

# The Role of Sign Language for Deaf Children with Cochlear Implants: Good Practice in Sign Bilingual Settings

RUTH SWANWICK and ISABEL TSVERIK, The School of Education,  
University of Leeds, UK

## ABSTRACT

*A central feature of a sign bilingual approach is the use of sign language, and the associated role of deaf adults in deaf children's education. This project explores whether this approach is compatible with the goals of cochlear implantation, which are to maximise a deaf child's potential to hear and improve speech perception. There is no specific research into the role of sign language to support deaf children's linguistic and social emotional development post implantation and the notion of good practice has not been explored. This project focused on six sign bilingual educational settings to examine this issue in two phases. Phase 1 identified the distinctive features of sign bilingual provision in the UK. This provided a framework for phase 2 which investigated ways in which this type of provision addresses the language, learning and social needs of pupils with cochlear implants. Central to this was a focus on the participants' own perceptions of good sign bilingual practice for pupils with cochlear implants. The study provides examples of identified good practice and an insight into the benefits of the linguistic and cultural features of sign bilingual settings for pupils with cochlear implants. Copyright © 2007 John Wiley & Sons, Ltd.*

**Key words:** sign bilingual education; cochlear implants; sign language; good practice

## BACKGROUND

This research reported in the article took place in the context of sign bilingual education in England which has been developing since the early 1980s. Within the field of deaf education in the UK the term 'sign bilingual' is the most recently accepted means of describing deaf children and adults who are bilingual in a spoken and signed language such as English and British Sign Language (BSL). The movement during the 1980s towards the distinct use of two languages (BSL and English) reflected a more sophisticated understanding of the linguistic needs of deaf children, a growing acceptance of BSL and more positive attitudes to bilingual education in general. The development of sign bilingual educational policy in the UK is therefore recent and ongoing. Indeed, the first published policy document in the UK that fully described this approach (Pickersgill and Gregory, 1998) has now been revised to reflect the changes in educational provision and the communication needs of deaf children. This new document offers a definition of sign bilingual education which has been agreed by practitioners and researchers in the field and describes current policy and practice issues in detail (Swanwick and Gregory, 2007).

The national review in the UK of the principles of sign bilingual policy and practice was ongoing at the time of this study. The model of sign bilingual education as presented in the 1998 document has evolved over the last 10 years as practice has developed and the educational context has changed. There have been a number of significant and diverse changes in deaf education including developments in sign language teaching and research, and a steady increase in the number of profoundly deaf children with cochlear implants. These changes prompted a revision of the original document. This research therefore took place in a climate of reflection, challenge and change for bilingual schools and services.

The first cochlear implant in the UK took place in 1989 in Nottingham (Archbold, 2005). Numbers since then have grown rapidly and there are currently now around 2400 children who have received implants and around 300 children per year are implanted at the 25 national centres. As a result the profile of deaf children's aided hearing has changed significantly over the last 10 years. Half of the profoundly deaf population entering school now have a cochlear implant and in some settings, implants outnumber conventional hearing aids. These numbers are likely to increase as with the full implementation of the Newborn Hearing Screening Programme in early 2006 it is likely that 150–200 more children will be considered for early implantation.

This project focuses on the population of severe and profoundly deaf pupils in the UK who are most likely to be being educated in sign bilingual settings. These deaf children are also those who are most likely to benefit from a cochlear implant. The implications of the potential changing communication needs of these pupils have raised questions in the UK and beyond (Archbold et al., 2000; Watson et al., 2006; Spencer and Marschark, 2003) about the type

of language support that deaf children need post cochlear implantation and whether or not this can be provided in sign bilingual settings.

The aim of a cochlear implant is to maximise a deaf child's potential to improve speech perception and production and this is usually seen as requiring strong oral/aural (English only) provision (Watson and Gregory, 2005). Sign bilingual provision encompasses a social-linguistic view of deafness which respects the distinct language and culture of deaf people and recognises the use of sign language and role of deaf adults as central to deaf children's educational achievement and positive self-image (Swanwick and Gregory, 2007). In sign bilingual settings there is therefore a potential tension between the need to provide adequate opportunities for communication through spoken English and the role of BSL as the accessible and inclusive language of the environment. In addition to this, the population of cochlear implant users in sign bilingual schools and services is in itself unique. Some of the pupils in these settings with implants are there because the implant has not been totally successful and they need a lot of sign language support. Others are in transition between sign language and English.

