DEAF CHILDREN'S MULTILINGUALITY AND MULTIMODALITY

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ABSTRACT
This paper proposes an approach to examining deaf children's diverse use of spoken and sign languages in order to develop our understanding of their multilingual and multimodal language practices at home and at school. The terms multilinguality and multimodality are used to stress a focus on language in use by individuals and the exploration of language potential in this context. Based on the findings of a state-of-the-art review of the international research into deafness and bimodal bilingualism, gaps in our knowledge about deaf children's multilinguality and multimodality are identified. The problems of gathering information about these language competencies and practices at home and at school are reviewed and current language demographic surveys and case studies are critiqued. An ecological framework is proposed as a way of conceptualising and describing the multilingual and multimodal practices of deaf children. Based on this framework, protocols for collecting language demographic information, developing individual language profiles and approaches to assessment are presented and the development of these tools to extend our understanding of deaf children's multilingual and multimodal repertoires is discussed. This project, currently in progress at the University of Leeds, is funded through by a British Academy Fellowship. The work will contribute new understandings of multilingualism to modern languages research and inform the development of guidance for language planning and teaching in deaf education.

INTRODUCTION
Multilingualism in the context of deaf children needs research attention for a number of reasons. The first of these is the global reality that our societies are becoming more culturally and linguistically diverse. Advances in technology, worldwide communication and international travel all contribute to the growing multilingualism of the world's population and the extension of multilingual environments. The United Kingdom (UK) is becoming an increasingly linguistically diverse multilingual society where on average 15% of school children use a language other than spoken English at home (this is 45% in London) and where the proportion and relative commonness of languages continues to change in response to increasing super diversity and migration patterns (British Academy 2013). In particular the British Asian population is growing in the UK, where there is a heightened risk (2:1) of hearing impairment for Bangladeshi and Pakistani heritage pupils (Cline and Mahon 2010). These deaf children are increasingly using more than one spoken or sign language at home, and yet we currently know little about their multilingual and multimodal language experience and repertoires. Furthermore, advanced hearing technologies now provide deaf children with greater opportunities to successfully develop one or more spoken languages: There is increasing evidence of the potential of cochlear implants to enable deaf children to access the ambient language of the environment and perceive the phonological nuances of different spoken languages (McConkey Robbins et al. 2004).

This paper reports on the preliminary stages of a project to examine deaf children's diverse use of spoken and sign languages at home and at school. The project methodology entails a state-of-the-art synthesis of the international research into deafness and bimodal bilingualism and the development of a methodology to collect language demographics and individual case studies of multilingual and multimodal language use.

PROJECT AIMS
Research into deaf children's multilingualism
Multilingualism in the context of deaf children presents an exceptional language situation that tests the paradigms and terminologies normally associated with the multiple use of

spoken languages. This is mainly because of the additional modality factors involved in the use of multiple sign and/or spoken languages. Multilingual deaf children may use more than one spoken language and more than one sign language, as well as various means of alternating and blending sign and spoken language. This project reviews what we know about deaf children's multiple use of languages and modalities and what we have learnt from this research.

Factors that influence deaf children's multilingualism
Deaf children's multilinguality is influenced by factors associated with deafness and the impact of hearing loss on early experience of language. These factors include the cause, type and degree of hearing loss and the age of diagnosis; the amplification support and language intervention provided. The other unique variable for deaf children is the type of communication mode use in the home and the extent to which children are exposed to a sign and/or spoken languages. These issues do not pertain for hearing multilingual children and need to be considered alongside other factors known to influence multilingual language experience and development (for example, individual cognitive skills, language experience and language status and parents' education). This project investigates ways to identify the influencing factors on deaf children's multilingual and multimodal language use.

