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**Linguistic Demographics, Resources and
Deficit of Opportunity:
Deaf Signed Language Users in Northern Ireland**

PhD Translation

School of Arts, English and Languages

To Adam.

To David.

**Both gentlemen, without whom I would not
have achieved so many impossibles.**

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Abstract

The term 'deaf signed language users' encompasses a diverse population, defined not only by an invisible disability but also, more practically, considered as a silent minority. This silence is effectively reflected in the ways in which the needs and aspirations of this minority group are regarded or disregarded, recognised or misrecognised, by the wider population. In the specific case of Northern Ireland, the lack of resources to support deaf signed languages users has been a lived reality for decades; and yet the silence remains largely unacknowledged. The fact that there is little evidence that actually confirms the resulting deficit of opportunity¹ and inequality of access has become, in its own way, an instrument of perpetuation and, in many cases, of acceptance of this as the truth of an unchallengeable status quo. This research, accordingly, is conceived as a springboard for tackling this social exclusion and isolation. The topics addressed by this thesis are, therefore, intentionally wide-reaching in order to provide a reliable baseline for further research, and, as its title suggests, it is concerned with the following three broad issues; the linguistic demographics of deaf signed language users, the availability of resources to support this linguistic minority, and the inequality in terms of the lived experience of this minority, and how this impacts on individuals, considered through the framework of the Politics of Recognition². To do this, I have utilised multiple research methodologies, each of which has been identified as the most appropriate method for addressing the various research questions that underpin each part of the thesis. In some ways, perhaps the most surprising of these methodologies is the importance attached to geographical information systems (GIS), a method that may be thought of as more obviously belonging to the social sciences, specifically geography. But in the context of this thesis, GIS provides a unique vehicle for collating, considering and understanding the sparse, piecemeal data currently held about this population.

What the discussion illustrates and demonstrates is clear evidence of a deficit of opportunity afforded to deaf signed language users that derives from and is perpetuated by a lack of information about the deaf community itself, and by an ingrained lack of understanding as to even their most pressing needs. Unsurprisingly, in the absence of any clear understanding of the needs of this population, the resources available to them are also underdeveloped, and the failure to understand the complexities of their lived

¹ This term is used to consider any disparity of opportunities or experience between deaf signed language users and hearing peers, to the detriment of the former.

² This concept is considered largely through the works of Taylor, and Fraser and discussed in detail in section 4.1

experience translates itself into mis- and non-recognition on the part of the majority population in Northern Ireland.

This thesis cannot begin to answer all the questions that must be considered if we are to achieve true inclusion and parity of lived experience between deaf and hearing people in Northern Ireland. But it begins to raise the issues and, in its own way, highlights the need for reparative action.

Chapter 1 - Introduction

Section 1.1 - Thesis Introduction

This thesis about translation is concerned not with text, nor with the process of translation, but with the people who create the overriding need for translation to take place.

The aim of this thesis is to further our understanding of the shared experience of deaf signed language users in Northern Ireland by considering three key questions; to what extent are signed languages used in Northern Ireland? To what extent is the use of signed languages supported, and what is the shared experience of deaf signed language users as a linguistic minority in Northern Ireland? The careful consideration of these three underlying questions will lead us to the fullest understanding to date of the shared experience of deaf signed language users in Northern Ireland.

As a fluent user of British Sign Language but not being deaf, I do not fit within the population of interest of this research. However, the fact that I am a practitioner³ and researcher who works in the field of the translation and interpreting of signed languages places me between populations, between deaf signed language users and the majority non-signing population, and provides a useful position from which to conduct this research. Because of this I shall remain present in my research, drawing on my experience as a fluent British Sign Language user and as an interpreter working closely with deaf signed language users in order to guide and inform my research. I will also draw on the perspective I have gleaned precisely from not belonging to the population of deaf signed language users in my consideration both of how the Politics of Recognition pertains to their situation and of the perspective held of the minority held by the majority population.

This thesis is a practice-based research project, and as such contains two elements of practical work that are to be considered in conjunction with the written body of the project. In order to better understand the population of

³ BSL/ English interpreter

interest I have developed two software models as tools to meet the objectives of the research, both of which were developed within the ArcGIS software package. The first tool, the User Model, is developed in Chapter 2 - specifically Section 2.4 - Methodology and Model Design. The User Model is a tool to identify populations within a user-defined area. In Section 2.4 the reader will be directed, at the appropriate juncture in the research to consider the accompanying digital resources which are contained in Appendix 6 Digital Resources. This appendix contains video files of screen captures of the background programming of the User Model (videos 'StepOne' and 'StepTwo') and a video file of a screen capture that demonstrates the user experience of running the User Model (UserWorkflow). The User Model must be run within ArcGIS software, the reasons for which are outlined in Chapter 2; however, also contained in Appendix 6 is the full series of files necessary to run the User Model from any computer that can use ArcMap 10.3.1 software. It is not necessary to be able to access the tool to understand this research. At the same time as considering the digital content contained in Appendix 6, the reader may also wish to consider Appendix 3 - the User Model Configuration and User Guide, which take the form of a technical manual to accompany the User Model. I have developed a web-based version of the User Model, also discussed in Section 2.4, which can be accessed through any internet browser. The web page address to access the resource is contained in the 'Read Me' text file contained in Appendix 6. This version does not require specialist knowledge of GIS or specialist software, and may be accessed simply by copying and pasting the address into the browser.

The second element of this practice-based research is the Resource Model developed in Section 3.3 - Distribution of Resources - Methodology and Model Design. The tool was developed within the ArcGIS environment, although, unlike the User Model, the Resource Model is designed primarily to be accessed online. The web address to access the model is in the same 'Read Me' text file contained in Appendix 6. Also contained in this appendix are two video file screen captures that relate to the Resource Model, and

which provide a tour of the model from the developer platform ('Accessing the Resource Model as a Developer') and the user experience of the Resource Model ('Resource Model via Dashboard'). The Resource Model is designed to be used by a range of stake-holders who, it is assumed, have no existing knowledge of GIS. For that reason, the user support guide takes the form of a series of questions and answers to be listed alongside the Resource Model on the host website. This user support guide is contained in Appendix 4, under the title Resource Model User Guide.

As noted from the outset, the aim of this thesis is to arrive at a better understanding of the shared experience of deaf signed language users in Northern Ireland. The three core questions already alluded to will give the thesis its structure. It is important to note at this point, and for the reader to bear in mind throughout, that the focus of the research is to develop a method of calculation by means of working models. In other words, the thesis cannot be concerned at this stage to present real data. Nevertheless, that is not to say that the evidence deployed in the discussion to support the argument for the development of these models does not impact directly on many individuals' lives. Reasons for this disclaimer will be further adduced in Section 2.3, which deals with the ethics of data collection.

In Chapter 2 - Linguistic Demographics, I will consider the extent to which signed languages are used in Northern Ireland, an examination carried out through the creation of the User Model, mentioned above, as a tool to identify both the populations of people with hearing loss and the population of signed language users in order to establish a user-defined boundary within Northern Ireland. Chapter 2 details the development of the User Model within the framework of appropriate indicators to identify the populations of interest and explore how GIS as a methodology allows seemingly incommensurable data to be considered in the same context in order to deepen our understanding of the population to which they apply.

The existing population measures identified in Chapter 2 apply to different population boundaries and geographical boundaries alike. For that reason, to attempt to compare these measures in their current form would be like comparing apples and oranges. However, the provision of a common element - in the form of spatial reference - across the individual populations introduces the possibility of meaningful comparison. GIS, as a methodology, creates a framework within which the specialist data can be set against spatial references from within which the data may be considered and compared in context. For example, I have identified three population estimates that apply to the population of deaf people in Northern Ireland (see Sections 1.4 and 2.1, specifically Developing Appropriate Indicators). Using the web version of the User Model developed in Chapter 2, these three population estimates can be applied to the geography of Northern Ireland which is displayed in the following graphic. The three population measures I will use to illustrate the importance of spatial referencing and GIS are:

- the World Health Organisation's⁴ ratio of 1:1000 of the number of signed language users of the total population;
- the Action on Hearing Loss (2014) ratio of 1:6 of people with hearing loss of the general population;
- the RNID⁵ estimate of 7,500 BSL and ISL users in Northern Ireland.

Taken in their current form, these population measures cannot be compared. However, when spatially referencing this information by digitally overlaying the data onto a map, greater significance can be revealed:

⁴ In Werngren-Elgstrom et al. 2003

⁵ The reference for this is discussed in section 2.4 Methodology and Model Design



FIG. 1.1.1 SCREEN SHOT OF USER MODEL WEB MAP (FULL EXTENT)

Furthermore, information for smaller areas of interest may be calculated from this, as shown below:

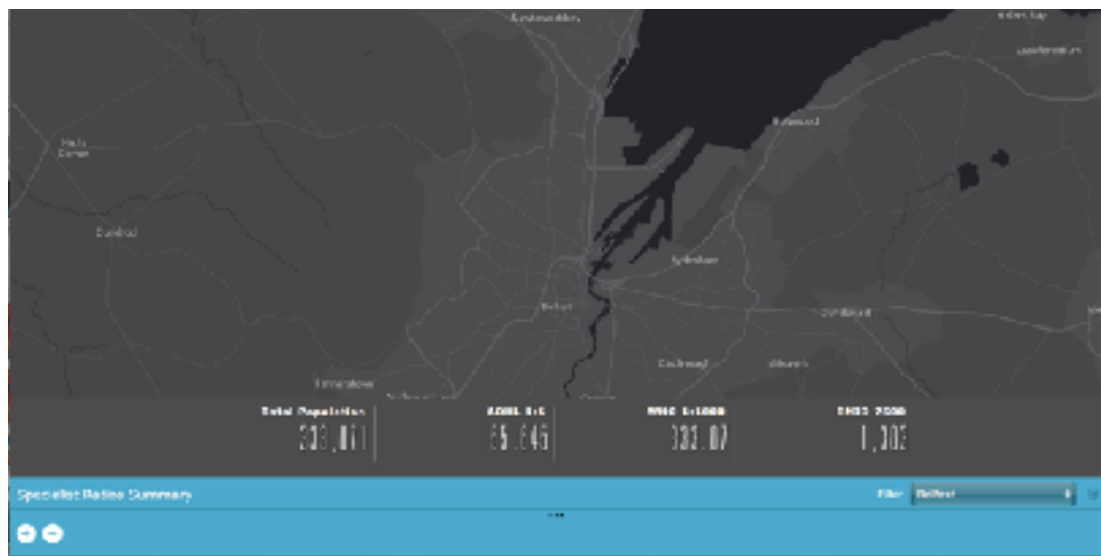


FIG. 1.1.2 SCREEN SHOT OF USER MODEL WEB MAP (GREATER BELFAST AREA)

The methodology for creating these maps and their relevance to the aims of this research is discussed in Chapter 2 - Linguistic Demographics; at this stage, however, the graphics are offered as an illustration of the central importance of GIS as a tool to elucidate greater meaning from existing information by drawing together what is already known to create a new and more specific context of analysis.

Chapter 3 contains the second perspective of this research, that is the extent to which the use of signed languages is supported. To meet this objective, I will consider the following four points: the current landscape of support for the use of signed language in Northern Ireland (Section 3.1), the legislative entitlement to interpretation for deaf signed language users (Section 3.2), in which I will consider legislation from the supranational to the local that has been established to protect the enforceable rights of deaf signed language users to have access to a signed language interpreter. Section 3.3, as noted earlier, contains the second practice element of this thesis, namely the development of the Resource Model as a tool designed to deepen our understanding of the linguistic resource of communication support available to deaf signed language users.

The final point from which to consider the extent to which signed languages are supported in Northern Ireland comes from an international benchmark. Section 3.4 considers Brazil's recognition of LIBRAS,⁶ and the support at national level that has come in the wake of such recognition, as a comparative case study between Northern Ireland and Brazil, with the prime purpose once again of furthering our understanding of the current situation and future potential of signed languages here.

The final perspective adopted in this thesis, which is that of the shared experience of deaf signed language users as a linguistic minority in Northern Ireland, is explored in Chapter 4 - Deficit of Opportunity. The supposition of a deficit in the experience of deaf signed language users is explored through the concerns of a Politics of Recognition, as articulated principally by Charles Taylor, in his work 'The Politics of Recognition' (1994) and throughout the work of Nancy Fraser. In summary, I explore the argument that deaf signed language users should be considered a misrecognised⁷ group, thereby demonstrating the need for reparative action to be taken in order to redress the imbalance of the shared experience of deaf signed language users. This

⁶ Língua Brasileira de Sinais

⁷ As defined within the concept of a Politics of Recognition

theoretical perspective is then grounded by revisiting the case study on interpreter provision, introduced in Section 1.4.

The final chapter of this thesis responds to the perception of the need for a programme of action that has arisen throughout this work, a programme that is considered under the headings of 'improved recording', 'improved resources', 'improved opportunities' and 'further research'. In the broadest of terms, these are actions proposed to address the deficit of opportunity resulting from the misrecognition of deaf signed language users in Northern Ireland. Accordingly, the recommendations finally put forward in this final chapter include recommendations for continued development of understanding partly through the ongoing use of the User Model and Resource Model that this research project has been centrally concerned to develop.

It is evident throughout that this thesis has been written in response to a perceived need to highlight the void of meaningful research that exists in the field of signed language research in Northern Ireland. Through this study I hope to highlight the need for further research, while at the same time contributing to a resolution of this deficit through meaningful, rigorous, and academic examination of signed languages in Northern Ireland and those who use them. It is intended that, in the final analysis, this research project should provide usable tools designed for stake-holders to understand more completely the population of deaf signed language users in Northern Ireland. Better understanding of this linguistic demographic group by key stake-holders, such as service providers and local government departments, can provide much needed evidence of the need for support for signed languages, which can lead in turn to more focused service provision and appropriate strategic investment so as to develop infrastructure to foster and develop signed languages in Northern Ireland, and through that to better support deaf signed language users.

This thesis is the first doctoral research in Northern Ireland to focus on signed languages, and is designed to begin to fill the resulting void. By considering multiple perspectives in this research it is hoped that the results of this necessarily wide-reaching project will, in conclusion, offer better understanding of the current position of deaf signed language users in Northern Ireland, create usable tools to better understand this population, provide evidence of the need for improved support of deaf signed language users in Northern Ireland, and act as a springboard for further much needed research in the field.

This research was commissioned by the (then) Department of Employment and Learning, and reflects growing concern at the level of our public authorities and local government for signed languages in Northern Ireland.

Section - 1.2 Research Definitions

Before moving into the body of my research there is key terminology that require definition. The terms outlined in this section relate to key concepts within the parameters of this research and within the population of interest. Not included, therefore, in this section is terminology specific to the methodology, which applies to a specific section of the research. In the case of such terms, I will offer definitions within the sections in which they occur. Such terminology, for example, includes the specific linguistic conventions of GIS (which feature in Chapters 2 and 3) which, being methodology-specific rather than broadly relevant throughout, will be discussed within these particular chapters. The only exception to this is the term 'area of interest', which is used throughout the thesis and refers to two distinct concepts. If capitalised as Area of Interest, it refers to a boundary classification within the GIS environment. When used without capitalisation, it means a geographical area relating to the topic under discussion, but not specifically relevant to GIS.

Throughout this thesis, the population of interest is defined as 'deaf signed language users', used here to mean the collective population of individuals who are medically diagnosed as deaf, deafened or hard of hearing and who, as a consequence of this medical condition, use at least one signed language as a fluent means of communication. In that context, there are a number of terms commonly employed in the areas of Deaf Studies and Disability Studies that I have consciously avoided in this research. The term 'signed languages' is used throughout primarily to refer to British Sign Language and Irish Sign Language, the indigenous signed languages of Northern Ireland, but may include other languages that are signed. This is subtly different to the convention of referring to signed languages (plural) as 'sign languages'. I chose to use the grammatically correct derivation of sign – signed – by analogy with 'spoken' languages. While using 'signed' is not the preferred convention in the wider field, I am not the first to argue for the

adaptation of the term and further comment can be found in Janzen's Introduction (2005):

Although it is more common to see "sign language" in print and hear it in spoken English, there are at least two reasons why we do not use it here. First, grammatically, the adjective form "signed" aligns with the adjective "spoken". In other words, we are discussing languages that are signed and those that are spoken. Second, it is common for people to talk about "sign language" as *the* language they know and use, meaning ASL or another specific signed language, but "sign language" is not itself the name of any language, and in fact, many times people who are less in the know equate "sign language" with a few simple gestures, fingerspelling (only), and the like, without understanding that there is a sharp difference between using a few non-verbal signals or some means to spell out English and the full language systems of Deaf communities, whose languages are articulated with hands and bodies (i.e., signed) rather than through the vocal tract (i.e., spoken). Thus here, when authors wish to distinguish between languages that are spoken and languages that are signed, we use "signed language", and when we refer to a specific signed language, we use the name of that language (ASL, LSQ, etc.). This practice is beginning to appear in linguistic research as well, a few examples of which are Taub (2001) and Janzen and Wilcox (2004).

(Janzen, 2005:19)

As in Janzen's work, in this thesis the use of 'sign' as a noun in the naming of specific signed languages will remain unchanged, such as British Sign Language and Irish Sign Language.

This thesis will be ever mindful of the urgent need not to essentialise, but it is important to consider the specific intended definition of the population of interest in this research. While it is clear that the focus of this research is

deaf signed language users, it is valuable to explore a number of key concepts within this terminological gloss. A deviation from convention, also challenged by Janzen, that this thesis follows, is the intentional refusal to capitalise the word 'deaf' or use the alternative of 'd/Deaf', despite the popular argument that 'd/Deaf' is inclusive. The convention of capitalising 'deaf' was made popular following Baker-Shenk and Cokely's model, *Avenues to Membership of the Deaf Community* (1980), which sets out the concept of community membership through four factors by which a person may be considered 'Deaf', where deliberate capitalisation is used to show membership of a community defined by more than a medical condition. In my model, however, medical deafness remains a defining factor, and is accordingly considered with equal weighting together with alternative perspectives reflecting political activism, language and social involvement. While the manifestation of any single one of these factors is sufficient to gain some sense of membership to the wider deaf community, it is only when an individual displays a combination of all four factors that they can be considered a core member of the Deaf community.

The differentiation between d/Deafness, although a currency of 1970s literature in the field, is losing credence amongst academics, as noted by Atherton (2012), who argues that drawing a difference between deaf and Deaf is unhelpful, in spite of general acceptance of the term amongst writers. He argues persuasively, in particular, that the distinction is exclusive and infers an ill-defined superiority of Deaf over deaf. For that reason, throughout this study, I will use the term 'deaf' as an inclusive term to avoid implied elitism and to obviate the unhelpful drawing of the focus of the discussion to only those who are politically, socially, medically and linguistically considered to be 'Deaf'. My work focuses on the use of signed language by deaf people, and as such I will use the following terms and definitions: 'deaf' will only appear in the body of the text in lower case and will refer to any person that identifies themselves as deaf. Within this thesis any deviation from this convention is intentional, and capitalisation and/or the use of 'd/D' reflects the usage of citations.

Agreement of a definition of 'deaf' also presents a difficulty in the use of the term 'Deaf community', commonly used by deaf people to refer to the abstract concept of a collective group who share a perceived identity; and yet, a widely accepted academic definition is difficult to find. The Medical and Sociolinguistic Models (Knight, 1998) of deafness delineate very different populations. In terms of the Medical Model, deafness is viewed simply as a disability, loss or deficiency. This model focuses on the individual without considering group identity beyond a subset of a larger body of disabled individuals. As a scientific approach to defining a condition, the Medical Model of deafness quantifies deafness as four levels of increasing severity - mild, moderate, severe and profound. Hearing loss, while quantified in this way may correlate in some ways with language preference, but the fact remains that the audiological condition of an individual is only one of a number of contributing factors that lead to a deaf person's choices of communication methods. (Strong, 1988). The cocktail of factors that affect a deaf individual's language choice is a complex issue encompassing intervention, education, family environment and acceptance of the condition, so that any discussion here would inevitably be superficial within the limitations of space and of the central focus of this thesis and, whilst undoubtedly interesting, would not be beneficial to our central concern with the rights of signed languages users. The medical definition of deafness is limited in terms of defining the social concept of a deaf community, in understanding the linguistic composition of the group, or in establishing deaf signed language users' entitlement to the provision of signed language interpreters, and will therefore not be further analysed within these pages.

In contrast, the sociolinguistic definition shifts the catchment of the group it seeks to identify; so that while the Medical Model of deafness applies to any individual with a hearing loss beyond a defined threshold, the Sociolinguistic Model (Bochner and Albertini in Strong, 1988, pp. 3-48) refers to those with a hearing loss who reject English as a communication method and identify themselves as a distinct group (identified as the politically engaged, 'Deaf

community'). Neither definition, of course, excludes deaf people who use signed language as their preferred method of communication, so that both models can furnish insights when exploring the communication rights of a deaf signed language user; for that reason, taken together these two definitions provide a more comprehensive perspective from which to explore the entitlement of a deaf person to use signed language when engaging with public services. Both these models of deafness will be considered again in Section 2.4 - Methodology and Model Design.

In short, therefore, rather than limit the scope of this research to a single understanding of deafness, I will consider two populations of interest. 'Signed language users' is used as a group term for individuals who use a signed language as a functional means of communication, regardless of their audiological condition. This term will include, among others, signed language interpreters, CODAs⁸ and other family members who sign. 'Deaf signed language users', on the other hand, is used to refer specifically to individuals who use signed language as a result of hearing loss.

The complexities of describing deaf people in the context of rights analysis is highlighted by Wheatley and Pabsch (2012:22), who note that "Deaf people form part of a group that is not easily categorised and whose rights are therefore to be described in a number of ways." Similarly, rather than attempt to restrict the concept of deafness to a homogeneous group, which would be incongruous with the multidisciplinary approach of this research, I will instead seek to consider deafness from multiple perspectives and multiple definitions throughout this work.

The final definition, in that regard, that we need to consider at this preliminary stage is 'communication support', as it is used by deaf signed language users. Chapter 3 - Linguistic Resources - considers the support provision for deaf signed language users so that inevitably the primary focus of the chapter is on signed language interpreters. Mindful, once again, of the

⁸ Children of Deaf adults

imperative of obviating any essentialisation of the population of interest, I shall consider the wider context of communication and communication support among deaf people before moving to adopt a refined definition of these terms for the purpose of this research. Just as the deaf community itself is diverse, so too there is diversity in the communication methods of deaf people, of which signed languages are only one. To support various communication methods there exists a range of communication professionals for deaf people, of whom signed language interpreters are only one group. Alternative communication support professionals include, for instance, electronic and manual note takers, and lip speakers, and communication methods vary from distinct full signed languages, such as BSL and ISL, to visual gestural systems designed to access spoken language, such as cued speech and SEE (Signed Exact English). Within the scope of this research, however, I will focus on signed language interpreters as the primary communication support for deaf signed language users.

Section - 1.3 Case Study: Interpreter Provision

During the course of my doctoral research, one request for the provision of an interpreter catapulted signed language and the provision of interpreters into the public eye. The event is considered here as a case study of public attitudes in order to contextualise this research. The secondary importance of this case study will be demonstrated in Chapter 4, specifically as a tool to ground the abstract concept of a Politics of Recognition within the consideration of deaf signed language users. Such an application serves to reveal the impact of the beliefs of the public, expressed through the media coverage of the story, so that we might better understand the shared experience of deaf signed language users within the public space in Northern Ireland. In this case study I will explore the extent to which misrecognition and non recognition of signed language users and persons with disabilities can be identified in the initial response of the service provider to the request for an interpreter and, in the social commentary of the public and media responding in turn to the coverage of this story. This case study adopts a bottom up analysis of observed attitudes affecting interpreter provision. This analysis of an honest request for the provision of a BSL/English interpreter seeks to provide a contrast between the legislative rights to provision and the lived experience of provision for deaf signed language users in Northern Ireland.

The key source material that this case study will analyse is a letter sent from an events promoter – that is, the service provider - to customers in response to their request for the provision of an interpreter, a letter that was made public on a Facebook post by one of the customers who made the original request. Although this post was made publicly and the media coverage has identified all parties involved, I have removed the names of the individuals, performers and companies in this case study. The aim of the case study is to explore how the attitudes displayed in this single situation can be indicative of the attitudes of wider society, so for that reason it is not the individuals that

are of interest and there is little benefit in preserving the connection between the attitudes identified and the individual concerned.

From the event promoter's letter, the text of which is transcribed in Appendix 5: Service Provider's Letter, I am able to analyse the response of the service provider in terms of the issues of recognition discussed above. For the same purpose, sources to explore the public and media reactions to the story have been selected from interactive media platforms, including a radio broadcast with listener phone-in, a current affairs television programme with a panel discussion, internet news sites with comments enabled, blogs and micro blogs – such as Twitter.

The background to this case study and the events surrounding the request for the provision of a BSL/English interpreter are as follows. Two deaf signed language users, who live in Northern Ireland, purchased concert tickets for a venue in Belfast. They then contacted the venue to request that a BSL/English interpreter be provided in order that they might have better access to the concert. On 15th May 2015, one of the customers posted on Facebook, the letter (Appendix 5) that she had received in response to their request, accompanied by the following text:

So disappointed to be refused access and can't believe in 2015, it is still okay to deny people an interpreting service for such nonsense reason.

The response was greatly insulting and also 'Signers' can 'dramatise or code' ad-libs. Way to go [PROMOTER]. Totally writing off Sign Language interpreters as highly skilled language professionals who are bound by a professional Code of Conduct to accurately and without addition or omission, interpreter faithfully and truly. they're neither dramatising nor working in code.

SHAME ON YOU, [PROMOTER]! [tag:PROMOTER]

[Tag:VENUE]

This might not mean anything to you but it means a lot to me. [CUSTOMER 2] and I are huge fans of [PERFORMER] and to be able to understand what they say during the song breaks etc, it would be fantastic. To be denied this access disappoints us and I really want it go viral so situations like this will never ever happen again. (hopefully). It is 2015 and it is time for deaf awareness to be improved! I have four hundred and sixty-nine friends and if every single one of you share this. it will go viral and raise awareness about how deaf people are still denied access to what they love! THANK YOU! [grin emoticon]"

The story was picked up by BBC Radio Ulster's Stephen Nolan Show on the 15th May 2015 and the customers invited to share their experience and explain their disappointment to the promoter's response. This radio exposure was a catalyst for wider local media coverage and the customers were interviewed on 'Nolan Live'⁹ on BBC1 Northern Ireland and by a number of newspaper journalists, with the story appearing in local papers (including Belfast Telegraph) and blog commentaries (including Belfast Live). This range of coverage allows for an unusually broad frame of analysis, but in the particular context of this thesis, the case study will focus in the main on the displayed attitudes of two stakeholder groups; the concert promoter, as the service provider, and the general public. In other words, what the discussion will not do is consider the attitudes of the third key stakeholder group, the customers who made the request for an interpreter, or those of the specialist organisations¹⁰ who commented on the unfolding events and offered their support to the customers. The reason for this focus is as follows: unlike the service provider and public, these other two stakeholder groups have an existing specialist knowledge and experience of the needs and identity of signed language users as a minority group. As this case study is a tool to explore the recognition and misrecognition of deaf signed language users on the part of the majority population, through the application of a Politics of

⁹ Series 4, episode 2.

¹⁰ A representative of AoHL commented on Nolan Live, and both BDA and Action Deaf Youth (formerly NIDYA) issued statements of support.

Recognition, it is the attitudes of the majority population that we need to consider. It is in its exploration of the imposed effect of (mis)recognition by the majority on the identity and shared experiences of deaf signed language users in Northern Ireland that this case study fits within the wider context of this chapter.

The original email mentioned in the promoters response¹¹ has not been made public, so that one cannot know the specific details of the original request, or “the features” referred to in the letter (see footnote below) from the promoter. However, all subsequent interviews with the customers mentioned the refusal to provide a BSL/English interpreter as their main grievance, and so this will be assumed to be the customers’ primary request for the purposes of this case study. As the details of the original request were not made public this assumption does not affect the analysis of the public’s expressed opinions.

Unfortunately, the promoter declined further requests to comment (from the Nolan Show and Nolan Live and from me) with the result that there are no further sources available to better understand their position. As this is a commentary on a contemporary issue, this case study is unable to conclude with the resolution to this disagreement as, at the time of writing, a resolution has not been found. I argue, however, that the resolution is of less significance than the initial responses, in that they speak of more widespread attitudes. Since the aim of this case study is to identify attitudes that may be indicative of wider held beliefs, and can be understood through the applications of a Politics of Recognition, any specialist knowledge or personally-informed insight would render invalid any advancement of knowledge or assumption generated through the process of the negotiation of a resolution.

¹¹ “It is difficult, therefore, to have in place some of the features which you have outlined in your email to [venue named person].”

As the purpose of this case study, as previously stated, is to identify attitudes that can be considered representative of wider societal beliefs, I will be using generalised language to refer to the key players in this event. The term 'customers', is used to describe the deaf signed language users who placed the request for an interpreter. The promoter will be referred to as 'the service provider' and 'general customers' will be used to mean customers who do not require the services of a signed language interpreter. The BSL/English interpreter will be shortened to 'the interpreter'. Unless otherwise referenced, all quotations in this case study are taken from the service providers letter.

While the initial decision of the service provider not to provide a "signer" [interpreter] is disappointing, the letter through which the decision is communicated reveals greater insight into the attitudes and decision making process of the service provider that bring into play the processes and outcomes of misrecognition that are generated through framing and linguistic choices. I have identified five key themes of interest in the service provider's response, which are; misunderstanding of signed language interpreters, misunderstanding of deaf signed language users, misunderstanding of signed languages, prioritising the majority experience over compromising for inclusion, and lastly, the apparently prescriptive nature of adjustments made by the service providers in the interest of apparent inclusion in the interests of inclusion. A misunderstanding of signed languages is implicit in both the misunderstanding of signed language users as a linguistic minority, and of signed language interpreters, as signed languages are a key component in their work. To some extent all five themes are interconnected, although I will explore each theme individually (while at the same time acknowledging these overlaps).

It becomes increasingly clear in the service provider's description of the service which they believe that interpreters provide that there is a significant failure of understanding on their part of the role of the interpreter. Referred to as 'signer' throughout the letter, it is concerning that the service provider, as a major arts promoter, is not aware of the correct terminology to refer to a

'reasonable adjustment' that the company is likely to be required to provide. It is revealed through the letter that it is not only the terminology that is not understood, but indeed also the tasks that the interpreter might reasonably perform. Without understanding what a signed language interpreter can offer in terms of access, it is perhaps unsurprising that the service providers deem the provision to be "inappropriate". The service provider's description of the work of an interpreter is offensively simplistic and reveals a basic misunderstanding both of the role of the communication professional and of the nature of the act of interpretation:

We understand that some signers can 'dramatise' or 'code' such 'ad-libbing' but it is not always a true reflection of the performer's words.

The letter of response displays a lack of awareness of the real-world work of interpreters and a lack of knowledge as to how interpreters are routinely employed as a means of creating accessibility in many genres of performance, not least music. Sarah Eardley-Weaver, in her presentation, *Including All; Improving Arts Accessibility for People With Varying Visual and Health Ability*, delivered as part of the Knowledge Exchange Seminar held at Parliament Buildings in Belfast, elaborated on the prevalence of signed language interpreters as a means of accessibility in arts venues, showing that, in an audit of access facilities in arts venues in Northern Ireland, over 60% of venues provide a signed language interpreter for at least one event per year. Anecdotally, having been both an audience member for interpreted performances and an interpreter of musical performances, I can assert that signed language translation of musical performances is an accepted practice among signed language users, a norm of access. In this regard, the service provider's comment, "It is our considered view that the provision of a signing facility is not appropriate for this kind of performance" is alarmingly non-specific and, despite claims to the contrary, uninformed. It is a statement whose underpinning level of misinformation can be only be made sense of through reference to a wider operation of misrecognition.

The second of the five identified themes in the service provider's response is the misrecognition of signed languages, specifically BSL, which as previously mentioned, leads to a fundamental misapprehension as to the working practices and functions of signed language interpreters.

We understand that some signers can 'dramatise' or 'code' such 'ad-libbing' but it is not always a true reflection of the performer's words.

The assertion that the intended output of an interpreter, and the preferred mode of communication for signed language users, is a dramatisation or code highlights further misrecognition of both the rich language of BSL, and of the complex perceptions of signed language users. At heart it suggests that signed language users inhabit impoverished linguistic worlds which are stunted in terms of experience, and that such shortcomings may only be minimally addressed through interpreter play-acting. The issue of truth is, of course, a more complex one, and the letter grafts itself into the sense, that has already been discussed above, that the act of interpretation does not deliver exactly and precisely the meanings and forms that it represents, but it is far cry from this awareness of the complex interrelationship between interpretation and representation to the implication that dependence on interpreters automatically entails impoverished or inauthentic experience. This fundamental misrecognition of signed language users, deriving from a perception that their experience will not be as complex or rounded as that of the majority population, is central to this argument, and will be discussed again below.

Another indication of the misrecognition of signed languages and particularly BSL is the proposal that access for signed language users can and should be provided through the medium of English, and that to do so is a solution that is both reasonable and practical.

We will, however, attempt to present you with a set list and the lyrics of the songs, if this is approved by the artists' management.

[Promoter]

In terms of the understanding of language itself, following on from the previous theme, there is a clear sense that not only are BSL and English believed to be significantly linguistically related, but also that English provides a sort of master-key for unlocking incomprehension. The failure to recognise signed language, in turn, creates a misunderstanding of signed language users and, more far-reaching, of deaf signed language users as a linguistic population who, in the context of this case study, are also the customers of the service providers. The misunderstanding of the needs of the consumer group is further demonstrated in the letter with the suggestion that communication in the written form of English is appropriate for the customers as deaf signed language users. Once again consider the following quotation from the letter, “We will, however, attempt to present you with a set list and the lyrics of the song [...]” As the average literacy of deaf adults is widely accepted to be significantly lower than hearing peers (Padden and Ramsey 1993) (Strong and Prinz 1997) the assumption that this offer constitutes “reasonable adjustment”, as required by the Disability Discrimination Order (NI) 2006, is naive. Of course, as will be discussed in Section 3.2 - Legislative Entitlement to Interpretation for Signed Language Users in Northern Ireland, the legislation quoted (but not explicitly referenced) is no longer the most current legislation concerned with the inclusion of disabled persons. The UNCRPD was ratified by the UK in 2006 but, as it is yet to be enforced through case law, its effectiveness is yet to be demonstrated.