The purpose of this project was to explore ways in which this tension is negotiated in sign bilingual settings by seeking to identify the practice which enables the cultural and linguistic values to co-exist with appropriate oral/aural exposure and support. We have used the term 'good practice' to describe the features of sign bilingual provision which facilitate this co-existence and harness the outcomes to meet the need of pupils with cochlear implants. The onus on the identification of good practice was on the participants, who were asked to describe the role and benefits of sign language support for deaf children with cochlear implants in their setting. Our data collection focused on three main features of this educational provision:

- i. support for spoken language development;
- ii. the role of sign language;
- iii. and attention to the social/emotional and cultural needs of the individual.

As a starting point for this project we identified the distinct features of sign bilingual provision across all six UK schools and services through the scrutiny of their school/service documentation (mission statements, educational goals and policies). Using this as a framework we then examined the three areas of focus given above using classroom observations and semi-structured interviews with the teachers, deaf adults, speech and language therapists, audiologists and head teachers.

## ISSUES FOR LANGUAGE SUPPORT

This project is concerned with the placement of and provision for children with cochlear implants in sign bilingual settings. There is very little research

into the speaking and listening development of deaf children with cochlear implants in sign bilingual settings but there is some evidence of equivalent implant outcomes for children educated with and without sign language support (McDonald et al., 2000; McConkey et al., 1997). It has also been argued that as long as sufficient spoken language exposure is provided, children increase their spoken language skills regardless of the type of language environment in which they are educated (Conner et al., 2000; Spencer and Marschark, 2003). Certainly there is consensus that the use of sign language pre implant does not disadvantage, and in some cases can support, developing oral skills. In addition, there is evidence that although children in spoken language environments tend to make faster progress, children with access to sign language support also improve (Archbold et al., 2000).

However, where differences in outcomes are reported, they signal the importance of oral/aural provision. This research, which normally focuses on measures of speech and language development as indicators of success, highlights a need for adequate oral/aural experience for the benefits of the implant to be maximised (Cullington et al., 2000; Geers et al., 2002). Nonetheless, it remains to be seen whether or not the oral/aural experience required can be provided within a sign bilingual approach. What we do not know is how pupils with implants in these settings are supported to make this progress as, to date, the research focuses on outcomes rather than on processes.

The notions of progress and success, in terms of cochlear implantation, all relate to the development of spoken language skills (namely speech production and reception). By implication we must therefore assume that good educational practice will provide opportunities to encourage the use of spoken language and optimise the use of the implant.

In sign bilingual settings spoken/written English and sign language are seen as equal languages. Pupils can, in principle, be educated in and have access to either language for learning (Swanwick and Gregory, 2007). This would seem to be an ideal environment for individuals who derive benefits from their implant but still rely on sign language for specific purposes. Sign language may play a particular part in supporting a transition towards oral communication; clarifying complex or new ideas and curriculum content and following rapid conversational exchanges among several speakers (Robbins, 2002). Exactly how this flexibility works in practice was a central question for this study. We explored how the development of listening and speaking skills of implanted children was supported and monitored within the sign bilingual language environment and the role of BSL is within this.

## ISSUES FOR SOCIAL AND EMOTIONAL DEVELOPMENT

Although speech production and reception are the priority indicators of success of implantation, these outcomes cannot stand alone. Attention must also be given to pupils' social and emotional development, in terms of their personal

happiness and self-esteem, and what for each individual constitutes educational achievement and success. But this is an under researched area in cochlear implant studies so far. The very small numbers of projects that focus on psychological and social outcomes of cochlear implantation report no evidence of negative psychological consequences (Knutson et al., 2000; Filipo et al., 1999). However, measures of social and emotional development are problematic in methodological terms. Questionnaires or interviews often rely on proxy responses by parents and are usually administered by the implant teams themselves. Reliance on the parents point of view and the potential problematic relationship between the parents and the professionals as researchers compromise the rigour of some of these studies.

