COMPARISON BETWEEN DEAF AND HEARING LEARNERS FROM AREAS OF SOCIAL DEPRIVATION

Standardised measures of assessment during the first 3 years of schooling

Brian Shannan and Rachel O’Neill
COMPARING OUTCOMES

HEARING LEARNERS AND DEPRIVATION

• Literacy - Deprivation gap widens from P2 to S2. For the most socially deprived, the gap is 13% in P2 and 22% by S2.

• Writing, listening and talking - 6%-point gap between those in SIMD 1 and 5

• Numeracy - 21, 22 and 28 percentage points at primary 4, 7 and secondary 2 respectively

• Vocabulary – age 3 & 5 age equivalent scores 18 month gap (Scottish Government 2015)

DEAF LEARNERS

• English at S4 (age 16) 12% gap compared to hearing children at SCQF 4, and 16% gap at SCQF 5

• 5 or more awards at SCQF level 4 or better 16% gap between deaf and hearing children in S4.

• 5 or more awards at SCQF level 5 or better, 10% gap between deaf and hearing children in S4

• Deprivation effect also evident across the range from poverty to more affluent. (O’Neill et al., 2014)
Comparison of Mean Tariff Score by 5 Socio-economic Quintiles for Deaf and Hearing students by S4

- N = 59,258 (all)
- N = 370 (deaf) weighted average over 2004 – 2010
Source: O’Neill et al. (2014)
LISTENING IN THE CLASSROOM

- Adequate acoustic signal (Leibold et al 2007)
- Linguistic knowledge (Ronnberg et al 2014)
- Experience (Moore 2012)
- Cognition (Hallgren 2005)
ACOUSTIC BARRIERS TO LEARNING

- External and internal noise pollution (Shield and Dockrell, 2008)
- Multiple speech sources in a room (Viswanathan et al. 2016)
- Reverberation (Klatte et al. 2010)
YOUNG LEARNERS’ CHALLENGES TO LEARNING IN CLASSROOMS

HEARING LEARNERS

• Auditory immaturity (Boothroyd 1997)
• Spatial segregation (Arbogast et al. 2002)
• Energetic and informational masking
• Knowledge of linguistic rules

DEAF LEARNERS

• Auditory immaturity
• Spatial segregation
• Energetic and informational masking
• Knowledge of linguistic rules
• Distortion and attenuation (Plomp, 1978)
RESEARCH QUESTION AND HYPOTHESES

• **Research Question:** What differences are there in attainment outcomes across the primary years of deaf compared to hearing children, using academic and socio-economic indicators?

• **H1:** Early language levels and cognitive ability correlate strongly with educational outcomes at the end of Primary.

• **H2:** Deaf children from more affluent backgrounds have more positive outcomes than those living in deprivation.

• **H3:** Hearing children from more affluent backgrounds have more positive outcomes than those living in deprivation.

• **H4:** Deaf learners and those hearing learners living in areas of deprivation have similar educational outcomes.
SAMPLE

HEARING
Selected based on:

• school Scottish Index of Multiple Deprivation (SIMD) ranking 1 (poverty) or 5 (affluence) (Scottish Executive 2008)
• enclosed classrooms
• School roll >150
• N = 501

DEAF
Selected based on:

• Referral from NHS audiology
• Permanent or ongoing deafness
• Registered on Fife Council Sensory Register
• N = 287
NATIONAL ASSESSMENTS

• Achievement for Excellence /Interactive Computerised Assessment System (INCAS)
• Durham University
• Benchmark Primary 1 and end of Primary 1
• Primary 3
• Adaptive assessment
• Computer based
• Automatically marked
SUBJECT AREAS ASSESSED

PRIMARY 1 (AGE 4-5)
- Baseline assessment.
- Literacy - including handwriting, vocabulary acquisition, understanding reading fundamentals, phonological awareness, letter, word and pattern recognition and comprehension
- Numeracy - including ideas about maths, quantity and spatial position, identifying numbers, counting, identifying shapes, problem solving and simple arithmetic

PRIMARY 3 (AGE 7-8)
- Reading – word recognition, word decoding & comprehension
- Spelling
- Numeracy – general mathematics and mental arithmetic
- Picture vocabulary
- Non-verbal ability
DATA

• Scottish Index of Multiple Deprivation from postcode
• Standardised and age equivalent scores from INCAS (P1 x2, P3, P5 and P7)
• Teacher assessments at each level: Early /First / Second (ages 4 – 12) and phase within level: Emerging, Developing and Secure
• Age of identification of deafness
• Degree of deafness
• When aided
• Presence of additional disability (Hendar & O’Neill, 2016)
• Analysing deaf and hearing children’s results by SIMD
• Comparing deaf and hearing children’s results by SIMD
• Finding children who are 2 or more phases behind or ahead of the mean (9 phases because 3 at each curriculum level)
• Further work on a regression analysis to examine effect of age of identification, additional disability, SIMD, degree of deafness in model built in stages.
## Data Analysis in Progress - Method

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- **3 or more phases ahead**
- **2 phases ahead**
- **1 phase ahead**
- **On Track**
- **1 phase behind**
- **2 phases behind**
- **3 or more phases behind**
POSSIBLE IMPLICATIONS

• Factors such as degree of deafness & age of identification may have been given too much prominence when determining levels of support.
• National data provides a framework for informed decision making.
• Attainment of deaf children should be seen as part of the national priority to raise attainment amongst learners living in deprivation.
• TODs’ expertise in language development could contribute to national priority of raising attainment for all.


REFERENCES


CONTACTS

Brian.shannan@ed.ac.uk

Rachel.oneill@ed.ac.uk

School of Education, University of Edinburgh