My final observation in terms of this deep-rooted misrecognition of signed languages on the part of the service provider is the failure to name the language in question - British Sign Language. To refer to the specific language by name would, at least, reflect recognition of the subject. Not only is there no mention of BSL in relation to the interpreter but the term BSL does not appear anywhere in the response letter, suggesting that this requisite to understanding the needs of deaf signed language users is not only left unrecognised, but that it falls under a rubric of ‘not-English’. In other words, it

is utterly embedded in alterity, in alien experience. As a minority defined by linguistic need, it is impossible to understand the needs of the group without understanding the existence of the language that gives expression to their world. Put simply, without recognition of the language, recognition of the people is not possible.

Having already found evidence of misrecognition of signed language interpreters and non-recognition of signed language, specifically BSL, it is perhaps inevitable that misrecognition of deaf signed language users should also be evident. This causality and relation between the themes explored so far has important implications for the ultimate effectiveness of adjustments for inclusion. Without full recognition of deaf signed language users and particularly their communication needs, the potential effectiveness of prescribed adjustments is severely limited. The practice of prescriptive adjustment facilitates a shift from the effect of misrecognition as a projection of perceptions, to misrecognition directly influencing the experiences of the misrecognised population. This idea will be followed up in the later discussion, in Chapter 4, on the value of prescriptivity.

What emerges from this is a clear sense of a failure on the part of service providers, the media and, indeed, the public at large, to recognise the needs of individuals from this community. What this thesis will do is establish multiple frames of reference through which might arrive at a better understanding of these needs. Initially this thesis will consider current measures in place designed to understand - statistically, at least - the scale of the population of deaf signed language users in Northern Ireland. Such measures, we shall see, are deficient, and subsequent discussion will set out the areas and ways in which these shortcomings may be identified. Following on from this, the thesis will offer an alternative method of calculation through the development of a computer model using GIS. This will be the User Model (the user in question being the signed language user) which will be capable of calculating the quantity and dispersal of such individuals within this community. The thesis will then consider how the needs of this group are

currently being met in terms of legal requirements to provide communication support, and the availability of such resources, which will be quantified through the development of another GIS model, the Resource Model. The third strand of this research will then be to consider deaf signed language users through the framework of a Politics of Recognition, now returning to consider the ethical and political implications of the case study on interpreter provision (presented in this section above). In order to understand these ethical and political implications more fully, the discussion will be enriched by the perspectives of preceding chapters which offer alternative viewpoints from which to consider the experience of deaf signed language users. While accepting the necessary constraints of a doctoral thesis such as this one, particularly in terms of space available for the discussion, and taking care so as not to essentialise the identity of deaf signed language users, the final set of recommendations and conclusions are offered with the intention of continuing to develop the understanding of the needs of deaf sign language users beyond the scope of this thesis.

Section - 1.4 Literature Review

This thesis, as practice based research, focuses largely on the development of usable tools both to facilitate further research and to promote better understanding of the needs of the population of deaf signed language users. The impact of this is intended to be wider than the circle of those who read this thesis as, it is hoped, the developed tools will be more accessible to a range of end-users than the thesis. While, in that key sense, the focus of this research is outward looking, it is vital at the outset to outline clearly where this research fits within the wider context of what is already written and known. Accordingly, this section seeks to provide this context by identifying key ideas from within each of the themes explored in this thesis; 'Deaf Studies and Disability Studies', 'Public Policy, Language Rights and Participation', 'Estimated numbers of deaf people and deaf signed language users', 'Digital Humanities and GIS', and 'the Politic of Recognition'. Effectively, then, this section takes the form of a broad-based literature review. Each themes is discussed in the appropriate sections of this thesis, at which points many of the texts identified in the following discussion will be reconsidered in greater depth and/or in terms of the specific problem which they are being summoned to address.

Deaf Studies and Disability Studies

Baker-Shenk and Cokley's 1980 book, *American Sign Language: a teacher's resource text on grammar and culture*, has become widely respected as the authoritative text defining the collective identity of deaf signed language users. In particular, it is their 'Model of Avenues to Membership in the Deaf Community' that forms the initial frame of reference in the development of the User Model in Section 2.4 of this thesis. The four influencing factors they identify, Social, Political, Audiological and Linguistic, are further developed by others in later contributions to the field of Deaf Studies.

Atherton (2012) builds on the concept of a group identity for deaf signed language users in his book, *Deafness, Community and Culture in Britain:*

Leisure and Cohesion, 1945-95. Unlike Baker-Shenk and Cokley, who focus on four independent contributing factors to group identity, Atherton (as his title suggests) focuses in the main on the influence of social interaction on the creation of group identity, whose development is traced across the half-century after the end of World War Two.

Atherton's book, in its depiction of the real lived experiences of deaf people, presents a clear and structured route through the social lives of deaf people from the post-war period to the mid 90s, emphasising in particular the vital role that socialisation played in both the construction and the life of the community. Establishing an agreed definition of the deaf community, outlining established models of deaf identity, calling into question popular yet unjustified beliefs about the community, and proposing new perspectives for understanding the concept of deaf culture, Atherton's book is important in the way that it undertakes a structured exploration through the cultural activities of deaf people, concluding with the function of the deaf club within the lives of deaf people. The role of social activities within community identity is very usefully explored, drawing on comparisons with other minority groups in order to further the understanding of a community often considered only in isolation. Atherton's book in many ways, in that regard, is the culminating publication of a body of research concerned to understand the role of deaf clubs and the changing demographics of club membership, and accordingly proposes new perspectives from which to consider the deaf community, including coining the term 'Deaf Nation' to capture an alternative sense of community that is more in keeping with his research findings. One of the other principal contributions to the field of the book lies in the way that it draws key comparisons both with other minority groups and with historicised social trends and developments in order to situate the lived experience of deaf people within a developing social and historical context. In many ways it is a book about social identity and connection.

Atherton's productive focus on the social identity of the deaf community draws upon a much earlier contribution to the field of Deaf Studies, by Wilcox (ed.) (1989), which began to develop the concept of group identity arising

from a shared political agenda in the book, *American Deaf Culture: an anthology*. Of notable interest in this edited book is the contribution by Padden (1989, pp. 1-16) - the same author who had previously written about the shared group identity of deaf people in her essay in Susan Gregory's book *Constructing Deafness – 'The Deaf Community and the Culture of Deaf People'* (1990). In her work she raises key questions about many of the terms widely used in Deaf Studies, such as 'Deaf people' and 'Deaf Community', and, importantly, explores the shared cultural values of individuals considered within this collective. *Constructing Deafness* is a key book in the way that it develops Baker-Shenk and Cokely's notion of the 'linguistic' as a key determinant of identity – effectively whether or not a person uses a signed language to communicate - and the role of language in the development of deaf identity is discussed by numerous authors in this seminal work - Lawson, Brennan, Wall and Van Uden, among others.

The final influencing factor of Baker-Shenk and Cokely's model of identity (1980) – the 'audiological' – is also picked up in various studies that, together, validate their acknowledgment of the influence and acceptance of the Medical Model as a definition of disability. Accordingly, within the wider field of Disability Studies, Johnstone's *An Introduction to Disability Issues* (2001) is a key work that, while acknowledging that the model of disability a researcher adopts is frequently a contentious issue, also emphasises the need for all perspectives to be considered. It is precisely this spirit of inclusivity, the search for a holistic approach to the research questions outlined in the earlier sections of this chapter, that underpins and informs this thesis.

Finally, in this section, we need to consider the work of Paddy Ladd, and in particular his contribution to developing an understanding of Deaf Identity. His 2003 book *Understanding Deaf Culture: In Search of Deafhood* is a major contribution to our understanding of the complexities of Deaf identity, to the extent that Ladd has become synonymous with the concept of Deafhood, exploring the significance of Deaf culture in other academic disciplines and

presenting new ideas by which to understand minority identities (including linguistic minorities) while, at the same time, in contrast to Baker-Shenk and Cokely, challenging the wide-ranging acceptance of the Medical Model of deafness.

Public Policy, Language Rights and Participation

The most significant public policy, not only for deaf but for all disabled people, is the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD). Its significance for deaf people and, specifically, deaf signed language users, is comprehensively discussed in Wheatley and Pabsch (2012) *Sign Language legislation in the European Union*. While it is important to engage directly with the primary source of the Convention itself, the insight offered by Wheatley and Pabsch is especially valuable in refining the focus of the Convention to the scope of this thesis. In particular, following on from this, the final sections of this thesis are concerned to provide an international context against which to project the experience of deaf sign language users in Northern Ireland. In terms of this element of the thesis, the work of Müller de Quadros, Fleetwood and Metzger (2012) is extremely important, bringing reliable background to bear on a context that, while not the primary concern of this thesis, serves an important comparative purpose. *Signed Language Interpreting in Brazil*, as an English language text, offers a way into understanding the Brazilian context for researchers unfamiliar with Portuguese and consequently unable to access the many works on this subject.

Within the context of the perceived deficit of opportunity with which this thesis is centrally concerned, how we might go about establishing parity between the lived experiences of deaf signed language users and their non-signing hearing peers becomes one of the key questions of this research project. This crucial consideration of social disadvantage is a central theme of Erving Goffman's work as he addresses concepts of stigma, problematic participation in society, and "disqualification from full social

acceptance” (1936) and the impact of stigmatisation of social groups. These themes will be further explored in this thesis within the framework of a Politics of Recognition.

The final note I wish to make in this section is to acknowledge the role of deaf signed language users, themselves, as the co-creators of understanding in this field. James Charlton’s *Nothing About Us Without Us* (2000) is particularly pertinent in this regard, and it is at this point that I need to acknowledge the irony of my own positionality within this thesis, that is as a hearing researcher carrying out research on deaf sign language users and their lived experience. However, whatever sense of otherness that might be construed as arising from this is certainly mitigated in part by being a signed language user and entirely reversed in those sections of this thesis that are primarily concerned with developing understanding of the availability of resources in terms of sign language interpreters, as I am, in addition to being a researcher, a practicing BSL interpreter.

Estimated numbers of deaf people and deaf signed language users

The research problem that this thesis aims to address at the outset is the difficulty in establishing reliable figures in terms of the population of deaf sign language users in Northern Ireland. Section 2.4 demonstrates why the existing measures for gauging such figures are insufficient, whereas this section is more properly concerned to present what the existing measures are, as well as from where and by whom they were developed.

There are two types of existing measures; ratios and absolute measures. I will consider each type in turn and all measures will be revisited in the development of an appropriate methodology in Section 2.4. In terms of ratio, there are two significant measures, a 1:6 ratio of people with hearing impairment to the general population, developed by Action on Hearing Loss

in 2014, and a 1:1000 ratio of signed language users¹² to the general population, developed by the World Health Organisation (Werngren-Elgstrom et al. 2003: 311). The second category of measure is 'absolute measures', of which there is only one that may be deemed relevant to this research. It is the commonly quoted 5,000 BSL users and 2-3,000 ISL users in Northern Ireland.^s This statistic originally appeared in Royal National Institute for the Deaf (RNID) literature and was first referenced by the RNID in 2009, *Access to Public Services for Deaf Sign Language Users: User Forum Project Report*, but believed to be in use earlier than this. However, the reliability of what is essentially a best guess has since been informally retracted by AoHL (formerly RNID), who now state "At the moment there are no reliable current figures on how many people in the UK use British Sign Language as their first or preferred language, or how many people in Northern Ireland use Irish Sign Language." (AoHL 2011: 5). In spite of this updated statement, the original estimate appears in many existing and new publications, often without citation - for example, Symington and Carberry (2006), RNID and BDA (2009), and, most worryingly, the Equality Commission for Northern Ireland (2004).

Digital Humanities and GIS

The notion of space in the Humanities is frequently distilled into a metaphorical representation of a theoretical concept, such as the 'third space' or 'translation zones' in Translation Studies. In contrast, space as physical contour is often disregarded:

Humanists are fully conversant with space as a concept or metaphor-
gendered space, the body as space, and racialized space, among
many other rubrics are common frames of reference and
interpretation in many disciplines- but only recently have scholars
revived what had been a dormant interest in the influence of physical

¹² It is not specified whether this includes hearing signed language users or only deaf signed language users.

or geographical space on human behaviour and cultural development
(Bodenhamer et al., 2010: vii)

One of the central propositions of this thesis, in that regard, is that to consider the physical definition of space in translation and interpreting research not only aligns this project with the current concerns of interdisciplinary research and the Digital Humanities, but also offers greater scope from which to consider modes of translation and interpreting. Greater knowledge of the prevalence and physical locations of the speakers for whom we seek to interpret or translate not only provides the basis for an enhanced understanding of the task we undertake, but also has significant impact on the provision of interpreting and translation services by demonstrating the demand for them. The necessary shift from metaphorical conceptions to physical considerations of space requires new research practices; in this particular case one such practice is derived from interdisciplinary collaboration with disciplines more used to dealing with space as a physical determinant.

The Digital Humanities has gone some way in developing 'collaborative engagements', as they are termed by Bodenhamer et al (2010). Projects such as Historypin and CAIN demonstrate successful blending of spatial data and Humanities digital archives. It is this enhanced ability to record datasets spatially that is paramount in the field of GIS. Such digital mapping, while partially used by Google Maps and Google Earth, is a relatively recent development in terms of the discipline of geography. In Queen's University Belfast, the existence of digital mapping can be traced back to the early 1970's when crude data maps were produced on FORTRAN computer systems, printed in sections and manually joined together. These early efforts to display spatial statistics geographically, within the Social Malaise project led by Fred Boal (1974), are hardly comparable to the current form of digital mapping which has grown and developed exponentially in the last 40 years. Digital mapping, more frequently referred to now simply as GIS, has not only developed in terms of functionality and automation, but has been adopted

and utilised in many disciplines beyond its origins in geography. The growing popularity of GIS in academic research has been reflected in the shift towards GISci (Geographical Information Science) with the development of a previously lacking theoretical and epistemological framework, reflected in the use of GIS beyond visual representation of knowledge, into a methodology of developing knowledges through research.

The versatility and potential of GIS and its application to this research is picked up again in Section 2.2 Geographical Information Systems.

The Politics of Recognition

The Politics of Recognition, which must be considered as distinct to identity politics in that it is not concerned to advance the rights or aspirations of any one group or perceived community, is a framework of analysis advanced primarily by cultural theorists Charles Taylor and Nancy Fraser. Taylor's essay, 'Multiculturalism and The Politics of Recognition' (1994), is grounded in the intersection of ethics and social organisation and is generally held to be a foundational text in the field, while Fraser's work is primarily rooted in gender politics and feminism, although the ideas expressed in her work are no less applicable to any other perceived community whose rights and interests are not fully recognised. The Politics of Recognition, as a system of both analysis and potential redress, is itself a politics aimed at overcoming subordination by deconstitutionalising patterns of cultural value that impede parity of participation and replacing them with patterns that secure it. It is Fraser herself who summarises the central anxiety of the Politics of Recognition when she writes about misrecognition as unjust subordination in her book *Rethinking Recognition* (2003), a characterisation that is in turn essential to our understanding of the ethical position that the Politics of Recognition brings us to adopt. It is this understanding that will inform our account of the historical context of the axiology. Fraser herself had begun to develop the idea in an essay published three years earlier:

Misrecognition does not necessarily take place along the lines of identity, but across participation in society; The disparities and asymmetries between groups are rooted in social relations that impede participation on an equal footing – ‘to be denied the status of a full partner in social interaction as a consequence of institutionalised patterns of cultural value that constitute one as comparatively unworthy of respect or esteem’.

(Fraser, 2000b: 113-114)

Taylor’s foundational essay of 1994, ‘The Politics of Recognition’, sets out the bases of the approach, exploring its negotiation between recognition and identity, and suggesting that the latter is contingent on the former – “identity is partly shaped by recognition or its absence, often by the misrecognition of others” (1994: 75). In other words, misrecognition becomes harmful by placing limitations on the individual or minority that contribute to an internalisation by the minority of the majorities malformed perceptions. The process through which external perception influences the self perception of a minority group is termed 'reification' by Fraser, drawing on Marxist terminology, and described more analytically by Taylor as "an internalised picture of [the minority group’s] own inferiority" (1994: 75). The potential implication for the minority community of inferior identity mirroring, as Taylor argues, is “a confining, or demeaning, or contemptible picture of themselves” (1994: 75); the stark nature of Taylor’s language in this instance emphasises the importance of identifying whether such a pattern of misrecognition occurs within the experience of any minority group. But while personal accounts of lived experience, gathered through primary engagement with members of that minority, are one valid means of understanding the collective experience, the methodology of the Politics of Recognition and, in particular, the implications of Taylor's hypothesis of the impact of majority perceptions on the self perception of the minority, throw into question the effectiveness of such an approach when used in isolation. For that reason, therefore, in order to better understand the patterns of relatedness within the identity of a minority, in this case, of course, that of

deaf signed language users in Northern Ireland, it is important to consider not only the reported experiences of members of that community but also the external factors – in the form of majority community actions, assumptions and responses - that form both the parameters and the determinant factors of those experiences. In the context of this research, therefore, it is not sufficient to accept a minority group's account of their own experience; a consideration of the wider context of the external influences that contribute to that identity will offer a greater understanding of why the group presents in the way that it does. The securing of such a deeper understanding is, of course, a primary research objective of this research project, but it is also a moral imperative in its own right. As Taylor notes, "Due recognition is not just a courtesy we owe people. It is a vital human need." (1994: 76)

Nancy Fraser, a highly respected writer on the subject, picks up on this idea with her interest in what might be termed a 'politics of redistribution'. Where 'Recognition' is a remedy for cultural injustice, Fraser discusses 'Redistribution' as a remedy for economic injustice. In, "From Redistribution to Recognition? Dilemmas of Justice in a 'Post-Socialist' Age" (1995) Fraser discusses the "mutually contradicting aims" of redistribution and recognition, noting that "recognition claims often take the the form of calling attention to, if not performatively creating, the putative specificity of some group, and then of affirming the value of that specificity. Thus they tend to promote group differentiation. Redistribution claims, in contrast, often call for abolishing economic arrangements that underpin group specificity. [...] Thus they tend to promote group specificity" (1995: 74).

In Fraser's 1995 article, "From Redistribution to Recognition? Dilemmas of Justice in a 'Post-Socialist' Age", published in the *New Left Review*, she considers the circumstances under which a Politics of Recognition might support a Politics of Redistribution, considering cultural injustices and economic injustices as distinct entities, whilst at the same time admitting the limitations of such a distinction when translating these concepts to real world scenarios.

In the “real world”, of course, culture and political economy are always imbricated with one another [...] Nevertheless, for heuristic purposes, analytical distinctions are indispensable. Only by abstracting from the complexities of the real world can we devise a conceptual schema that can illuminate it.

(1995: 70)

While accepting Fraser’s acknowledgement of the imbrication of both cultural and economic contexts, it is cultural injustice that appears more immediately relevant in the case of our population of interest. Fraser describes cultural injustice as;

[...] rooted in social patterns of representation, interpretation, and communication. Examples include cultural domination, (being subjected to patterns of interpretation and communication that are associated with another culture and are alien and/or hostile to one's own); nonrecognition (being rendered invisible via authoritative representational, communicative, and interpretative practices of one's culture); and disrespect (being routinely maligned or disparaged in stereotypic public cultural representations and/or in everyday life interactions).

(ibid)

This is, of course, immediately relevant to the broad perception in which deaf signed language users are held. There are, of course, a variety of factors and circumstances – political, social and economic – that have contributed to this ossified perception. Fraser herself notes, for example, that “egalitarian theorists have long sought to conceptualise the nature of these socioeconomic injustices” (1995:71), in which she references Marx's theory of capitalist exploitation, John Rawl's account of justice as fairness in the distribution of, “primary goods” and Ronald Dworkin's view that socioeconomic justice requires “equality of resources”. But it is her summary

of Amartya Sen's theories, namely that "[...] justice requires ensuring that people have equal 'capabilities to function'" (ibid) that is most readily applicable to the consideration of socioeconomic justice for disabled persons, and particularly for deaf signed language users.

Fraser's most significant contribution to the central concern of this thesis, to better understand the needs of deaf signed language users, appears in her article written in 2000, "Why Overcoming Prejudice is Not Enough: A Rejoinder to Richard Rorty":

My suggestion, in brief, is to reinterpret recognition in terms of *status*. From this perspective, what requires recognition is not group specific identity but rather the status of individual group members as partners in social interaction. (Mis)recognition, accordingly, does not mean that depreciation of group identity. Rather, it means *social subordination* in the sense of being prevented from participating as a peer in social life as a result of institutionalised patterns of cultural value that constitute one as relatively unworthy of respect for esteem. The status model rescues recognition from the unpopular identity politics, appreciating participatory parity and equal participation are subject to both institutionalised patterns of cultural value and actors lacking the necessary resources to interact with others as peers.

(2000: 23)

Of direct interest here is her characterisation of a 'status model'. Countering the perception that recognition and redistribution have mutually exclusive outcomes, Fraser uses her status model to reconcile the divergence, so that claims for recognition must be linked expressly with claims for redistribution" (2000: 24). Her argument in this regard is key in understanding both the marginalisation and potential routes to redress of deaf signed language users in Northern Ireland.

In terms of group identity, Fraser stresses that "[...] the status model does not encourage reification of group identities" (ibid), adding that "redressing the injustice requires affirming group differences only in cases where the obstacle to parity is under acknowledgement of distinctiveness" (2000:25). In summary on this point she notes that "far from reifying group differences, the version of recognition politics that I am proposing discourages separatism and repressive communitarianism" (2000:25). In this way, she illustrates the maintained usefulness of recognition when removed from the schema of identity politics, particularly in the way that separate identity politics operates in Northern Ireland. Fraser concludes her article by admitting that "not all recognition can be dispelled by eliminating prejudice, even in combination with redistribution" (ibid). It is precisely the limitations of these two factors working in isolation from other remedial action that are important to take into account when we recall the ultimate concern of this research project, which is that of suggesting recommendations designed to redress the poverty of access experienced by deaf signed language users in Northern Ireland. Recognition and redistribution may be useful tools in terms of understanding the narrative encounter of minority groups in society, but in order to redress whatever imbalances operate within those encounters, other influences must be considered. It is with this in mind that I wish to consider Paul Freire's classic *Pedagogy of the Oppressed* (2000).

But first a consideration of the wider context, philosophical and political, of the Politics of Recognition is necessary. While Taylor and Fraser are the predominant contemporary British voices in terms of stating the importance of a Politics of Recognition, its concern with justice and social accommodation has drawn many other modern theorists whose work has contributed enormously to the development of a coherent way of thinking about the poverty of the marginalised. Allen Wood (in Skorupski [ed], *The Routledge Companion to Ethics*, 2013) deals with the relationship between respect and recognition and, without mentioning specifically the Politics of Recognition, provides a philosophical background to the wider ideas of the relationship between respect (perception) and recognition (justice). Wood's

account provides an historical context for the establishment and public value of the discourse with which both the Politics of Recognition and, more generally, this research project are concerned. He, Wood (2013), considers the works of Kant, Fichte and Hegel in order to explore the notions of respect, value and dignity, narrating the development of scholarly thinking on the matters of recognition from the Kantian Formula of Humanity to the explicit theory of recognition. In this way, his discussion deals with general ideas of respect before focussing specifically on the respect for people, which Wood terms as, “respect for human dignity in persons” and states as being fundamental to morality. Recognition is introduced into the discussion by Darwall’s (1977) distinctions between “recognition respect” and “appraisal respect” which Wood links in so far as, “respect for human dignity in persons is a fundamental kind of recognition respect [...]” (1977: 570). It is this recognition respect that is of significance to the development of a Politics of Recognition, which is linked to the development of an understanding of equality in terms of dignity. Wood notes in this regard, “Equality is based instead on the fact that such dignity, as a value, and incomparable, there is no way that any human being could be *unequal* to any other in regard to it.” (2010:562)

Wood draws a number of conclusions relating to the dynamic between the recogniser and recognised that are of direct interest to this project. Firstly, he notes that for all the philosophers he has looked at, all “show how that respect is essentially a reciprocal relation, not merely a one-sided attitude”(ibid). Following on from this, we can venture in terms of the deaf community in Northern Ireland, that recognition is also based on a set of reciprocal relations. These relations, he argues in his second conclusion “bring to the fore the essentially ‘second-person’ character of respect, and the fact that being addressed by another that demands respect from you provides you with a special kind of reason for action that is basic to a wide range of ethical concepts, values and principles” (ibid). Once again, this further reinforces the importance, when working towards the recognition of deaf signed language users, of considering the position of those from whom

recognitions is expected. Wood's final conclusion once again emphasises the principle of reciprocity, when he argues for the social, cultural and political value of “recognition of one another as persons and the objective grounds for regarding every person as entitled from every other to respect for their own human dignity” (ibid). This final conclusion provides justification from a philosophical perspective as to why, when applied to the context of this research project, deaf signed language users should be afforded respect through recognition as an entitlement of every person. While this is such a widely held belief in Western philosophy, with its emphasis on individual experience and existence, that it may seem unnecessarily obvious to restate any such justification at all, when it comes to considering individual acts of (non)recognition it provides a benchmark against which to consider such actions and to compare generally held views, whether at the level of society of government against individual instances, as is the secondary purpose of the contextualising case study of the request for interpreter provision, discussed in the introduction to this thesis. Moreover, there are times when the simple statement of right is so fundamental that there is a danger that society generally can begin to lose sight of what is fundamentally important to us all.

Paul Ricoeur, in his *The Course of Recognition* (2005) (translated by David Pellauer), considers three key dimensions of recognition - Recognition as Identification, Recognising Oneself, and Mutual Recognition. Ricoeur begins by highlighting the lack of agreement as to definitions of what ‘recognition’ might mean, both lexicographically and philosophically. Ricoeur’s detailed commentary on the lacuna of theoretical consensus on the subject allows him to develop a hypothetical definition that stands above the confused usage of the term observed elsewhere. His hypothesis is interesting - “the use of the verb in the active voice seems to be attached to intellectual operations that bear the stamp of some mental initiative.” (Ricoeur 2005: 20) – in that it reminds us, once again, that recognition, in the full sense of perceptions based on justice, equity, integration and inclusivity of opportunity,

is necessarily a learned rather than unconscious activity. Once again, we have to conclude that we have to learn to be just, to recognise.

As with Wood, Ricoeur relates his discussion to the Kantian tradition, but unlike Wood, who uses Kant's work as a foundation for the development of the argument, Ricoeur highlights his intention from the outset that the "Kantian recognition will not remove this indetermination of the 'what' from recognition" (ibid). The distinction is important because it implies that although recognition is ostensibly a universal value, it is in reality one that must be re-created and re-enacted in differing situations and at different times. In terms of this thesis, it is a reminder that rights and value are contingent, requiring to be re-negotiating in every situation. As Ricoeur puts it "Recognition equalises what offence had made unequal." (ibid), signifying that whatever factors militate against recognition, they are specific to concrete contexts, and must be dealt with in situ. The great lesson to be drawn here from Ricoeur's exploration of recognition and justice is that they can only operate within specific contexts and must be addressed and struggled for within those contexts. That is why the case study in the introduction to this thesis retains such significance in the context of this discussion. It details how the inequality of the offence is generated under the specifics of the local.

Central to all of this is discourse – how language is used, and the power of ownership and appropriation vested in it. In 'Poetry and Possibility' (Valdes 1991), Ricoeur considers language use in this way, drawing a sharp distinction between the searching language of art and the enclosing language of science, between the discourses of possibility and inclusiveness and the more widespread discourse of the reductive (as the recent Brexit campaign showed) It is precisely in this reductiveness that we may locate the problem of recognition of deaf signed language users in Northern Ireland, as our initial case study has shown. During his keynote address at the Queen's University 2015 translation and interpreting symposium 'Territories of Understanding, Conflict and Encounter', Michael Cronin discussed the

damaging usage of language as acts of reduction, referring to the US military's designation of interpreters as 'linguists'.

In his seminal book *Pedagogy of the Oppressed*, (translated by Myra Bergman Ramos), Brazilian educationalist Paulo Freire, probes how language, the common currencies of everyday use that underpin everyday practice, is closely allied to the oppression of denial. Just as the tension gender-stereotyping and feminism is central to Fraser's work, so the binary between education and slavery is key to Freire's. As an educator, Freire's ideas are underpinned by education as "a fundamental subversion of power in the establishment of the oppression" (2000:12). On one hand, of course, the value of this argument is borne out by the fact that the educational attainment of deaf children in the UK is significantly lower than government benchmarks, with 71% of deaf children in England in 2009 failing to achieve five GCSEs at grades A* to C, including English and Maths. (Action on Hearing Loss, 2011) But the application of Freire's argument to deaf people here also has a wider scope that draws poverty of educational attainment into a wider picture of exclusion and deficit of opportunity. The dichotomous relationship that he depicts in his work between the oppressor and the oppressed is central to one of the underlying premises of this research – namely, that power imbalance is implicit in encounter, and if that is so, that we must investigate ways how that power imbalance may be redressed. Freire's accounts of interactions between the oppressed and the oppressor are applicable to the experiences and behaviours of deaf signed language users within majority society, and in particular to the behaviour of non-specialist service providers as units of oppression – conscious or otherwise - as Section 4 of this chapter is concerned to show. Freire's work is particularly powerful in the context of this research project in that it subtly shifts the discourse applicable to the relationship that we have identified between sign language users and majority population from one of mis/non recognition to one of oppression, Unfortunately, although we shall return to Freire below, the limitations of space of this thesis do not allow us to delve more deeply into the ways of redressing the oppression experienced by deaf signed

language users that might be developed from Freire's specific observations on the redressing of oppression, other than to say that the practice-base element presented here is in itself conceived of as such a response. These are all ideas central to the argument of Chapter 4 - Deficit of Opportunity - where the framework and insights of a Politics of Recognition will be applied to the lived experience of the community of deaf signed language users.

The literature considered in this necessarily brief section provides the context within which the specific focuses of this thesis may now be developed. These are: the creation of a tool by which to better understand the linguistic demographics of deaf signed language users in Northern Ireland (the User Model), an enhanced understanding of the availability of communication resources in terms of signed language interpreters, and the consideration of the impact of the imbalance between the need for communication through signed languages, and the provision of accessible means through which such communication might be secured.

Chapter 2 - Linguistic Demographics

Section 2.0 - Introduction

In this section, which offers the first of the three main perspectives on deaf signed language users considered in this thesis, I will consider the linguistic identity of deaf signed language users and introduce key terms that underpin this research. I will consider here, in more detail, the definition of my population of interest, which in turn will lead to the first stage of development of a methodology to achieve the first research objective, that of establishing a reliable statistical methodology to calculate the population and distribution of British Sign Language and Irish Sign Language users in Northern Ireland. Key to developing such a methodology is the utilisation of GIS technology, which will be introduced in Section 2.2.

In view of the fact that analysis of deaf signed language users does not preclude the identification of individuals, individuals indeed who are considered by legislation¹³ to be 'vulnerable persons', there are specific ethical considerations that must inform the development of this methodology. These ethical considerations are set out and discussed in Section 2.3. Both Sections 2.2 and 2.3 deal with important preliminary issues before the key section of this chapter which, in terms of research substance and impact, is 2.4 (which discusses the development of the User Model as a proof of concept tool to measure the linguistic demographics of deaf signed language users). The final section of this chapter looks at the analysis of the model, and presents an interpretation of the preliminary results generated by the proof of concept model.

Before that, a number of key terms that I have developed and adopted for the purposes of this research require to be introduced. The first such term, as we have just seen, is 'linguistic demographics', which is taken to refer to the population size, distribution and language profile of any population of interest – in the context of this research, as stated above, the population of interest, is of course deaf signed language users, primarily deaf BSL and ISL users.

¹³ The Safeguarding Vulnerable Groups (Northern Ireland) Order 2007

This definition, in turn, leads to another key term requiring definition, namely 'language profile', which in this context is term that glosses language use, including preferred, functional and elective languages, and is sufficiently flexible to accommodate the prevalence of bilingualism. This definition is intentionally broad due to the limitations of the material that this thesis is able to consider; however, it is mentioned here as another area for further research, all of which are discussed in greater detail in Section 5.4. What requires to be noted here is that, in spite of the apparent specificity of the population of interest, the group structure and identity of this population have shared characteristics with other groups and identities in the community, in great part due to the dispersed location of members of the deaf signed language users within the larger population. As the population is defined largely due to the commonality of language, deaf signed language users can be considered a scattered linguistic population. The outlining of this context of scattered linguistic minority populations, which includes deaf signed language users, is helpful in understanding the position within the field of population studies in which this research fits, specifically when considering the usefulness of adopting geographical techniques in the development of an appropriate methodology to meet the objectives of this research.

The delineation of linguistic communities is particularly complex in view of this scattering. In the specific context of Northern Ireland, such identification is of course further complicated by the existence of two recognised signed languages, British Sign Language and Irish Sign Language. It is perhaps worth acknowledging in passing that another term - 'NISL' (Northern Ireland Sign Language) - is used by some to refer to the visual gestural language used by a minority of deaf people in Northern Ireland. This term, however, is not widely adopted either by the general population of signed language users, or in academic research where reference to it is limited to a single research project, the methodology and conclusions of which are so flimsy as not to merit further discussion in this context. Furthermore, I would argue that the generation of this term is the result of a misidentification of the linguistic

regional variation of BSL, and is therefore not helpful in determining the linguistic profile of deaf signed language users in Northern Ireland.

BSL and ISL, as minority scattered languages, unlike geographical minority languages such as Cornish or Catalan, are not concentrated in a specific location, nor do they belong to a discernible ethnic group, such as Cant within the traveller community.¹⁴ Geography and ethnic origins can both be indicators of language prevalence in certain circumstances, but neither apply to the scattered condition of signed languages, and therefore alternative measures of language prevalence are required. This is a crucial consideration in terms of our development of a methodology designed to identify the prevalence of signed languages, and through that the population of signed language users. This need to develop a new methodology to identify this specific population is discussed further in the following section, that is 2.1, which considers alternative indicators of language prevalence to those of geography and ethnicity.

¹⁴ Languages of racially-defined groups will be further discussed in the context of the legislative entitlement of sign language users below.

Section 2.1 - Developing an Appropriate Methodology

Previous research analysing populations of deaf people as scattered communities, as identified in Werngren-Elgstrom, Dehlin and Iwarsson (2003), has focussed almost exclusively on the prevalence of deafness, without consideration of communication or language. That is, research conducted into deaf populations to date has considered scattered communities, but not the scattered linguistic communities which are of principal concern to this thesis. To ignore this subtle difference is tantamount to considering signed languages as the language of all deaf people, which is unhelpfully simplistic and inaccurate, because of the multiplicity of communication methods¹⁵ used by deaf people referred to above.

