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## The outcomes of mainstream education for deaf pupils educated within a Natural Aural Approach

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A briefing paper on a study by the Ewing Foundation

*Findings : Severely and profoundly deaf children education in mainstream schools can fare at least as well, both educationally and socially, as their hearing peers. This research details that this is so for children brought up since infancy in an exclusively natural aural regime adopted both at school and at home.*

### Introduction

This paper summarises the results of a study carried out in 1998 by staff of the Ewing Foundation. It was undertaken in order to add to the information available to parents, educators and policy makers on the outcomes of mainstream education for deaf pupils. We obtained detailed background information, investigated academic attainment and social adjustment and documented the educational and audiological support provided by services for the hearing impaired in five LEAs, in order to identify factors which influence educational performance and personal development.

### Why the study was needed

Although most deaf children in the UK (approximately 85% according to Lynas et al, 1997) are educated in mainstream schools, there is a shortage of information about the process and outcomes of this provision. The Department for Education and Employment funded a report by Powers et al (1998) which emphasised the need for more research through large scale and more detailed small scale studies.

This deficit has begun to be addressed by a number of projects but so far these are limited and conflicting. For example, Powers has published conclusions from a large scale postal survey which show significantly lower levels of attainment by hearing-impaired pupils than the national averages for GCSE (Powers, 1998). **In contrast, our study, although small in scale, describes a group who were achieving significantly above the national average and also above the average for the mainstream schools they attended.**

There is also a dearth of information on the personal and social development of deaf pupils in mainstream schools and research published to date is far from clear on these issues. (Gregory et al, 1998, Powers et al, 1998). The most comprehensive picture we have so far of the social and emotional development of deaf pupils comes from interview data collected from deaf young people and their families (Gregory et al, 1995). The group interviewed for that study included deaf young people who had a variety of educational backgrounds and who used a variety of communication approaches. Our study collected data on similar issues from young people who had had a **consistent natural aural communication approach**.

### **The focus of the study**

We looked at the outcomes of mainstream education for severely and profoundly prelingually deaf pupils in five Local Education Authorities. A variety of quantitative outcome measures were included : GCSE results, reading ability and speech intelligibility. We also collected data on a variety of factors which might influence these attainments, including qualitative measures such as the nature and extent of audiological and educational support. The parents' and pupils' ratings and reflections on the support they received were also noted, as well as aspects of the pupils' friendships, their social participation and views about communication and education.

### **The pupils we studied**

We focused on pupils from LEAs which used a consistent Natural Aural communication approach who had been in mainstream education for their entire school career. Over two thirds of all deaf children within these LEAs had an auditory-oral approach within mainstream schools and the group we studied was therefore judged to be representative of deaf children educated by those authorities. No students with diagnosed additional handicaps were included.

We obtained data on twenty-eight pupils from five LEAs. This was the total population of pupils who met the following criteria :

- Completed Year 11 in 1995, 1996 or 1997
- Attended mainstream schools or units/resource bases
- Severely or profoundly deaf
- Were managed within natural aural programmes throughout their educational careers
- From LEAs with at least 2/3 of deaf pupils maintained in programmes of this kind.

#### **Pupils who were not included**

- Those with diagnosed severe or moderate learning difficulties
- Those who became deaf after two years of age
- Those who went to schools out of the LEA
- Those who moved in or out of the LEA.

Three of the group were unable to participate in the interview and testing procedures, so only the background file information and GCSE results are available for them. Full data were obtained on twenty-five pupils.

The group comprised 16 boys and 9 girls. The average hearing loss in the better ear was 95 dB(HL). There were 14 profoundly deaf and 11 severely deaf pupils. The average age of diagnosis was 27.6 months. All had a prelingual, sensori-neural hearing loss. The group had a normal distribution in terms of IQ and socio-economic status.

### **How we collected the data**

All testing and interviewing was carried out by Ewing Foundation staff, not the teachers of the deaf involved with the pupils. We obtained data from the following sources :

- File information
- Questionnaire completed by parents
- Questionnaire completed by pupils
- Structured interview with pupils (video-recorded)
- Specific tests results (Edinburgh Reading Test, Ravens Progressive Matrices)

We recorded a number of background factors including hearing loss, aided thresholds, gender, IQ, socio-economic status and ethnic grouping. We also obtained information on parental hearing status and parental support and on audiological and educational support and management.

### **What we studied**

The following outcomes were studied :

#### Educational attainments

- GCSE results
- Comparison of GCSE results with peers and siblings
- Reading Levels
- Speech Intelligibility

#### Personal achievements

- Friendships
- Social participation

#### Pupils' and parents' views on their education

- Pupil and parent satisfaction with support provided
- Pupils' views on deafness, communication and education
- Pupils' personal aspirations

## **The main findings**

### **GCSEs**

The pupils' attainments in GCSE were better than the national average of all hearing children. 50% gained 5 or more A\* - C grades compared with an average of 45% for all pupils in England and only 18% for all hearing-impaired pupils in England (Powers, 1998). They also compared very well with the results for their own schools (84% achieved as well or better than the average).