Another approach is to rely on quality of life measures, drawn from the medical field, which look more broadly at an individuals 'complete physical, mental and social well being' as defined by the World Health Organisation. However, these measures still focus on a too narrow range of clinical indicators and thus often fall short of providing reliable information in terms of the whole child (Eiser and Morse, 2001). A specific issue in the case of deafness is that many of the scales assume that the deafer the person is the greater the consequences (Gregory, 2002). This does not take into account a positive socio-cultural view of being deaf. Better assessments are needed which provide information about a child's sense of identity and self-esteem, i.e. how they understand and internalise the concepts of being deaf and being hearing.

There is no consensus in the research about how to define and measure the quality of life of children following cochlear implantation but there is an agreement that success should be seen in social and educational as well as linguistic terms (Thoutenhoofd et al., 2005). This project explores how sign bilingual environments cater for the social and emotional well-being of deaf children with cochlear implants with particular reference to the use of sign language and the role of deaf adults.

## METHODOLOGY

This project uses the term 'good practice' as discussed above but acknowledges the problematic nature of this term as one which implies established and accepted definitions. Previous research has found that there is no one model of good practice in deaf education because of the diverse expectations and aspirations of the different communication approaches. The notion of good practice can only relate to the specific goals of the context being investigated even though some aspects of good practice will be common to all. For this reason, the methodology for this project is modelled on that used in an earlier study of good practice in deaf education which drew definitions and examples of good practice from the participants themselves (RNID, 1999). This enabled us to openly explore perceptions of good practice as identified by the participants within sign bilingual settings, without imposing a pre-determined set of

definitions. In using this approach it is accepted that some examples of good practice described by participants may be in part aspirational rather than actual.

A case study approach was used to identify features of good practice across a sample of sign bilingual schools and services for deaf children in England. Six schools and services from the Sign Bilingual Consortium were identified as settings for the research. This included two local authority mainstream services and four Schools for the Deaf. This imbalance reflects the national situation that there are more sign bilingual special schools than sign bilingual mainstream settings. The schools and services were enthusiastic about the project as they saw it as an opportunity to define and share good practice across the national deaf education context. The project had two phases of data collection which allowed for an inductive approach to the methodology as phase 1 was designed to inform the detail of phase 2. The profiles of the six settings are set out in Table 1.

Phase 1 involved scrutiny of the schools' and services' documentation (prospectus, mission statement and language policies) to identify the distinct features of sign bilingual practice, as identified by each setting. From the six sets of documentation we used a grounded approach to identify the key recurring themes which were signalled as being distinct to the sign bilingual approach across all the settings (Strauss and Corbin, 1990). This gave us the context and the question areas for phase 2 which focused more specifically on how this provision was adapted to the needs of children with cochlear implants.

Phase 2 involved the identification of focused research questions about provision for children with cochlear implants within each of the areas identified as distinctive to sign bilingual education. This enabled us to look at ways in which children with implants are able to benefit from a sign bilingual environment and also have their specific communication needs met. This phase

	School for the deaf 1	School for the deaf 2	Service 1	Service 2	School for the deaf 3	School for the deaf 4
Number of primary children (aged 5-11)	40	32	15 receiving sign bilingual provision	16 receiving sign bilingual provision	30	25
Number of 5-11 children with cochlear implants	4	7	8	7	3	8
Number of children awaiting implant	Possible 1	None	2	0	1	Possible 1

involved visits to each schools/service for classroom observation and semi-structured interviews with teachers of the deaf, speech and language therapists, educational audiologists, deaf instructors and head teachers.

For the classroom observation we identified the fixed hour of literacy teaching which is now common practice across all UK schools. Teachers generally use national guidelines for this literacy hour and all schools work towards the same target areas. This meant that we were able to see how each sign bilingual setting tackled the delivery of similar and familiar teaching goals. The choice of a literacy session also meant that we would see the role of English and sign language in the classroom where English was the target language. The lesson observation sought to explore good practice employed by the teaching staff in order to enable children with cochlear implants to access the lesson fully whilst still being presented with opportunities to access spoken language. It also guided the following interview with the members of staff as observations from the lessons could be closely discussed and explored in order to gain a full illustration of good practice employed by the schools and services. The schedule for the classroom observation is in Appendix 1.

