

**DO CROS AIDS ASSIST PUPILS WITH SINGLE SIDED
DEAFNESS IN SCHOOL?**

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ABSTRACT

This study evaluates if conventional contralateral routing of signal (CROS) hearing aids benefit pupils with single sided deafness (SSD) in different listening situations typically encountered in school. Seven young people aged eight to sixteen years contributed to the study. They had all been issued with a CROS aid by their local audiology department; however their acceptance and employment of the device varied from total rejection to consistent use in school.

The Listening Inventory for Education UK Individual Hearing Profile (LIFE-UK IHP) was completed by all participants as a subjective comparison of unaided and CROS aided experience in eighteen formal and informal school based listening scenarios.

Five of the seven participants completed a practical experiment within their own school: Automated presentation of eight AB short word lists. This provided objective measurements of speech discrimination in quiet (signal-to-noise ratio 0 dB SPL) and noise (signal to noise ratio +20 dB SPL), in both unaided and aided conditions, (two lists of ten words per situation). The signal was presented from the front (0° azimuth), separated from noise at the rear (180° azimuth). Classroom acoustics were examined to contextualise individual results and ensure testing occurred within the critical distance for that particular test location.

Due to the participants' varying circumstances, (e.g. school, age, gender, or duration of CROS aid use), resulting data was primarily considered on an individual case study basis; however overall observations were noted. These suggested most CROS aid recipients judged the device to be helpful in at least some situations; however this was not necessarily supported by device use in practice. CROS aid application was deemed by most participants to be more beneficial in calmer, more contained environments, and less advantageous, even detrimental, in less structured, noisier social settings, such as the dining room or playground.

Objective comparison indicated that the speech discrimination ability of all participants was negatively affected by noise; however there were mixed results as to whether the CROS aid alleviated or compounded this effect. Comparison of unaided versus CROS aided conditions showed the CROS aid gave statistically significant benefit to one participant in quiet and in noise, yet appeared to inhibit the performance of one other participant (statistically significantly so in quiet). The CROS aid had no bearing on the speech discrimination scores of three participants in quiet, although two noted increased listening ease. Study limitations were also considered.

During the course of this study, several areas of concern also emerged, particularly concerning equality of audiological and educational provision, and professional knowledge.

Conclusion: CROS aiding has the potential to significantly benefit some pupils but may be harmful to others in some situations, or have little impact. Its use should therefore be carefully evaluated and monitored on an individual basis if pupils are to have sufficient understanding and motivation to confidently use their CROS device in a manner beneficial to them. Additionally, national quality standards for pupils with SSD are required to ensure equality of audiological provision and access to informed specialist educational support.