



CHARLES STURT
UNIVERSITY

Sound Effects

**January 2007 -
December 2009**

Investigating speech impairment in early childhood

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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?

Speech impairment refers to difficulty producing sounds, which may range from a lisp to unintelligible speech

Quick Statistics

- 33 early childhood centres across 8 rural, regional and metropolitan locations in NSW and Victoria took part
- 1097 children's parents and /or teachers completed questionnaires
- 157 children had speech pathology assessments
- 13 children and 21 family members and teachers were interviewed

2007-2009

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)!

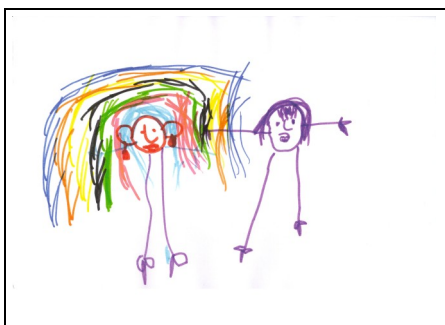
We've travelled over 6,000km to visit early childhood centres and we'd like to thank all those children, families and teachers who participated for their wonderful contributions! We believe the findings from this study have important implications for children with speech impairment, their families, teachers 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....



RESEARCH TEAM

Chief Investigators Professor Sharynne McLeod

Sharynne McLeod is a professor of speech and language acquisition at CSU. She has been investigating the prevalence and severity of speech impairment experi-



Tamika (5;4) talking to her mother with rainbow hair about "monsters...we were brave!"*

enced 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.

During the assessments, children were asked to draw pictures of themselves talking to somebody - so we could see how children perceive talking. Some of their artwork is pictured here.

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 devel-

oped the Early Years Learning Framework for Australian children.



Lex (5;2) talking to his friend outside about "coming to my house."*

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 investi-

gate 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.

Project Officer and PhD student Jane McCormack



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.



Kaitlin (4;8) talking to her friend (left) about "playing and picking and smelling flowers."*

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 draw-

ings. 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.

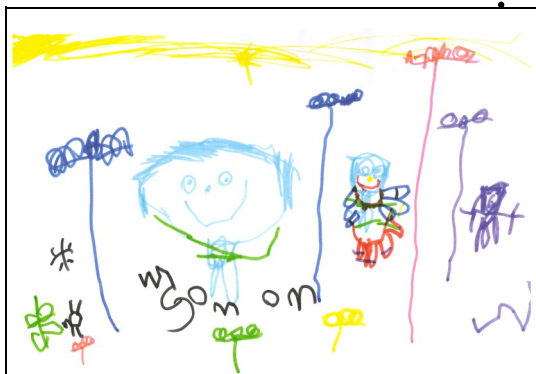
Bethany Toohill



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."

Bethany will submit her thesis in November this year (supervised by Sharynne and Jane).



Tessa (4;3) on the left talking "about nothing in particular" with Jane (middle) and her mother (right) in the "garden."*

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

Final Report

Phases 1 and 2

There were four phases of data collection that contributed to the Sound Effects Study.

During phase 1, we analysed data from parents and teachers of **4,983 children** in the Longitudinal Study of Australian Children (LSAC) to identify the prevalence of speech and language impairment, and risk factors associated with speech impairment, and to look at the impact of children's speech and language impairment on school achievement and adjustment.

During Phase 2, we collected screening data relating to **1,097 children** (from 33 early childhood centres in 8 locations) as part of the Sound Effects Study to determine the prevalence of speech impairment as reported by parents and teachers, and to look at the link between parent and teacher identification.

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.*

Phase 3

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

Impact

- *Speech impairment often co-occurs with other areas of difficulty, especially language impairment (e.g., using incorrect grammar) and pre-literacy impairment (e.g., difficulty recognising sounds and letters).*

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."



Children with speech impairment are often excluded from having a say in their lives because of their difficulties talking. Asking them to draw pictures gives them another way to have a say.

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)



Nadia (4;5) talking with her "best friend" from kinder (right). Nadia needed to "draw some ears on us so we can listen to what we're saying".*

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:

- **PREVALENCE:** McLeod, S., & Harrison, L. J. (2009). Epidemiology of speech and language impairment in a nationally representative sample of 4- to 5-year-old children. *Journal of Speech, Language, and Hearing Research*, 52(5), 1213-1229.
- **DRAWINGS:** Holliday, E., Harrison, L. J., & McLeod, S. (in press, 2009). Listening to children with communication impairment talking through their drawings. *Journal of Early Childhood Research*, 7(3), 244-263.
- **EXPERIENCE:** McCormack, J., McLeod, S., McAllister, L. & Harrison, L. J. (in press, 2009). My speech problem, your listening problem, and my frustration: The experience of living with childhood speech impairment. *Language, Speech, and Hearing Services in Schools*.
- **RISK AND PROTECTIVE FACTORS:** Harrison, L. J. & McLeod, S. (in press, 2009). Risk and protective factors associated with speech and language impairment in a nationally representative sample of 4- to 5-year-old children. *Journal of Speech, Language, and Hearing Research*.

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This research was funded by the
Australian Research Council
(Discovery Project 0773978)

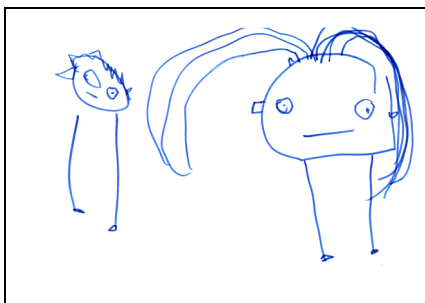
Look out for our book
"Children Draw Talking"
to be published in 2010!

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.

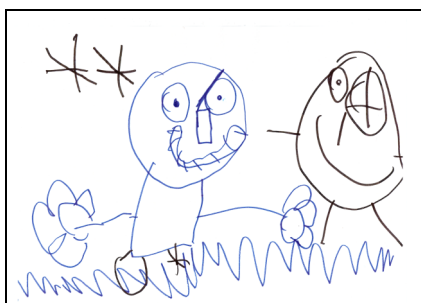


Tim* (4;3) talking to his sister.
He emphasised their ears and spoke about "listening."

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.

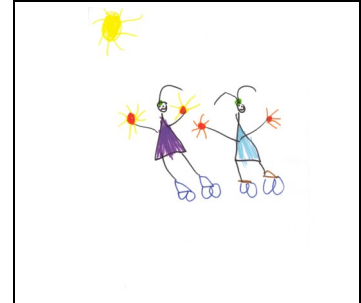


Keith* (4;3) talking to his dad (right) about "dinosaurs" with "long necks."

Longitudinal Study of Australian Children (LSAC)

<http://www.aifs.gov.au/growingup/>

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.



Monique* (4;10) "roller-skating" with her mum (right) and talking about "practicing."

Thank you!

Thankyou 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:

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