In 2007, a team of researchers from Charles Sturt University (CSU) received funding from the Australian Research Council (ARC) to investigate speech impairment in early childhood. In particular, we wanted to find out:

- How prevalent is speech impairment in Australian children (4- to 5-year-olds)?
- What are some of the risk and protective factors associated with speech impairment?
- How does speech impairment impact on children’s development?
- What services are available to and used by families of children with speech impairment?

Our research project, titled the Sound Effects Study, has been carried out over the past 3 years. Since the start of the study in 2007, our research team has met regularly to discuss progress and solve any hiccups. These meetings often occurred via teleconferences that spanned 3 states of Australia. On only 4 occasions were all team members present in the one room (in Bathurst, Sydney, Brisbane and Jervis Bay)!

We’ve travelled over 6,000km to visit early childhood centres and we’d like to thank all those children, families and teachers who participated for their wonderful contributions! We believe the findings from this study have important implications for children with speech impairment, their families, teachers and speech pathologists. We’ve been sharing the findings at national and international conferences and journals, and in the following pages we’d like to share more of the Sound Effects Study with you....
Sharynne McLeod is a professor of speech and language acquisition at CSU. She has been investigating the prevalence and severity of speech impairment experienced by children in the Sound Effects Study. During the course of this study, Sharynne visited every state and territory in Australia as the Speech Pathology Australia National Tour speaker. She also published 4 books about speech development and working with families in speech pathology, and continued to edit the national speech pathology journal titled *International Journal of Speech-Language Pathology*. This year, she was awarded an Australian Research Council Future Fellowship, which will enable her to continue working with and for children with speech impairments and their families until 2014.

**Associate Professor Linda Harrison**

Linda Harrison is an associate professor of early childhood education at CSU. She is interested in children’s perceptions of their communication and their relationships with friends and important adults, and the use of drawings as a means of studying this. As well as the Sound Effects Study, she is a chief investigator in three longitudinal research studies that are investigating the use and impact of early education and childcare on children’s health, development, and well-being. In 2009, Linda worked with the CSU-led national consortium that developed the Early Years Learning Framework for Australian children.

**Associate Professor Lindy McAllister**

Lindy McAllister is the Deputy Head of the School of Medicine at The University of Queensland. She is also the past president of Speech Pathology Australia and was the founding chair of the Speech Pathology program at CSU. Lindy is particularly interested in the availability of services for children with speech impairment and their families, and is currently using the Parent Questionnaires to investigate the services used and needed by families in this study. During the course of the Sound Effects Study, Lindy published a book called *Ethics in Speech and Language Therapy* and continued to work with the Trinh Foundation to develop speech and language therapy services in Vietnam.
Jane McCormack worked on the Sound Effects Study as Project Officer and PhD student. She is particularly interested in finding out how children and their families describe the experience of having a speech impairment, and the ways in which having a speech impairment might affect their everyday lives. During the course of the Sound Effects Study, she visited the 33 centres, conducted 155 speech pathology assessments and enjoyed meeting many children, families and teachers! She also taught in the speech pathology program at CSU, and worked on her PhD. Jane was awarded a Menzies Foundation scholarship for allied health in 2009 and hopes to complete her PhD during the next 12 months.

Honours students

Erin Holliday

Erin Holliday was a Bachelor of Education (Primary) Honours student (2007-8) and Research Assistant (2009) on the Sound Effects Study. Her research involved looking at the pictures that children drew of themselves talking to somebody, and “listening” to what the children were saying through their drawings. Erin graduated this year from CSU and was awarded First Class Honours for her thesis (supervised by Sharynne and Linda). After completing her studies, Erin moved to Coffs Harbour with her husband and has been busy teaching drama and music there.

Bethany Toohill

Bethany Toohill was a Bachelor of Health Science (Speech Pathology) Honours student on the Sound Effects Study (2008-9). Her research determined the number of children with speech impairment who also have difficulty with other skills, such as language, early literacy, hearing and oromotor. Bethany was interested in the co-occurrence of these difficulties in Indigenous children, and the importance of considering a child’s speech/language background when deciding if a child’s speech is “delayed” or just “different.”

We were also lucky to have the assistance of Emma Heinrich, Christine Porter, Jacqui Barr and Hannah Wilkin during data collection and analysis.

