investigate children's knowledge of language.

"Now we can witness precisely what's going on in the brain of a child without requiring the child to communicate what they are experiencing," he said.

The child-sized MEG will also help scientists to understand the brain processes of children who suffer autism, hearing problems or specific language impairment.

Professor Crain said the MEG, developed in conjunction with the Kanazawa Institute of Technology (KIT) in Japan, was completely safe and non-invasive.

"The kids think it's a cool spaceship ride," he said. The screen used to provide stimulus to the child's brain can be used to show movies and cartoons.

Five-year-old Takoda McLoughlin-Sewell looked very comfortable as Professor Crain demonstrated the MEG.

The system was funded in part by an Australian Research Council Linkage Industrial Partner Grant with the Yokogawa Electric Company, the industrial partner of KIT. Additional financial support was provided by the HEARING Co-operative Research Centre.



Takoda McLoughlin-Sewell is comfortable in the child-sized brain imaging system for a demonstration by Professor Stephen Crain.

Picture: DAVID MARSHALL