The Sound Start Study











University of the West of England

The Australian Research Council (ARC) funded the Sound Start Study to investigate a computer-based intervention for the speech and emergent literacy skills of 4- and 5- year-old children with speech sound disorders.



This research project was conducted in 6 stages over 3 years (between 2013 and 2015) and considered whether educators' use of a computer program (Phoneme Factory Sound Sorter; PFSS) would benefit children with speech sound disorders. Speech pathologists and educators at Charles Sturt University, The University of Sydney, the University of the West of England (UK), and the University of Bristol (UK) worked together to complete this research.

How many children were involved over the three years?

Stage	Description	Children	
1	Caregiver screening questionnaire completed Educator screening questionnaire completed	1,205 1,064	
2	Screening assessment with a speech pathologist	275	
3	Comprehensive assessment with a speech pathologist	133	
4	Computer-based treatment (intervention group) Typical classroom practice (control group)	65 58	
5	Follow-up assessment 1 (immediate)	114	
6	Follow-up assessment 2 (6-8 weeks later)	115	



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Children who start school and have ongoing speech sound difficulties may have difficulty learning to read



Research Team

Chief Investigators Professor Sharynne McLeod Dr Elise Baker Dr Jane McCormack

Partner Investigators Professor Sue Roulstone Dr Yvonne Wren

> Research Staff Dr Kate Crowe Ms Sarah Masso

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Research Assistants Dr Tamara Cumming Ms Charlotte Howland Ms Felicity McKellar Learning to read and write successfully requires children to start school with good speech, language, and emergent literacy skills (e.g., identifying sounds in words, having basic knowledge about letters). Up to 1 in 5 Australian preschool children have difficulty talking and making speech sounds. Speech sound disorders occur when children have difficulty using and combining sounds in words. Between 30% to 77% of children who continue to have speech difficulties when they start school can have difficulty learning to read. However, preschool-aged children with speech sound disorders may not see a speech pathologist due to difficulty accessing speech pathology services and/or a lack of awareness of speech sound disorders and their consequences.

The Sound Start Study explored a new way to support children's speech sound development at preschool through using the Phoneme Factory Sound Sorter (PFSS) computer program. With PFSS, educators were able to support firstphase individualised intervention for children with speech sound disorders within their early education environment, following advice from a speech pathologist on the research team.

Aims of the Sound Start Study

The Sound Start Study had three aims:

- to determine the effectiveness of the Phoneme Factory Sound Sorter program in changing the speech, pre-literacy, participation, and well-being of children with speech sound disorders
- 2. to determine the relationship between children's speech errors and sound processing skills, and
- to explore child, family, and environmental factors that are associated with changes in the speech of children with speech sound disorder.



Stages of the Sound Start Study

45 early childhood centres in the Greater Sydney region participated over the 3 years. These centres were administered by the state government, local government, community council, denominational private schools, or private owners.

Stage 1

Caregivers and educators completed questionnaires describing children's development.

Stage 1 Fast Facts

Age: 4 years to 5 years 7 months (mean age 4 years 5 months)

Gender: 630 males and 575 females

Languages used: All children used English at home and/or in early education. 37.4% used one or more languages in addition to English. 68 other languages were used by children with the most frequent being Arabic, Urdu, Hindi, Korean, Mandarin, and Spanish.

Speech pathology: 208 children had previously seen a speech pathologist

- More caregivers (35%) and educators (37%) were concerned about children's speech and expressive language, more than any other area of children's development
- After communication, caregivers were concerned about behaviour then socialemotional, school readiness, receptive language, self-help, fine motor, and gross motor skills.
- Parents described how well different people could understand their child's talking.
- Parents who were not concerned about their children's speech and language reported that their child's speech was typically understood by themselves, immediate family, friends and teachers.

Stages 2 and 3

Screening assessments with a speech pathologist were offered to children whose parents/educators indicated concern about their speech development. Comprehensive assessments were then completed with children who had a speech sound disorder.





Stage 4

Children were randomly allocated to a 'control' (typical classroom) or an 'intervention' condition (using PFSS). Overall educators worked hard to fit PFSS sessions into their regular day and commented that their involvement in the research study was a positive experience.

Stage 5 and 6

Assessments were conducted with children at the end of term and then again 6-8 weeks later to measure changes in children's speech and emergent literacy skills. Analysis of data is currently underway to determine changes in children's skills.



Sharing results

There have been 13 conference presentations, 1 book, 4 book chapters, and 3 journal articles published as a result of the Sound Start Study. Many more are planned now that the data collection has finished. Topics discussed so far include:

- Educators' perspectives on speech pathology intervention in preschools
- Home literacy and print knowledge of children with speech sound disorders
- The production of long words such as hippopotamus, spaghetti, and escalator by children with speech sound disorders
- Parent and educator concerns about preschool children's development
- Assessment of phonological awareness and phonological processing in children with speech sound disorders
- How children with speech sound disorders feel about their own talking
- The relationship between dummies, bottles, thumb sucking and speech sound disorders
- How preschool children's speech is understood by different people in their lives

Thank you to the children, families, educators and early childhood centres who participated in the Sound Start Study. Thank you for you time and patience and your huge contribution to the data collected in this research.



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GET INVOLVED

If you are interested in being

involved in future research

please let us know at

We would love to hear from you! There are three ways to be involved:

UPDATES

More updated information and results will be available at www.csu.edu.au/ research/sound-start





EMAIL

If you have questions about this research please contact Professor Sharynne McLeod at smcleod@csu.edu.au

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Photographs have been used with the permission of the children's parents

