Baby wired for a sound reason

Lab is exploring the learning of languages

CLARISSA BYE

IN Sydney's southwest a unique scientific experiment is being carried out by a team of dedicated but inexperienced volunteers — babies.

At the Marcs Institute BabyLab, housed in the Milperra campus of Western Sydney University, researchers secretly watch babies play with toys, watch cartoons and respond to sounds.

The infants don't know it, but their every move, even their brain impulses, are being recorded and analysed in the name of science.

"Language is one of the most complex systems a human being can acquire, no other species has anything as complex as language, and we don't know enough about it," Dr Marina Kalashnikova (below), the lab's academic leader, said.

Researchers hope to discover more about how babies acquire language and also help children with dyslexia and hearing impairments.

In Room 1G93, one of the BabyLab's 11 rooms, Madeleine Faull sits on her mum's lap, happily wired up to an electroencephalography (EEG) machine.

"She loves coming here because everyone dotes on her," mum Jannette Graham said.

Colourful curtains mask a bundle of recording devices and wires which lead to an adjacent control room, all carefully monitored by one of the 11 researchers and PhD students attached to the lab, which focuses on language, speech and the precursors of reading skills.

The 11-month-old tot from Marsfield is wearing a cap fitted with 110 electrodes, which has been carefully washed with a solution of baby shampoo and salt (it works better when wet). She sits on her mum's lap, watching a cartoon, as random sounds play in the room.

"A lot of our experiments are simple play sessions where the babies are enjoying it and having fun but we getting all this data," Dr Kalashnikova said.

She said the EEG recorded electrical activity in the brain, so if a sound was played, scientists could see when neurons are activated.

The baby listens to a repeating sound such as "pa pa pa", followed by a slightly different sound "ba". "The idea is we detect a brainwave that goes in a similar way — then the unexpected occurs and there might be a different shape brainwave," Dr Kalashnikova said.

They can then pinpoint when infants are able to pick up differences in sounds and help understand how babies pick up language.

Madeleine Faull in the BabyLab and (below) Dr Marina Kalashnikova. Picture: Rohan Kelly