The interviews with staff were designed to probe further about practice and gain different professional perspectives; for example teachers were asked to describe their approaches to using languages in the classroom, whereas the speech and language therapist could give specific information about baseline and ongoing language assessments. Deaf adults (known as deaf instructors in some settings) were asked to talk about their specific role in school in relation to children with implants. The interviews sought to further investigate the three key areas identified as the research aims, but to explore them in more detail in relation to each school. The interviews with the head teacher also gave the opportunity to clarify and define good practice of the school and to offer up elements of good practice that had not been identified before. The schedule for the interviews is in Appendix 2.

#### *Ethical considerations*

This research, which involved deaf adults and children, raised specific issues about appropriate communication and access to information. Deaf participants had full opportunities to access information and participate though BSL and the research team had good communication skills. The research officer employed to collect the data was an experienced professional from the field of deafness and psychology with experience of research with deaf children and educational professionals. She was familiar with the support implications for implanted children as well as the goals and approaches of sign bilingual philosophy and was able to communicate well with deaf children and adults. Participants were fully consulted throughout the project and were informed in writing and verbally of the conditions under which the research would take place. Participants had the right to withdraw from the research activities at any time. In terms of

confidentiality there is no identification of pupils, teachers or settings in any reporting of the findings of the research.

## FINDINGS

Phase 1 of the project led to identification of the distinct features of sign bilingual education. These features were grouped into the following seven areas:

- i. access to the curriculum;
- ii. language use in the classroom;
- iii. language support;
- iv. language assessment;
- v. staffing and organisation;
- vi. Deaf culture;
- vii. and individual well-being and identity.

The seven distinct features that we identified are described more fully below. Following these descriptors we identified what more we needed to know about this aspect of the provision in relation to the education of pupils with cochlear implants. We asked a question focused on this of each of the seven areas and these focus questions shaped the schedules for the teaching observations and interviews. For phase 2 we used the observation and interview techniques to collect illustrations of good practice as identified by the participants in each of the seven areas across the six schools and services.

The findings presented below incorporate both data from phase 1 and phase 2 (showing the focus question which links the descriptor of the distinctive sign bilingual practice with the examples of good practice for pupils with cochlear implants) The examples have been drawn from across the six settings and so do not pertain to any one school or service.

### *i. Access to the curriculum*

One of the goals of sign bilingual education, which was articulated in the schools' and services' documentation, is to facilitate an entitlement to a broad and balanced curriculum including full access to the assessment process through English or BSL.

#### Examples of good practice

(i) Pupils had access to the curriculum through spoken English in the mainstream class with bespoke support. In some cases this was the flexible use of BSL interpretation where the input in BSL was reduced or focused on specific areas of difficulty. Visual support, such as the interactive white board, was also a feature which facilitated pupils' access to mainstream teaching through spoken English. This was often preceded by preparatory introduction of new curriculum terminology in advance of the mainstream lesson.



(ii) In a small group teaching situation the lesson was delivered in spoken English (by the teacher of the deaf) and focused support was provided in BSL (by the deaf instructor) to explain new terminology and background information for a new concept. This happened in parallel but the content of the English teaching was not simply repeated in BSL.

#### *ii. Language use in the classroom*

The sign bilingual settings described their classroom practice as based on the planned use of BSL and English as appropriate for the learning outcomes; the language repertoire of the pupils and the specific learning needs of individuals.

#### Examples of good practice

Deaf and hearing adults often worked together (team teaching) and language planning ensured that the best use was made of opportunities for the use of spoken English with BSL support. For example:

- (i) pupils could be split into groups according to communication mode thus providing opportunities for pupils with cochlear implants to work in English;
- (ii) all or some aspect of the lesson could be delivered in spoken English with support in BSL. This type of planning allowed for attention to individual language targets and some focus on the pupils developing language awareness and discussion of the differences between English and BSL.

#### *iii. Language support*

A further goal of sign bilingual education is to provide focused and proactive support for pupils' BSL and English development and the schools and services articulated ways in which they identify and respond to diverse individual language profiles.

#### Examples of good practice

- (i) All pupils had individual (English) language programmes and targets, developed by the speech and language therapist and the teacher of the deaf. These targets were incorporated into curriculum teaching.
- (ii) Provision was made for pupils to work in communication groups allowing for pupils to be taught through spoken English where appropriate.
- (iii) Flexible use of support from the communication support workers in the mainstream classroom allowed for pupils to be taught through spoken English but to specify the level and type of support they required.