Multilingual assessment and support
As our knowledge base grows it is important to be able to plan language support and intervention. This implies the use of measures of progress and assessment tools. However, the issues of language assessment are complex. In the first place, it is often difficult to obtain information about children's second, minority or heritage languages (Mahon et al. 2011). Secondly, even though there is a general increase in awareness and improved cultural sensitivity with regards to ways of working multilingual deaf children families, practitioners still lack skills and tools to assess linguistically diverse deaf children and provide support for families (Guiberson and Atkins 2012. Williams and McLeod 2012). A third outcome of this project will be the establishment of protocols that can fill this gap in educational practice.

PRELIMINARY OUTCOMES
Research into deaf children and multilingualism
The review of the literature in this field reveals significant gaps in our knowledge about deaf children and their families who use more than one spoken language and/or sign language in their daily lives (Swanwick 2015). Among the available published studies, a few examine the potential of cochlear implants with regard to multilingual language development (McConkey Robbins et al 2004; Waltzman et al. 2003; Thomas et al. 2008). This research is often led by the intended outcomes and goals of the cochlear implant programmes and so the information presented about deaf children's multilingualism can be limited. A particular focus is the extent to which being multilingual does, or does not, effect children's spoken language development of the majority language (e.g. Teschendorf et al. 2011). This approach does not capture the potential multilingual skills that deaf children bring to the learning context or seek to document the cultural and linguistic heritage of this population. Studies which do seek to incorporate this information are rare. The studies by Crowe and colleagues (2012, 2014) and Willoughby (2012) are among the few that explore language use at home and at school and discuss the priorities for language intervention and support for multilingual deaf children and their families, taking affiliation and heritage as well as language expertise into account.

Factors that influence deaf children's multilingualism
The research review demonstrates the layers of complexity involved in the consideration of multilingualism in the context of deaf children and a number of gaps in our knowledge. Most notably, we lack methodologies and approaches for studying deaf children's multilingual

language experience. Practically, we lack protocols and tools for identification and assessment and approaches to language planning and support.

This project proposes an ecological approach to the collection of information about deaf children's use of multiple languages and the influencing factors on the development of their language repertoires. This approach, based on Bronfenbrenner's ecological model (1979) provides a way to encompass the breadth of information that we need about language experience and use in the different contexts of deaf children's lives. An ecological way of looking takes into account the individual, proximal and distal factors that influence deaf children language repertoires and competencies such as hearing loss; hearing technologies in use; languages spoken at home and school; the social environment and the educational and societal ideologies and values embedded in this environment. As such, this approach allows for information to be gathered that recognises language philosophies and ideologies as influencing factors but that is not boundaried by them as a way of categorising individual skills and experiences. An ecological perspective encourages consideration of how the following range of factors might influence individual language use and experience:

- Individual characteristics and the interactions that individuals have with those closest to them, such as close family and peers
- The relationship between the individual's different environments, how they interact and how this impacts on the individual
- External and contextual factors, such as how language is used and distributed within the networks and communities beyond home
- The wider cultural constructs surrounding the individual, such as educational, societal and cultural values and ideologies
- Individual development and growth and advances, or change, in society, knowledge and the environment.

Using this conceptual framework a pilot protocol has been developed for collecting information about deaf children's language experience which is designed to gather information about the language landscape and construct detailed individual language profiles. This protocol is part of the Language Planning Toolkit developed for deaf education practitioners to inform language intervention and support (Swanwick, Simpson and Salter 2014). The protocol provides a series of headings and prompts to facilitate the collection of detailed individual and contextual language information. These are summarised below. The full document, with demographic and case study examples, is available for download and use on the National Sensory Impairment Partnership (NaTSIP) website (https://www.natsip.org.uk/).