Due to the fact that this thesis is centrally concerned with identifying a population of people that shares a very specific combination of characteristics, it is not possible to measure this population by only one population measure. This is because there is no existing measure specific enough to identify the group for which the definition has been created, and accordingly we must create a new methodology. In the absence of such a single acceptable measure, audiological profile may still be a useful indicator. Single-factor estimates that, for example, characterise deafness medically cannot, however, measure the language population, but are nonetheless useful in serving to refine the total population to a narrower one that allows us to identify the linguistic population of interest. Defining deafness solely by medical criteria, as argued above, disregards the Sociolinguistic Model that crucially acknowledges the relationship between language and culture. An alternative approach to single measure studies was adopted by Werngren-Elgstrom et al. (2003) in their population study of deaf people in Sweden. As in Northern Ireland, there is no central register in Sweden, so that there is a similar need to consider more than one indicator of deafness. Werngren-

¹⁵ Such as lipreading, cued speech, Paget Gorman, and relying on residual hearing, with or without amplification.

Elgstrom proposes therefore that “the use of multiple databases is essential in order to achieve a high degree of validity” (2003: 315). The value of adopting such an approach - that utilises existing data measures rather than undertaking primary research to identify the population - has already been discussed above, in Chapter 1, so that it is sufficient to reiterate here that it is this approach, based on the utilisation of existing measures, that is central to the methodology of this project.

A key methodological difference between the Swedish study and my own research is that my project does not fix upon a sample area within the methodology. Due to the size of its geography and total population, the Swedish study uses a proportionately representative microcosm of analysis, from which the results are extrapolated to represent the entire population of interest. The Swedish study focuses on a single county – Scania -, identified as being proportionally representative of the wider country. In my research, Northern Ireland, geographically and in terms of total population considerably smaller than Sweden, will be treated as the area of interest as a whole. By coincidence, moreover, the total populations of Scania and Northern Ireland are comparable,¹⁶ suggesting that analysis of the Northern Irish population in its entirety is absolutely manageable.

While the two research projects - that of Werngren-Elgstrom et al, and my own - are broadly similar in scope, a key difference is that, for the methodology to be applied to Northern Ireland it must have the functionality to accommodate the existence of two signed languages. Solely identifying the population of deaf people, as defined by use of a single signed language, as in Sweden, is insufficiently detailed to meet the specific context of this research. To address this additional consideration a further stage is brought into the methodology for identifying signed language use in Northern Ireland – in broad terms, as in Sweden, the first stage is to identify the total population of signed language users in Northern Ireland, following

¹⁶ Werngren-Elgstrom et al. (2003) list the population of Scania as 1,129,424. The population of Northern Ireland in the 2011 Census was recorded as 1,810,863.

additionally, through primary research carried out within the identified population of signed language users. That second stage is a determination of the extent to which each signed language is used. By considering this linguistic profile separately, after the identification of the total population of signed language users, the methodology avoids the potential for the numbers of the total population to be overinflated as a consequence of bilingualism, where an individual who uses both ISL and BSL may be double counted. This two stage approach, moreover, will also facilitate further opportunities to explore language profile in greater detail, rather than merely reflecting a binary between signed and spoken languages, allowing us to record incidence, for example, of functional and preferred language - that is, functional language as the language used by necessity as opposed to the language an individual might otherwise choose to use. A not uncommon example of such a diaglossic choice occurs when an adult, who communicates by preference in Irish Sign Language, attends a medical appointment at a time when no ISL/English interpreters are available, or indeed who attends a surgery that simply is unaware of the need to provide an interpreter. In these cases, the preferred language of ISL is distinct from the functional language of English, which will, in all likelihood, be relied upon to communicate through an expectation that the ISL user can lip read, or that both parties are able to communicate satisfactorily through written English.

How language is used and the extent to which it represents a choice on the part of the speaker is an important consideration in the wider context of this thesis. It will be discussed particularly in terms of the deficit of opportunity experienced by deaf signed language users (see mainly Chapter 4, but it will also be considered in the context of Chapter 3 which looks at the availability of resources to facilitate minority language use). This sort of detailed consideration of the linguistic profile of the population of interest can reveal key differences between functional and preferred languages, which may then be usefully set against the linguistic resources identified in Chapter 3. Both sets of results allow us to understand more fully the extent and impact of the deficit of opportunity that Chapter 4 is centrally concerned to discern. It is this

multilayered consideration of the population of signed language users in Northern Ireland that will allow for a greater understanding of the linguistic profile of deaf people here and, furthermore, will underpin the final sections of this research, which provide the linguistic needs assessment that is a necessary prerequisite to establishing appropriate levels of service provision.

The driving imperative of this research, emerging from the lack of a single reliable measure of the prevalence of the use of signed languages among deaf people, is the development of an appropriate methodology to capture this crucial information. Without a single reliable measure, a creative solution must be sought in order to bring together and utilise the existing recorded information, importing multiple measures into a single methodology in order to create a resource that offers a holistic perspective from which to generate reliable information. However, in order to be able to compare and combine data, there must be a systemic commonality between datasets, or else any process of comparison and combination risks providing skewed results. In view of the fact that existing records have been created in isolation, they will inevitably vary the terms of the population with which they are concerned, whether in how the population of interest is defined, or in the geographical area ascribed to that population. The impact of this methodological fragmentation is that, when data is released in ratios and integers, that data is effectively useless in terms of contributing to an overall understanding. It is for that reason that one of the central concerns of this thesis so far has been to adopt an interdisciplinary approach to creating an appropriate methodology so that the value of existing records and measurements may be fully understood within a homogenised set of data.

The solution that I have adopted, to meet the identified need to consider the discrete records in the context of metadata, is by adopting a geographical methodology of GIS, Geographical Information Systems. Using this method, data is considered in relation to spatial reference, the commonality by which data can be compared and combined.

The method that this thesis puts forward of meeting this clearly perceptible need to consider discrete records within the framework of metadata, is through adopting the geographical methodology of Geographical Information Systems (GIS), through which data is considered in relation to spatial reference, thereby providing an essential principle of commonality through which data can be compared and combined. GIS facilitates the integration of spatial referencing to traditional tabular format statistical recording in order to record and display data in a comparable format, and provides the ability to impose a spatial frame of reference into which different datasets can be entered to facilitate combination of multiple data records. This is a valuable function in the gathering of existing datasets from different sources since, as previously mentioned, it is inevitable that format will vary greatly between recording systems. In the context of this project, GIS functioning will be introduced in greater detail in Section 2.2.

Before that introduction, however, it might be timely to remind ourselves, albeit briefly, of the wider perspective. The adoption of a creative, interdisciplinary approach in this Translation Studies-based research project not only provides a means by which its core research questions may be answered, but also, the development of a methodology rooted in GIS, of which digital mapping techniques are central, aligns this work with the exponentially growing field of the Digital Humanities. The centrality of interdisciplinarity to Translation Studies in general and to this project in particular allows for the provision of alternative perspectives from which to consider and bring into meaningful perspective the complex situation and multifaceted experience of the community we are concerned with here. Moreover, the methodology that has been developed to that end in this thesis offers a significant variety of potential and unexplored applications. For example, the methodology allows for the combination of discrete datasets in a meaningful and reliable way by distributing the spatially referenced data across alternative geographies in order to generate comparable information. The datasets used in this thesis are treated as relating to one point in history; however, the multidisciplinary approach can easily be developed to consider

records of deafness across a time period using historical records to develop an additional dimension in the understanding of the population of interest. This potential application, among others, is once again further explored in Chapter 5, Section 5.4 - Further Research.

Section 2.2 - Geographical Information Systems

The following discussion follows on from the introduction of the topic of GIS in Section 1.3.

The versatility of GIS has allowed scholars and practitioners to employ GIS techniques in areas not explicitly concerned with spatial geography and to expose previously unexplored perspectives. GIS software is an interface where spatial data can be represented, analysed and compared with other datasets within a frame of reference. The spatial data is comprised of points, lines and polygons - that is, information can be attributed to single points in space, or along lines connecting two or more points in space, or as 2D areas of space. Further to this, the software works in a 3D realm, facilitating the consideration of elevation. Moreover, datasets that are input into the software can be cross-referenced to reveal otherwise hidden patterns within the data. Algorithmic calculations, with the potential to attribute various weightings to such inputs, can further consider multiple input datasets in combination in order to reveal macro-trends throughout whole data collections. It is this capability that is particularly relevant within the context of my research, which relies on multiple scale datasets with individual terms of reference from a number of different sources due to the absence of a single central or overarching record of population size or distribution. GIS offers the crucial capability of drawing together the fragmentary evidence of deafness and signed language use as currently documented. In contradistinction, if we are unable to draw these small measures of population together, alternative methodologies of population measurement, such as the national census, which relies on extensive primary data collection, are resource heavy and impractical in the context of this research. Using GIS software, a model can be designed that allows us to incorporate existing data and analyse such data to identify the most reliable measurement of population size and distribution available with currently available resources. A GIS model such as this will identify contemporary measurements of population, but it is also

dynamic and adaptable, in that it can incorporate further input datasets as they are captured or updated. In other words, not only does this methodology present us with a concrete result, but it can also ensure the validity of calculated output results are maintained as new data is made available. This facilitates the important possibility of a longitudinal study of signed language use as an offshoot of this research.

This extension of the use of GIS into the Humanities is, as indicated above, not pioneering; nevertheless, it is not yet widely used and has historically been met with reluctance from both developers and scholars. Bodenhamer et al. (2010) have sought to redress that reluctance:

We seek instead to conceptualise spatial humanities by critically engaging the technology and directing it to the subject matter of the humanities, taking what GIS offers in the way of tools while at the same time urging new agendas upon GIS that will shape it for the richer collaborative engagements with the humanistic disciplines (Bodenhamer et al., 2010:ix)

The benefits of GIS, compared to traditional population analysis methods in this context, are vast. It is possible to integrate distinct datasets, based on shared spatial information, visualising information and depicting special patterns previously hidden in tables and texts. Relationships between datasets can be identified and overarching trends become apparent only when fragmented information is presented within the bigger picture. As Bodenhamer states succinctly "...it is capable of integrating data from different formats by virtue of their shared geography" (2010: v). In its most simple form, GIS is a data management tool, but it has the capacity, as in this project, to be employed also as an analysis tool which can reveal previously unidentified trends within fragmented data.

In that way, GIS provides a dynamic solution to the research questions of this project and to achieving the research aims outlined in Chapter 1, obviating

the need to conduct my own primary research as a means of identifying the scattered populations with whom this work is concerned. By using existing data from multiple indicators and record keepers, accurate identification becomes possible with the functionality of GIS as a display and analysis tool, which offers more reliable research results than primary research, whose return rate, with no mandated authority to elicit responses, is likely to yield measurements of population that are both artificially reduced and viewed only in isolation. Without a means of both collating and ensuring the accuracy of measurements primary research would be extraordinarily cumbersome. For the sake of clarity, if we compare this methodology to fishing, primary research is comparable to a fisherman sitting with a rod, pulling in one fish at a time through the day. GIS is akin, on the other hand, to a drag-net, onto which many types of bait can be attached attracting a variety of fish representative of all the shoals in the sea, or rather capturing information from multiple different sources simultaneously to provide a fuller picture of the population of interest. Casting the net wide, using multiple indicators of deafness and signed language use, is the most accurate methodological approach, and is made possible through the use of GIS. Furthermore, as return of some of the information included in the model is mandatory, for example through the census, while the terms of reference in this case do not correspond exactly to the terms of reference of my research, the reliability and spread of the information will be higher than if I were to conduct primary research myself which would necessarily be limited to a small sample area.

Of specific interest to my research is the capacity of GIS to offer the framework for static population measurements to be considered in a new schema of understanding, in a context that could not previously be seen in order to gain a fuller and more meaningful understanding of the populations which the research seeks to identify. Bodenhamer (2010) argues that it is only through this sort of conception of scale that we can begin to develop holistic understanding:

Humanists, in a sense, are abstractionalists: they have the capacity for selectivity, simultaneity, and the shifting of scale in pursuit of the fullest possible understanding of heritage and culture.

(Bodenhamer et al., 2010: xiii)

In other words, it is precisely through the abstractionalist benefits of GIS, the way it renders the piecemeal data currently available in terms of organic patterns, that we can begin to visualise and depict the exact coordinates of the signed-languages community. In the short discussion that follows, I will consider the objectives of this research in terms of how GIS can provide the means to achieve them. The discussion, in particular, will focus on three important standards that the model must meet in order to meet those aims: that is, reliability, accessibility and flexibility. It is important that this research project does not simply create a snapshot measurement, that is a single capturing of population size and distribution within a single location at a single point in time. GIS, in contrast, is, as we have noted, a dynamic tool that performs calculations that allow the research to extend to the whole of Northern Ireland, the context for which the tool was developed. Moreover, the template for the calculation can also be applied to other geographical areas.

Reliability, of course, is key to any results-driven research. In the case of some methodologies, the accuracy of the results can be negatively affected both by scaling and by how data is managed within the processing of that data. With GIS, however, the accuracy of the output is only limited by the accuracy of the input in relation to the geography against which the data has been recorded – for example. council boundaries, Super Output Areas,¹⁷ and national statistics. There is no possibility of loss or distortion at any moment of the data processing stage as the original files are linked to the model and used for each individual calculation. The only cause for compromise on reliability - in terms of accuracy - of the information is the preservation of anonymity. It is important to remember that GIS offers the capability to define

¹⁷ Super Output Areas is one of the nine 2011 Northern Ireland Census output geographies against which information was released.

location with sub-meter accuracy; but as the focus of my research is the human subject, this is not desirable due to the disclosive risk that such accuracy entails. GIS, however, offers a solution to this ethical impasse in that the calculations can be carried out at the highest degree of accuracy possible while, at the same time, also setting a limit as to the level of detail at which the output calculations will be released. This effectively eliminates the need to reduce the accuracy of the inputs in order to preserve anonymity, therefore yielding up maximum accuracy while mitigating disclosive risk. This ethical dimension is discussed in greater detail in Section 2.3 - Ethics of Data Collection.

One of the primary aims of this project, as emphasised above, is that the results may inform service provision in Northern Ireland so as to meet the needs of deaf signed language users. Accessibility is, therefore crucial. Through this research I seek to identify service user paradigms in order to better inform service providers – for that reason, the requirement that the research should be accessible and usable is absolutely key. Both the calculated information and the model themselves must be easily understood, widely available and meet the needs of the service providers, who will be the ultimate consumers of both the research and the developed research tool. GIS offers the means by which complex calculations can be carried out and the results presented in a user friendly, visual form. Data are held against the area to which they relate, providing a clear geographical context. Moreover, because GIS is a digital resource, it offers the potential for wider sharing and, therefore, greater accessibility to the resource. Key to this is the system's potential for web hosting, providing online access to the resource, and adoption into existing service provider infrastructure, both of which are looked at in greater detail below, in the section that outlines the justification for electing to use ArcGIS software.

I need to counter a possible objection here. One disadvantage of using a specialist type of software to create a resource for which accessibility is a key requirement, is the potential lack of knowledge among end-users. I

anticipate, however, that this possible limitation will have little impact for the following reasons. Primarily, while GIS is a specialist tool, many service providers already have a digital mapping infrastructure established within their service, including local government who, as the funders of this research, are also the primary end-user target. Therefore, while GIS is relatively unknown in the field of translation research, I anticipate that the majority of those who make use of this resource will already be sufficiently familiar with the basic concept underlying GIS and its internal resources. To support this familiarity, however, along with the model itself - and as with any built GIS model - the project also offers a User Manual in order to improve and extend the usability of the resource developed in this research. Finally, GIS as a concept can be used in different environments. While the highly detailed calculations can be hidden from the output results, it is also possible to scale back the input data to create a simplified, web-hosted version of the model that can be accessed through a web browser and that demands no prior knowledge on the part of the putative end user – see, for example, discussion of the ratios estimate tool in Section 2.4. Restricting the inputs into this online simplified version of the User Model to population estimates only both increases the user friendliness of the resource, as well as mitigating against any disclosive risk (particularly associated with web-hosting).

Much of the discussion of the advantages of GIS so far has been predicated upon the dynamic nature of the system. Flexibility, in this regard, is key; accordingly, I will describe, again briefly given the constraints of space, the dynamic nature of GIS. I have already mentioned the geographies against which data is held, in terms of reliability; however, this can also be considered a feature in terms of accessibility by meeting the individual needs of end users. GIS allows output geographies to be defined by stake-holders, meaning that a developed GIS resource can be successfully used by a wide-ranging consumer base to calculate the information relevant to their specific service so that they are responsive to any changes in the remit of service provision (as will occur with the imminent council boundary changes in

Northern Ireland, for example). This functionality further increases accessibility by protecting the continued usability of a developed resource through its ability to be responsive to change.

Although I have introduced this function of flexibility in the context of accessibility, as a means of enhancing usability, there are wider ranging benefits arising from the flexibility of GIS which will become apparent in the discussion below on the reasons for choosing ArcGIS. But in terms of the system itself, the ability of GIS to provide an accessible solution stems from the dynamic nature of GIS itself as a model that can calculate results on an ongoing basis, rather than simply offering a static one-off calculation. As a dynamic tool which calculates results, based on the information that is available at the time of calculation, and applicable only to the user-defined area of Interest, the model provides statistical information that is immediately relevant to the needs of the particular end-user, thanks due the capacity to redefine the terms of reference for every calculation. With so much information regarding deaf signed languages still unknown, rather than offer another stand-alone national statistic, GIS provides the means to calculate unknown population statistics specific to the needs of the person running the calculation to different levels and from within the context of different geographical remits.

The primary justification for adopting GIS within the emerging methodology of this research is precisely this functionality that allows GIS to accommodate multiple different geographies for both input and output datasets, and provide a means by which to compare the information. These geographies are entirely responsive to the needs of the particular user, and can be created by the user or taken from existing published boundaries (such as the census output areas like Small Area, Super Output Area etc). This importance is exemplified by the current exercise being undertaken by local authorities to redefine council boundaries in Northern Ireland, already mentioned and discussed in greater detail in Section 2.4. Although the existing boundaries are expected to concertina into fewer new boundaries, the flexibility of the

GIS software allows for a new geography to be incorporated easily into the model.

In short, the flexibility offered by GIS methodology increases the potential level of utilisation of any resource developed from it; in turn, of course, this both increases the potential impact of this research and ensures its ongoing sustainability. As the model can be updated, the information it is able to calculate remains current. Unlike a census, which is designed to be a snapshot of the current situation within a country, the models developed as part of this research project continue capturing these snapshots on an ongoing basis, offering a crucial means to better understand a population that is itself dynamic and changing.

This section has been concerned to demonstrate that GIS offers a reliable, accessible and flexible method that directly addresses the research questions outlined at the beginning of this thesis. Using GIS, I am able to create a dynamic proof of concept from which to calculate linguistic demographic statistics regarding deaf signed language users in Northern Ireland. GIS allows me both to contribute to the development of the field of translation research by introducing digital geographic techniques, and to better inform service provision by reliably documenting demand in order to improve access to services for deaf signed language users in Northern Ireland. Finally, building and implementing a GIS model as a tool of calculation rather than a completed calculation, extends the life of the project by developing a product that may be used to continue fostering and enhancing our understanding of the population of signed language users. In that crucial way, the visualisation offered by the model created here echoes Bodenhamer's argument that "mapping is not cartographic but conceptual [...] not just a reflection of scale, but what is known at the time." (Bodenhamer et al., 2010: xi).

We now need to turn our attention to the specific GIS programme that has been used. The discussion so far has touched on this, but programme choice

is a key decision and requires consolidated discussion. In that regard, as is the case with word-processing software, for instance, there are a number of GIS software programmes available, of which I elected to use ArcGIS, which is developed by Esri, the Environmental Systems Research Institute. Esri, a global organisation, is unquestionably the world leader in GIS development. Its guiding principle - “Esri was built on the philosophy that geography can be used to shape a more resilient and sustainable future.” (Esri 2013) – is entirely consonant with the key expectations of this research project. Compared to open-source GIS software, the functionality of ArcGIS is far greater, which is important due to the emerging methodological approach of this research. Moreover, although the software requires the purchase of a licence, it is the GIS software used within Queen's University, and is therefore available to me as a student. Esri, as the name suggests, began as a research institute, whose core values remain central to the company's beliefs and as such, the company has a notably high level of engagement with developers and researchers who use their software. This is important, both in terms of potential exposure for this research, and for the support potentially available to me.

In terms also of the purposes and intended impact of this research, the tool I develop must be of use to service providers, including Government. A further reason for selecting ArcGIS is the fact that it is the GIS software used by the Northern Ireland Assembly. Moreover, as Esri inc. is a global company the wider intended impact of this research is also catered for; as the international market leader ArcGIS is the software most likely to be used in other geographical areas into which the models developed in this research may be imported. This criterion for selection is reinforced by the product range offered by Esri, specifically in terms of ArcGIS Desktop and ArcGIS Server. These two products offer different solutions using the same file format, with the result that the models developed in this research can be used within either Desktop or Server, depending on the needs of the user. For services that require high-level digital security, and are precluded from using third-party applications, as is the case with government departments, the model

can be hosted internally within the organisation by using ArcGIS Desktop or, in order to significantly increase the accessibility of the model, it can be hosted remotely on ArcGIS Server and accessed using a weblink. It is true that the use of ArcGIS Server presents a slightly higher risk in terms of unauthorised access to the information within the model; the ethical considerations of collating sensitive data and associated disclosive risk are discussed, as noted above, in Section 2.3, and the levels of protection that can be built into the model are discussed in Section 2.4.

In summary, the primary benefit of developing a methodology using GIS is that it allows for seemingly isolated sets of information to be considered in combination. Each existing record of deafness - i.e. existing datasets - can usefully be conceived of as a stained glass window of information. The window design stands for the geography against which the statistical information relates, while the size of the window represents the total area to which the information extends, so that each lead-lined section within the window design becomes the detail to which the record is broken down, and the glass in each section representative of the recorded statistical data. The size, shape, pattern and colour of each window are unique, so that the window is a unique artefact in the same way that each dataset holds its own individual meaning. GIS, however, provides the mechanism by which the windows can be placed one in front of the other, and viewed for further patterns to be revealed. In other words, the information held in each may be viewed both in context and in relation to the other windows of information, in addition to transcendent meaning and relevance that may emerge when all of the windows are viewed in palimpsest. This is achieved by the fact that GIS holds the datasets in layers and offers the functionality to view each layer individually or, as with our metaphor of stained glass windows, in combination. This overlaying functionality is enhanced by the fact that GIS also has the capacity to run calculations, a significant function in the context of my research, in order to combine the information held in each layer to create a calculated output. This calculation can be run against the entire area against which data is held, or refined to consider only an area of interest.

Much like admiring the series of stained glass windows through a filmmaker's viewfinder.

Section 2.3 - Ethics of Data Collection

The premise of this thesis is that existing population estimates of deaf people, signed language users and deaf signed language users, are piecemeal and only currently exist in isolation. One of the fundamental aims of this project, therefore, is to create a tool to combine these existing measures in order to establish a more complete understanding of this population. Of the existing data, some may be publicly available, such as census results; however, other data may only be released on request, with accompanying conditions of use; moreover, as I have already noted, intrinsic to combining and contextualising individual datasets against each other, all relating to the same population of interest, is the increased disclosive risk. This disclosive risk presents the greatest threat to ensuring research ethics and as such, following on from the early developmental discussion at the beginning of this chapter and, having established GIS as the primary methodology by which to meet the first of my research questions, it is important to discuss this and other ethical considerations here before moving on to the model design in Section, 2.4. By considering research ethics at this stage, the understanding of the potential threats, and the action required to avoid or mitigate such risk, can directly inform the following design and development stages of this work. Ethics is an important consideration in any research with human subjects; in the specific context of this project it holds greater significance as the population of interest is considered 'vulnerable' under The Safeguarding Vulnerable Groups (Northern Ireland) Order 2007.

This section, accordingly, sets out the key ethical considerations of this project, including the scale and scope of data to be collated and released. Primary consideration is, as explained above, given to the disclosive risk of recording data relating to human subjects. The discussion highlights the balancing of small-scale collection (with implications for reliability) against large-scale collection (with implications for confidentiality) as a prerequisite for identifying the most appropriate geographies to use throughout each stage of research. Further consideration is given to the potential risk of

exploitation of the model data, particularly with regards to forcing access to data held within the models that are not intended to be accessible to users. Digital security is a fast evolving field, in which I do not have specialist knowledge; however, the ArcGIS software is sufficiently sophisticated to offer tools for developers to limit access to the models and data held within the Arc infrastructure, which I shall also discuss in this section.

The data to be included in the model, which will be identified in the following section, has been recorded for reasons other than inclusion in this study, and meets the needs of the organisations specifically responsible for collecting the data. Therefore, the methods of recording and terms of reference vary greatly between these isolated datasets, in terms of format, accuracy and scale of detail. The format of datasets, and the requirement for data to relate to similar geography types, will be discussed in Section 2.4 as this variation between dataset format impacts more fully upon methodology than ethics. As part of this discussion in Section 2.4, the functionality of the software to be able to convert between geography types, will also be discussed – this is significant when comparing isolated datasets and is central to this emerging methodology. The accuracy of data will be addressed in the interpretative part of Section 2.5 - Interpretation of Results. Finally, of these three features of recording, scale of detail is also a key consideration as we must be careful to strike a balance between accuracy and ethics.

When deciding scale, there must be a compromise in the accuracy of the calculations in order to conduct the research in keeping with ethical requirements. Permission for inclusion from each individual within the population of interest cannot be sought as it would be in the case of primary collection, so for that reason anonymity must be guaranteed and generalisations made in order to prevent the identification of individuals – which is the primary meaning of ‘disclosive risk’ in the terms of The Office for National Statistics. Anonymity and accuracy are, of course, hard to balance, however. To maximise accuracy, data must be handled in the largest possible scale, i.e. with greatest detail. However, in order to develop an ethically

robust yet still reliable methodology, the scale must be reduced to the minimum required to achieve protection of identity. The level of generalisation, as with the action required, will vary at each of the three sequential stages of the data handling – namely, accessing data, running calculations with the data, and publishing data.

In the first of these stages – that of accessing data - the scale will be determined by the organisation that collated each of the datasets, signifying that no action is required to reduce disclosive risk. All the data to be included in this model is secondary – collected, as we have stressed, by external organisations. For that reason, the two factors to be primarily considered at this stage will be the scale at which the data was collected, and the organisations' own data protection policies, which will in turn determine the scale at which the data is released for inclusion in this research. Some of the datasets to be included in the model are already publicly available, such as Census 2011 data, so that the data has already been prepared in such a way as to obviate the disclosive risk through a joint Statistical Disclosure Control (SDC) methodology that was developed in partnership between the three Census Offices of the UK. This control allows data to be manipulated with parity across regions. Further detail on the SDC strategy is listed on the website of the Office for National Statistics, and is summarised below.

The aim of the SDC project is to design a UK SDC strategy in accordance with the agreed policy which protects against disclosure in the 2011 Census outputs whilst maintaining maximum utility of the data. The strategy will need to cover (pre-defined) tabular outputs, micro-data samples and possibly flexible user defined tabular outputs whilst taking into account the impact of interactions between these types of output. The strategy will also be designed to address the concerns of users whilst adequately protecting the data.

(Office for National Statistics)

While the specific methodology here may not be significant in the context of this research project, which aims to identify a population rather than to reduce the disclosive risk as a primary objective, it nonetheless raises the importance of parity between datasets. While it is not possible with the available input resources to treat raw data with the same methodology for the preparation of the information for ethical data handling, this may be considered another recommendation for future research, and should be considered in the design of output geography limits to be built into the models developed in this research.

The next stage of data handling is the running of data calculations. At this stage, the scale of data should be maintained as large as possible as the most detailed inputs into calculations will yield the most accurate outputs. During data handling the datasets will be compared against each other. The calculations are run by the GIS software based on the algorithms set by the developer. Pre-setting the algorithms that the developer runs locks down access to the model so that only one researcher may access the raw data, thereby strengthening the likelihood that the model will only be used for the purposes it was designed for and reducing the risk of exploitation of the data held within the model. The disadvantage of this is that, by limiting the opportunity to define the calculations to one sole person (in this case, me) who is not a statistician, the potential impact on the accuracy of the results from human error is increased. In order to safeguard against this, and to increase accuracy while maintaining anonymity, the model design and build, including the inputting of data and calculations, will be overseen by a designated Esri GIS consultant, whose task it will be to verify the accuracy of the methodology and results. Such partnering with a software specialist in this section of the methodology will provide the research with greater integrity, minimise calculation errors, and maintain confidentiality, as Esri consultants are themselves bound by strict client data confidentiality agreements. The interdisciplinary nature of this research, resulting from the introduction of specialist geographical techniques to the field of translation and interpreting, means that partnership with specialists from the

researcher's non-specialist fields are absolutely crucial in safeguarding the accuracy of the outcomes. This external involvement is easily justified due to the additional value offered by interdisciplinary research, and the innovative solution of incorporating geographical and statistical techniques into an emerging methodology to answer the research questions of this thesis presents an opportunity to engage with existing information and research techniques from outside this immediate field of interest. It is important for the credibility of this research to clearly define the limits of the consultant's contribution to this work, relative to that of the author. The extent of the involvement of the consultant has been limited to building the application that I as researcher conceived and designed. In the same way that an architect conceives and designs a building, subsequently relying upon a tradesperson to combine bricks and mortar in order to turn their drawing and plans into the concrete reality of a house, so I relied on the GIS consultant to create the useable models that I conceived and designed. In short, the consultant, Adam Glover, wrote the User Model Configuration and User Guide, included in Appendix 3 as the documentation to support users of the Model to be able to use the tools.

A fundamental aim of this research project, as noted from the outset, is to establish a means of collating data to influence policy, service provision and future research. Therefore, the data must be released in a scale that is appropriate to the minimisation of disclosive risk while, at the same time, maintaining maximum utility for stakeholders. As such, prior to release, results should be reviewed to identify and in some way mask the individual records that are held in any single output area, meaning that the final geography of output areas must also be analysed against disclosive risk and, in turn, measured against the requirements of stakeholders. How this can be achieved will be discussed in Section 2.4; however, at all times it remains crucial that when selecting the output geography, as discussed above with regards to the input scale, the maximum scale to which data can be released must be given due consideration so as to minimise disclosive risk.

The final compromise between research aims and ethical research conduct relates to the availability of the model, and therefore the data held within the model. Associated terms of use for datasets may state limitations on the sharing of the data and therefore safeguards must be introduced in order to ensure that users of the model cannot access the underlying data against which calculations are run. This risk is amplified when the model is hosted online which, while supporting the project's concern to create accessible resources, also creates potential for the data to be misused. Consequently, due consideration must be given in the design stages of the model development to ways of minimising the risk of illicit access to the underlying data within the models, particularly, as noted above, when hosting the model online.

The working methods that derive from this consideration of the ethical implications of the project inform Sections 2.4 and 3.3, which show how they feed into the design and development of the models that consider both the linguistic demographics of, and resources available to, deaf signed language users in Northern Ireland. Finally, it should be noted that ethical approval for this thesis was granted by the (then) School of Modern Languages Ethics Committee at Queen's University, which functions as part of the wider University Risk Management Committee. The project has been recorded on the University's Human Subjects Research Database, and the approved Ethics Approval Application, consent and informed participation form, as well as the research risk assessment itself are available for scrutiny in Appendix 1.

Section 2.4 - Methodology and Model Design

Section 2.1 discussed the work of Werngren-Elgstrom, Dehlin and Iwarsson (2003), which takes the form of a population study whose aim is similar to that of this project, namely the identification of deaf people within a wider population. Theirs remains a highly significant and pioneering study in the field, indeed one of the very few anywhere to develop anything like a clear and useful set of statistics. Their methodology was to compare sets of data collected from three categories of sources: educational, social and care-giving sectors:

Data were collected ... from public authorities, and services in the educational, social and care-giving sectors involved with Deaf people (See table I). Lists and catalogues enumerating deaf individuals in each sector were systematically examined.

(Werngren-Elgstrom, Dehlin and Iwarsson, 2003: 316)

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TABLE I. Sources of data and their coverage of age groups

Data source	Age groups (years)			
	0-6	7-17	18-64	65-99
Pre-schools	X			
Specialised pedagogues	X			
Compulsory school		X		
Upper secondary school		X		
Labour market advisees			X	
Adult educating centre			X	
Folk high-schools			X	
Drug-addict unit			X	
Psycho-social rehabilitation centre			X	
Auditory habilitation and rehabilitation centre (Deaf-team)			X	X
Centre of interpretation service	X	X	X	X
Deaf associations	X	X	X	X
Community care organisations including nursing-homes	X	X	X	X

FIG. 2.4.1 COPY OF WENGRÉN-ELSTRÖM ET AL. TABLE 1. SOURCES OF DATA AND THEIR COVERAGE OF AGE GROUPS

The methodology of my research also compares datasets, the identification of which will be outlined in this section. It is important to indicate from the outset that, in terms of the pioneering population study referred to above, the

three categories of data, while appropriate in the context of Sweden where the Werngren-Elgstrom et al research was conducted, are not appropriate in the context of Northern Ireland. In the category of education in the Swedish study, data was collected from specialist primary schools for deaf children and one upper secondary school. Unfortunately, this is irrelevant in the Northern Irish context as their methodology relies on a more advanced infrastructure of specialist service provision. Unlike Sweden, which has many specialist schools for the deaf, deaf children in Northern Ireland are placed largely in mainstream education, in view of the fact that there is only one specialist sensory impairment school - the Jordanstown School for the Deaf and Blind. Records of children who work with peripatetic Teachers of the Deaf (ToDs), in conjunction with Jordanstown enrolment records, would offer some data; however, the dataset provided by this would be small, effectively representing in any meaningful way only about one third of all the collected data that is required by this thesis.