(iv) There were high expectations of pupils' developing English language skills and a readiness to provide challenge and opportunities for further development

#### *iv. Assessment*

A shared feature of the sign bilingual provision that we studied was a policy to use BSL and English as languages of instruction and assessment as appropriate but also as explicitly taught and assessed areas of learning in their own right.

#### Examples of good practice

All pupils had individual programmes informed by baseline assessment of their skills, which were reviewed and monitored on a regular basis. A range of assessment tools were used for speaking and listening assessments and the information gained from these was used formatively to review and monitor pupil language development and track individual progress.

#### *v. Staffing*

One of the organisational goals of sign bilingual education is that the staffing and management structure of the school/service reflects its bilingual community and that staff training addresses deaf and hearing professional development needs.

#### Examples of good practice

The bilingual teaching team deployed their diverse skills flexibly to meet the needs of pupils with cochlear implants. Deaf and hearing staff worked together and in parallel to ensure that pupils had access to the languages and support they needed. The speech and language therapist worked closely with the bilingual teaching team and to ensure that individual speech and language targets were addressed within the context of the whole curriculum. Speech and language therapists were also involved in whole school training to increase staff awareness of the needs of children with cochlear implants.

#### *vi. Deaf culture*

A strong feature of all the sign bilingual settings in this study was the recognition of Deaf culture as a central part of the provision's identity and a commitment to promoting this through special curriculum provision and community links.

#### Examples of good practice

- (i) The continued development of BSL skills and deaf awareness was still seen as important for pupils with cochlear implants, in the context of their developing English language skills. This was supportive of pupils' developing identity as deaf individuals with English as a first or equal language.
- (ii) Deaf adults had a key role in supporting pupils' understanding of their own communication needs as well as their culture and identity as a deaf individual with a cochlear implant. Deaf adults encouraged discussion about cochlear implantation and openly shared their own experiences and views with pupils.

#### *vii. Individual well-being and identity*

The sign bilingual provision we studied considered the well-being of the individual to be a priority. They described ways in which the school/service ethos supports deaf identity and individual choice regarding language use and support.

#### Examples of good practice

- (i) Deaf adults provide focused support by working within individuals on their confidence as communicators; their own view of themselves and awareness of their own language repertoire and choices.
- (ii) Support for all pupils' deaf identity, sense of self and confidence is complemented by support for pupils' developing identity as an implant user. This is realised through overt respect for deafness and individual choices within the provision and responsiveness from deaf and hearing adults to individual pupil communication preferences. This reflects the positive view of deafness and high expectations of the pupils implicit across all aspects of the provision. It also requires an objective approach from deaf and hearing staff which focuses on the pupils' needs and not on personal views and experiences.

### DISCUSSION

This discussion of good practice is prefaced by a reminder that these examples were only in part observed but also reported by the participants themselves. The findings are therefore specific and not general. Given this caveat, there are two main issues which emerge from these examples. One is that the amount of language flexibility that sign bilingual learning environments can potentially offer (examples i–iv) and the second is the strong sense of value placed on the importance of individual identity and sense of self (examples v–vi). These factors inter-relate as the availability of both BSL and English is a message itself about the value of both languages and

cultures and the potential for individual diversity in terms of language skills and experience.

In terms of language flexibility, we observed the potential of these settings for varied combinations of language use and language support. The bilingual nature of the teaching teams and the planning involved meant that BSL and English could be intelligently used for specific purposes across the curriculum. Interesting, this did not result in extensive use of Sign Supported English (SSE). By contrast, SEE was only used for particular reasons such as to support reading or new curriculum terminology.

These examples of good practice are drawn from the six different settings and whilst there was a lot of consistency between the different provisions, not all of these examples would be found in all settings. The six different schools and services varied in their approach according to the type of provision (mainstream or school for the deaf) and how far advanced the provision for pupils with implants was developed. For example, in the inclusive provision there were more opportunities for access to the curriculum through spoken English in the mainstream classroom but less scope for focused small (communication) group work. The schools for the deaf tended to have a speech and language therapist and educational audiologist on-site for a greater proportion of the time which is advantageous for the language support work but in the inclusive settings English was more consistently the language of the environment and so accessible to the pupils with implants. General statements about sign bilingual provision as a whole cannot therefore be drawn from this research but examples of planned and focused language support for pupils with cochlear implants were found across all the provision seen.