1. The Language landscape
1a. Regional demographics
- Size of the population
- Diversity of the population in terms of language and ethnicity

1b. The school/service population
- Number of deaf pupils enrolled
- Distribution across preschool, primary and secondary phases
- Spoken languages in use in school (by children and adults)
- Sign languages in use in school (by children and adults)
- Contexts of language use (classroom and social contexts)
- Staff sign and spoken language skills, training and qualifications

2. Individual language profiles

2a. Language contexts

- Family and home contexts
  - o Family make-up; siblings; extended family
  - o Home/family languages and cultures
  - o Other deaf family
  - o Family and child expectations for language development
  - o General engagement with school
  - o Activities outside of school
- Information about individual deafness
  - o Cause and type of deafness
  - o Date of diagnosis and length of time of deafness
  - o Audiological management in place
  - o Consistency of use of audiological support
  - o Identified benefits of audiological support
- Educational background and management
  - o Experience of preschool/early support
  - o Length of time in school
  - o Type of educational setting
  - o Age group and peer group
  - o Learning support arrangements and professionals involved
- Individual language resources
  - o Use of sign and spoken language(context, activity, audience)
  - o Communication choices (context, activity, audience)
  - o General communication confidence
  - o Any identified specific language disorder
- Contexts of language use
  - o Exposure to different languages at home and at school
  - o Use of different languages at home and at school

2b. Language competencies

- o Language assessment information
- o Tools/protocols used to assess separate languages and overall language competence
- o Assessment scores and outcomes
- o Identification of gaps in the profile
- o Issues for forward planning

2c. Language Planning

- o Summary of language development pathways
- o Areas of strength
- o Identified areas needing support
- o Targets and success criteria
- o Support plan
- o Assessment and monitoring plan

Multilingual assessment and support

The assessment of deaf children's multilingual skills is problematic which makes it difficult for professionals to plan appropriate support. Standardised or norm referenced measures do not exist in many languages and even where they do exist, native speakers able to administer these are not always involved in the research or available in the educational

context. As a result, language skills are often assessed by report, usually from educators, researchers and/or parents.

One such measure reported in the research is the Language Proficiency Profile (Bebko et al. 2003). This is a multiple choice rating scale that can be completed by educators and/or parents. This looks at children's expressive language and communication skills and is not language specific. It can be used to capture pragmatic skills in terms of content, form, and cohesion across spoken and sign languages. Other types of inventories, frequently reported in the research, include the MacArthur-Bates Communicative Development Inventories (Feldman et al., 2000) and the Student Oral Language Observation Matrix (Montebello Unified School District 1978). Whilst these provide useful profile information, the limitations of collecting information through report rather than assessment are acknowledged.

It is the intention of this project to combine the use of the available and most commonly used tools in the UK to measure current language levels across a range of different settings with some bespoke measures that have been found to be useful in other studies. This will entail the use of current assessment tools for spoken English and British Sign Language plus the development of 'modality free' protocols to capture the full range of deaf children's alternate and blended use of languages. These protocols will entail the collection of video material of conversation between deaf children and their parents around play activities for the analysis of pragmatics; lexical richness, syntactic complexity and language dominance (Klatter-Folmer et al. 2006; Lichtig et al. 2011). This data will be supplemented by reports from parents, teachers and speech and language therapists.

CONCLUSION
Multilingual and multimodal language experience and use is now more prevalent in deaf children's lives. However, the research is currently sparse, in terms of understanding of the broad language landscapes, contexts of language use and individual language experience. Further, we lack tools, skills and methodologies for investigating and growing this knowledge. Through the development of language demographic information in the UK and rich multilingual and multimodal profiles of deaf children this project will contribute to this growth of knowledge. It is anticipated that this will inform the development of appropriate pedagogies and language support in deaf education and also connect language and deafness with modern languages research and education.

NEXT STEPS
Language Planning Guidance has now been developed and published in the UK as a 'toolkit' to support practitioners to collect information about deaf children's diverse language repertoires (Swanwick, Simpson and Salter 2014). The toolkit is currently being developed as part of this project to collect national demographic and case study information. This work is being coordinated by Leeds University in the School of Education. We would like to see this toolkit used and adapted in other international contexts, beyond the UK, as one way of extending global understandings of deafness and multilingualism. We would be pleased to receive and disseminate feedback and outcomes from applying the toolkit in different contexts with a view to collectively growing new knowledge in this area.

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