The remaining two categories of data - social and care giving sectors – would, in the context of Northern Ireland, also be difficult to consider as discrete entities. There is a single public authority here, the Department of Health, Social Services and Public Safety (DHSSC), whose remit includes Health and Social Care and, as such, it would be difficult to separate data collections from a single source. This, in turn, reduces the scope of any data that might be collected there, further reducing the accuracy of results because fewer indicators would be identified. Let us recall here that the aim of this thesis is to identify a scattered linguistic minority for which no single measure of population exists. This then requires a tailored methodology, one that relies upon a new model to compare datasets from identified indicators of the prevalence of deaf populations, a model in which there is a direct correlation between quantity of viable indicators of population and quality of research accuracy. Following from this, a greater number of indicators may be identified by considering the population under analysis from a greater number of perspectives. For these reasons, while the concept of a multi-perspective measure of population is central to the Swedish research and

can be imported into this study as a central plank of its methodology, alternative population measures that are appropriate to Northern Ireland must be identified for inclusion in the new model. The input data will only reflect the specific context of Northern Ireland, and, consequently, be a more accurate reflection of the reality on the ground if we can develop a new frame of reference with more than two categories by which to classify indicators. It is clear that no single indicator will identify the total population, meaning that any reliable representation of the total population will only be achieved by combining multiple measures from a range of indicators.

The question arising from this is how we actually identify a deaf person. In order to answer this - and begin to create a new frame of reference in the process – we have to consider the Baker-Shenk and Cokely Model of Avenues of Membership to the Deaf Community.¹⁸ (Reproduced from Baker and Cokely 1980:56)

¹⁸ Intentional capitalisation of Deaf people who use sign language.

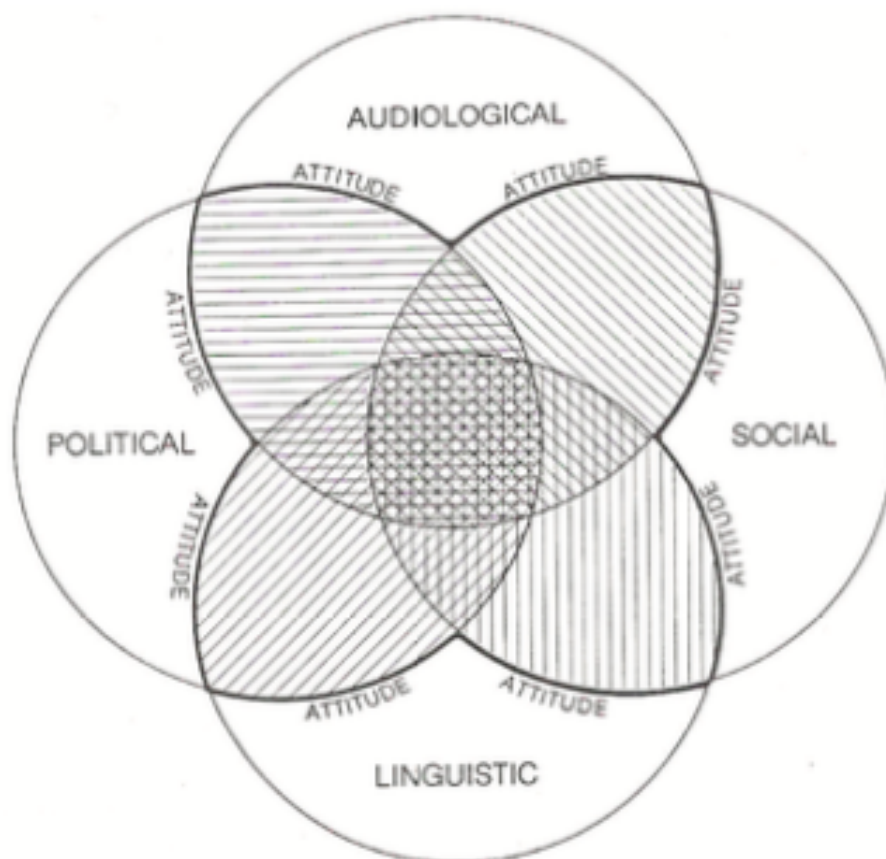


FIG. 2.4.2 BAKER-SHENK AND COKELY (1980) AVENUES TO MEMBERSHIP OF THE DEAF COMMUNITY

My research, if it is to undertake any meaningful analysis of deficit of opportunity and access, must establish the linguistic profile of deaf signed language users in Northern Ireland. But the underlying condition of identifying the local population of signed language users is rooted in the question articulated above – in other words, we must underpin our new model with an established definition of deaf identity that considers deafness in a holistic sense. That definition - discussed earlier in this thesis – is derived from four categories of analysis, or qualities of identity: medical, social, political, and linguistic identity. The search for indicators of deaf and deaf signed language populations within each of these perspectives on deafness will maximise the scope of the emerging model into which the indicators are fed. Importantly, the Baker-Shenk and Cokely model considers deaf identity outside signed language use – in other words, the indicators identified will statistically capture deaf people who do not sign. As the focus of my research is on

signed language users, input data from this range of indicators must be honed in a tripartite process of refinement: identification of the population of deaf people who **may** use signed language; identification of actual signed language users; identification of the populations of each language group (BSL/ISL).

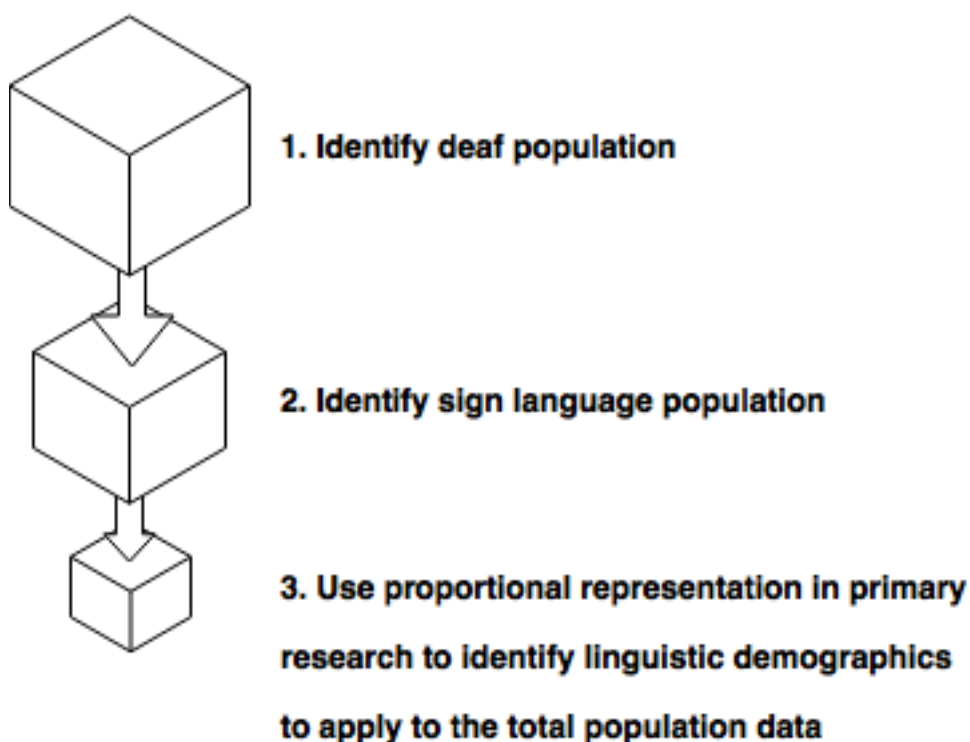


FIG. 2.4.3 STAGES OF THE USER MODEL

An alternative methodological approach would be simply to adapt an established scattered population calculation to fit the needs of this research – that is, to rely on a statistical probability. This may be more conventional, but my research has already shown that existing population indicators vary widely, that previous calculations of population size have been crude, and that records of deaf signed language users are inadequate and, indeed, only maintained within the voluntary sector. Taking all these factors into account, my thesis proposes that the establishment of a methodology incorporating all available input indicators will inevitably yield more accurate results than the adaptation of an existing methodology that has been developed in order to assess input data collected on a much larger scale.

The alarming fact underlying all of this is that there is no central register for the deaf in Northern Ireland. Deafness is not a reportable disability and there is no reliable single record of the prevalence of deafness or the use of signed language in Northern Ireland. The demographics of these interrelated groups therefore becomes an urgent area of research, for which appropriate indicators of deafness must be identified. The first of the four categories of deaf identity from which to develop indicators is the medical definition of deafness - that is deafness as a pathological condition relating to the reception of sound, a sensory impairment, and a disability. Medical data relating to deaf populations has the potential to capture a large proportion of the total population that this research seeks to identify due to both the opportunity and the requirement to engage with health service providers – opportunity as the National Health Service (NHS) is available at the point of need to every resident of Northern Ireland, without discrimination, financial or otherwise; requirement in so far as every person will inevitably require support from the NHS at some point in his or her life. NHS governance, of course, requires patient records to be held for everyone treated by the service. There is a complication here, however, in that while it is reasonable to assume that every deaf person is likely to engage with the health service in their life (as is true of the wider population), deafness is not a reportable disability and therefore may not be recorded in all instances. This means that while it is highly likely that the NHS will have records for deaf people, they may well not record deafness or any preference in terms of the use of signed language. Medical records can therefore help to identify deaf people and deaf signed language users, but in themselves are a fallible source of information. An alternative approach to identifying deaf patients is to consider patient numbers treated by departments of audiology. The limitation here is that some deaf people have no residual hearing, which means that audiology services offer very little useful support. In addition, not all deaf people willingly accept that deafness is a disability, choosing not to attempt to restore their hearing with the result that they have no need to engage with audiology services or to use the NHS for any reasons relating to their deafness - this reluctance to accept the medical definition of deafness as a

disability is discussed in the Introduction to this thesis. This lack of a universally accepted medical definition of deafness further strengthens the argument for the need for multiple indicators to accurately identify and measure the deaf signing population.

The fact that NHS Trust patient records and audiology records are limited in their scope does not rule them out as potential sources of information for all three levels of analysis – depending, of course, on the level of detail recorded within them. Total patient figures per audiology department would contribute to the first level of analysis, as would GP patient records that identify patients who present with hearing loss. Both sources may also record the total numbers of patients who request signed language interpreters, thereby feeding into the second level of analysis, and details of language choice (the third level of analysis). However, without a central requirement that specifies what must be recorded, information will vary between record holders. Moreover, of course, obtaining data from medical records and patient statistics can be difficult due to data protection and considerations of confidentiality. But, as we develop a viable model for the future, what is more significant here is the requirement to record and report in order to inform what we know about the extension of this invisible community.

NHS records are highly sensitive, but that is not true of all data in the medical category of deaf identity. All census data is made freely and publicly available, as we have already noted. The 2011 census recorded long-term disability by type, including deafness. Accordingly, the next indicator to include in the model is self-identified deafness, recorded in the 2011 census, as a secondary data source. This data is useful in the first-level analysis of the emerging model. The 2011 census included a question on ‘main language’, to which British Sign Language was listed as a sample answer. While this is positive in terms of raising the profile of signed languages, the specific wording of the question limits the usefulness of the results as a reliable input data source for this model. Census returns citing any signed language were extremely low in quantity, an explanation for which will be

offered in the section of the thesis that deals with the analysis of the model in terms of the reliability of input data.

The second category of indicators, taken from the Baker-Shenk and Cokely model, is the social element of deaf identity. Atherton (2012) discuss in detail, the collective social identity of deaf people and the role of social activities in the lives of deaf people. Central to that social identity, until recently, were deaf clubs. Before the advent of social media and key advances in communication technology, the deaf club provided the key opportunity for engagement. With technological advances, the popularity of deaf clubs is now waning, although social engagement among deaf people is maintained through membership of deaf organisations – principally in Northern Ireland, The British Deaf Association (BDA), Action on Hearing Loss (AoHL) and Hands That Talk (HTT). The BDA and AoHL are national UK charities, whereas HTT works only in Northern Ireland - based in Dungiven, it serves largely the surrounding areas. Membership lists of these organisations provide the next set of indicators to include in the emerging model. Each organisation gathers membership details according to their own needs and, in the case of HTT, locality, but there are overarching similarities between all three. All three organisations hold data of membership numbers that are broken down by area. Each organisation also records whether members are hearing or deaf, and their language preference. The data from each organisation, all of whom have committed to this project, will feed into our three levels of analysis in the model to establish the linguistic profile of the identified population.

The third of the four categories of indicators is political engagement. In Baker-Shenk and Cokely's model, this refers to the engagement of an individual in campaigns related to deafness, such as deaf rights and signed language recognition. The context of design, once again is important in that the model was established in the late 1970s in America, when there was an emerging drive among deaf people, reflected in academic research, to recognise the deaf as a distinct community with their own culture and

language. This political engagement on the part of deaf people is discussed in greater detail by Wilcox (1989), particularly in Padden's key contribution (pp.1-16). Similar political action also made itself felt in the UK slightly later, leading to official language recognition by the Government in 2003 and 2004. Since then, as is the case in other sections of the wider community, politically motivated action among deaf people has diminished. There are no groups or organisations in the UK dedicated to political action by deaf people, so that what action there has been has occurred sporadically and independently – for instance, the Recognition of Signed Languages in the UK and Ireland Conference that was held in Queen's in September 2013. While it would be possible to seek individual attendance records for each politically motivated event, the return in data from such efforts would be too small and too ad hoc to deem this a viable source of information. With no overarching record of deaf individuals who choose to engage with political action, the closest alternative is to look to the BDA, whose remit includes campaigning on behalf of deaf people. However, deaf people who engage with this aspect of the BDA's work will already be captured in the overall membership data, so that effectively no additional information can be captured from this source. The inescapable conclusion is that in the context of Northern Ireland, there are very few if any, appropriate population indicators within the category of political identity.

The final category of population indicators to be considered is what has been termed the linguistic identity of deaf people. The central difficulty in this particular instance is that there are no existing registers of signed language users in Northern Ireland; given the fact that signed languages are minority languages, this thesis proposes to identify signed language users by focusing on their interaction with the majority language population. These interactions between language groups, by their very nature, require linguistic mediation and so, for the next series of indicators by which to identify deaf signed language users, the analysis of interpreter working patterns presents itself as a possible way forward. The reality is that all signed language interpreters in Northern Ireland are self-employed and, as we saw in the case

of political engagement, the relatively insignificant return of data that one could gather from individual interpreters (in terms of client numbers broken down by location) would not support any viable statistical analysis. All interpreters are freelance, but there are a few specialist interpreting agencies that hold larger data collections than individual interpreters. That said, records of interpreter working patterns are not as simple a measure as some of the indicators mentioned earlier because each record does not correlate directly to a single individual, with the result that populations may be artificially inflated. It is highly unlikely that an individual will be registered with two GPs surgeries or that there is any duplication of patient records, but there is a strong possibility that a deaf signed language user will require an interpreter in more than one location. Therefore, it is important in information requests relating to interpreter working patterns to specify that it is the client population and clients' home area that are of interest, not the location or frequency of interpreter bookings themselves.

It is still possible, however, that the booking location itself may yield reliable data. As a practitioner, I have been booked for medical interpreting assignments at GP surgeries where the surgery staff was not aware that the patient required an interpreter. Most health trusts have service level agreements (SLAs) in place with interpreting agencies, meaning that trust approval for each interpreter booking is not required as long as the interpreter is provided through the agreed supplier - for example, AoHL currently holds the SLA for the Belfast Trust. Deaf patients requiring interpreters will often be aware of this, and will choose to request the interpreter booking directly with AoHL rather than with the Belfast Trust healthcare staff. The clear implication of this is that it is possible that patient records may not record the need for an interpreter. Therefore, in order to maximise the accuracy of this study, I propose an additional indicator that encompasses both categories of medical and linguistic identity - that is, medical centres for which communication support agencies have provided interpreters.

It is noted elsewhere in this thesis that, although there is no agreed measure of population size of deaf signed language users, there are a number of estimates published by AoHL and the World Health Organisation (WHO). These estimates, first discussed in Section 1.3, while differing greatly, can still provide benchmarks from which to compare the results of the emerging model. There are two ratio estimates that we need to include for comparison: firstly, there is a 1:6 ratio of people with hearing impairment to the general population (AoHL. 2014), and secondly a 1:1000 ratio of signed language users to the general population (WHO, in Werngren-Elgstrom et al. 2003: 311). Applying these ratios to demographic data for Northern Ireland, broken down by Small Area,¹⁹ will give total population and distribution estimates against which to compare the calculated data of this research. The final estimate we should bear in mind is the commonly quoted 5,000 BSL users and 2-3,000 ISL users in Northern Ireland.

We have now identified significant indicators of deafness drawn from each of the four categories of deaf identity set out in Baker-Shenk and Cokely's model, with existing population estimates as comparisons. These indicators and estimates will provide inputs to the emerging model, and are summarised in Appendix 1. Having established the significance of the inputs, we must now decide how the identified datasets can be reliably compared in order to identify the population of deaf signed language users. The question that now emerges concerns the availability of a method that allows us to understand breadth and depth of distribution.

The answer comes in the form of GIS, as noted earlier. A major consideration when selecting datasets for analysis through GIS is their potential to be spatially referenced. Ideally, in order to ensure maximum accuracy, the data should be tied to a specific location, such as a GP's surgery, or in a format that can be easily referenced to an existing boundary dataset, such as census "small areas". In order to facilitate our emerging methodology,

¹⁹ Census geographies, of which SAs are one, delineate the areas to which data relates. Census geographies will be discussed later in this section.

geographic data will be captured in a file type compatible with ArcGIS software, such as a shapefile or feature class. Census data is an example of a dataset, where tables of data are publicly available to download which include a reference column of codes against which to match each row of data to a specific geography boundary held in an accompanying boundary dataset. The boundary datasets in this case are available in shapefile format. The shapefile of output area delineations can be read by Arc software, so that when the appropriate census table is joined within the software a visual representation of the area to which the data relates is generated. A shapefile, read by Arc but with no data census attached, is offered below. Each polygon has a code attributed to it - its attribution (eg. 95AA0151), which also features in the dataset, by which the two files can be joined in order to display the data recorded in the table graphically (joint data not shown).



	A	B	Sheets	Charts
1	DOA	TC_P00		
2	NORTH-EIRN IRELAND			181,063
3	95A001S1			1113
4	95A001S2			1826
5	95A001S3			1902
6	95A002W1			1234
7	95A003W1			1022
8	95A004W1			8113
9	95A005W1			2201
10	95A006S1			1992
11	95A006S2			2994
12	95A007W1			2140
13	95A008W1			1868
14	95A009W1			2226
15	95A010W1			1552
16	95A011S1			2902
17	95A011S2			2504
18	95A012W1			2775
19	95A013S1			1246
20	95A013S2			1562
21	95A014W1			2941

FIG. 2.4.4 CENSUS SMALL AREAS AND ATTRIBUTES TABLE

These shapefiles are the jigsaw pieces onto which the census data picture is printed. As with a completed jigsaw, when a dataset is designed to be joined to a predefined geography, the data is displayed, without gaps or overlaps, across the entire area to which it relates. Shapefiles may also be in the form of points or lines, although data relating to lines is uncommon in population data and more likely to occur in other geographical features, such as altitude

and depth, and natural features, such as rivers etc. Point shapefiles are less jigsaw-like and more akin to a peg board where data is confined to single spatial points - as the name indeed implies. The table below summarises all the identified indicators and population estimates for inclusion in the emerging model, listed against the associated spatial dataset and geometry type of each dataset.

Data source	Associated geography (Source/publisher)	Geometry type
Census 2011 prevalence of deafness	Census geographies (NISRA)	Polygon
Audiology department records	Hospital location/ Health trust boundaries (NISRA)	Point/polygon
GP surgeries	GP surgery location (NISRA)	point
BDA membership (broken down by hearing and language)	Postcode (NISRA)	Polygon
Hands that Talk (membership)	Postcode (NISRA)	Polygon
Action on Hearing Loss (membership)	Postcode (NISRA)	Polygon
Hands that Talk (communication support)	Postcode (NISRA)	Polygon
Action on Hearing Loss (Communication support)	Council area (NISRA)	Polygon
Census 2011 main language (signed language)	Census geographies (NISRA)	Polygon
1:6 (AoHL)	Census geographies (NISRA)	Polygon (Ratio calculation)

1:1000 (WHO)	Census geographies (NISRA)	Polygon (Ratio calculation)
2-3,000/ 5,000 (RNID)	Census geographies (NISRA)	Polygon (Ratio calculation)

TABLE 2.4.1 INDICATOR SUMMARY TABLE SHOWING GEOGRAPHY AND GEOMETRY TYPE

Data secured from sources other than the Northern Ireland Statistical Research Agency (NISRA) will be published in order to relate to alternative spatial units. Regardless of type (polygon, line or point), as long as the dataset can be spatially referenced, the information can be compared within Arc, so that the information is always useful. It is likely, however, that data will be available without a corresponding spatial dataset, and not in an immediately useable format. That said, this data could be manually joined to the publicly available datasets to which they relate, accessed through Spatial NI; alternatively, for data without a corresponding dataset, the spatial extent could be created manually - for example, patient numbers identified as signed language users per audiology department in Northern Ireland. This information would not be publicly available and is likely only to be offered through personal correspondence with service providers and on a rigorously controlled and regulated basis. It is therefore highly unlikely that the data will be provided in format that is immediately compatible for ArcGIS, as it will almost certainly be collected as a list of hospitals with corresponding patient numbers. This apparently simple record, however, can be converted into a useful format with the aid of publicly available data collections, mainly published through Spatial NI. In this example, there is a point dataset that records the location of every hospital in Northern Ireland. The figures for each hospital with an audiology department can be linked to this existing dataset to create a points-based spatial reference for the collated figures. The methodology used by this research model requires comparison between,

and analysis of, multiple indicator datasets. Point information is useful in identifying key locations with known values; however, within the proposed methodology of comparison between datasets, information must be presented in the same geometry type. This requires further reformatting in that the geometry of datasets, if not already formatted, must be converted to polygon references. There are two methods for achieving this. For health trust areas with only one audiology department, it could be reasonably assumed that the health trust boundary would also be the boundary of the audiology department's service. For those with two or more, the sum of the patients at all audiology departments can be easily calculated. Alternatively, crude boundaries can be generated within ArcGIS, based on hospital locations using the Thessien Polygon²¹ tool. This tool creates a jigsaw effect from the points by calculating boundaries around the points that are equidistant between a point and the nearest neighbour. This demonstrates that information that does not have immediately available spatial data may still be compared within the emerging GIS methodology. In other words, data that may appear non-spatial may still be useful and should not be discounted. While the second method will produce results that are more generalised than data accompanied by its own corresponding geography, accepting this partial reduction in accuracy will allow more datasets to be included in the overall model and, through that, will enhance overall reliability.

The methodology emerging from these considerations results from an interdisciplinary approach to problem solving. By combining deaf studies theory with established significant population indicators, geographical data management and analysis tools, with contemporary digital mapping techniques, the piecemeal data on deaf people and signed language use that has been collected, often unintentionally, from a wide range of sources can be brought together to create significant meaning. Data that has been recorded largely only for the purposes of the organisation in question and held in isolation, when pulled together into a format that can be compared

²¹ Further detail of the Thessien Polygon tool and how it is used in this research can be found in Appendix 3: User Model Configuration and User Guide

and contrasted, gains deeper significance and can reveal new patterns of signed language use amongst deaf people in Northern Ireland.

As we proceed to apply the foregoing methodology to the development of the model itself, it is important that the reader should bear in mind that this part of the discussion, along with the Resource Model developed in Section 3.3, comprises the practice-based element of my thesis. Accordingly, this discussion should be read alongside the video fly-through demos of the User Model in Appendix 6, and Appendix 3: User Model: Configuration and User Guide. The (MXD) computer file containing the model is only readable within ArcMap 10.3.1 or later. Appendix 3: User Model: Configuration and User Guide provides a step by step guide to using the model, in addition to the notes on the model development outlined below. The accompanying videos in Appendix 6 are screen captures, demonstrating how the User Model works.

Some preliminary notes are also required here. In April 2015, during the course of this thesis, council boundaries in Northern Ireland changed from 26 district councils to 11 super councils. The 2011 census Small Area geography, introduced earlier, includes 890 Super Output Areas, which combine to create 580 Electoral Wards, which, in turn combine to fit within the boundaries of the previous 26 district councils. The new council boundaries do not fit within the same perfect jigsaw. In order to create a model that is up to date and of maximum usefulness, the new council boundaries for the 11 super councils must therefore be adopted as output areas. However, as a significant proportion of the input data is recorded against the old geographies system, the data must be transformed to fit the altered boundaries. In response to a widespread need to compare data across the differing geography systems, NISRA has created a Best Fit look-up table as official guidance on how the Small Areas (SAs) should be considered within the new council boundaries. This availability of official guidance negates the need to revisit the algorithmic methodology that I have used so far, and increases the reliability of the transfer of data.

The User Model calculates results in two steps. Following the conventions of GIS, these stages are considered separate 'models', and when considered together become a 'toolbox'. This is the terminology that is adopted in the User Model Configuration and User Guide in Appendix 3, as the guide is written for users with basic GIS competency. For the purposes of this research, the two elements of the calculation are referred to as Steps 1 and 2 within the User Model - these steps correspond with the tripartite process of refinement described previously. Step 1 calculates the population identified as living with a hearing loss. Step 2 identifies, from the results calculated in Step 1, the population discerned as using a signed language. The third stage of the tripartite process of identifying the population of deaf people is not included in the current version of the User Model because it requires stratified sampling and proportional representation. Because there is no need to use GIS for the third stage, it does not exist in the User Model. Furthermore, as the calculation to identify the third defined group is dependent on the results from the second defined group, it cannot be carried out at this stage since the User Model is a proof of concept which, without complete data, cannot calculate reliable data to be used in Step 3 of the process of defining deaf signed language users. It is important to recall that the User Model is designed as a proof of concept, so that not all data fields are populated and, of those that are, some data is fictional for the purposes of model testing. Accordingly, the data currently calculated is not sufficiently reliable to justify carrying out the third step within this project. The calculations carried out in the model are 'Geoprocessing' tasks, which cannot be executed online without substantial financial investment, which would be required to obtain a software license for ArcGIS for Server to be built into the application (which is more advanced GIS programming than is feasible to use in this project at this stage). Therefore, the User Model has been developed in ArcDesktop as a map document where the files are stored on the machine, or held remotely, and the 'paths' to access these files are stored in the map document - see Appendix 3, page 16, 'Accessing the Model'.

The first model calculation is to run an intersect against each indicator of geography. An intersect is like a cookie cutter tool that cuts through all the layers of information held in the model. The shape of the cookie cutter is that of the Area of Interest, as defined by the user in the initial action of using the model. In Step 1, the geographies against which information is held are: census small areas, postcodes and border counties, and the audiology services' sphere of influence estimates. Data relating to one or more of the indicators, as defined earlier in this section, is held against each geography. In order to improve efficiency in the model's processing, the indicators are grouped by geography so as to avoid duplication of the intersect calculation. Testing revealed that the introduction of this efficiency reduced the calculation run time from on average 40 minutes to less than 90 seconds.

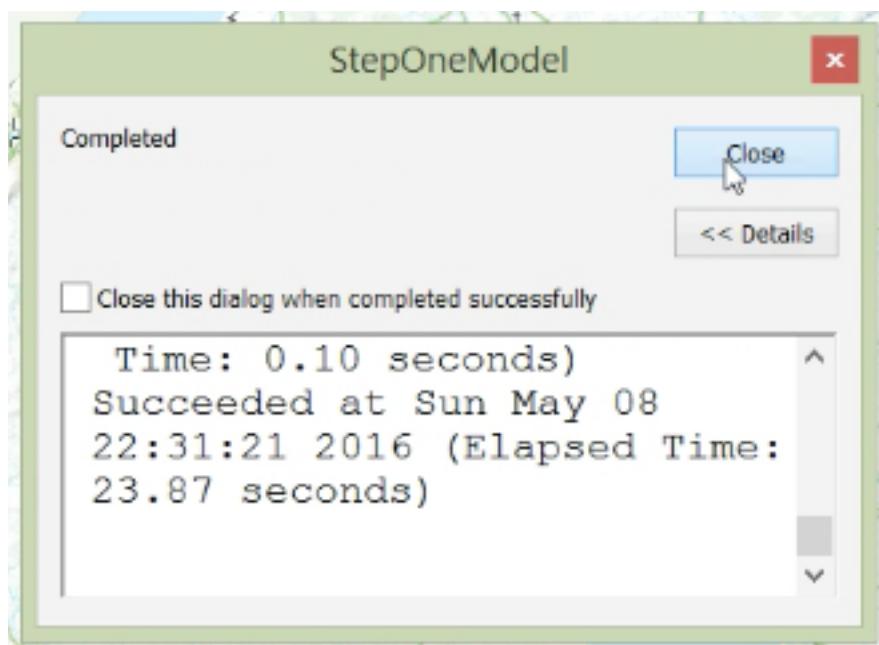


FIG. 2.4.6 STEP ONE MODEL PROGRESS WINDOW (COMPLETE)

The four indicators processed in Step 1 are the census information (CensusKStat – signifying Key Statistics), the AoHL ratio estimate of 1:6, AoHL membership statistics, and audiology services' patient records. The total population within the Area of Interest identified by each of these indicators is calculated and the four results are compared to find the highest

value 'AcceptedValue'. The justification for setting the highest value as the AcceptedValue is outlined and evaluated in Section 2.5, which examines the interpretation of results. It may be worth noting at this point, simply to ensure that the reader fully understands the process, that the temporary working data specific to each calculation is held in the Scratch Pad, which is the software equivalent of a whiteboard for calculations. When the model completes a calculation, the scratch pad is cleared. The information held within is only useful in terms of calculating the output results, but is of no intrinsic significance.

The total population identified by each of these indicators is calculated by creating a copy of each geography, placing each into the temporary 'scratch workspace'²² and adding a field called 'TrueArea'²³ as a basis for calculating the value ($\text{TrueArea} = \text{Shape_Area}$). The model then runs the tool 'Intersect' to create a new dataset that contains only the areas of the copied geography that intersect with the Area of Interest. At this stage, the calculations are solely concerned with the areas that overlap the Area of Interest, and have not yet drawn upon the population data. The intersect tool, within the field of GIS is often likened (ESRI)²⁴ to a cookie cutter (as we have noted) with which layers of spatial data can be cut through around a predefined area. Developing this cookie cutter metaphor, at this stage the sheet of cookie dough has been rolled out, the cutter shape has been selected but the cookie has not yet been cut and the chocolate chips in the cookie have not yet been counted.

²² Only created when the calculation is run within the model (for demo and development) but is not created when the model is run as a tool (as it is unnecessary as the information contained in it is only usually useful within the calculations).

²³ ArcGIS software does not support spaces in field names or datasets. Standard practice is to replace spaces with underscores or use capitalisation to differentiate between words. Eg. True_Area or TrueArea.

²⁴ <http://desktop.arcgis.com/en/arcmap/latest/tools/analysis-toolbox/clip.htm>

The intersect tool re-defines the area of the total polygon under consideration, so that the Shape_Area (which is calculated automatically by the software) has changed to include only the overlapped area, effectively cutting out the cookie from the sheet of dough. It is for that reason that it is important to introduce the 'TrueArea' field in the previous step of the model. At this stage, the full area of the original polygon (TrueArea) is known, as is the area of overlap from the Area of Interest, enabling us to calculate the percentage of the overlap (OverlapPercentage). Returning to the cookie analogy, this serves to count, by means of a calculation, the number of chocolate chips in the cut cookie. This is added as a new field and calculated as $=(\text{Shape_Area}^{25}/\text{TrueArea}) * 100$. The overlap percentage is then used to calculate the estimated number of deaf people expected to appear in the intersect area of the indicator $=(\text{INDICATOR}^{26}/100) * \text{OverlapPercentage}$. The model assumes an even distribution of populations within each geography, an assumption that will be discussed in Section 2.5.

In this way, values for each of the indicator geography areas (SA, audiology sphere of influence etc) that either fully or partially falls within the Area of Interest are calculated. Individually, these values are of little significance as they each relate to smaller areas within the total Area of Interest; the next calculation, therefore, is to draw these together in order to generate the total population estimate for the Area of Interest for each Indicator. This is done by using the tool 'Summary Statistics', which allows the developer to specify the data table against which it should run (the input), the location of the output, and the field against which the tool should run and the calculation (statistic type) to be carried out (in this case 'SUM').

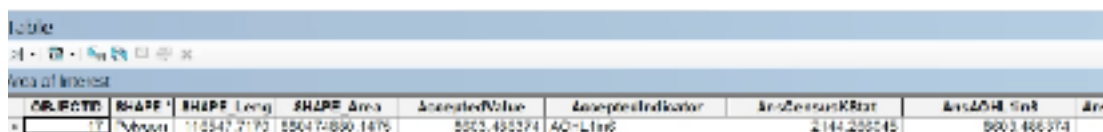
If the Area of Interest comprises more than one area at this stage – that is more than one smaller delineated polygon, or more than one cookie cutter - the Summary Statistics Tool would, by default, apply the estimated total number of deaf people to both polygons, which is misleading. In other words,

²⁵ Overlapping shape area

²⁶ This text changes depending on which indicator is being calculated.

$a+b=c$ but c would display as the total value against both a and b (i.e. $a+b=c$ becomes $a=c$ and $b=c$). To enable functionality for the Area of Interest to incorporate more than one delineated area, an extra step has been added in order to obviate this misleading default by adding a 'GlobalID' as the case field within the summary statistics tool, enabling each polygon within the Area of Interest to be assigned its own unique total. A new field of 'GlobalID' has been added to the Area of Interest attributes table so that, when a new polygon is drawn in the Area of Interest, the software will automatically assign a unique GlobalID to the shape. The software does not carry this value through to the attributes tables of the indicator geographies intersected by the Area of Interest, which would be necessary for the following calculations. Rather, this is manually recreated in the model design by recreating the field duplication carried out earlier using $\text{TrueArea} = \text{Shape_Area}$. In this case, the new field - 'ModelGlobalID' is calculated as $\text{ModelGlobalID} = \text{GlobalID}$ which, since the properties of the field type is different,²⁷ is automatically carried through to the attributes table of the intersected indicator geography areas. This means that when running the Intersect Tool, the output records the indicator geography areas that intersect and, importantly, the ModelGlobalID of the area with which they intersect. This enables the total value per ModelGlobalID to be calculated, resulting in the SUM value displayed relating to each polygon in the Area of Interest rather than the sum of all the polygons being displayed against each polygon, which as already been noted, is misleading.

This process is repeated for each indicator to calculate a summary value of the estimated number of deaf people in the Area of Interest, for each indicator. The results of the whole process are held in a designated summary table.



OBJECTID	SHAPE	SHAPE_Length	SHAPE_Area	AnnotatedValue	AnnotatedIndicator	AnnotatedKRI	AnnotatedSum	AnnotatedArea
17	'Nylon'	110547.7173	85647886.1676	8563.493374	AO-L1n6	2144.20045	8603.466374	

²⁷ GUID rather than Global ID.