Each setting also varied in terms of how good practice was articulated. In some instances the school or service had a specific policy document which outlined how the needs of pupils with cochlear implants were met but in others reference to this was found in the general language policy. The classroom observation of the literacy hour provided a particular insight into how in practice the communication needs of individual pupils were addressed. In this situation deaf and hearing staff had to be able to adapt their language use and communicate differently with different individuals. Their flexibility and adeptness with this were evident but many of the teachers we talked to referred to this as responsiveness to individuals rather than as a proactive lead for the pupils' skill development. This responsive rather than proactive approach raises questions about the appropriateness of a sign bilingual environment for all pupils with cochlear implants. Teachers seemed to be tentative about challenging pupils' developing spoken language skills even though they were able to do this whilst also providing BSL support. It could be argued that this approach does not provide the support needed for pupils to make the most of the increased audition provided by an implant given that we are now seeing that the majority of implanted children move from sign language to spoken language communication within five years of implantation (Watson et al., 2006).

Professionals expressed a tension in their work between a responsive approach to individual communication preference and proactive special provision to support spoken language development and identified this issue as an area for policy development.

In our discussion with staff from all six sign bilingual settings it was emphasised to us that few of their pupils with implants could be described as straightforward or successful users. There was a sense of frustration that successful implant users were either never placed or indeed moved from sign bilingual settings thus feeding a notion that pupils with implants do not do well in these environments. We can only bear this point in mind when we look at how practice is developing. A different population of pupils with implants may result in some very different examples of practice but it remains to be seen how sign bilingual approaches would provide for successful implant users. Of particular interest would be the extent to which sign language provides transitional or ongoing support and the extent to which this support is related to learning, language or social needs.

The findings from this project have sharpened our definition of good practice in sign bilingual education and explored what these identified strengths can offer deaf pupils with cochlear implants. We have seen that in an environment where the role of sign language and deaf adults is clearly expressed, certain other facets of the provision can be assumed. These include flexibility of language use and language support; provision for change and development of individual language preferences and attention to the development of individual identity and self-esteem. The strongest examples of good practice identified involved policy and practice which successfully combined attention to the individual and their personal deaf identity and social/emotional need with focused and proactive support and assessment for the development of speaking and listening skills. With these fundamental features and the security they provide in place, these settings are ripe for challenging pupils' learning and language development. Because of this we would argue speculatively that sign language actually can provide both direct and indirect support for pupils with cochlear implants but we cannot assert that it would be the right environment for all children with cochlear implants. Aspects of the provision we have identified still need to be developed and we need to know more about the role of sign language for successful implant users. These cautions accepted, the special and distinct features of sign bilingual education would seem to provide a fitting environment for deaf children's development overall if the strengths of the provision are appropriately harnessed.

## CONCLUSION

This project has had a direct impact on sign bilingual provision and informed the wider community of deaf education: Sign bilingual schools and services have themselves begun to define and communicate a shared view of good

practice for bilingual deaf children with cochlear implants. Identification of (actual and aspirational) good practice will contribute to the future development of educational provision for deaf children with cochlear implants with specific reference to the role of sign language. It must be remembered however the actual observations of teaching were limited to the literacy hour across all the settings and so while we can argue that a bilingual approach is beneficial to pupils with cochlear implants in this learning context, future research needs to extend to take the full school experience. The project methodology also yielded the identification of focused research areas of good practice which would be interesting to pursue at a national and international level.

Hitherto, discussion about the placement of children with cochlear implants in sign bilingual settings has lacked a clear understanding of what this type of provision can offer these pupils. This study has brought to light the potential of these settings and highlighted the particular strengths of a learning environment where respect for individual identity and language choice is a given. This suggests well-matched provision for implanted children who need continued BSL support for their language and social development. The question which now follows is can sign bilingual programmes currently meet the needs of children who are making good use of their cochlear implants or make the changes needed to do so? Investigation of this question will require extending the parameters of good practice described in this project to incorporate the expectations of cochlear implant centres.