Although the group were all prelingually severely or profoundly deaf, 92% of them passed English Language GCSE, 56% of them at Grade A\* - C (compared with a national average of 56.5%). 16% achieved Grade A for the speaking and listening element in this exam. 84% passed English Literature GCSE and 60% passed GCSE in French, Spanish or German.

### **Reading**

Reading levels were higher than any so far published for deaf pupils in the UK. The median reading age for the group was 14 years 6 months. No pupils had a reading level below 10 years. 28% of the group were at or above the ceiling of the test which is 16 years.

### **Speech Intelligibility**

84% of the pupils were judged to be 'easy', 'very easy' or 'normal' to understand by listeners unfamiliar with deaf people, and the same percentage by the pupils' teachers of the deaf. 88% were judged in these categories by the researchers.

### **Social participation**

None of the pupils we studied were generally unhappy at school and 75% of them positively enjoyed it. All of them had close friends and 80% had a large number of friendships with normally hearing and with hearing-impaired peers. 84% were participating in a wide variety of clubs and activities.

### **Satisfaction with support**

None of the pupils rated the support they received as 'poor'. 16% were neutral and the remainder thought it was either 'good' or 'very good'. Parental ratings were similarly positive overall.

### **Statistical analysis**

The detailed analysis which we carried out is complex but has revealed some interesting correlations :

### GCSE results

- ⊙ These did not correlate with the degree of hearing loss. Profoundly deaf pupils were as likely to be high achievers as severely deaf pupils
- ⊙ They correlated highly with reading test scores (significant at the 1% level of confidence). Pupils with high reading test scores obtained good exam results.
- ⊙ They correlated negatively (significant at the 1% level) with a variable denoted 'disadvantage', which indicated one or more of the following factors : low socio-economic group, English second language of the home, additional impairments, ethnic minority grouping or family problems.
- ⊙ They correlated at a lower level with IQ (significant at the 5% level of confidence).

### Reading levels

- ⊙ These correlated highly with measures of speech intelligibility (significant at the 1% level of confidence). Pupils who were easily understood also had high reading test scores.
- ⊙ They correlated negatively with the 'disadvantage' variable at the 1% level.
- ⊙ Surprising there was no statistically significant correlation between reading levels and IQ.

### Speech Intelligibility

- ⊙ There was a negative correlation with hearing loss (at the 1% level).
- ⊙ There was also a negative correlation (at the 5% level) with the age at which consistent use of hearing aids was established (but not with the actual age of diagnosis).

## **The results and their implications**

The GCSE attainments of the group in our study were generally dramatically better than those of deaf pupils in mainstream education as reported by Powers. Their GCSE attainments are better than national averages and the majority were similar to or better than normally hearing peers and siblings. Their reading levels and speech intelligibility were better than those previously reported in the UK for any groups of deaf pupils.

The group were not advantaged in terms of their socio-economic status or IQ. Their average hearing loss of 95dB(HL) in the better ear, which was prelingual in all cases, shows them to be deafer than Powers' group.

What distinguishes this group are the following factors in their audiological and educational management :

- ☑ They had a consistent natural aural approach, in mainstream schools, throughout their educational career.
- ☑ Particular emphasis had been given to their audiological management including regular electroacoustic checks on hearing aid equipment, balancing of radio aids and ongoing assessment of hearing aid benefit.
- ☑ Regular monitoring of progress in listening, language and reading skills had taken place.

This level of management and support is still not achieved by many LEAs today.

The finding that 'disadvantage' is a significant factor is not surprising, but it does underline the importance of targeting vulnerable pupils in the provision of services. The strong correlation of reading ability with GCSE attainments is also notable and indicates that services for the hearing-impaired need to be proactive in supporting reading.

In the Natural Aural Approach, the spoken language base that lays the foundation for reading is considered to be crucial. We found a strong relationship between speech intelligibility and reading and between early establishment of hearing aids and speech intelligibility. This confirms the importance in this approach of prioritising the use of residual hearing as a basis for effective communication, language and later achievement. It also highlights the need for effective hearing aid fitting and management and ongoing support following diagnosis of a hearing loss (the age of diagnosis itself is not as important: our group's average age of diagnosis would be considered very late by today's standards).

It would be useful to have comparative data on outcomes for deaf pupils who have had a consistent sign bilingual or total communication approach, but none are yet available.

Our results are a testament to the hard work of pupils, parents and teachers who have combined to show clearly to what a great extent the handicap of infant deafness can be overcome by the consistent use of the Natural Aural Approach, so that the children are well equipped both academically and socially to take their part in the hearing world.

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