Bethany will submit her thesis in November this year (supervised by Sharynne and Jane).
During Phase 3, we assessed the communication skills of 157 children to determine the presence and severity of speech impairment, and the co-occurrence of other difficulties. 143 of these children had been identified by parents and/or teachers as having “difficulty talking and making speech sounds.”

**KEY FINDINGS**

**Prevalence**
- Speech and language impairment is a high prevalence condition in early childhood.
- Approximately 25% of 4– to 5- year-old children were identified by parents/teachers as having difficulty talking.
- Children’s speech being “unclear to others” was the most commonly identified concern.

**Risk factors**
- Consistent risk factors for speech and language impairment were being male, having ongoing hearing problems, and having a more reactive temperament.
- Protective factors were having a more persistent temperament and a higher level of maternal wellbeing.

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**Phase 4**

In Phase 4, we conducted 40 interviews with 13 children and 21 significant others (family members and teachers) to understand the experience of living with childhood speech impairment. We’re also using these interviews to understand families’ experience of accessing and participating in speech pathology services, and any difficulties that might be encountered.

**KEY FINDINGS**

**Experience**
Children with speech impairment and their communication partners (family members, teachers) identified the “speech problem” as only one of the problems they experienced. They recognised 2 other problems: 1) the communication partners’ difficulties with understanding the child, 2) the child’s frustration when communication breaks down.

**Service Delivery**
- Most families had not accessed speech pathology services for their children, despite having some concerns about their speech.
- Teachers and doctors were often identified as sources of information regarding speech difficulties.
Art exhibition

We created an art exhibition, titled *Children Draw Talking*, containing the children’s drawings of themselves talking to somebody.

The exhibition was first held at the Speech Pathology Australia national conference in Adelaide this year, where it was positively received. Since then, the exhibition has also been shown at the Asia Pacific Society of Speech-Language and Hearing convention in Hawaii, and has been accepted for the International Clinical Phonetics and Linguistics Association conference in Norway in 2010.

Nationally and internationally, people have been excited about this innovative way of listening to children “speak.”

Conferences

We’ve presented findings at conferences in Australia and overseas. The conferences where we’ve presented are listed below, and other presentations are planned for 2010.

- American Speech-Language and Hearing Association national conventions (Boston, Chicago, New Orleans)
- Asia Pacific Society of Speech-Language and Hearing convention (Hawaii)
- Australian Association for Research in Education (Brisbane)
- Australian Research Alliance for Children and Youth inaugural conference (Melbourne)
- Australian Research in Early Childhood Education conference (Melbourne)
- Early Childhood Australia national conference (Canberra)
- International Clinical Phonetics and Linguistics Association symposium (Istanbul)
- Longitudinal Study of Australian Children conference (Melbourne)
- Speech Pathology Australia national conferences (Auckland, Adelaide)

Journals

We’ve published some of the key findings in a number of journals. A full list of publications and links to some presentations and journal articles are available on our website. They include the following:


Thank you for taking part in the Sound Effects Study! We appreciated your interest and enthusiasm for our study, and the welcome you gave us when we visited your centres. We thank you so much for your time and contribution, particularly during the data collection phase of the study. Your input was greatly appreciated and is highly valued.

We’d love to hear your feedback about the study or the findings we’ve reported. Please don’t hesitate to contact the Chief Investigators on the email addresses below:

- Professor Sharynne McLeod
- Associate Professor Linda Harrison
- Associate Professor Lindy McAllister

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Speech Pathology Australia
http://www.speechpathologyaustralia.org.au
This website contains information about the role of speech pathologists and has fact sheets about a range of communication and swallowing issues that you can download. You can also “search for a speech pathologist” in your local area.

Longitudinal Study of Australian Children (LSAC)
This website contains details about LSAC, which is a major study investigating the impact of social and cultural factors on the development of Australian children. Data from the first stage of LSAC was used in our Sound Effects Study to look at risk factors for speech impairment.

Further Information

The Sound Effects Study
http://www.csu.edu.au/research/speech-impairment/
Our website contains an overview of findings from the early stages of the study and a list of our current publications and conference presentations. You can download some of our past papers and posters and there is an Advice Sheet for parents.

Speech Pathology Australia
http://www.speechpathologyaustralia.org.au
Monique* (4;10) “roller-skating” with her mum (right) and talking about “practicing.”

Tim* (4;3) talking to his sister. He emphasised their ears and spoke about “listening.”

Keith* (4;3) talking to his dad (right) about “dinosaurs” with “long necks.”