## REFERENCES

- Archbold S. Cochlear implants in children: Past, present and future. *British Association of Teachers of the Deaf (BATOD) Magazine* 2005; March: 2-4.
- Archbold SM, Nikolopoulos TP, Tait M, O'Donoghue GM, Lutman ME, and Gregory S. Approach to communication, speech perception and intelligibility after paediatric cochlear implantation. *British Journal of Audiology* 2000; 34: 257-264.
- British Association of Teachers of the Deaf (BATOD) Website. Summary of data from England 2000. Available: <http://www.batod.org.uk/publications/survey> [15 May 2007].
- Conner C, Hieber S, Arts A, and Zwolan T. Speech, Vocabulary, and the education of children using cochlear implants: Oral or total communication? *Journal of Speech, Language, and Hearing Research* 2000; 43 (5): 1185-1204.
- Cullington H, Hodges AV, Butts SL, Dolan-Ash S, and Balkany TJ. Comparison of language ability in children with cochlear implants placed in oral and total communication educational settings. *Annals of Otolaryngology, Rhinology and Laryngology* 2000; 185: 121-123.
- Eiser C and Morse R. A review of measures of quality of life for children with chronic illness. *Archives of Disease in Childhood* 2001; 84: 205-211.
- Filipo R, Bosco E, Barchetta C, and Mancini P. Cochlear implantation in deaf children and adolescents: Effects on family schooling and personal well-being *International Journal of Pediatric Otorhinolaryngology* 1999; 49: 183-187.
- Geers A, Brenner C, Nicholas J, Uchanski R, Tye-Murray N, and Tobey E. Rehabilitation factors contributing to implant benefit in children. *Annals of Otolaryngology, Rhinology and Laryngology* 2002; 189: 127-130.
- Gregory S. Issues in deafness and quality of life. *Conference Proceedings: Quality of Life in Deaf Children. Measuring the Immeasurable? The Ear Foundation Nottingham, May 2002.*

- Gregory S, Smith S, and Wells A. Language and identity in sign bilingual children. *Deafness and Education (BATOD Journal)* 1997; 21/3: 31–38.
- Knight P and Swanwick R (2002). *Working with Deaf Pupils: Sign Bilingual Policy into Practice*. London: Fulton Press.
- Knutson JF, Wald RL, Ehlers SL, and Tyler RS. Psychological consequences of paediatric cochlear implant use. *Annals of Otology, Rhinology, & Laryngology* 2000; 109 (12): 109–111.
- McConkey Robbins AM, Svirsky M, and Kirk KI. Children with implants can speak but can they communicate? *Otolaryngology — Head and Neck Surgery* 1997; 117 (3): 155–160.
- Mc Donald Connor CM, Hieber S, Arts A, and Zwolan T. The education of children with cochlear implants: Total or Oral Communication? *Journal of Speech, Language, and Hearing Research* 2000; 43: 1185–1204.
- Pickersgill M and Gregory S. *Sign Bilingualism: A Model*. A LASER Publication St Albans, Herts. 1998.
- Robbins A. How does total communication affect cochlear implant performance in children? Paper presented at the 4<sup>th</sup> ACFOS International Conference The Impact of Scientific Advances on the Education of Deaf Children, Paris, France, 2002.
- Royal National Institute for the Deaf (RNID) *A Review of Good Practice in Deaf Education*. London: RNID, 1999.
- Spencer PE and Marschark M (2003). Cochlear implants: Issues and implications. In: Marschark M and Spencer PE (Eds) *Deaf Studies, Language and Education*. Oxford: Oxford University Press, pp. 434–450.
- Strauss AL and Corbin J. *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. London: Sage, 1990.
- Swanwick R and Gregory S. *Sign Bilingual Education: Policy and Practice*. Coleford: McLean Publishing, 2007.
- Swanwick R and Watson L. Parents sharing books with young deaf children in English and in BSL: Common and diverse features of different language settings. *Journal of Deaf Studies and Deaf Education*, 2007; 12 (3): 385–405.
- Thoutenhoofd ED, Archbold SM, Gregory S, Lutman ME, Nikolopoulos TP, and Sach TH. *Paediatric Cochlear Implantation: Evaluating Outcomes*. London: Whurr, 2005.
- Watson LM and Gregory S. Non-use of cochlear implants in children: Child and parent perspectives. *Deafness and Education International* 2005; 7 (1): 43–58.
- Watson L, Archbold S, and Nikolopoulos T. Children's communication mode five years after cochlear implantation: Changes over time according to age at implant. *Cochlear Implants International* 2006; 7 (2): 77–91.