FIG. 2.4.6 STEP ONE ATTRIBUTES TABLE (EXTRACT)

For each of the indicators the model creates 'joins' between the summary table and the attributes table of the Area of Interest. A 'join' is a dynamic link between the summary and attributes tables, which copies the statistics of each summary ("Ans"[indicator²⁸]). These joins are based on the ModelGlobalID. Once all indicator answers are recorded in the attribute table of the Area of Interest, the model removes all joins.

The estimates for each indicator are now recorded against the Area of Interest and the model performs the final two calculations. The model is preconditioned to only run these calculations when all indicator estimates have been returned, as is discussed in the following Section 2.5 - Interpretation of Results. The two calculations are carried out, firstly, to identify the greatest return, assigned as the 'AcceptedValue', and secondly, to identify from which Indicator this result has been generated. In other words, what we are concerned with here is to identify the largest population estimate along with the source data of the calculated figure.

This greatest value is identified using a python script²⁹ calculation which creates a list of the indicator estimate values, from which it selects the greatest value. This value is then assigned to the 'AcceptedValue' field. Finally, in order to identify the indicator from which the AcceptedValue has been selected, further python script is used to repeat the calculation to identify the greatest value, this time comparing the result to the input arguments³⁰ (against which corresponding text returns have been assigned) that are displayed in the 'AcceptedIndicator' field. If the return in any field is zero (0="No value in any field") the returned text is "Answer Unknown". The calculated answer is displayed in the attributes table under "AcceptedValue"

²⁸ AnsCensusKStat, AnsAoHL etc.

²⁹ A software programming language.

³⁰ AnsKStat, AnsAoHLMembership etc.

and the indicator from which it was generated is displayed under “AcceptedIndicator”.

OBJECTID	SHAPE	SHAPE_Length	SHAPE_Area	AcceptedValue	AcceptedIndicator	AreaOfInterestKilometers	AreaOfInterestSquareMeters
17	AO-L1in6	118547.7173	85647889.147	5523.495374	AO-L1in6	2144.255045	5603.466374

FIG. 2.4.7 STEP ONE ATTRIBUTES TABLE (EXTRACT) [ACCEPTEDVALUE/ACCEPTEDINDICATOR HIGHLIGHTED]

For future development of this tool, it is possible to create a pop-up box that appears once the model has finished running. For the purposes of this proof of concept, however, it is not necessary to incorporate this function into the current version of the tool. In order to use the model, as described here and in the User Model Configuration and User Guide (Appendix 3), access to ArcGIS Desktop is required, so it is assumed that the user possesses basic knowledge of GIS and that, with the guidance of the User Guide, the user will be able to identify the appropriate fields - “AcceptedValue”, to find the calculated population, and “AcceptedIndicator”, for the context of the figure.

In short, following the method described here, Step 1 calculates the estimated population of deaf people that may use signed languages within any delineated boundary.

Step 2

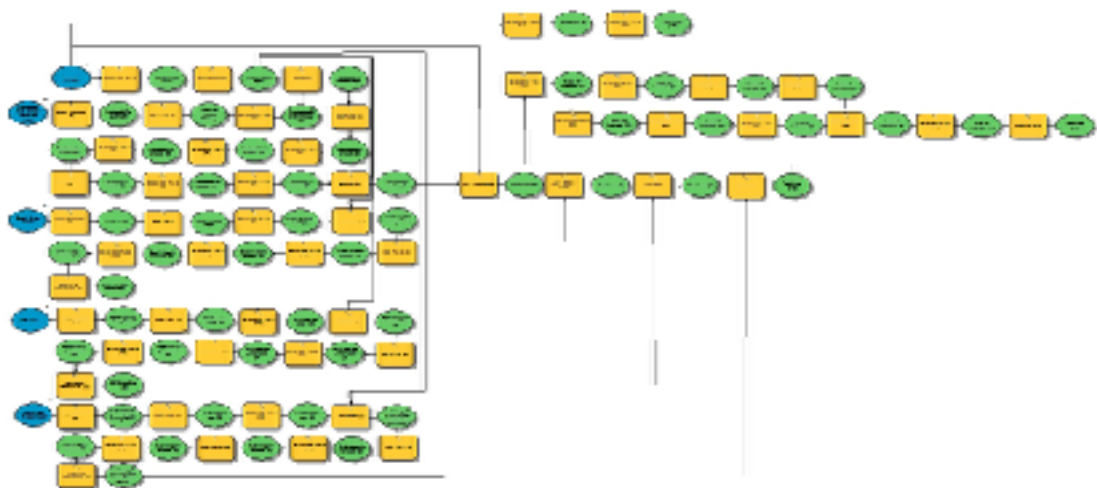


FIG. 2.4.8 STEP TWO PROGRAMME FLOWCHART

The stages of geoprocessing in Step 2 follow a process similar to the one outlined in Step 1. For the purposes of enhanced efficiency, the indicators are arranged first by geography.

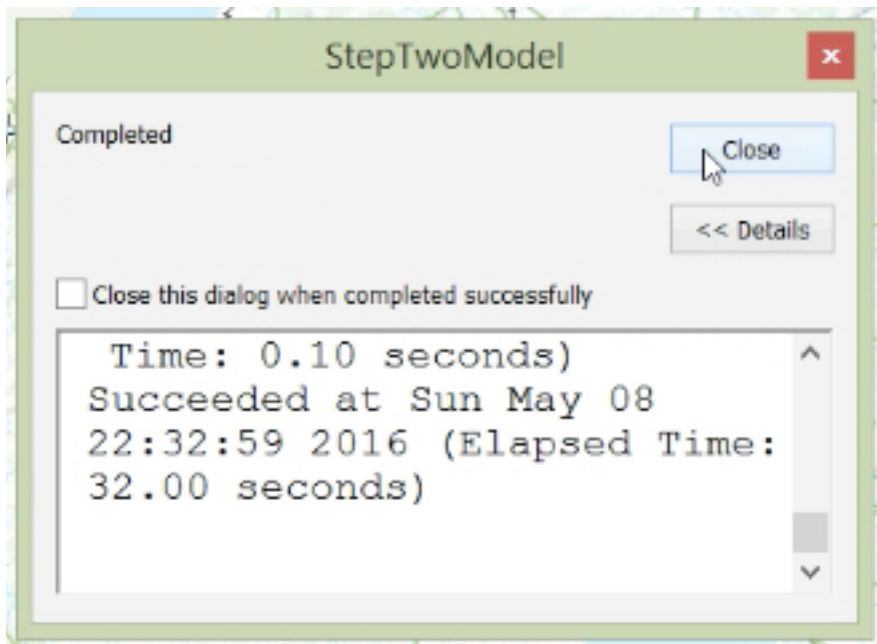


FIG. 2.4.9 STEP TWO MODEL PROGRESS WINDOW (COMPLETE)

In Step 2, the geographies against which information is held are: Audiology Service Records, GP records, BDA membership, Hands That Talk membership, Action on Hearing Loss membership, and WHO estimate. The four geographies to which these apply are, in turn, GP practices, Audiology areas, Postcode and Border counties, and Census Small Areas (2011). Of the identified Indicators, summarised in Appendix 2, the 2011 Census main language (signed language) indicator, can also be included in Step 2, because it identifies signed language users in Northern Ireland. Although the data was released against a national geography as a result of low total populations and high disclosive risk, if we assume even distribution across the geography, this national statistic, when calculated as a percentage of the total population, can be reliably projected across Census Small Area total populations. $[NI(SL_tot) / NI(language_tot) * 100]$ or $[(477/1735711) * 100 = 0.02748\%]$. Due to the very low populations identified by the census main language question, the total population per small area is

extremely small. For that reason, I do not believe it is beneficial to the User Model to include this indicator data as the AcceptedValue is the highest calculated population and, with such a small data return, the Census Main Language Statistic is highly unlikely to return as the highest value. In spite of the fact that the 2011 census language data is negligible, and therefore not included in the User Model, the model is sufficiently dynamic to allow future census language data to be incorporated into the model design, should the data itself present greater significance. Fuller consideration is given to the reliability of data, and specifically the Census main language data, in Section 2.5.

Table

CensusMainLanguage in Census SA2011

Shape	SA2011	Population	AOHL1In6	WHO1In1000	RNID7500	CensusMainLanguage
Polygon	NC00000	342	57	0.342	1.416402	0.098887
Polygon	NC00000	650	108.333333	0.65	2.692087	0.17363
Polygon	NC00000	452	76	0.452	1.800602	0.125316
Polygon	NC00000	437	72.033333	0.437	1.809911	0.120294
Polygon	NC00000	395	65.833333	0.395	1.665898	0.108562
Polygon	NC00000	403	157.166667	0.403	1.780346	0.125086
Polygon	NC00000	216	36	0.216	0.894601	0.056266
Polygon	NC00000	178	79.666667	0.178	1.878719	0.131262
Polygon	NC00000	392	60.333333	0.392	1.623536	0.107728
Polygon	NC00000	476	79.333333	0.476	1.971436	0.130812
Polygon	NC00000	504	84	0.504	2.067403	0.130507
Polygon	NC00000	421	70.166667	0.421	1.743644	0.116097
Polygon	NC00000	487	87	0.487	2.027707	0.135208
Polygon	NC00000	468	78	0.468	1.938307	0.128814
Polygon	NC00000	461	77.333333	0.461	1.921796	0.127114
Polygon	NC00000	600	111.666667	0.6	3.020421	0.233293
Polygon	NC00000	1192	198.666667	1.192	4.936873	0.32758
Polygon	NC00000	208	43	0.208	1.068501	0.070302
Polygon	NC00001	341	56.833333	0.341	1.41231	0.093712
Polygon	NC00001	202	47	0.202	1.167951	0.077490
Polygon	NC00001	318	53	0.318	1.317057	0.097381
Polygon	NC00001	623	103.833333	0.623	2.580261	0.17121
Polygon	NC00001	327	53.666667	0.327	1.338618	0.088481
Polygon	NC00001	327	51.5	0.327	1.354327	0.089860
Polygon	NC00001	193	33	0.193	0.820001	0.054413
Polygon	NC00001	269	44.833333	0.269	1.11411	0.073325

(0 out of 4537 Selected)

CensusMainLanguage in Census SA2011

FIG. 2.4.10 CENSUS MAIN LANGUAGE POPULATION CALCULATION AGAINST SMALL AREA

As described in Step 1 above, the model calculates, following the same methodology, the polygons which overlap the Area of Interest along with the

percentage of overlap for each of the indicator geographies before calculating the population estimates for each of the indicators.

AreaGPPractice	AreaGDMembership	AreaITBMembership	AreaITBCommunitySup	AreaAOHCommunitySup	AreaWICEstimate
1398.742635	969.363528	621.228549	414.712650	569.307436	21.6339

FIG. 2.4.10 CENSUS MAIN LANGUAGE POPULATION CALCULATION AGAINST SMALL AREA

As before, it then calculates and populates the appropriate fields - "AcceptedValue" to find the calculated population, and "AcceptedIndicator" for the context of the figure.

OBJECTID	SHAPE	SHAPE_Leng	SHAPE_Area	AcceptedValue	AcceptedIndicator	AnsCensusKStat
17	Polygon	118847.7170	886474830.1475	1358.742635	GPIndicator	2144.265046

FIG. 2.4.11 STEP TWO ATTRIBUTES TABLE (EXTRACT) [ACCEPTEDVALUE/ ACCEPTEDINDICATOR HIGHLIGHTED]

In this way therefore, Step 2 calculates the estimated population of deaf signed language users.

The previous section, dealing with the ethics of data collection, discussed the compromise between research aims and maintaining ethical conduct in research in connection with the availability of the model and the associated data. As already mentioned in the introduction to the model design subsection, it is not possible within this project to host maps online if they require geoprocessing as a consequence of the inhibitive cost of incorporating ArcGIS for Server into the model design. As a compromise, I have developed a simplified model that does not require geoprocessing and contains only non-sensitive, ratio-based data. The following model is the same User Model as described above, released in an alternative format as a web map, rather than a map document, and is therefore accessible via a web browser. The map can be accessed at [<http://signlanguageni.maps.arcgis.com/apps/webappviewer/index.html?id=8773fa56217d42a8b24e91e7b0a0aa8d>].

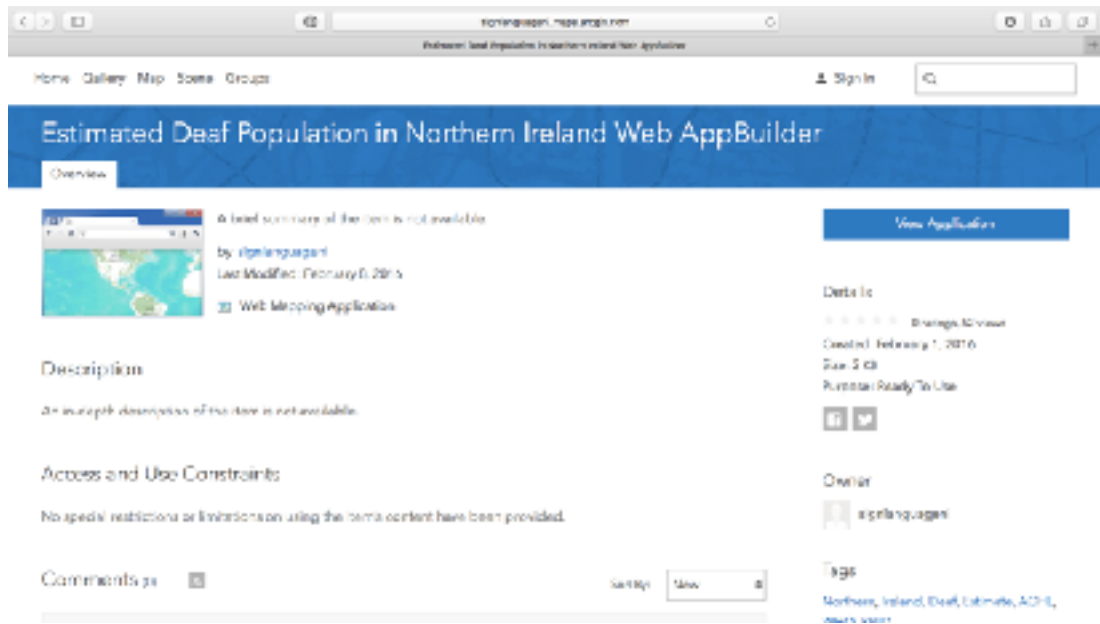


FIG. 2.4.12 ARCGIS ONLINE SIGN LANGUAGE NI APP BUILDER HOMEPAGE

An additional level of security has been added so as to restrict access to the map by requiring proxy access via 'signlanguageni.maps.arcgis.com', with the result that a shortened URL, which could be more easily copied, would be useless. A hyperlink, however, to this web map is contained in a text file on the accompanying disk in Appendix 6. This method of restricting access via proxy requirement is outlined in greater detail in Section 3.3 - Distribution of Resources, but, in summary, the web map can be accessed by anyone with the full weblink. It has been developed using the free ArcGIS Online AppBuilder and, although this tool is free to use, one of the stipulations of its use is that every web map created using this feature is searchable on the website; however, by writing a proxy clause into the privacy settings of the web map, I can reduce access only to those who know the specific address pathway.

Developing a web map version of the UserModel increases the availability of the resource, although there is a compromise in terms of reduction in functionality.

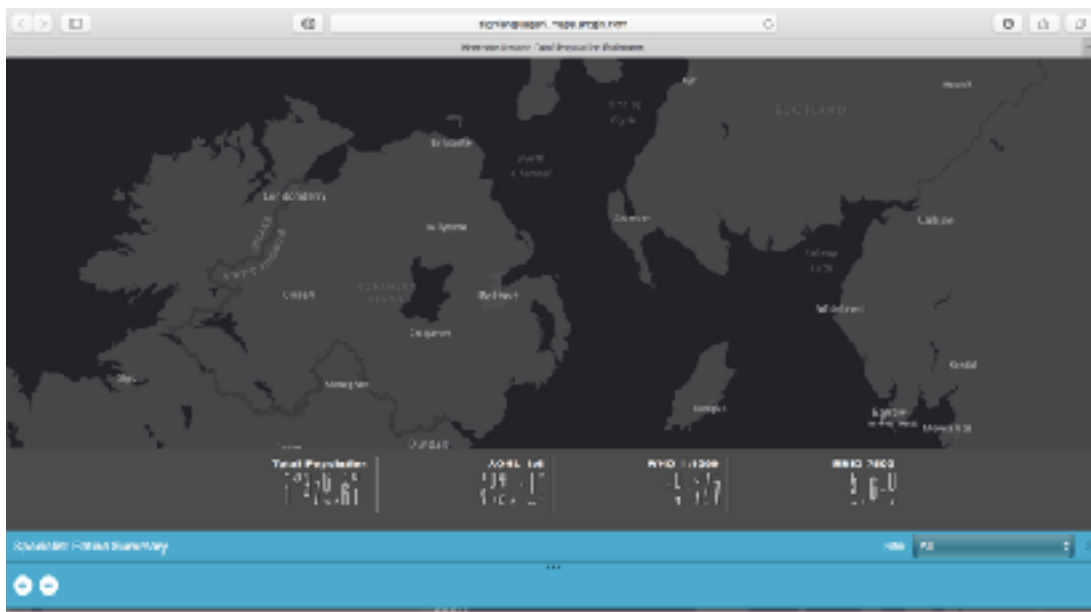


FIG. 2.4.13 USER MODEL WEB MAP (CALCULATING)

Unlike the map document, the web map does not perform geoprocessing and, therefore, does not run calculations to the same degree of detail. The web map is limited to the three estimate indicators - AoHL's 1:6 ratio, WHO's estimate of 1:100, and the RNID total population estimate of signed language users in Northern Ireland. These estimates are represented in the scrolling population totals at the bottom of the web map. Unlike the map document, which allows users to define the area of interest with a high degree of accuracy, the web map allows users to zoom in on different areas of the map, and to different scales, in order to calculate population estimates for the area displayed on screen. The web map also allows users to select from the predefined geographies of council³¹ boundaries, set because they provide a balanced mid-size scale of geography showing a breakdown in detail that is not so small as to be unhelpful - Small Areas, for example, would present too large a scale to be sufficiently useful. I have also elected to use council boundaries because council areas, as service providers, are key stakeholders of this research. Moreover, it is a geography with which, unlike Census Small Areas, the majority of non-specialist users will be familiar.

³¹ 2016 Super-council boundaries as per the 'best fit' calculation.

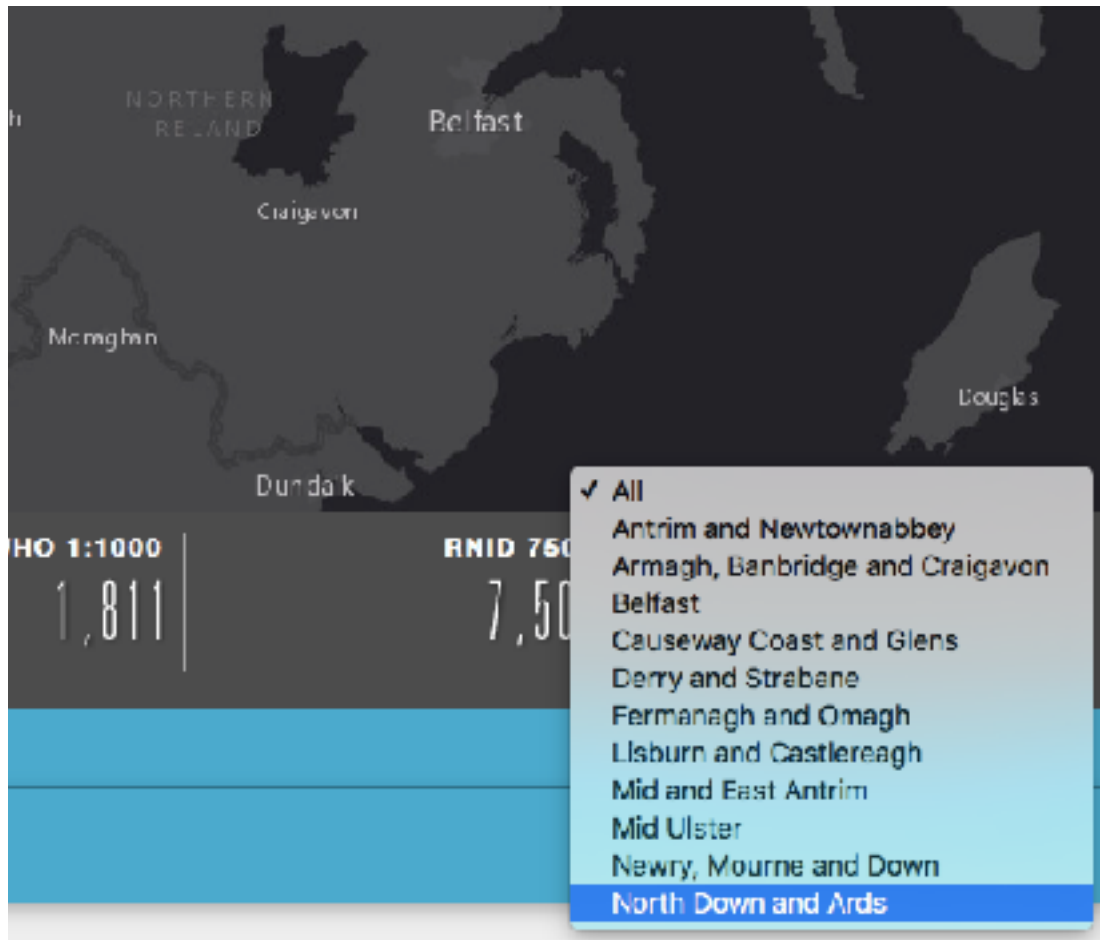


FIG. 2.4.14 USER MODEL WEB MAP (GEOGRAPHIES MENU)

Through the creation of a simple interface and a list of predefined geographies, users of the web map require no knowledge of GIS. Selecting one of the preset areas automatically zooms and re-centres the map to the corresponding area and simultaneously calculates the estimated population for the defined areas for each indicator estimate.

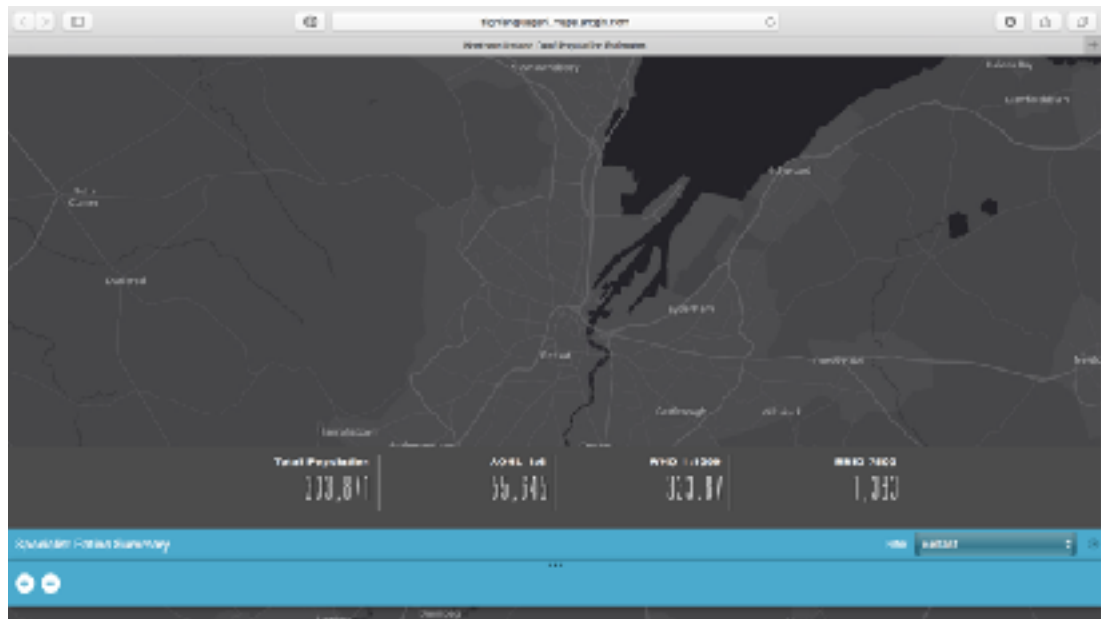


FIG. 2.4.15 USER MODEL WEB MAP (GREATER BELFAST AREA)

While the web map is not intended to be the primary format of the User Model, the enhanced user-friendliness of the web map application, the remote access that online hosting offers, and the lack of any requirement for specialist knowledge of GIS or specialist software, are factors that all exponentially increase the potential usefulness of the developed resource. Each of the map formats outlined in this section presents solutions to different key target groups. The map document provides a means for large service provider organisations, such as local government, to calculate to a high degree of detail the populations of interest in order to better meet the needs of the populations. The web map increases the availability of the developed resource to lesser, but still useful, detail without the requirement for specialist knowledge or software, thereby offering the opportunity for increased public awareness and understanding of deaf and deaf signing populations. Chapter 4 - Deficit of Opportunity will outline why such an increase in public awareness is needed. The development of the User Model and availability of this resource in a publicly accessible, user-friendly format provides an early solution to the need for greater understanding of the population of deaf signed language users.

Section 2.5 - Interpretation of Results

The foregoing section has highlighted a number of specific design choices that demand more detailed discussion. These are: justification for the highest value to be set as the accepted value, the assumption of even distribution of populations within each geography, and the precondition that allows these calculations to run only when all indicator estimates have been returned. In addition to discussing these three design decisions, this section will also briefly consider my choice to use decimal places in population estimates, the impact of the limited availability of data in the User Model, and, this time in greater detail, the reliability of the indicator data in the User Model, focusing specifically on the 2011 Census (NI) language data. Finally, in this chapter, consideration will be given to potential developments of the User Model.

The first design decision, as noted above, is the choice to select the highest value as the accepted value in both Steps 1 and 2 of the User Model. There are four options to calculate the expected population from a range of varying population estimates - that is, to total all the identified populations, to choose the lowest population, to calculate an average, or, as the preferred option here, to select the highest population. Combining all the identified population statistics is likely to result in a huge over-inflation of the estimate. It is highly likely, for instance, that a patient at an audiology service will also be recorded at their GP surgery as having hearing loss. Even if the combination were limited to one population measure per indicator category, the risk of double counting is still high - the methodology that employs multiple indicators of the prevalence of deafness emerges from the Baker-Shenk and Cokely 1980 model, which depicts individuals as falling within multiple categories of identity. That is to say, the model demonstrates the likelihood of an individual existing in more than one category of deaf identity, so for that reason a summative method of handling the multiple population estimates is not appropriate. Choosing the lowest population estimate as the highest agreed population across the indicators assumes that all the indicator data is complete which, once again, is not the baseline assumption here. In

contradistinction, this project is based on the assumption that a single reliable measure of the prevalence of deafness and signed language use does not exist, so that the basing of the final calculation on the assumption of the comparability of results is not logical, and would lead to significant underrepresentation of the actual population. My justification for using the highest recorded population calculation is, accordingly, as follows: each population indicator, excluding those in category E 'estimates', relate to real data. As they are actual measures of population, each of them recorded in relation to a single purpose, it is highly unlikely that double counting has occurred. While the basic assumption of this project, namely that there is no single reliable measure, remains valid, all the recorded figures in indicator categories M, S, P and L are based on actual reporting so that, while they might not present a full measure of the population, the repetition of the calculations across small geographies, such as Census Small Areas, and the collation of the individual returns will provide the most accurate national population calculation. To take a mean average of indicator return values intentionally ignores 50% of actual recorded instances of deafness and use of signed languages, leading once again to a significant underestimation of the population of interest. While I have opted to consider the highest return as the AcceptedValue, I have also designed the model in such a way that all indicator statistics are available to the user. This provides the user with the context through which he or she may better understand the returned value, as well providing him or her with the opportunity to use their own judgement in comparing the AcceptedValue result against the other indicators. Once again, this reflects the design of this resource as a dynamic tool with which to better understand the population of interest, rather than creating another static measure of the national population of deaf signed language users.

The second design choice we need to discuss, as noted earlier, is the assumption of even distribution of populations within each geography. This decision has a greater affect on data held against small scale geographies than against large scale geographies; but, in the absence of more detailed data, adopting such an assumption is necessary.

As mentioned in the previous section, the model is preconditioned to run the final calculation to identify the AcceptedValue and AcceptedIndicator only when all indicator estimates have been returned. This is a measure designed, as we have noted, to protect the reliability of the returned results. If many of the indicator fields are left unfilled, so that they cannot return a result, the overall calculations will be less reliable. For testing purposes, fictional data has been added to the model in a number of indicator fields in order to ensure that this protective measure is not triggered. This has no bearing in the testing stage as this research is concerned with the method of calculation rather than the final result. It offers, however, a useful guarantee of reliability to users.

The fields into which the indicator population estimates are returned can be set to display results to a specified number of decimal places. Evidently, a decimal of a person cannot exist as a population measure; however, in the model design I consciously opted to admit decimal numbers. The reason for this relates to the justification for using the highest value as the AcceptedValue. Population calculations can be run against small areas and multiple areas, that is, the Area of Interest can be made up of multiple polygons. As the data from each polygon must be combined, the smaller the level of detail at which the calculations can be run, the greater the accuracy. The model is designed, as we have noted throughout, as a tool to better understand the population of interest and, therefore, the output is displayed to give a high degree of detail in order to promote the accuracy of further calculations and, in doing so, to support the overall objective of enhanced understanding.

The sensitivity of human participant data (within the context of the designated status of the population of interest as 'vulnerable persons') has been a limiting factor in the impact of this research, as already noted. Because the model was able to be tested and shown to work using fictional data, its central research objective has not been adversely affected by the limited

availability of data in the User Model. This has, however, limited the potential impact of the research because the model, in order to achieve its maximum efficacy and functionality, relies on a body with greater authority to secure access to data. As a consequence of the reluctance of service providers to release potentially sensitive data voluntarily, I propose that the model should be adopted by DEL,³² the funder of this research, which as a government department can mandate services to make their records available in order to improve the reliability of calculations. There are two options for the model to be maintained following the completion of this research. Either responsibility for maintenance can be kept within local government or by an external consultant working on their behalf, or the model can be stakeholder driven. Working with a software and web developer, it is possible to create a secure web interface for the model so that record holders, when mandated to provide information, can login to the model online using supplied credentials which allow access only to the sections of the model that relate to their records, with the functionality to edit the data held within. Similar to the concept of crowdsourcing, maintenance of the model is then a shared responsibility of all stakeholders although in practice it would also require an overseeing host authority (once again ideally DEL) that would set parameters to ensure that data is updated at agreed regular intervals. This proposal for a higher authoritative body, such as DEL, to adopt the model will be further explored in Chapter 5.

As well as the reliability of the GIS methodology itself, the reliability of the calculated outputs of the User Model relies on the accuracy of the input data. The indicators have been selected because they provide a wide consideration of deaf signed language users from multiple perspectives. When considered together they provide the most complete currently available perspective on deafness and signed languages in Northern Ireland. Each indicator, if considered singly for the purpose of this research, is weaker than when taken in combination, simply because the terms of reference for each indicator do not map precisely onto the terms of reference

³² Now, Department for Communities.

of this thesis. The only exceptions are the census data relating to main language and the WHO estimate, which most closely match³³ the terms of reference of the defined population of deaf signed language users. These indicators are worth further consideration since, despite being so similar in terms of reference, the population statistics of each vary greatly. What follows here explains why census statistics are not a reliable indicator of the prevalence of the use of signed languages. The 2011 Census (NI) section on language included “British/Irish Sign Languages” as examples of legitimate answers to the census’s main language question. This, in theory, would boost the number of people stating signed languages in their response, as we have already noted, because it legitimises signed languages in a culture of spoken language dominance. However, I argue that, while the sample answer encourages greater returns relating to signed languages, the question itself is not conducive to establishing a full understanding of the linguistic profile of Northern Ireland. I perceive three main shortfalls in the presentation of the question, which are: the language section’s disregard for the prevalence of bilingualism, the quantification of the question wording – namely the use of ‘main’ language - and the lack of translations or funded opportunities for the interpretation of the census.

The focus of the language section of the census on only the individuals ‘main’ language, in particular, oversimplifies any resulting linguistic profile. The Northern Ireland Languages Strategy, *Languages for the Future*, outlines the importance of promoting and fostering bilingualism in Northern Ireland but this key recommendation is not reflected in the census as the questions there relate solely to the principal language used. This focus on the dominant language presents us with the second limitation of the census, that stems, once again, from the phrasing of the question as ‘main language’.

³³ The census records main language and the WHO ratio estimates the number of signed language users.

19 What is your main language?

English → Go to 21

Other, write in (including British/Irish Sign Languages)

20 How well can you speak English?

Very well Well Not well Not at all

FIG. 2.5.1 2011 CENSUS MAIN LANGUAGE QUESTION

It could be assumed that a person's 'main' language represents their primary linguistic identity. However, I am suggesting that, in the case of signed language users as a linguistic minority, this is not the case. In Chapter 3, I will consider the availability of the resource of interpreters as a means of deaf signed language users to interact with the majority non signing population. In Chapter 4 - Deficit of Opportunity, I will consider the deficit of experiential opportunities for deaf signed language users in Northern Ireland in comparison to hearing people in Northern Ireland; however, anecdotally and as a practitioner in the specialism of signed language communication, I know both the resources and opportunities available to deaf signed language users to be limited. Therefore, based on my experience of working in the field, supported and evidenced by the research presented in Chapters 3 and 4, I suggest that there is insufficient availability of opportunities to use signed languages in Northern Ireland for them to be considered as a main language of communication by the majority of signed language users. For many, in other words, notwithstanding their preference for signed languages, the insufficient availability of interpreters and translators, as well as limited public facilitation of signed languages, create a culture of English-language dominance. Furthermore, the census main language question represents a contradiction in terms because the census cannot be accessed or responded to through the medium of either British or Irish Signed Language. This might have been provided through a range of means, from a video translation of the questions, an infrastructure to allow responses to be submitted in BSL or ISL, or the funding of interpreting hours in order to support the answering of questions. However, no provision for signed languages as a medium of

accessing the 2011 census was offered, and this in itself will have impacted upon the return.

