Speechreading training computer games for deaf children: A randomised controlled trial

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Why train speechreading?

- Access to spoken English for children with little auditory access
- Access to spoken English for children with good auditory access in difficult listening conditions or when not wearing hearing device
- Impact on reading: longitudinal data suggests that early speechreading skills are an important predictor of later reading outcomes in deaf children (Kyle & Harris, 2011)
STAR Project Aims

1. To create computer games that will:
   a. train and improve speechreading skills
   b. help children use speechreading to support their early reading development

2. To test the efficacy of these games in a randomised controlled trial
The Games
Speechreading and Reading
Speechreading and Reading
The Randomised Controlled Trial

Pre-intervention assessments ➔ Speechreading and Reading Intervention ➔ Number and Maths Intervention ➔ Post-intervention assessments (immediate) ➔ Post-intervention assessments (3 month follow-up)
Number and Maths
The Randomised Controlled Trial

- Pre-intervention assessments
- Speechreading and Reading Intervention
- Number and Maths Intervention
- Post-intervention assessments (immediate)
- Post-intervention assessments (3 month follow-up)
Participants

66 children aged 5-7 years old

Severe or profound deafness

Participating children at 31 different schools:

- 24% mainstream school
- 56% unit
- 20% school for deaf children
The Randomised Controlled Trial

Assessments of:
- Speechreading
- Reading
- Phonological awareness
- Phonological representations
- Vocabulary knowledge
- Number and maths skills
The Randomised Controlled Trial

Pre-intervention assessments

Number and Maths Intervention

Speechreading and Reading Intervention

Post-intervention assessments (immediate)

Post-intervention assessments (3 month follow-up)

• 10 mins/day
• 4 days/week
• 12 weeks
The Randomised Controlled Trial

Assessments of:
- Speechreading
- Reading
- Phonological awareness
- Phonological reps
- Vocabulary knowledge
- Number and maths skills

T1
Pre-intervention assessments

T2
Speechreading and Reading Intervention
Number and Maths Intervention
Post-intervention assessments (immediate)

T3
Post-intervention assessments (3 month follow-up)
The Randomised Controlled Trial

Assessments of:
- Speechreading
- Reading
- Phonological awareness
- Phonological reps
- Vocab knowledge
- Number skills
Trial results

- Preliminary data analyses have been removed
Preliminary Conclusions

• Children who completed a computer-based speechreading intervention showed greater gains in their speechreading skills and phonological knowledge than children who completed a maths intervention.

• Both groups showed substantial gains in their reading skills but the speechreading group did not show greater gains than the maths group within the timeframe of the study.

• Downstream gains to reading may take time to appear.

• A follow-up assessment in January 2016 is needed to test this theory.
The next step: Long-term post-test

More time needed for downstream effects?

Speechreading → Phonological representations → Reading

T1 → T2 → T3 → T4