*Address correspondence to: Ruth Swanwick, The School of Education, University of Leeds, Leeds LS2 9JT, UK. (E-mail: r.a.swanwick@leeds.ac.uk)*

## APPENDIX 1

### Classroom Observation Schedule

- I. Overall structure of the session
  - i. Brief outline of lesson plan and teaching objectives
  - ii. Details of staff present (deaf, hearing, designated role, language use)
  - iii. Details of pupils present (details of implant/hearing aids and language use)
  - iv. Seating arrangements/plan (note pupil or teacher choice)

- v. Sequence of session activities with description (note time intervals for changes of activity)
2. Details of teaching activities
  - i. Physical arrangement of pupils and staff (visibility of adults, any changes made)
  - ii. Role of staff (note any changes of roles for different activities)
  - iii. The language of presentation (note any changes in mode of communication with reasons)
  - iv. Pupil language use (contributions, questions, comments to adults)
  - v. Adult response to pupil language use (mode of communication)
  - vi. Classroom and behaviour management strategies (roles of staff and language use)

## APPENDIX 2

### Interview Schedules

#### 1. Teacher of the Deaf

This interview is designed to take place after a classroom observation and the discussion is based on the lesson observed:

1. Was this a typical lesson?
2. What aspects of the lesson worked well or less well?
3. How would you describe the varied language needs of this group of pupils?
4. What challenges does a mixed group of pupils, such as this, present?
5. What are the implications for the adult's choice of language use?
6. Do you feel the language needs of the pupils are met?
7. What (other) opportunities are there for CI pupils to access the curriculum through spoken English?
8. What opportunities are there for CI pupils to have access to spoken English as support for their literacy development?
9. What planning and preparation were involved in providing these opportunities?
10. What are the roles of other (deaf or hearing) staff in this provision?
11. How do you see provision developing for CI pupils to access the wider curriculum through spoken English?
12. Do you feel that these children with CI are developing their spoken English and using their implants well?
13. How is English taught as a subject in terms of language use?
14. What other opportunities are there for CI pupils to access spoken English other than those discussed above?
15. How would you (like to) see their access to spoken English for CI pupils developing in the future?



16. How do you see these developments affect your teaching and your role in the future?

2. Deaf Adult

1. How would you describe your overall role in the school?
2. To what extent do you see the children's developing deaf identity as part of your role?
3. How do you support the children with CI?
4. To what extent would you say that the CI pupils are developing a deaf identity?
5. How do you see your role developing or changing in the future?

3. Speech and Language Therapist

1. How are the speaking and listening skills of pupils with CI developed? Do you follow any specific (published) programmes of work?
2. Is the speech and language support provided separately from or as a part of the whole curriculum.
3. Can you describe the extent that you work and liaise with the teacher of the deaf?
4. How do you monitor the CI pupil's developing speaking and listening skills?
5. How do you assess the CI pupil's developing speaking and listening skills?
6. How do you liaise with CI team?
7. How do you see your role developing and changing in the future?

4. Educational Audiologist

1. How are the audiological needs of the pupils with CI managed?
2. Is there a specific support programme for children with CI?
3. If so, how is this communicated to the Teacher of the Deaf?
4. How is the acoustic environment managed?
5. How do you assess the pupils' audiological development?
6. How would you describe the contact you have with the cochlear implant team?
7. How do you see your role developing or changing in the future?

5. Head of School / Service

*Each Head of school was apprised of the outcomes of the interviews with other staff and invited to add comments or details to this regarding the school's provision for CI pupils.*

1. How do you feel the school addresses the needs of pupils who are using their implants well?
2. How do you feel the school addresses the needs of children who are not using their implants well?

3. What are the specific roles of the school staff in relation to supporting CI pupils?
4. How do you see the specific role of deaf adults in supporting these pupils?
5. What other agencies are involved in the support of these pupils beyond the school?
6. How do you manage the partnership with these other agencies?
7. How do you communicate with parents of CI pupils, specifically about their needs and progress?
8. As the population of deaf pupils with CI is increasing; what difference has this made to your provision and what do you think it means for the future?