In consequence, the census released the following language results in relation to signed languages - due to the small number of returns in each category and the inherent disclosive risk, the following data was only released in the context of the geography of Northern Ireland with no further breakdown of detail:

Main Language - Full Detail: QS210NI	
All usual residents: Aged 3+ years	1,735,711
British Sign Language	339
Sign Language (Not otherwise specified)	85
Irish Sign Language	53

TABLE 2.5.1 2011 CENSUS MAIN LANGUAGE SIGNED LANGUAGE RESULTS

In contrast, the 2011 Census (Scotland) reported 12,533 cases of British Sign Language which, based on the reported population of 5,295,403 (Scotland Census), equates to 1:423, a proportion that is significantly higher than 1:5,120, the equivalent ratio in Northern Ireland. Even if we take into consideration the existence of two national indigenous signed languages, the ratio remains significantly higher at 1:4,428 (339 BSL and 53 ISL). By way of further comparison, in the 2011 Census for England and Wales, 15,000 (ONS) people recorded BSL as the main language and a total of 22,000 people (ibid) reported their main language as a signed language. It is outside the scope of this thesis to undertake an investigation as to the disparity between the Northern Ireland returns and those of Scotland, and England and Wales, but it remains notable that both the Scottish census and the census for England and Wales provided BSL translations and the sort of alternative wording that facilitated bilingualism. The discrepancy between the reported instances of signed languages as a main language per capita in Northern Ireland, compared to Great Britain, calls into question the reliability

of this indicator, particularly when benchmarked against the WHO estimate of 1:1000 signed language users:total population.

The final part of this section, which considers the interpretation of results, is to explore potential developments of the User Model. The simple development of a pop-up box displaying the AcceptedValue was mentioned in the previous section, but here I wish to consider larger developments to increase the impact and usability of the User Model resource. In order to develop this model into a usable resource beyond the scope of this research, with an appropriate user / stakeholder interface, further investment in terms of the costs of software and licences for ArcGIS Desktop, ArcGIS Server, ArcGIS Online, as well as of developer time, would be required. A basic ArcGIS Desktop licence, facilitated through the University, and a free ArcGIS Online developer account have been sufficient to create the working proof of concept product presented here, but to develop the resource into a marketable product, particularly if it requires the facility for multiple user log-ins, would necessitate higher licensing agreements. ArcGIS Online developer accounts are currently free, on condition that the developer does not charge for the resources developed. For that reason, the model here is functional, as described in Appendix 3; however, with a small amount of further investment, this proof of concept can be enhanced into a marketable product tailored to international applications.

A further development of the proof of concept User Model design would be to ask specialist statisticians to write statistically-sound algorithms to introduce weightings to the indicators by which the AcceptedValue is calculated rather than selecting the highest return. Such a development would make it possible to extend the function of the User Model to consider the full significance of calculated data, which has so far remained beyond the scope of this research. Finally, in terms of the development of this model, it would be desirable to amend the the geoprocessing formula by which the estimate indicator data is not considered in the final calculation from which the AcceptedValue and AcceptedIndicator are derived, since, as estimates, the

data is not based on actual occurrences. Furthermore, the considerable discrepancy between the calculated populations of the estimates casts some doubt on the reliability of these measures. This is particularly true of the RNID estimate which, unlike the WHO ratio, was not established through rigorous research. For that reason, one would argue that the estimates should be excluded from the selection calculation for the AcceptedIndicator.

These considerations of potential future developments of the User Model are necessarily brief, but they will be picked up again in Chapter 6, which presents the project's recommendations and conclusions. Meanwhile, both the research and practice-led work outlined in this chapter have demonstrated the usefulness of an interdisciplinary approach in general and GIS technology, in particular in terms of understanding the linguistic demographics of an under-reported population. The functional academically-derived proof of concept model, whose development has been reported in this chapter, is the tool by which we may arrive at our strategic goal of better understanding the population of interest. Even drawing solely upon the limited indicator data currently available, the model calculations have both revealed the basis for a more accurate understanding of population patterns and highlighted important discrepancies between currently available data. In that regard, it has been clear from the discussion so far that GIS, both as a technology and a research methodology, has potential applications across a range of fields of interest, both specific and cognate, and, as our discussion develops, I will again turn to GIS as a methodology for securing a better understanding of the availability of resources to meet the perceptible and very real demand by people to be able to use signed languages.

Chapter 3 - Linguistic Resources and Minority Language Rights

Section 3.0 - Introduction

The aim of this thesis, it is worth repeating, is to develop a clearer and more precise understanding of the population of deaf signed language users in Northern Ireland. Chapter 2 - Linguistic Demographics presented the development and potential implementation of the tool that would assist us in the identification of this population of interest and, using the indicator data currently available, presented the WebMap version of the User Model that can calculate populations of signed language users in Northern Ireland. Following on from this, this chapter seeks to expand this emerging understanding of the population of interest. Significant in this regard is how the linguistic identity of signed language users is supported, which is the issue that I shall now address, beginning by contextualising the overall discussion of Section 3.1 - Current Linguistic Support for Signed Language Users in Northern Ireland, by outlining the support infrastructure for signed languages in Northern Ireland, before moving on to consider the primary topic of this chapter, which is signed language interpreters. Accordingly, Section 3.2 examines the legislative entitlement of deaf signed language users in terms of interpreter provision, and Section 3.3 considers the availability of signed language interpreters as a resource in Northern Ireland. Put succinctly:

Interpreters are one manifestation of deaf people's rights to adequate access to information
(Jokinen, in De Quadros et al., 2012: 77)

Finally, in Section 3.4, I will seek to situate this research in a wider international context through a case study that compares language recognition of signed languages in Brazil and Northern Ireland. This short study will not only provide a key external bench mark against which to better understand the provision of support in Northern Ireland, but will also initiate the discussion that is the domain of the Chapter 4, which is the idea of recognition.

Section 3.1 - Current Linguistic Support for Signed Language Users in Northern Ireland

The topic of linguistic support for signed language users in Northern Ireland embraces a number of issues. The discussion will attempt to deal with them in as systematic way as possible, but the reader should always bear in mind the more complex interaction between them that exists on the ground. What follows is a brief outline of the key partners and narrative of the events that I, in my dual capacity as a practicing interpreter in Northern Ireland and as a researcher, believe to be both underpinning support for and driving the growth of signed languages in Northern Ireland.

The Sign Language Partnership Group (SLPG) was set up in response to the statement of recognition of British and Irish Sign Language delivered on the 29th March 2004 at Hillsborough by then Secretary of State for Northern Ireland, Paul Murphy, and Minister for Culture, Arts and Leisure, Maria Eagle. The statement came in the context of the denomination of 2003 as the European Year of People with Disabilities, which was extended to March 2004 in Northern Ireland. The SLPG - sometimes referred to as the 'Hands-on Partnership', but henceforth in this thesis 'the Partnership' - was established to bring together the government departments and voluntary sector organisations that were deemed stakeholders in the recognition of signed languages. The aims of the group were to promote respect, understanding and tolerance of BSL and ISL users, and to improve access to public services. Since its establishment, the Partnership has funded many projects to support deaf people living in Northern Ireland, including linguistic support such as in the funding of activities related to signed languages. This work has taken place in tandem with the Department for Culture, Arts and Leisure (DCAL) which, since 2004, had been instrumental in continuing to support the growth of signed languages in Northern Ireland through lobbying other departments to provide funding for projects related to signed languages, engaging with voluntary sector organisations who provide

services for deaf signed language users, and by directly funding opportunities for families of deaf children to attend BSL classes. DCAL also sponsored elements of the Recognition of Signed Languages Conference, hosted by Translation and Interpreting of the then School of Modern Languages in Queen's University, in 2013. The conference came about as a result of funding, already discussed, that was provided by the Department of Employment and Learning (DEL) in 2012 to Queen's University Belfast for the delivery of the MA Interpreting (with language options of BSL and ISL), and the two funded PhD positions, of which this thesis is one outcome. While the efforts of the Partnership and such support from DCAL and DEL have been, to some extent, on a relatively small scale, they nonetheless represent a continuing determination over the last decade or so to support the development of signed languages in Northern Ireland. And, indeed, the funding from DEL to Queen's University in 2012, along with further funding to the University of Ulster to deliver a PGCE (Post Graduate Certificate in Education) for teachers of signed languages, has acted as a catalyst for renewed determination to campaign for improved rights and service provision for deaf signed language users in Northern Ireland. This thesis is written within the current generated by that catalyst.

Also within that current was the announcement on 1st December 2015 by Culture Arts and Leisure Minister, Carál ní Cuilín of her intention to publish a Framework for Signed Languages to include proposals for legislation in the next Assembly. During the final stage of this thesis, in 2016, the pre-consultation process began to outline the preliminary objectives of the Framework; these came out of the three themes of the previous Sign Languages Roadmap that had been developed by the Sign Language Partnership Group, namely Care and Protection, Prevention, and Correction. This government work is ongoing at the time of completion of this thesis so that it is not possible to assess the impact of the initiative, or comment on its processes with any degree of certainty; however, even at this early stage, I believe that the preliminary objectives are sufficiently ambitious and wide-reaching for the resulting legislation to bring about significant improvement in

the deficit of opportunity currently experienced by deaf signed language users in Northern Ireland. In this case, only time will tell, but the signs are hopeful.

Section 3.2 - Legislative Entitlement to Interpretation for Signed Language Users in Northern Ireland

This discussion sets out the entitlement of signed language users to the provision of an interpreter when accessing services³⁴ in Northern Ireland. Entitlement results from rights which are classified in a number of categories³⁵ (and will be discussed later). In addition to contributing to the concept of entitlement, rights also inform legislation which, in turn leads to provision. Therefore, in order to understand more fully the entitlement of signed language users, this section will consider the legislative rulings³⁶ that reflect them.

Entitlement to free provision of interpreters for signed language users is often presumed to be a right under the UK welfare state. This chapter maps exactly what entitlement, as stated in UK and Northern Irish Law, signed language users have to such provision when accessing services in Northern Ireland. It is important to establish an understanding of the legal requirement for interpreter provision before continuing to explore what is currently being provided, to whom, and what impact such provision is having on the lives of the community³⁷ of deaf individuals. The debate as to whether this collective can truly be considered a community, will be raised later, in our discussion of what constitutes group identity within the framework of the Politics of Recognition. It is also important to clarify what is meant by deafness, in terms of specific legal rulings; to do that I will first consider opposing perspectives on deafness as proposed by two models of deaf identity in order to recognise

³⁴ Both statutory and cultural services will be considered.

³⁵ By type, eg. Human rights, or by who the rights apply to eg. Individual or group rights.

³⁶ This word encompasses domestic (NI) and national (UK) legislative Acts, and supranational Acts, Resolutions and Conventions.

³⁷ Here, 'community' refers to the collective of individuals with shared lived experience of being deaf.

the types of rights that are applicable to signed language users when accessing public services.

There are a number of relevant pieces of legislation and conventions drawn up at international, European and national levels by a range of authorities and bodies established both by international agreement and domestic government. The rulings as well as the authorities³⁸ that created them will be outlined below, highlighting their relevance so as to clarify the rights of signed language users within the framework of legislation. By outlining rulings from supranational level to national or domestic levels, it is possible to track how each level is - or is not - translated into enforceable local legislation. The discussion will then move on to consider cases where legal action has been taken in order to challenge perceived discrimination so as to enable us to assess how legislation has been used, both successfully and unsuccessfully.

Rights and Authoritative Bodies

Consideration of both defining models of deafness,³⁹ as discussed in Chapter 1, is important when exploring legislative entitlement to access services in signed language as each one brings into play different types of rights. In terms of the Medical Model, reasonable adjustment of service providers is required to minimise the impact of this impairment on the individual's capacity to conduct a 'normal'⁴⁰ life, so that this is classed as a disability right. Conversely, when we consider the Deaf community from a sociolinguistic perspective as a linguistic minority community, the right to service adaptation falls under the protection and promotion of a minority language, so that this is now classed as a language right. As a minority language user, access to an interpreter can also be seen, in specific circumstances, as a human right.

³⁸ This word encompasses the Northern Ireland Assembly, UK Government, Council of Europe, European Union and the United Nations.

³⁹ The Medical Model, and the Sociolinguistic Model of deafness.

⁴⁰ The term is used to refer to life without a disability but is not intended to infer abnormality or inferiority of disabled persons.

These three types of rights will be discussed further in subsequent sections of this research. Indeed, Wheatley and Pabsch (2012), whose work we have already considered, consider the rights of deaf people as falling into four categories - Human Rights, Minority Rights, Linguistic Human Rights and Disability Rights. However, I would argue that only three categories really pertain. Two of these - disability and language rights - are significant in terms of the general provision of communication access across various domains, and human rights are applicable only in specific circumstances. In the case of Wheatley and Pabsch, for purposes of practical application in terms of the specific legislation, I argue that Minority Rights and Linguistic Human Rights are effectively co-terminous in this particular case.

Of course, in order to understand the relevance of legislation and its contribution to the concept of entitlement, it is important to understand the relative position of each legislative body that has created it, and in particular the scope of their powers. Therefore, before exploring the significant legislation, directives or declaration contributing to the entitlement of interpreter provision, I will first briefly mention each authority in order of the scope of its powers, from supranational to national and local. There are a number of such bodies to consider, operating at supranational and domestic levels, that have published notable rulings requiring provision of communication support, particularly in terms of interpreters. The term 'supranational authority' is used here to signify an authoritative body established under international treaty or agreement whereby both the authority of and the obligation placed upon any single one results from the international collective. Rulings by such authorities do not automatically become domestic law for member states and will require action, such as ratification, for rulings to be applicable. In this sense, rulings made by such authorities are not immediately enforceable in a local legal system, although rulings may be adopted into domestic law, at which point they become enforceable as legislation.

The supranational authority with status above any other is the United Nations (UN), governed by the International Court of Justice. As such, it is the prime international authority on human rights, authoring Conventions as rulings to protect rights. The second supranational power I will consider is the European Union (EU), governed by the European Court of Justice and creator of a number of regulations and directives, which contribute directly to the concept of entitlement. The final supranational organisation I will mention in this necessarily brief overview is the Council of Europe (CoE). Although the CoE has no supranational power to enforce its own declarations, it contributes meaningfully to the argument of entitlement.

As already noted, supranational rulings are not automatically enforceable in domestic law, although they may influence legislation. For that reason, it is important also to identify domestic legislation to understand rulings that directly impact upon the lives of signed language users. In Northern Ireland, a state with devolved powers, law consists of a combination of legislation drawn up by central government in Westminster, and local legislation on devolved issues. It is worth noting, in this respect, that not all legislation relevant to the entitlement of deaf signed language users created in Westminster extends to Northern Ireland. For example, The Equality Act (2010) is enforceable in England, Scotland and Wales only – but as the scope of this thesis relates to deaf signed language users in Northern Ireland specifically, this legislation is not directly relevant, although it will be mentioned for purposes of comparison later in the discussion.

In addition to the de jure legislative acts,⁴¹ there is another important document that is significant to any discussion of the rights of everyone living in Northern Ireland - the Agreement (1998), which will be discussed in greater detail with regards to its contribution to equality and Disability Rights. Beyond this legislative framework, service providers often also have their own statements or internal policies that relate to accessibility entitlements for the deaf community. Guidance for establishing such policies has been set out

⁴¹ For example, the Disability Discrimination Act (1995).

on a local level - for example the Northern Ireland Equality Commission's pamphlet, 'Guidelines for providers of goods, facilities and services on developing an equality policy for service provision'. Publications such as these, which will be examined at below, effectively form the key bridge between legislative intent and provision in practice.

Disability Rights

As previously mentioned, there are two overarching types of rights that inform the entitlement of signed language users and the provision of interpreters. From the perspective of the first of these - entitlement as a disability right - signed languages are viewed as a communication method for disabled people, effectively deriving from the Medical Model. As I outline the relevant legislation I will mirror the structure established when outlining the supranational authorities, that is, from the rulings of widest scope and application to domestic legislation.

The UN Convention on the Rights of Persons with Disabilities (and Optional Protocol) was ratified by the UK in 2009. The Convention adopts the Social Model of disability and places a requirement for remedial action in the event of discrimination. Article 4, dealing with general obligations, describes the requirement of the convention "To take all appropriate measures to eliminate discrimination on the basis of disability by any person, organisation or private enterprise". Throughout the document, the profile of signed language users is continually raised, mentioning explicitly the need for signed language interpreters, for example in Article 9, which deals with accessibility: "State parties shall also take appropriate measures: ...To provide forms of live assistance and intermediaries, including guides, readers and professional signed language interpreters, to facilitate accessibility to buildings and other facilities open to the public." This Convention goes into greater detail than any other ruling with regard to the expectation that public services will make accommodations for disabled people, as well as setting out in specific detail how they are expected to meet the needs of signed language users. A significant example of this is Article 24: Education, which recognises the

individual rights of the child to be provided with an education “in the most appropriate languages and modes and means of the individual, and in environments which maximise academic and social development.” The same article refers explicitly to teachers qualified in signed language and, furthermore, goes beyond standard requirements for interpreter provision by requiring the promotion of signed languages - Article 24:3(b) is entitled “Facilitating the learning of signed language and the promotion of the linguistic identity of the deaf community.” Although the declaration is written as a promotion of Disability Rights, it effectively extends to incorporate the basic language rights of recognition that pertain to a particular language group. Article 30:4 notes, accordingly, that “Persons with disabilities shall be entitled, on an equal basis with others, to recognition and support of their specific cultural and linguistic identity, including sign languages and deaf culture.” Although this cannot be considered specifically a language right (see the following section), it remains a significant example of recognition, which will be explored in relation to the Politics of Recognition, briefly here, and in greater depth in the relevant chapter of this thesis. The specific mention of signed language, reinforced by examples of where the use of signed language is not only to be facilitated, but also encouraged, means that this ruling is hugely significant in terms of the overall argument for entitlement, not least due to the moral authority of the UN as the originary authority. The significance of this document is, unsurprisingly, highlighted by Wheatley and Pabsch (2012:29), who conclude that “Overall the Convention is the single most important legal document granting human rights to all Deaf and disabled persons, ensuring the needs of sign language users are fully taken into account.”

The Convention provides other specific examples of where action is required; in political and public life (Article 29), and participation in cultural life, recreation, leisure and sport (Article 30), which refers to the need to ensure access to cultural materials, television programmes, films, theatre and other cultural activities. This mention of facilitation of signed languages in cultural services is particularly interesting as a pattern is already emerging that

reveals that the greater part of legislation places value on statutory services, for example in the legal and educational domains. This awareness of lived experience beyond the more narrowly conceived frame offered by other legislation is another marker of the Convention's significance - this will be of particular interest in the latter part of this thesis when we explore the disconnect between statutory and cultural services in the revisited case study of interpreter provision in Chapter 4.

In the local context, legislation to protect disability rights in Northern Ireland, until 2006, consisted of the Disability Discrimination Act, 1995 (DDA), later amended in 2006 to become the Disability Discrimination (Northern Ireland) Order (DDO). When originally introduced, the DDA extended protection across the UK; however, the Equality Act (2010), as we have noted, usurped the power of the DDA in England, Scotland and Wales. Unlike the DDA, the Equality Act offered protection against a number of types of discrimination - race, sexual orientation etc - under the auspices of one single act. The DDO places a duty of care on service providers for "reasonable adjustment" but, unlike the UN Convention on the Rights of People with Disabilities, the DDO makes no mention of signed language or provision of interpreters. This lack of prescription is potentially constraining as it facilitates a subjective judgement as to what is reasonable, omitting any absolute protection of the rights of deaf signed language users or entitlement to interpreters. The DDO, and the DDA before it, are not alone in this undefined approach to disability rights - for example, the Americans with Disabilities Act, also requires, "reasonable accommodation".

Particularly relevant in the context of Northern Ireland, from the perspective of disability rights, as we have noted, is the Agreement (1998: also known as the Northern Ireland Act), and in particular the much-vaunted Section 75. This section places a statutory duty on service providers to "promote equality of opportunity... (c) between persons with a disability and persons without." Again there is no specific mention of signed language, although this is unsurprising as signed languages were not formally recognised by the

Northern Irish government until 2004, a development that will be discussed in greater detail when we come to consider the language rights of deaf signed language users.

If we look briefly to the future, beyond this history of only patchy understanding of the requirements and rights of deaf people, the next significant ruling in this regard is likely to develop under the European Disability Strategy 2010-2020. Currently under development is the European Equality Act, which Wheatley and Pabsch anticipate will impact upon the lived experiences of deaf people: “[The EEA] is most likely to have an effect on signed language users trying to access goods and services as well as information, especially when moving or travelling from one EU country to another” Wheatley and Pabsch (2012:32). It is possible that, if adopted into domestic law, this Act will redefine entitlement to interpreters for signed language users. Of course, Brexit now raises the likelihood that European legislation, that the Leave Campaign has typified as rights-heavy, will not now be enacted within the UK. At the time of writing the conditions pertaining to the UK’s withdrawal from the EU remains shrouded in uncertainty, with the result that this brief discussion on the legislative framework in support of disability rights necessarily ends on a note of heightened uncertainty.

Language Rights

The next perspective to be considered in connection with deaf peoples’ rights to access services in signed language is entitlement viewed as a language right. This perspective views signed languages as a minority language and, in the context of Northern Ireland, BSL and ISL as minority languages of linguistic national minorities. I will once again outline the relevant rulings beginning with the rulings of widest scope and application.

In March 2001 the UK ratified the Council of Europe Charter for Regional or Minority Languages, which affords individual states the power to decide which languages are to be given protection under the Charter. In the UK, the protected languages are Welsh, Scots Gaelic, Irish, Scots, Ulster Scots,

Cornish and Manx Gaelic, but no countries have, to date, included signed languages in their nominated lists of protected languages. This demonstrates a lack of recognition of signed languages on the part of domestic authorities and is symptomatic of a reluctance to acknowledge the language rights of signed language users. It is this disregard, this lack of fundamental recognition that, put simply, states the crux of the problem here. Admittedly, there had been earlier European initiatives in this regard - the European Parliament, in 1988, had adopted the Resolution on Sign Languages for the Deaf, which was reinforced by a similar resolution in 1998. And while such resolutions are a statement of principle agreed by a majority of MEPs and do not formally constitute part of EU law, with the result that they are unenforceable, they frequently underpin policy and should be considered significant. But in this particular case, however, there is the sense of yet another well-intentioned but ultimately fruitless initiative.

In Northern Ireland, meanwhile, the provision of community interpreters⁴² stems from action to remove discrimination based on either race, under the Race Relations (Northern Ireland) Order 1997 (RRO1997), or disability (DDO2006). On the other hand, legislation to protect language rights in Northern Ireland is limited - there is no specific protection of British or Irish Sign Languages enshrined in legislation, and neither is granted official language status. Language protection is enshrined in the Agreement but, in view of the fact that signed languages are not specifically mentioned under equality provision in Section 75, it is sadly unsurprising that neither is there any mention of them in the languages section, quoted here:

All participants recognise the importance of respect, understanding and tolerance in relation to linguistic diversity, including in Northern Ireland, the Irish language, Ulster-Scots and the languages of various ethnic communities, all of which are part of the cultural wealth of the island of Ireland.

⁴² The term 'community interpreters' excludes commercial and, usually, conference interpreters.

(The Agreement, 1998:19)

As suggested above, this exclusion of signed languages is intelligible through the fact that BSL and ISL were not formally recognised when the document was written. Signed language has, of course, been in use for many centuries around the world, but linguistic research into signed languages, specifically ASL,⁴³ began as recently as the 1960's, being undertaken in the first instance by William Stokoe. In the specific context of Northern Ireland, the Legislative Assembly, as we have noted, only first recognised British and Irish Sign Language in 2004, following a widespread and sustained campaign by the Deaf community across the UK. (Symington and Carberry) Importantly, recognition has been reinforced by awards of public funds to projects for and within the deaf community, with funding made available by both DCAL⁴⁴ and DEL,⁴⁵ as we have seen above. In Westminster, a similar statement of recognition had been made in 2003 by Maria Eagle, then Minister for Disabled People, and Andrew Smith, Secretary of State for the Department of Work and Pensions. This statement extended to Scotland, where action towards creating the BSL (Scotland) Bill was subsequently initiated, sponsored in the first instance by Cathie Craigie MSP and, more recently, Mark Griffin MSP - if successful, this Bill has the potential to become the exemplar for protective legislation in the UK. In Northern Ireland, however, in the 10 years since recognition, protection has yet to be reflected in legislation, with the result that the impact of recognition has been limited. It must be acknowledged, however, that the recognition of BSL and ISL as languages has served to raise the public profile of signed languages, which are increasingly being considered alongside spoken languages - for example, once again, in the 2012 Northern Ireland Languages Strategy. As noted earlier, the Strategy highlights a level of awareness that did not appear in earlier documents, reporting that "...a large majority of respondents to our questionnaire agreed that sign languages are part of our linguistic

⁴³ American Sign Language

⁴⁴ Department of Culture, Arts and Leisure

⁴⁵ Department of Employment and Learning

diversity...” (Northern Ireland Languages Strategy, 2012:58). This, in turn, may be interpreted as indicative of a changing attitude in the wider community, away from the reluctance to acknowledge the specific requirements and rights of the deaf community.

Human Rights

In addition to the requirement to provide access to signed language as a language or a disability right, there are also specific situations in which access to an interpreter is considered to be an overarching human right. This is broached in the United Nation’s Universal Declaration on Human Rights (UDHR, 1948), which, although once again not legally binding (Wheatley and Pabsch 2012), does set out the highest overarching measure designed to uphold the rights of an individual, with member states actions and adherence to declarations accountable to the International Court of Justice. The UDHR highlights the legal process as a setting in which entitlement to an interpreter is considered to be an inalienable human right. Article 7 states:

All are equal before the law and are entitled without any discrimination to equal protection of the law. All are entitled to equal protection against any discrimination in violation of this Declaration and against any incitement to such discrimination.

Article 6.3(e) of the European Convention on Human Rights (2010) equally makes reference to free access to an interpreter in a court of law:

Everyone charged with a criminal offence has the following minimum rights: (e) to have the free assistance of an interpreter if he cannot understand or speak the language used in court.

The European Convention on Human Rights is translated into local legislation through the Human Rights Act (1998). It is significant to note that the right to an interpreter is considered as a human right when exploring the entitlement of deaf signed language users to the provision of interpreters

because, unlike under the rubric of disability and language rights, human rights, and particularly fundamental human rights, are irrefutable. Therefore, regardless of any other considerations or perspectives on deafness, it can be stated, as a key premise, that signed language users have an indisputable and inalienable right to interpretation, albeit limited to contexts of legal process.

In our discussion of legislation arising from disability and language rights, our attention has been drawn to domestic legislation in terms of the provision of directly enforceable rulings. In order to demonstrate how this legislation has been used, it would be useful to consider published case studies of cases brought against service providers in Northern Ireland by individuals who allege that they have suffered discrimination as a result of their deafness and who have, accordingly, sought legal redress. These have tended to be brought through the Equality Commission NI (ECNI), which was established as a result of the 1998 Agreement as an independent body with a number of functions including that of “overseeing the implementation and effectiveness of the statutory duty on public authorities to promote equality and good relations” (ECNI: 2012). Accordingly, the cases discussed here are limited to those published by the ECNI, and do not take into account any cases of discrimination brought against service providers without ECNI support. It must be acknowledged at the outset that focussing only on cases where remedial action has been sought cannot evaluate the impact of pre-emptive action taken to avoid or limit potential discrimination against deaf signed language users in Northern Ireland. But analysis of the wider lived experience of signed language users in NI, independent of legal process, will be offered later in this thesis.

In all the cases documented by the ECNI between 2008 and 2012 that have to do with issues of 'deafness', 'hearing impairment' or the condition of being 'deafblind', disability discrimination has invariably been alleged. In one situation, a case claimed multiple forms of discrimination in conjunction - a so-called 'hybrid' case, in which the ECNI made reference to a deaf person

who was alleging both disability and race discrimination. Between 2008 and 2012, 5 cases based on deafness or hearing loss were raised. One plaintiff was identified as requiring communication support in order to access English in the form of speech to text support. Three of the plaintiffs were identified as deaf signed language users, one of whom explicitly identified their language preference as BSL, while the others did not specify. In the final case, the notes record that the plaintiff had a hearing impairment, but made no mention of communication preference in the case notes. In this case, the discrimination occurred primarily due to mobility disability. In 2005-2006 there were 4 cases brought by the ECNI where the plaintiffs had some degree of deafness. In one of these cases the plaintiff was deafblind and was assisted by a hearing dog for the deaf.

In five of the six cases mentioned, the case was brought due to the refusal of a responsible body or organisation to provide or facilitate the use of communication support. Of these cases, where lack of communication support was alleged, in only one of them was it decided that no discrimination had taken place. This particular case was brought solely on the basis of the Disability Discrimination Act, which requires 'reasonable adjustment', and in the matter of 'A hearing impaired woman V Campbell and Caher Solicitors' 2009, it was decided that the expectation of the 'hearing impaired woman' that Campbell and Caher Solicitors should provide a signed language interpreter was not reasonable. Of the remaining four cases where discrimination was found to have occurred, three were settled without

admission of liability⁴⁶ and one⁴⁷ was settled with admission of liability by the defendant. In all cases, the DDA was the primary legislation invoked. In the one hybrid case mentioned, The Race Relations Order (NI) (1997) and Disability Discrimination Practice for Schools and Special Educational Needs and Disability Order (NI) (2005) were also mentioned in the terms of the settlement agreement, and that the defendant should review its policies, practices and procedures in order to ensure their compliance with the aforementioned legislation.

From this survey it can be seen that provision of a signed language interpreter for a deaf signed language user can theoretically be deemed a language right, a disability right and, in the context of the court, provision of an interpreter becomes a human right. At a supranational level, legislation recognises the place of signed languages in disability and linguistic minority discussions, but in practice this dichotomy of rights does not cascade down into domestic law in Northern Ireland, where the DDA is the sole protective measure used to challenge perceived breaches of the rights of signed language users in Northern Ireland. In contrast to spoken language interpreters, the key legislation to protect the rights of persons requiring interpretation is the Race Relations Order (NI) (1997: RRO97) which includes protection of the rights of linguistic minorities, whose shared language results from shared geopolitical origins. By this definition the legislation does not extend to include the rights of signed language users as a non-territorial, cultural and linguistic minority. Although the wider concept of equality is an

⁴⁶ Equality Commission for Northern Ireland, “*Brian Kelly V Next PLC*”, in *Decisions and Settlements Review 2008-2009* (Belfast: Equality Commission for Northern Ireland, 2010); Equality Commission for Northern Ireland, “*Lina Kankeviciute V Governing Body of the Newry and Kilkeel Institute*”, in *Decisions and Settlements Review 2008-2009* (Belfast: Equality Commission for Northern Ireland, 2010) and; Equality Commission for Northern Ireland, “*Jane Bailey V Northern Ireland Court Service*”, in *Decisions and Settlements Review 2009-2010* (Belfast: Equality Commission for Northern Ireland, 2011).

⁴⁷ Equality Commission for Northern Ireland, “*Paul Hamilton V ICTS (UK) Ltd*”, in *Decisions and Settlements Review 2008-2009* (Belfast: Equality Commission for Northern Ireland, 2010), p.20.

entitlement of both the deaf signed language population and minority groups protected by the RRO97, the legislation offers protection based on colour, race, nationality, or ethnic or national origin, thereby excluding the signed language users in Northern Ireland. Deafness is, of course, not exclusive to a particular race, and while there can be a genetic cause of deafness, this is true only in a minority of deaf people given that 90% of deaf children are born to hearing adults. (Bee, 1999: 454)

In conclusion, there is a gap in terms of the full acknowledgement through legislation of the identity of deaf signed language users beyond a subgroup of persons with disabilities. Domestic law does not support models of deafness other than the Medical Model. This highlights a need for further research to explore the impact of incomplete identification by the majority population, creating a forced invisibility of the minority group. I propose this should be done through case study research to explore the lived experiences of deaf people in Northern Ireland through a Politics of Recognition. The theory of a politics of recognition suggests the impact of non-recognition or misrecognition can have significantly damaging affects on minority populations, which Fraser (2000:113-114) explains as, “to be denied the status of a full partner in social interaction as a consequence of institutionalised patterns of cultural value that constitute one as comparatively unworthy of respect or esteem.” These words, in terms of unconscious consequence and lived experience, resonate throughout this thesis.

There is another key distinction concerning the rights of signed language users that relates to the question of whom the rights seek to protect. This, in turn, leads to two alternative classifications of rights, that is, individual and group rights. As we noted in our preliminary discussion on the definition of the deaf population, each category of the Baker-Shenk and Cokely model of deaf identity, when considered in isolation, as with alternative model of deafness such as the Medical Model, can exclude some proportion of the deaf population. It is on the basis of this perceived incompleteness of the

definition of deafness that the categories of indicators in the User Model were developed. Firstly, in terms of individual rights, which incorporate both disability rights and human rights, and which relate to the individual person, we note that the limitation of considering deaf peoples' entitlement solely from individual rights stems from the difficulty in defining precisely which individuals they would apply to. Without a specific definition of deafness, in other words, it is difficult to delineate to whom the rights should apply. While this is a limitation in terms of the disability portion of individual rights, this is obviously not so in the case of human rights as they, by definition, apply to every person without exception. A further limiting factor of individual rights, as understood through a politics of recognition is that, by placing only individual rights on deaf people, there is non recognition of deeper identifying characteristics of the group population – such as interactions and collective identity. The second classification of rights that I have identified is 'group rights'. While it could be assumed that this would also pose a limitation due to definition, as language rights are a group right, it is far more apparent in terms of whom the rights apply to once a definition of the community has been established. In the context of this thesis, the protected group would be BSL and ISL users.

Language rights, in turn however, fall into two categories of their own - instrumental and non instrumental language rights, a distinction that begins to highlight the differences between spoken and signed language users of interpreting services. Deaf signed language users, as consumers of interpreting services, should be considered separately from other consumers of spoken language interpreting services because their need for interpretation does not result from an uncommon language alone, but a fundamental inability to fully access the language of the majority population. Where it is highly likely that a consumer of spoken language interpreting services could learn to communicate in the uncommon language, a deaf individual, due to their disability, (whether perceived through the Medical⁴⁸ or

⁴⁸ Disability is the result of an individual's impairment.

Social Model⁴⁹ of disability), (Johnstone, 2001) will nearly always be unable to access spoken language fully, with the result that he or she cannot assimilate fully into the majority culture. For that reason, the language rights of signed language users should be accepted as instrumental and reflected in policy as such. Wheatley and Pabsch (2012:25) note in similar vein:

It can be seen that sign language rights are an overlap between a number of different types of rights. For Deaf people to fully achieve full equality, all these rights must be taken into consideration.

Neither disability rights or language rights alone are sufficiently powerful to encompass the unique circumstances of a deaf signed language user. This is reinforced by Wheatley and Pabsch's scepticism as to the value of minority rights over disability rights:

[...] it has been noted however that protection under the minority framework might not be the best way to defend the rights of Deaf people in practice, as often the disability system is much more advanced and has more financial stability than the minority movement (Wheatley and Pabsch, 2012:24)

Whilst in general agreement with this argument, I believe that no single approach can, in isolation, sufficiently protect the full rights of deaf signed language users. The deaf population is a unique language group whose shared language does not correspond to categories of ethnicity or race, but rather to a physical condition experienced by a number of often isolated individuals who are brought together through their choice to use a shared language - different in form to the majority language - to facilitate clearer communication within that group. In short, as such, legislation should reflect the complexities of the population and safeguard their rights in a way that reflects full recognition of this minority group.

⁴⁹ Disability is the result of the behaviour of society.

Post script

During the writing of this thesis, on 29th October 2014, The British Sign Language (Scotland) Bill was introduced in Scottish Parliament and became law. This act is the first language legislation that protects the rights of signed language users and is already being hailed as the exemplar for deaf rights globally. The legislation affords language rights on a par with other indigenous languages and protects the right of deaf signed language users in Scotland to access to information in British Sign Language. This has not been incorporated into the main argument of this thesis as how the significance of the Bill actually translates into lived experience remains to be seen.

Section 3.3 - Distribution of Resources- Methodology and Model Design

It is commonly claimed that there are insufficient signed language interpreters in Northern Ireland; however, while it is highly likely that this statement is true, there is no empirical evidence to support it. Nevertheless, it is a claim that has often been brandished in reports and documentation over many years, with the result that it has now become an item of faith for deaf signed language users. Symington and Carberry (2006), for example, note that one of the earliest iterations of this claim comes in the 1977 Report on Hearing Services for Hearing Impaired People, written by the Central Personal Social Services Advisory Committee Sub-Committee on Personal Social Services for the Blind, Partially Sighted and Hearing Impaired People. Symington and Carberry record that the Report succinctly highlighted "...the need to improve the availability of skilled sign language interpreters in Northern Ireland" (2006:11). The sense of a continuing undercurrent of concern re-emerges much more recently, in 2009, in the Access to Public Services for Deaf Sign Language Users, User Forum Project Report which states in remarkably similar terms that, "Access to communication support for training or further education was identified as a problem due to the shortage of qualified interpreters and provision is inconsistent" (2009:12). Most recently, the Coalition on Deafness NI Policy Manifesto (2015:9) notes, "Urgent action is needed to increase the number of sign language interpreters in Northern Ireland by creating a sustainable training pathway." The conviction is evident, although none of these sources provides any empirical evidence to underpin this conviction. But of course, how can we empirically identify a shortage of interpreters when we still have no clear knowledge of how many deaf signed language users there are in Northern Ireland?

The ongoing focus of my thesis, within this broad context, has been to develop a model (User Model) by which to identify the existence and distribution of deaf signed language users in Northern Ireland, the results of

which may inform users and purchasers of interpreting services, and can be presented to demonstrate the need for a greater resource of signed language interpreters across the country. By creating a spatial distribution of signed language interpreters, derived from that produced in the User Model, the measures of supply and resource can be compared in order to test the still hypothetical assertion of the shortage of interpreters. Furthermore, by creating an interactive model of signed language interpreter distribution, rather than a static pictorial representation, the models can be adapted to reveal patterns at input levels 2 and 3 of the User Model - i.e. overall trends of signed language interpreter availability and language specific trends for BSL and ISL users. The remit of this specially DEL-funded research is limited to signed language users; however, it is possible to extend the new proposed model to include more categories of communication professionals for deaf people beyond the mediations of signed language interpreters. Be that as it may, the primary function of this model will remain focussed on signed language interpreters and centrally concerned with the development of an understanding of the spatial distribution of signed language interpreters in relation to users. One important caveat needs to be made here: communication, of course, is not binary and signed language users may, by choice or necessity, resort to other communication methods or to different mediators when communicating with the majority language population. A profoundly deaf signed language user who requires the support of a signed language interpreter in a technical training environment may, for example, rely instead - or as well - upon the support of a notetaker (manual or electronic) to provide accessible communication in a format closer to the source language. At the outset, therefore, it is recognised that in order to develop a holistic understanding of the term 'resources', the model should include all communication support roles and other human communication resources. However, as with the User Model, the Resource Model in this thesis is created as a proof of concept design and therefore I recommend this extension to be developed as a plug-in to the design and development of the standard model developed in this chapter. It is this focussed model of interpreter distribution with which I am concerned.

While elements of this model design clearly draw upon many of the features of the previous User Model, such as the ethical consideration of maintaining anonymity and minimising 'disclosive risk' - as discussed in the previous chapter - there are also new challenges of definitions and boundaries, uniquely pertinent to this model design, that need to be clarified before proceeding to develop the structure of the wider model. The first challenge is that of defining the scope of the model, in accordance with the refined scope of the notion of 'deaf signed language users' that was set out in the Introduction to this thesis. Definitions of both 'communication support professionals' and more specifically, 'signed language interpreters' must be established for this research is to have real world impact.

But how do we define such a role? The work of signed language interpreters in Northern Ireland is not a regulated profession – in other words, the profession of signed language interpreter is not protected by Directive 2005/36/EC which requires access to and exercise within the profession as subject to the possession of a specific professional qualification, as defined by the European Commission. If signed language interpreting were a regulated profession in the UK, as it is, for example, in Slovenia (the only member state where this is the case), then definition would be straightforward. In sharp contradistinction here, there are no restraints on anyone who may wish to describe themselves as a signed language interpreter and, accordingly, to undertake such work. In the absence of any one single agreed definition or certifying authority, a working definition must be created. This is a direct mirror of the accurate definition of 'deaf' that was put forward earlier in this thesis; taken in conjunction the deficit of agreed definitions of such core terms is a powerful indication of the confusion and lack of clarity that operate within the world of signed language users and their professional mediators.

The need to quantify interpreters is primarily for the purposes of comparison with the quantification of deaf signed language users so as to evaluate the

demand for and availability of interpreters as a prime means of interaction between linguistic groups. It follows therefore, that in order to generate full quantitative understanding of the workforce, the measure should include all those who undertake or are willing to undertake work, voluntary or paid, as an inter-modal, inter-linguistic communicator between spoken and signed languages. This definition, as the broadest possible measure, would seem to provide the most complete overview of the communication resource; but, in reality, it is also impractical. Not only would such a generic definition invite questions of both quantitative and qualitative accuracy - after all, how can an individual's willingness to undertake work be accurately identified, or how could any measure arrived at under this definition, that disregards service quality, ever be considered complete? Children of Deaf Adults (CODAs), for example, are a group of communicators who are routinely required to informally interpret for their deaf parents in place of paid trained interpreters (referred to as the process of 'brokering' by Napier (2012)). CODAs highlight the limitations of such a wide definition, as the scope of their work as brokers (leaving aside the ethical issues thrown up by the practice) is negligible in the context of workforce analysis as they are limited to supporting only a small number of family members,⁵⁰ an interaction that will have no impact on the wider deaf signing population. Furthermore, to accept such an all-encompassing definition would only serve to undermine the task of the interpreter as it overlooks the importance of training and qualifications as determinant factors in reaching an appropriate definition of what an interpreter is.

A major problem in this regard is that, currently, there is no legislation that sets out quality standards for the profession of signed language interpreting. It has to be acknowledged that the National Register of Communication Professionals for Deaf People (NRCPD) has established benchmarks of minimum educational standards for interpreters which, in turn, have become widely adopted in the policies and guidelines of service providers, in

⁵⁰ CODAs may also be required to communicate for deaf siblings or other members of the family, not only parents.

agencies employing and supplying interpreters, as well as in centres offering training. In the process, to some extent these benchmarks respond to a demand from service users themselves. Most of the paid work undertaken by interpreters requires some external assurance of the interpreter's ability to carry out the task in question, most frequently in the form of this NRCPD registration. During the writing of this thesis, however, there have been two significant developments that have caused interpreters to question their perceived need to register with NRCPD, prompting in the process much discussion among online groups⁵¹ regarding the impact of registration on the amount of work interpreters are eligible to accept.

The first of these developments is a growing disillusionment among, as well as disenfranchisement of, some interpreters as a result of NRCPD's strategic decision to pursue regulation of the profession under the generic profession of health care. The second factor concerns the development and launch of an alternative register, the Register of British Sign Language Interpreters (RBSLI) as a voluntary regulating authority. Both developments have caused interpreters to examine their reliance on registration in order to secure work, and many have expressed a fear of a potential reduction in work if they were to terminate their NRCPD registration, or have suffered such a reduction following their decision not to reregister with NRCPD. The discussion in this section of the thesis is limited to the effects of dropping NRCPD registration only, because RBSLI was launched on 19th April 2015, with the consequence that the decision to terminate registration or not to re-register has had no impact as yet on the fledgling organisation. The reduction in work due to deregistration, whether projected or actual, has been attributed to a number of factors. Primarily, NRCPD is increasingly becoming a requirement in the interpreting contracts of service providers, such as Health Trusts that outsource the provision of interpreters to agencies, and in direct contracts with interpreters, such as Access to Work (AtW) who have refused to pay interpreter invoices unless they include the interpreter's NRCPD registration

⁵¹ E-newsli is an independent e-group for the dissemination of information and ideas about British Sign Language interpreting and interpreters. 'In the Loop' is the e-group members forum of Visual Language Professionals.

number. So while the profession of interpreting is not regulated, the requirement for regulation can be stipulated in an ad hoc fashion by purchasers of interpreting services and, while an interpreter's choice not to voluntarily submit to regulation may lead to restrictions on their eligibility to undertake interpreting work, non regulation does not automatically lead to total exclusion from working in the field.

Variation in the requirement for regulation presents a difficulty when attempting to define the population of interpreters with the aim of establishing which individuals should be counted within the Resource Model. The inclusion of all individuals undertaking interpreting work, regardless of regulation status, provides a fuller picture of the resource, but the increasingly frequent requirement for regulation also serves to limit the availability of the proportion of this resource that refuses regulation. Therefore, to consider the wider definition of interpreters as an absolute representation of the available resource is also misleading. Equally, to consider only the regulated population of interpreters overlooks the unregulated service provided to users of interpreting services.

If we revisit the objectives of this thesis, we may conclude that the usefulness of the proposed Resource Model, as a tool to create a full understanding of the availability of interpreters as a resource that can be meaningfully measured against previously determined demand, is maximised by including the maximum possible information in the model itself – in other words, the model should include all those individuals, regulated and unregulated, who may be identified as undertaking interpreting work in Northern Ireland, along with their regulation status. This justification for including both measures, in turn, explains the creation of a data analysis model that allows different parameters to be applied to the same data records in order to reveal different patterns within the workforce. Analysing data in these two ways builds a dual understanding of the workforce in terms of who is currently undertaking the work and where the trained and qualified persons, who should ideally be undertaking the work, are located. Combining GIS, which was central in the

development of the User Model outlined in Chapter 2, with the adopted methodology of identifying a series of appropriate indicators that allow us to identify the population of interest in the absence of a single agreed definition, provides us with the only meaningful way of gauging the working interpreter population, enabling us to create in the process a new model of resource distribution. Henceforth, this will be referred to as the Resource Model.

The User Model, described in Chapter 2, was designed so that each input level in the three-stage data analysis within the model acts as a filter or refinement in terms of finding an accurate final measure of the distribution of deaf signed language users by language. In contrast, for this model of workforce analysis I propose that all inputs should be considered together, from which data the model will have the functionality to output different information for different purposes, including location, language and registration status. In this way, the term 'potential population capture', as introduced in the development of inputs for the User Model, can be applied to the outputs of this new model, where each result generated reveals a different population capture for different purposes. For this model, the population captures are: all those who undertake or are willing to undertake work, voluntary or paid, as an inter-modal, inter-linguistic communicator between spoken and signed languages (henceforth referred to as the 'actual population'), and interpreters who have volunteered to be regulated by either NRCPD or RBSLI (henceforth referred to as the 'regulated population'). This definition will be further refined through the identification of appropriate measures, similar to the identification of appropriate indicators in the User Model. Indeed, within this definition there is potential to subdivide the population capture further in order to reveal more detailed trends within this measure of resource. Currently, RBSLI offers only one category of registration, that is, 'qualified interpreter' status. NRCPD includes two categories of signed language interpreter; RTSLI (Regulated Trainee Sign Language Interpreter), and RSLI (Registered Sign Language Interpreter), and it is between these two differently qualified categories that further useful distinction can be drawn. It is a distinction that is more than academic:

NRCPD stipulates restrictions on the work that RTSLIs may undertake, prohibiting them from undertaking work in “the legal domain - courts, police, legal processes etc. - or in mental health settings” (NRCPD, 2015). Consequently, a more detailed understanding of RTSLI and RSLI/qualified interpreters⁵² will reveal the crucial availability of resources by domain. A related complicating factor within this objective, however, are the further limitations placed on RTSLI registrants by NRCPD, to the effect that trainees are allowed only to remain on the register for a maximum of four years (three renewals) as a Regulated Trainee Sign Language Interpreter. The difference in categories is therefore of interest in order to understand the conditions of immediate presence of interpreters, but remains of more limited value in the longer term due to the time restrictions included in NRCPD’s eligibility criteria for registration.

Between the two population captures - actual and regulated - there is another category of definition to be considered. This relates to training and qualifications (henceforth referred to as the ‘trained population’). The current eligibility criteria surrounding full registration⁵³ with either NRCPD and RBSLI include the requirement for registrants to hold one or more interpreting qualifications from lists of qualifications recognised by the regulating organisations. In consequence, it can be said that everyone included in the ‘regulated population’ capture will hold interpreting qualifications. What remains unknown, however, is how many people from the actual population are eligible to register but, for whatever reason, have chosen not to. The inclusion of qualification standards in any derived definition of interpreters for the purposes of this thesis provides key recognition of the profession of interpreting, in a way which I hope will have an impact beyond the project in terms of further professionalising the role of signed language interpreters. It should be borne in mind that routes to qualifications are not standardised through academic accreditation, but rather via the regulating organisations

⁵² As defined by RBSLI

⁵³ RTSLI status does not require any qualifications.

themselves. NRCPD, for instance, in terms of its eligibility criteria⁵⁴ lists MA, MA (Hons), BA, BA (Hons), PG Dip., Advanced diploma, Level 6 and Level 6 NVQ qualifications as all offering equally suitable training to be included in the register under the category of RSLI. By contrast, the eligibility criteria of RTSLI do not stipulate any requirement for the prior completion of any interpreting qualifications. The mix of academic and vocational qualifications, as well as the wide range of levels that are considered equivalent for the purpose of entry onto the NRCPD register, give a generic overview of the profession, against a minimal competency benchmark. In order to create a significantly detailed understanding of the qualifications held within either the trained or regulated profession, further measures must be sought so as to capture the variety of different qualification levels held by interpreters that are not reflected in regulation categories. This must be considered further in the identification of appropriate measures within the model design.

The final factor of definition that requires discussion prior to undertaking our model design is not based on linguistic competence or experience, as previous discussions have been, but rather on geography. The largest output geography of the User Model, relating to deaf signed language users, is Northern Ireland. This scope, as discussed in the Introduction, is in response to a number of factors, principal among them the intended ability of this research to inform service provision. One of the aims of the Resource Model is to allow comparison with the User Model to identify trends between demand and resource. In order to provide an accurate comparison, it could be assumed that the geographical captures should be identical, meaning that the political boundary of Northern Ireland should be adopted for the Resource Model. In practice, however, the reality of choice open to services users and purchasers is not constrained to the same politico-geographical limitations. Service users' entitlement to prevail of services is due to their location within the service provision area. In contrast, suppliers, in this case interpreters, are not confined to supply their services only within the area in which they reside. The political boundary between Northern Ireland and the

⁵⁴ <http://www.nrcpd.org.uk/page.php?content=59>

Republic does not constitute a linguistic boundary for ISL, with the result that it is not uncommon for interpreters from the Republic of Ireland to work in Northern Ireland. Due to mobility legislation within the European Union, which still pertains at the time of writing, an interpreter may live in Donegal but accept work in Derry. In that most direct way, of course, the interpreter may properly be considered a resource to the population of deaf signed language users in Northern Ireland, but could just as easily be excluded in the model's calculated enumeration if this is not anticipated and accommodated within the design. It has been established that ISL/English interpreters living outside Northern Ireland have both the motivation and opportunity to work on both sides of the border. However, it can be assumed there is also demand for their services in the Republic of Ireland, so that effectively they should be considered a limited resource to Northern Ireland as the number of hours work that any interpreter is able to offer is necessarily finite. Since the reverse situation is also possible – that is, the outward mobility of Northern Irish interpreters - the question arises as to whether all ISL/English interpreters should be considered a limited resource. The alternative to accommodating this potential migration and resource-sharing is to simplify the defined boundary by adopting the political boundary as the geographical definition of the Resource Model under the assumption that the demand for interpreters is equal on both sides of the border, thereby effectively neutralising any differential. Wheatley and Pabsch (2012), however suggest that this comparable availability of resources in Ireland and the UK is not the reality. While offering no breakdown by language or devolved nation, they quote the following interpreter ratios:⁵⁵

⁵⁵ Fig. 1 Recreated from Wheatley and Pabsch (2012) with only the relevant rows included.

Sign Language Interpreter Ratio			
Country	SL Interpreter Ratio	Interpreters	Deaf signed language users
Ireland	75.00	60	4500
United Kingdom	98.73	780	77000

TABLE 3.3.1 SIGN LANGUAGE INTERPRETER RATIO (EDITED) WHEATLEY AND PABSCH (2012)

If we disregard for one moment the existence of two signed languages in Northern Ireland, this identifies a greater proportional resource of interpreters in the Republic of Ireland than in the United Kingdom, thereby suggesting the greater likelihood of inward mobility of ISL/English interpreters to Northern Ireland than outward mobility to the Republic. The implication of this is that the capture of interpreters that can be considered a resource to signed language users in Northern Ireland should be extended beyond the country boundary. This leads us to the next question of how far this extension should reach.

Already existing registrations are of limited assistance in determining an appropriate response. NRCPD does not currently record registrants' language pairs (Kate Price, NRCPD) and does not know how many ISL/English interpreters are registered with it. Regardless of this knowledge gap, I am aware that at least some part of this unknown total resides outside the island of Ireland altogether.⁵⁶ To include all ISL/English interpreters may produce the fullest picture of the potential resources available to users in Northern Ireland, but travel time and expense inhibit the conversion from potential to utilised resource. Rather than include all potential resources – that is, all identifiable ISL/English interpreters - a more appropriate measure that takes into account the likelihood of working in Northern Ireland should be defined – the proximity factor.

⁵⁶ For a conference organised as part of this PhD, I booked one NRCPD registered ISL/English interpreter from England to interpret.

Unfortunately, there is no existing study of the distances interpreters are willing to (or actually do) travel to appointments, either in the UK or Ireland, which would inform the delineation of an appropriate boundary. For the purposes of this model, I propose combining proximity and political boundaries to create a defined area for the Resource Model. The boundary I will assign to the Resource Model is the 6 counties of Northern Ireland plus the six border counties, Donegal, Leitrim, Sligo, Cavan, Monaghan and Louth, as shown in fig. 2.⁵⁷



FIG. 3.3.1 PROPOSED COUNTIES FOR INCLUSION IN THE RESOURCE MODEL

Proximity clearly increases the likelihood of interpreters' willingness to travel across the border to work. Delineating the boundary along county borders both provides a more realistic area for the Resource Model, and allows for the output of information by county, protecting anonymity by reducing disclosive risk, as discussed in Chapter 2. Whereas in Northern Ireland there

⁵⁷ The map has been developed for the purposes of this research and is based upon data from Ordnance Survey Ireland, Ordnance Survey Northern Ireland, and the Northern Ireland Environment Agency © OSi, OSNI, and NIEA 2015.

is a benefit to information being presented in large scale in order to reveal local patterns of distribution, the majority of location information held about interpreters is by postcode area, which is an output area matrix that does not extend into the Republic of Ireland. While it is not best practice to present information graphically in different scales, the primary focus of the Resource Model is Northern Ireland, so that border-county data provides an additional – but still significant – narrative to the fundamental investigation of the distribution of signed language interpreters in Northern Ireland itself.

As with the development of the User Model, I intend to develop a resource to better understand the resource of communication support for deaf signed language users in Northern Ireland, using GIS. Unlike the User Model, which was designed to contain highly sensitive data, and therefore required a considered ethical approach to the format and output capabilities, the Resource Model designed here will contain significantly less sensitive information. The majority of the data to be included is already publicly available, such as the NRCPD register and VLP and ASLI membership lists; however, as some of the information is not public,⁵⁸ I will remove all names from the data and generalise the output data to a polygon geography. The anticipated low number of records in the Resource Model presents a significantly higher disclosive risk than the User Model, despite the lesser sensitivity of the data, which justifies the design choices to generalise the location data in polygons rather than points. I propose that this output geography should be expressed in postcode areas and border counties due to the fact that the majority of location data of the indicator records is held against postal addresses – as is the case with NRCPD, ASLI and VLP records. The User Model allows the user to define the Area of Interest and, while it is possible to include this function in the Resource Model, there are benefits to using a fixed output geography due to a number of differences in the function and processing of the Resource Model. The User Model calculates the estimated population for an area of interest, selected from the highest returned value from a series of records - as discussed in Section 2.5

⁵⁸ Where a registrant or member has chosen for their details not to be publicly listed.

- Interpretation of Results, in order to minimise the risk of double counting. However, as all the data collected for the Resource Model is held against unique fields of reference - i.e. Names - data from all records can be combined without the risk of inflating the population total through double counting. The calculation methodology of the Resource Model is, therefore, much less sophisticated as the data can be combined in tabular format and the results then displayed geographically in the GIS environment. The major difference between the design and function of the User and Resource Models is geoprocessing. All the calculations for Steps 1 and 2 are carried out in the User Model; however, like Step 3 of the User Model, in the Resource Model calculations are made outside the GIS environment and results displayed within the GIS environment. Due to the need for geoprocessing, the User Model was developed within ArcGIS Desktop. The Resource Model does not require geoprocessing and therefore it is possible to develop the resource using a free application in ArcGIS Online. In that regard, in Section 2.4 I noted a conflict in terminology between that used in my research and standard GIS terminology in terms of a toolbox, models and steps. Once again, at this juncture I wish to highlight a difference between the term 'model' in the context of this particular stage of the research and how it is used in GIS. The Resource Model, in terms of GIS terminology, should not be considered a model as there is no geoprocessing task. It should therefore simply be thought of as a map – however, for the purposes of this project and with the aim of creating resources that offers us an enhanced understanding of the community of interest, I will continue to use the terms 'User Model' and 'Resource Model' irrespective of the GIS processing tasks being carried out for and by each. Put simply, the variation of tasks carried out by each does have bearing on the model design, although the terminology I will be using does not wholly reflect this. The Resource Model does not require geoprocessing, which offers benefits for building and hosting – for example, ArcGIS Online offers a free 'AppBuilder' tool which allows me to build the Resource Model without writing in code⁵⁹. The AppBuilder also offers prebuilt user-facing map features, such as predefined menus of features that offer

⁵⁹ Elements of the User Model were written in python.

greater usability of the maps. Furthermore, hosting the Resource Model online in the ArcGIS Online environment facilitates remote access which increases the availability of the resource, thereby explicitly supporting the aims of this research project. As with the web map version of the User Model, the Resource Model will be restricted with a proxy to reduce the risk of the model being accessed with malicious intent. Once again as with the web map version of the User Model, this may be achieved by setting up a feature service on ArcGIS Online, which is only available to the developer when logged-in using secure credentials and registering the feature service URL to a new item within ArcGIS Online in order to mask the true URL, thereby restricting access to a routing via the author's site -

signlanguageni.maps.arcgis.com - while at the same time avoiding the sort of restricted access that arises from a log-in requirement. What this does is effectively create a secure layer that can be added to a publicly accessible web application, so that the 'share' settings may be left as 'everyone (public)' but with the safeguard that, due to the way in which the proxy acts on it, the map is only accessible to users who know the full and exact pathway address.

As mentioned above, the data will be collated against a single geography (postcode area and border counties as discussed in the previous sub-section) and, in order to maximise accuracy, the data should be released against the same geography. To reduce disclosive risk, only the postcode area (that is, the first part of the postcode) rather than the full postcode will be used in the Resource Model. This aspect will be further explained in the following sub-section, which is concerned with the collection and aggregation of data.

As with the User Model, indicators of population will be derived from overarching categories of interpreter identity. Unlike the User Model, however, where these categories were derived from the established Baker-Shenk and Cokely model of 'Avenues of Membership to the Deaf Community', the categories for interpreter identification will be derived from

my own knowledge and experience of the UK signed language interpreting profession – these categories will, in turn, be informed by our previous discussion on the definition of what constitutes an interpreter. The categories of definition that emerge from this proposed hybrid model are: Regulation (R), Support (S), Training (T), Employment (E), and Peer Referral (PR). And from each category we will identify indicators of interpreter populations from existing datasets.

Regulation, as the first category of indicators, has already been covered in discussion above. In brief, therefore, the two indicators that will act as inputs for the model in this respect are registration with NRCPD (RSLI and RTSLI), and registration with RBSLI. In the next category, Support, there are two types of indicators to be included; firstly, membership of interpreter associations, of which there are two - the Association of Sign Language Interpreters (ASLI) and Visual Language Professionals (VLP), the membership lists of which will provide significant sources of data to the Resource Model. And secondly, within the category of Support, we should include union membership. The National Union of British Sign Language interpreter (NUBSLI), a branch of Unite, was established in 2014, and although it is still in its infancy it already represents a reported 30% of the profession. The Union membership list will provide the next proposed indicator input for the Resource Model.

Training, at first sight, is a more difficult category in terms of the identification of appropriate indicators for interpreters, in great part because of the wide range of interpreter training routes. In the context of Northern Ireland, however, we are dealing with an area that has traditionally offered few training opportunities for signed language interpreters so that the indicator is more circumscribed – indeed, by the same deficit of opportunity and resource that this thesis is centrally concerned to tackle. In 2012, as we have already noted, DEL investment was made in order to provide a partial resolution to the lack of opportunity to train as a signed language interpreter in Northern Ireland. The funding supported the addition of BSL and ISL as language

options within the MA in Interpreting at Queen's University, providing the first opportunity to train, as a signed language interpreter to MA level, in Northern Ireland. One of the entry requirements to the programme was that students should be currently working as interpreters and eligible to register as a TSLI⁶⁰ with NRCPD, thereby notionally suggesting that student registration lists could act as an indicator of most recently trained interpreters in the Resource Model. Unfortunately, however, data protection prevents both the Department and the then- School of Modern Languages, where the MA in Interpreting was offered, from releasing student names. Nevertheless, what can be secured for inclusion here is the total number of students by language who enrolled for the course and, while this cannot feed directly into the model, the comparison of that figure with publicly-available graduation information (Belfast Telegraph) will offer up some of the data to be fed into the model. For that reason, we can suggest that both the total BSL/ISL student registration figures and the graduation list are appropriate indicators for inclusion in the Resource Model. Moreover, including the graduation list as a separate indicator has the potential to reveal significant underlying patterns in the workforce in terms of trained and untrained practicing interpreters.

The fourth category of indicators of the interpreter population is Employment. All community signed language interpreters in Northern Ireland are self employed. Unlike many agencies and deaf-led organisations in England and Scotland, who employ in-house interpreters, agencies here do not directly employ interpreters in salaried positions. Very rarely, a school or college may choose to employ an interpreter for the duration of a student's attendance, although this in turn leads to a consideration of whether such a role is strictly

⁶⁰ During the writing of this thesis, NRCPD changed the category of trainee interpreters from TSLI to RTSLI. TSLI is used in the Resource Model (which was developed prior to this change) and when referring to the historical requirement for TSLI status for the MA. RTSLI is used in current discussions of the category.

that of an interpreter or a communication support worker.⁶¹ Without in-house interpreters to fulfil interpreting assignments, agencies must subcontract freelance interpreters, with the result that agencies hold lists of interpreters who have previously been approved for subcontracting. These lists are, in turn, key indicators in the category of Employment. Significantly, there are two major charities working with deaf people in Northern Ireland which include a Communication Support Agency as part of their remit; Action on Hearing Loss, and Hands That Talk. It makes sense, therefore, to suggest that the inclusion of the approved interpreter list of AoHL and HTT should be the first identified indicators in the category of Employment. The previously identified indicators in the categories of Regulation and Support have been uniformly applicable right across Northern Ireland, while Training indicators, although geographically specific in terms of provision, reflect a sphere of influence from the University across and beyond Northern Ireland. By contrast, in the category of Employment the communication support register of HTT, as a small charity based in the North West of the Province, reflects a smaller sphere of influence, in that the organisation, while prominent in the deaf sector in Northern Ireland, is County Derry-based and, accordingly, represents a location-specific indicator.

The fourth indicator in the category of Employment relates to another agency. In contrast to the one just mentioned, it is a non-specialist language agency that works primarily with spoken language interpreters. Flex Language Services (Flex) began trading in 2011 and, in 2013, following the award of a

⁶¹ Signature defines the role of CSW as, “CSWs work as part of the education team alongside other professionals, such as Teachers of the Deaf (TODs), Speech and Language Therapists (SALTs), and Audiologists. Duties typically include:

- Supporting deaf learners by enabling communication between spoken English and BSL, notetaking and lipspeaking
- Supporting deaf learners with understanding and producing written material in class
- Adapting learning materials so that deaf learners understand them more easily
- Suggesting ways that the school or college environment can be improved to make it easier for deaf learners to use hearing aids or lipread’

Northern Ireland-wide tender that included the provision of signed language interpreters, Flex began to sub-contract work to self-employed SLIs in order to fulfil its contractual obligations.⁶²The inclusion of the Flex list of approved signed language interpreters will provide the final Employment Indicator in the Resource Model.

The final category, Peer Referral, is included in order to reflect the shared identity and culture of the deaf community, of which interpreters are part. Indeed, it could be argued that interpreters represent a sub-culture of wider deaf identity, even though deaf identity itself is much more widely researched – as epitomised by *Constructing Deafness* (1990), which in turn laid the foundation for much of the more recent research into the Social Model of deafness. Strictly speaking, Peer Referral is not the same sort of category of indicators as the others, but is rather a culturally appropriate source of information rooted in the collegiality of the profession and its general culture of information sharing and knowledge transfer. Where information may be pieced together from very different sources in this particular instance, the ability to gain information in the most direct of ways is invaluable. Furthermore, in the case of the Resource Model, such directly-gleaned input suggests greater reliability than would probably be true of sources gleaned from the wider non-professional population. All of that said, academic rigour dictates that information gained in this way should be identified as untested evidence, and ideally its veracity triangulated before included in the Resource Model.

The indicators identified in this discussion, are summarised in the following table, along with the type of information available from each indicator and the potential population captured.

⁶² I was approached in my capacity as a BSL/English interpreter

Category	Indicator	Data type	Potential Population Capture
R	NRCPD register	Name (location)	SLI
R	RBSLI register	Name and Region	SLI
S	ASLI membership	Name (location)	SLI by lang.
S	VLP membership	Name (location)	SLI
S	NUBSLI membership	Records not public	BSLI
T	QUB register	Total number of students	SLI
T	QUB graduation list	Name	SLI
E	HTT register	Name and location	SLI by lang.
E	AoHL register	Name and location	SLI by lang.
E	Flex register	Name	SLI by lang.
PR	Peer referrals	Name (location)	SLI by lang.

Name and location	Both name and location given
Name (location)	Name given, location may also be available
SLI by lang.	Interpreters language pair is known
BSLI	British signed Language interpreters

TABLE 3.3.2 RESOURCE MODEL INDICATORS

The greater part of the information is recorded against names, which in turn allows for the data to be easily aggregated but which also presents disclosive risk and implications for data protection. Consequently, collected data must be anonymised prior to inclusion both in this research project and in the resulting working Resource Model. In the discussion that follows I will outline the methodology that combines data collection and aggregation of sensitive data with the removal of names while, at the same time, minimising the risk of double-counting model data. This discussion will also consider the scope of data that the model will offer, ensuring all the while that data protection is

both fully observed and that the maximum possible value to the research itself is maintained.

Unlike the User Model, the data for the Resource Model is recorded against a unique ID reference (names) which eliminates the risk of double counts as all indications of an interpreter can be checked against this reference and information combined within a record. As the data can be recorded in one file prior to its inclusion into the GIS environment, rather than requiring the software to combine the data identified by each indicator, and due to the significantly smaller numbers of records within the source data, the data itself can be manually managed in a single spreadsheet - the template of which is indicated below. All records have been removed, with the exception of the one that pertains to me, which has been left solely for illustrative purposes. The totals for identifications per indicator have also been retained. It should be noted, once again, that this source file spreadsheet has been stored locally and securely in accordance with data protection.

Ref. Name	BSL/SL		Registration status	Location	Email	SMP11					SMP11 completed		Aut. S.		PWA		PWA-Ref	
	BSL	ISL				T	M	M	M	T	T	E	C	E	PH			
17	John	John	John	John	John	1	1	1	1	1	1	1	1	1	1	1	1	1
TOTAL						15	15	15	15	15	15	15	15	15	15	15	15	15

* created on 1 March 2019 (data source is a list of names only)
 ** as recorded in the File on a NAF (general coverage record)
 *** not the and up heading in general coverage record

TABLE 3.3.3 RESOURCE MODEL COMPILED DATA SPREADSHEET TEMPLATE

Column 1, Ref. was added when anonymising the data so that, if required, the data contained in the Model could be compared to the original source file, if identification of individuals were to become necessary.

The cells for the remaining fields were as follows

Name; (text)

BLANK; (text)

BSL/ISL; BSL, ISL

Postcode; BT1-BT35, BT38-BT47, BT49, BT51, BT53-BT58, BT60-BT71, BT74-BT82, BT92-BT94,⁶³ Donegal, Sligo, Leitrim, Cavan, Monaghan, Louth⁶⁴

Registration Status; RSLI, TSLI, not regulated

Location; (text)⁶⁵

Email; (text)⁶⁶

NRCPD-Peer Ref; (TRUE)/(FALSE)

The information contained in the last row of the table “TRUE” was added when totals for the indicator were available but a correlating breakdown by name was not. In the case of NRCPD, the total number of registrants per geographical region is published in the monthly newsletter - this figure, however, does not match a search of the register for the same geographical region and has the potential both to exclude interpreters based in Northern Ireland and to include those who do not work here. Members, in fact, have the option to withhold their information from geographical searches of the register, which in turn limits the potential usefulness of search returns. Location-based searches for interpreters do not take into account physical barriers such as the Irish Sea, and so a search for “Interpreters near Belfast” will often include Scottish interpreters (depending on the specified search radius), leading to a dangerous inflation of search results. Search criteria are also based on the areas that each interpreter profile specifies as being available and willing to work in. This means it is possible for an interpreter to list that they will work nationally but, if, for instance, they are based in SE England, the resources required to work in Northern Ireland become prohibitive, so that to include the interpreter in the search results effectively

⁶³ Not all increments between BT1 and BT94 are postcode areas. Setting fixed inputs for the postcode areas reduces the risk of manual error when inputting the data into the master spreadsheet.

⁶⁴ The border counties identified for inclusion earlier in Section 3.3

⁶⁵ Any location data found that could be used to generate the half postcode.

⁶⁶ Recorded if available incase data was incomplete after entering all indicator information in order to request the missing information.

gives a distorted picture of resource availability (see the discussion on proximity earlier in this chapter.

The total for NUBSLI members was obtained through personal correspondence with the chair of NUBSLI, Jen Smith. Unlike membership and association registers, no part of NUBSLI membership is publicly available, so that the organisation was unwilling to supply the names of Northern Ireland-based members. The data collection methodology for this field was negotiated with the chair of NUBSLI who agreed that, providing that I supplied the list of people I suspected may be members of NUBSLI, they would compare my listing with their own membership records and report how many appeared on both lists. As the union branch is in its infancy, and does not yet have a large presence in Northern Ireland, this methodology was deemed to be acceptable. In the event, only one name was confirmed as appearing on both lists and, as it was my own, they were also able to confirm the name. If the comparison had returned more names, I would have undertaken primary research against the Peer Referral criteria in order to identify other members.

The Queen's University total was obtained through personal correspondence with Dr. Piotr Blumczynski, who was instrumental in establishing the language options of BSL and ISL on the MA Interpreting at the University. Although he was not able to release the names of students, he was, like NUBSLI, able to confirm the total number of students who had registered to the course in the first, and to date only, year in which the course was delivered. This confirmed number was then compared with the next column of 'QUB completed', for which data was compiled from the *Belfast Telegraph* published list of graduands. The difference in numbers between those who began the course and those who successfully completed is significant in terms of building a comprehensive understanding of the interpreting workforce. The MA programme was accredited by NRCPD in order to allow graduates to register as RSLIs, although, as already noted, one of the conditions of this agreement, stipulated by NRCPD was that students must

achieve TSLI status before undertaking practical assignments or work in the field – so that effectively it is possible that students gained some interpreter training but were not eligible to register as fully qualified with NRCPD. For that reason, it is unlikely that they would be captured by any other indicator in the Resource Model. The outstanding data for the 'QUB started' was completed by double- tested Peer Referral with and from those students who actually took the programme.

In order to populate the table, NRCPD, as the largest database of interpreter details, was used as the primary indicator. I contacted NRCPD through private correspondence to request the names of registrants based in Northern Ireland; they directed me, however, to the membership figures listed in their published news letters (total registrants per region) and did not provide any additional details, thereby requiring data to be collected through the medium of searches of the online register. As the data was not available in a way that made it immediately useable (that is, search results from the online register were not reliable, as previously noted), a tailored methodology was required in order to ensure reliability and completeness. The first stage of this methodology was to search the register by location, entering 'Northern Ireland' as a search term, and thereafter including all names that appeared with Northern Irish locations in their profile. This returned 43 pages of results, as they were filtered by proximity to the specified location, with the relevant results effectively appearing only in the first two pages. This search method yielded 18 results, which did not match the expected total of 28, leading to the conclusion that the data contained within the NRCPD column of the table was still incomplete.

Search results

What you searched for

Region:

Communication professional type:

[Switch agent](#) [Search by name](#)

... Previous **1** 2 3 4 5 6 7 8 ... 42 43 Next ...

Your matching results

FIG. 3.3.2 NRCPD REGISTER SEARCH RESULTS

Northern Ireland, on the other hand, did not feature in the regions menu for searching the RBSLI register. Personal correspondence made it clear that only regions where interpreters are registered appear in the search menu, so that the conclusion is that there are no interpreters in Northern Ireland registered with RBSLI. The total count for the column remained at zero and the data collection for that indicator was complete.

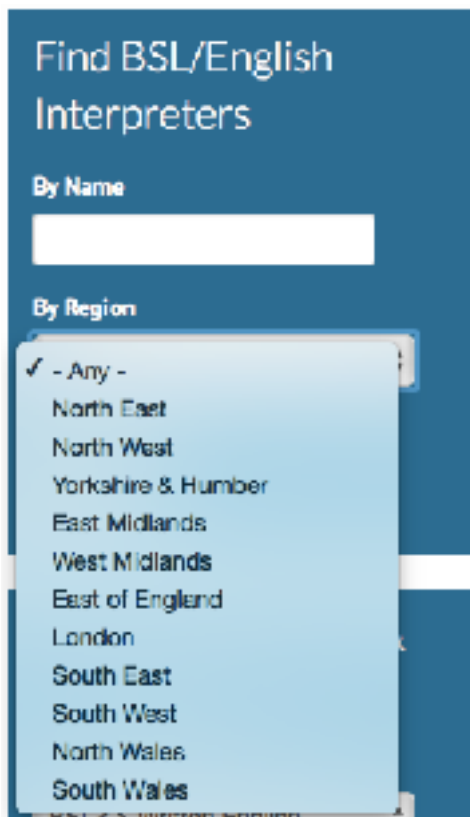


FIG. 3.3.3 RBSLI REGIONAL SEARCH MENU

Despite contacting the Association directly, ASLI declined to supply the names or total number of members of the public register who are based in Northern Ireland. Furthermore, the online search function of the register on the ASLI website was faulty, so that data collection was delayed until the tool was repaired. The search, once it was able to take place, returned 24 members based in Northern Ireland, whose names were added to the master spreadsheet and duplicates merged. As new names were added to the spreadsheet, I ran individual queries through the online membership search tool so as to ensure complete data collection. Once again, as with the NRCPD website search tool, not all interpreters who were eventually identified by this method as being based in Northern Ireland were identified as such through initial searches by location. This, in turn, provides fresh evidence of the importance of using both multiple indicators and Peer Referral as twin-track methods of ensuring accuracy.

The member search for VLP was, again, straightforward as membership in Northern Ireland is limited. The website membership search tool revealed 3

members which, as one of the 3, I know to be accurate. AoHL and Flex, on the other hand, declined invitations to contribute to this research. HTT, however, did supply their approved communication support providers register on condition that personal data would not be included in the published research. The resulting information was added to the master spreadsheet and, as with the addition of new data from each indicator, duplicates were merged.

The final indicator – that of Peer Reference - was incorporated after all other indicator data had been added to the spreadsheet. Peer references, in the event, uncovered only one interpreter not already identified (whom I know to have traveled to Northern Ireland). This missing data, if the interpreter in question were indeed based in Northern Ireland, would cast significant doubt on the effectiveness of the overall methodology; however, as this is not the case, the risk of introducing new data through this least rigorous and reliable of sources is reduced. As a means of increasing the reliability of the collected data, I asked two interpreters, based in different locations in Northern Ireland (thus with greater potential to encounter different sets of interpreters through their work), for the sole purpose of this research and confidentially, to review the names of the identified interpreters and contribute the names of any interpreters they are aware of working in Northern Ireland who are missing from the list. Both interpreters were unable to suggest any missing individuals.

Once data from all the indicators listed above had been included, the total number of additional members revealed through individual named searches of the NRCPD register and ALSI membership was 10 and 2 respectively, demonstrating the limited accuracy of the search tools on these online directories. Once a comprehensive list of individuals had been compiled, location information, in a uniform geography of postcode area and border counties, was added into the master spreadsheet and recorded under 'Postcode'. The majority of location information was available publicly on at least one of the three public data sources – namely, NRCPD, ALSI or VLP.

After compiling location data from all listed sources, location data for two records remained outstanding. This was rectified by contacting the two named individuals and, following informed consent, requesting the half postcode/county locations for the purposes of this research. Both consented to their location data (half postcode) being used in this way and, accordingly, supplied the required data.

Following the aggregation of all data sources by name and the standardisation of location geography, further action was required in order to negate disclosive risk prior to the data being added to the Resource Model. Despite the protective measures built into the software, hosting the model online presents an inherent risk of data theft. There is no notably beneficial return from the increased risk of including unnecessary data in the model. By necessity the data was collected against individuals – however, the combination of indicator responses in each row builds a profile of an individual interpreter which, despite removing names, may still be identifiable, and for that reason presents a perceptible disclosive risk. It is a risk that is heightened due to the small returns for some indicators such as VLP membership (3), NUBSLI membership (1) and the difference between QUB started and QUB completed (3), all of which increase the likelihood of an individual being identified in the event of any breach in data security. In this context, it is important to recall that, unlike the User Model, the population calculations for the total resource were created manually, not by GIS geoprocessing – signifying, in other words, that effectively there is no need for individual indicator data returns to be included in the model. What is necessary, however, is to retain the relationships between BSL/ISL, Postcode and Registration Status. In order to capitalise on the reduced data requirement, while still retaining the Model's accountability to the original full data, the first column was added whereby each row of data was allocated an arbitrary unique reference number. A refined version of the collated data was created, retaining only three relevant columns of data and a unique reference number for each record in order to be able to check the data against the original source file.

The final aggregated, anonymised and refined table of data to be entered into the Resource Model is shown here.

Ref	BSL/ISL	Postcode	Registration status
1	BSL	BT36	TSLI
2	RSI	BT6	not regulated
3	DSL	BT9	RSLI
4	DSL	BT71	not regulated
5	RSI	BT47	not regulated
6	DSL	BT32	RSLI
7	DSL	BT38	RSLI
8	BSL	BT6	TSLI
9	RSI	BT36	RSLI
10	DSL	BT44	RSLI
11	RSI	BT4	RSLI
12	DSL	BT46	RSLI
13	DSL	BT51	RSLI
14	DSL	BT49	RSLI
15	DSL	BT5	RSLI
16	DSL	BT8	RSLI
17	BSL	BT32	RSLI
18	RSI	BT77	RSLI
19	RSI	BT4	RSLI
20	DSL	BT38	RSLI
21	BSL	BT39	TSLI
22	RSI	BT64	RSLI
23	RSI	BT17	TSLI
24	RSI	BT99	RSLI
25	BSL	BT36	RSLI
26	BSL	BT37	RSLI
27	BSL	BT18	RSLI
28	BSL	BT19	RSLI
29	BSL	BT19	RSLI
30	BSL	BT28	RSLI
31	BSL	BT78	RSLI
32	RSI	BT23	RSLI
33	RSI	BT36	RSLI
34	ISL	BT47	not regulated
35	ISL	Cavan	not regulated
36	ISL	Sligo	not regulated
37	ISL	BT48	not regulated
38	RSI	BT47	not regulated
39	ISL	Donegal	TSLI
40	ISL	Louth	not regulated

TABLE 3.3.4 RESOURCE MODEL AGGREGATED DATA

The information contained in this refined table was fed into the attributes table of the web map.

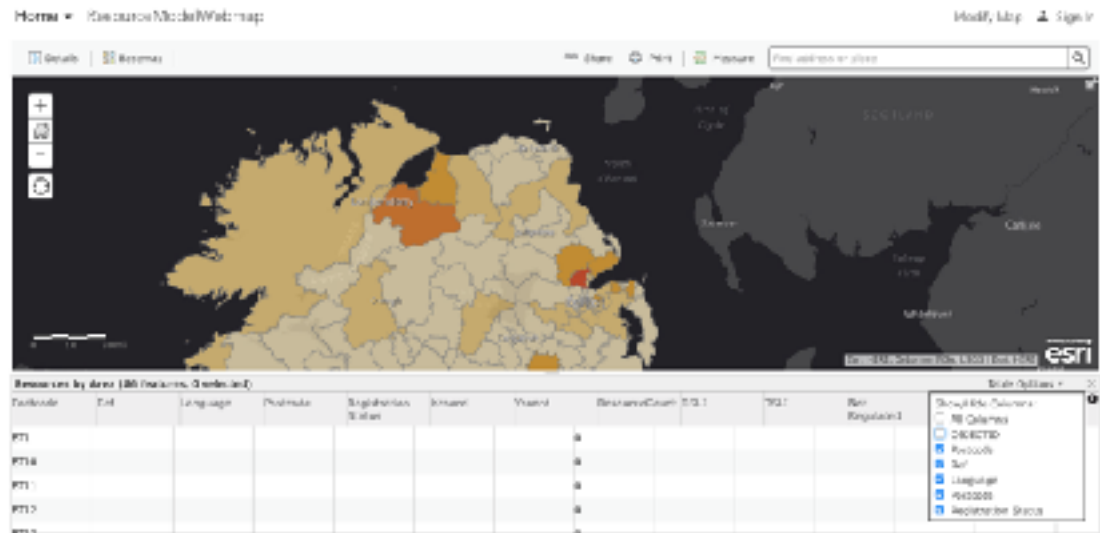


FIG. 3.3.4 RESOURCE MODEL WEB MAP (ATTRIBUTES TABLE DATA FIELDS)

With such a small total population (40) spread across Northern Ireland and the border counties, it is, inevitably, impossible to eliminate disclosive risk entirely. However, through the steps taken, as outlined above, as well as using large generalised output areas (1/78th of Northern Ireland and by county) the data is anonymised to the full extent that anonymity is possible without compromising the functionality of a model that is designed and geared to better understand the availability of interpreters as resources in Northern Ireland.

The Resource Model

This section of the model development, along with the User Model developed in Section 2.4, comprises the practice-based element of my thesis. The following section should be read alongside the video fly-through of the Resource Model in Appendix 6, and Appendix 4: Resource Model User Guide. The Resource Model, can be accessed as a web map via the link in the ReadMe file in Appendix 6. Appendix 4: Resource Model User Guide provides the background information for any member of the public who may wish to use the Resource Model. The accompanying video in Appendix 6 is a screen capture, demonstrating the use of the Resource Model via ArcGIS Online.

The layout of the ArcGIS Online infrastructure is similar in layout to the ArcGIS Desktop. The navigation pane is on the left hand side, the map is central/top right, and the attributes table for each dataset can be opened along the bottom of the screen. The Resource Model has only one dataset - the table of aggregated data from all indicators.

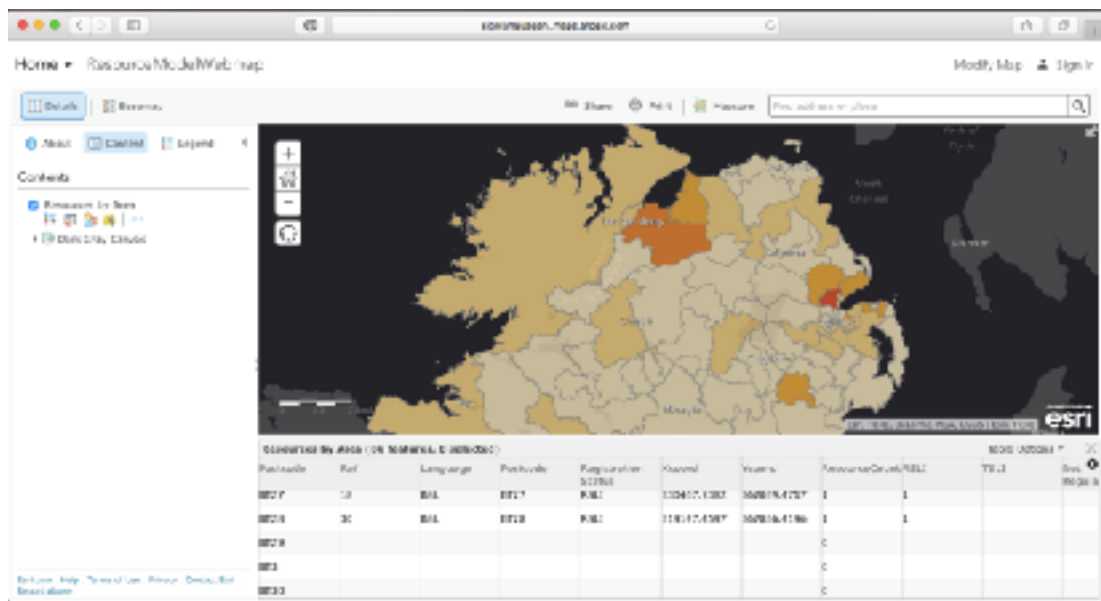


FIG. 3.3.5 RESOURCE MODEL WEB MAP (ATTRIBUTES TABLE DATA)

Viewing the model via the Web App Viewer Dashboard provides a more user-friendly experience by limiting the metadata displayed to the key information only and by presenting the resource in an environment that presents the user with clearer navigation tools.

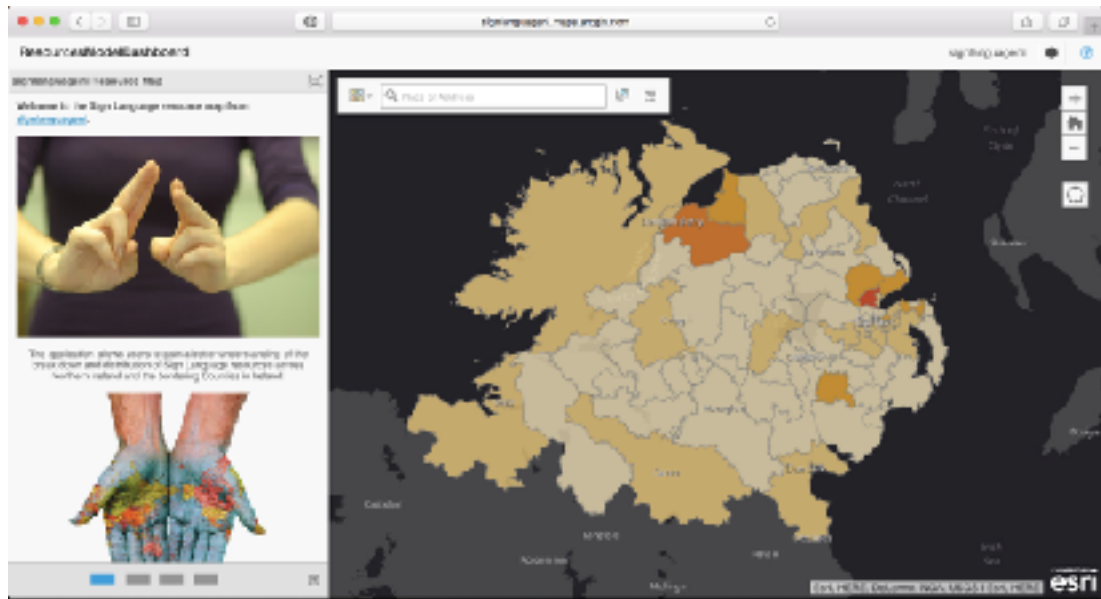


FIG. 3.3.6 RESOURCE MODEL WEB MAP VIA DASHBOARD

The Dashboard also allows the developer to incorporate both information panes (as shown above) and prebuilt summary tools into the web map interface.

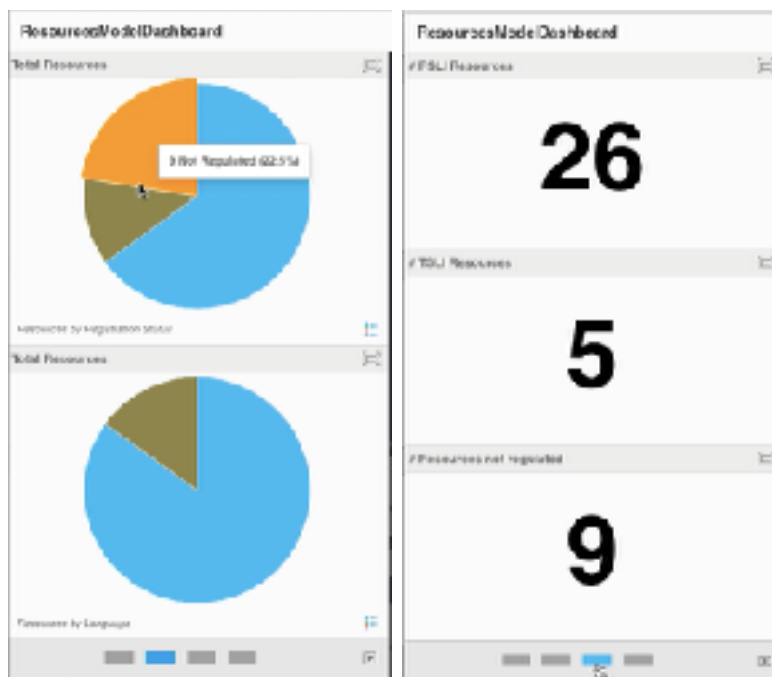


FIG. 3.3.7 RESOURCE MODEL DASHBOARD INFORMATION PANES 2 AND 3

Clicking on each output geography polygon displays the information held against that area, while Information relating to multiple areas, such as border

counties, can be summarised by holding the shift key, while selecting the polygon Areas of Interest.

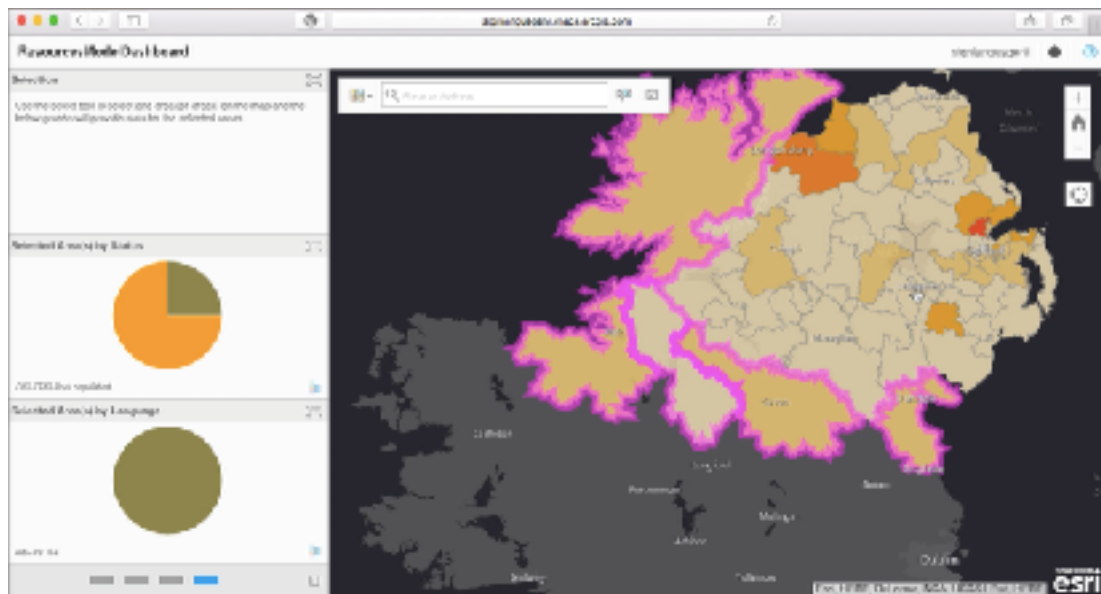


FIG. 3.3.8 RESOURCE MODEL DASHBOARD MULTIPLE AREAS OF INTEREST

Unlike the web map version of the User Model, which is not intended to be regarded as the primary format of the User Model, the Resource Model has been designed to be used primarily in the user friendly web map Dashboard application. The web map requires no knowledge of GIS on the part of the resource user, thereby potentially increasing the numbers of those who might make use of this product. Hosting the resource online, furthermore, enhances opportunities for the resource to be accessed and used, thereby contributing to one of the overall aim of this thesis, which is to offer the potential for wider impact. Creating this publicly accessible resource, in brief, provides users with non-specialist knowledge of signed languages, and signed language users and signed language interpreters alike the opportunity to increase their understanding of the resource of interpreters in Northern Ireland. The overall need for enhanced public awareness of such resources was introduced in Section 2.4 and will be discussed in detail below, in Chapter 4 - Deficit of Opportunity. As with the development of the User Model, the development of the Resource Model provides an early solution to this need for greater awareness.

Section 3.4 - Case Study: Brazilian Recognition of LIBRAS

Until now this thesis has considered linguistic resource only in the context of Northern Ireland. Language support and recognition has been explored both in terms of legislative entitlement for signed language users and in terms of the availability of resources for the linguistic minority to access the majority language, English. While these considerations of recognition document the current situation in Northern Ireland, if the information is held in isolation it is difficult to gauge in any real or meaningful way the quality of this level of recognition. Indeed, as an isolated consideration, there is no benchmark against which to measure. Signed language recognition has already been briefly considered alongside other UK indigenous minority languages in the context of legislation; however, the scope of this consideration remains narrow. By internationalising the scope of this thesis, by considering recognition of signed languages in a different country, not only will this research offer an insight into the manifestation of recognition in another context, but from this understanding it will create a comparative framework against which to reconsider the recognition of signed languages in Northern Ireland. I propose to create this comparative framework by means of a comparative case study between Northern Ireland and Brazil, which I visited during this research under the Santander Universities Mobility Scheme. This travel allowed me to gather primary research about the manifestations of signed language recognition in Brazil. In this section I will consider, what language recognition 'looks like' through comparative analysis before, in the Chapter 4 - Deficit of Opportunity, considering language recognition through the theory of a Politics of Recognition. The alternative perspective on recognition of signed languages offered in this discussion is aligned with the discussions in Chapter 3 so far. It has already been discussed how signed languages users themselves have not been recognised in statistical research prior to this research project, nor largely in the provision of resources to access the indigenous majority language (English) using the indigenous minority signed languages (BSL and ISL), that is the resource of interpreters.

While there is undoubtedly a shift in subject matter from Brazil to Northern Ireland, the considerations given to each remain the same.

The indigenous signed language of deaf people in Brazil is LIBRAS (Língua Brasileira de Sinais). Brazil was selected to establish a comparative analysis with Northern Ireland as there is parity in the timing of each governments' recognition of their own country's indigenous signed languages; yet the profile of each, and opportunities to use these languages of Brazil and Northern Ireland are significantly different. In 2004 the Brazilian government recognised LIBRAS, the same year that the Northern Ireland Assembly recognised BSL and ISL. The coincidence of date is important. It is not simply a question of examining the first ten years of language development since recognition. Not only is there potential for differing global current affairs of each 10-year period to have influenced the development of recognition of the languages (such as global recession), but the international infrastructure of signed languages in terms of research and international organisations, such as the WFD (World Federation for the Deaf) could influence the development of post-national recognition processes. Both considerations, global current affairs and signed language infrastructure, increase the dependant variables in the comparison which, for optimum comparison, should be reduced. One way of achieving this is to compare two countries whose signed languages were recognised in the same year. This minimises the dependant variables in order to fairly compare the two histories of development that were subject to the same external influences and support for the growth of the development of the variable (recognition) to be critically examined. In terms of the international organisations that could help to facilitate the development of recognition, both Brazil and the UK are members of WFD and WASLI (World Association of Sign Language Interpreters), a shared circumstance that provides more foundational similarities on which to base this comparative study. Meanwhile, whereas Brazil is an appropriate comparison, it is important to highlight why the United States of America, ostensibly a more relevant point of comparison, would be inappropriate. Much of the development of international organisations,

previously mentioned, and the research regarding signed language and signed language interpreters has developed out of the US. This has meant that development in the US is unique in terms of its status as the lead country in the campaign for the recognition of an indigenous national signed language. For that reason, it is therefore an unfair comparison with any country in terms of the creation and implementation of measures of recognition. The US has remained an internationally recognised leader of academic research related to signed languages.

This case study element has been conducted from the perspective of social constructionism, characterised by Willig (2001:7) as “[...] identifying the various ways of constructing social reality that are available in a culture, to explore the conditions of their use and to trace their implications for human experience and social practice.” The adoption of this social constructionist approach does not imply a wholly comprehensive or objective representation of signed language recognition in Brazil, but rather it offers an experiential account of reality or, as Willig notes, a “socially constructed knowledge” that derives from the acceptance that “human experience, including perception, is mediated historically, culturally and linguistically” (ibid). This perception of reality, as represented in this case study of Brazil, is directed by my own identity as a Northern Irish researcher, who until conducting this case study research had not visited Brazil and had no knowledge of Brazilian Portuguese or LIBRAS (the two indigenous languages of concern). Yet this subjectivity, if we follow the methods and insights of social constructionism, does not invalidate or denigrate the observations.

The methodology for this case study was primary observation, supported by semi structured informal interviews. Objectives for the research trip including the testing of a hypothesis, which I will detail later, were set before beginning the research. However, the primary aim of the exercise was to gain as much experiential learning as possible within the three and a half week period I spent in Brazil. The sampling strategies employed (taken from Miles and Huberman 1994, in Marshall and Rossman 1999) were as follows:

Snowball or Chain: Identifying cases of interest referred second-hand from those who know others who have experience of cases that are information rich;

Typical case: Highlighting the norm or median;

Random purposeful: Supplying credibility to the sample when the potential purposeful sample to be examined is too large;

Opportunistic: Following new leads and taking advantage of the unexpected.

Prior to travel, preliminary research had identified Ronice De Quadros as an influential academic working in the field of signed languages in Brazil, so that she became the first link in the Chain (or Snowball) sampling. I spent eighteen days of the trip at the Universidade Federal de Santa Catarina (UFSC), where she is based. Beyond this, my research sampling was Opportunistic, although by necessity always alert to the Randomly Purposeful – necessary because, although the scope of the case study was Brazil in its entirety, the time resource available was only three and a half weeks. In terms of geographical coverage, in addition to Florianópolis, where UFSC is situated, I also spent time in São Paulo and Rio de Janeiro - in São Paulo fostering links with the Universidade de São Paulo (USP) and, in particular another distinguished academic, Fernando Capovilla, who works in the field of signed languages and whose work I had become aware of in the early stages of research for this case study, and in Rio de Janeiro, visiting the first Brazilian School for the Deaf which, at the time of my visit, was hosting a national conference on bilingual deaf education. The initial objectives for the research trip, referred to above, are set out below, although due to the exploratory nature of social constructionist research these objectives developed organically during the course of the study. §

The fact that the respective governments of Brazil and Northern Ireland recognised their indigenous signed languages at the same time, as noted above, meant that even from the outset research could be directed towards the identification of subsequent differences. This concern with the respective

differences that had accrued in the wake of markedly similar contextual circumstances constituted the first of my initial objectives. Importantly, in this regard, UFSC is a central national hub for signed language work, both academic and activist. Crucially in terms of this case study, one of the most widely documented (in English) projects of the university was a FIPSE-CAPES cross-boarder partnership programme with Gallaudet University, Washington DC. A consideration of the international strength of the US in terms of impact and research in this regard led to the formulation of the hypothesis underpinning this research process, namely that the development of Brazilian recognition of signed languages was significantly attributable to the partnership with, as well as active support from, a larger and longer established US institution. The testing of this hypothesis, which was considered central to the official recognition of LIBRAS, underpinned this first initial objective of the research.

The second and third of my initial objectives were to do with language. My sampling methods, of course, dictated at least some basic familiarity with and competence in LIBRAS - research through secondary sources would be unacceptably limiting making primary research central to my range of sampling strategies. Using the national signed language, rather than spoken Brazilian Portuguese, would allow for interviews with deaf Brazilians with lesser need for third party communication support. The importance of achieving this underpinning objective as quickly as possible was underlined by the fact that I do not speak or read Portuguese, meaning that access to written documentation would be heavily curtailed. My final initial objective necessarily required an awareness of relevant publications in Brazil, but I was aware from the outset that the achievement of this objective would be limited by the language of publication. These were the three objectives, with their respective inherent set of difficulties, that were set prior to undertaking the research trip; but further objectives developed over its duration in response to the explorative nature of social constructionist research.

The observations gleaned from the case study can be categorised, in turn, into five themes or elements, each of which contributes to the construction of the social reality of signed language recognition in Brazil. These elements of language recognition, which provide a framework for the comparative analysis between Brazil and Northern Ireland, are: legal protection, education, publications, social attitude towards signed languages, and education of interpreters.

Legal Protection

The first of these elements of recognition, legal protection, highlights a stark difference between both countries in as far as the protection of language rights through legislation is concerned. The rights of signed language users in Northern Ireland is discussed in detail in Chapter 3 of this thesis in terms of human rights, disability rights and language rights, a multi-faceted or, to use a less flattering term, fragmented discussion that reflects the non-existence of a single protective legislative act. Instead, as the discussion makes patent, protection for signed language users in Northern Ireland has to be pieced together from non-specific legislation, such as the Disability Discrimination Act 1998, which is identified in the same discussion in Chapter 3 as the most significant rights-based piece of legislation in terms of the users of signed languages. In contrast, the Brazilian Federal Government has passed two key pieces of legislation that have effectively served to translate the statement of recognition into enforceable legislation. In 2002 the Federal Government of Brazil passed the Statute of LIBRAS Law and, in 2005, Decreto C15626 which, among other rights, gave immediate priority to deaf signed language users in the teaching of LIBRAS. These key statutes were the first significant legal protection for deaf LIBRAS users in Brazil, and immediately tie the legal protection of LIBRAS and the enhanced right to use the language to the second theme of the case study findings, Education.

Education

In 2002 the Federal Government launched 'Viver Sem Limites',⁶⁷ a programme of disability inclusion which led to the establishment of LIBRAS teaching programmes in each individual Brazilian state. These programmes were delivered through distance learning with the support of local tutors, thereby providing at a stroke access to specialist education that had been hitherto unavailable outside UFSC. Following the success of the initial distance courses established under the Viver Sem Limites programme, in 2006 UFSC developed a distance learning degree course in Letras LIBRAS,⁶⁸ which was repeated twice in the following three years, rising to 15 distance learning centres and delivering content to over 1,000 students. In 2012/13 UFSC, with support from the Ministério da Educação e Cultura,⁶⁹ established permanent distance courses delivered through three teaching centres. The long distance courses are delivered in addition to the Undergraduate, Masters and PhD programmes offered locally in UFSC under the auspices of the Centro de Comunicação e Expressão.⁷⁰

During my visit to UFSC I was given the opportunity to observe the Letras LIBRAS degree classes. In addition to the official degree programmes, I discovered that teaching staff are also required to participate in 'extension programmes', spending time on projects not directly related to the official university courses they are required to teach. One example of this in the LIBRAS department was the long distance LIBRAS poetry course, taught by one member of staff and one PhD student who each had an interest in poetry. The course was freely available to students and delivered via a Facebook group. Weekly teaching sessions would be recorded and uploaded to the Facebook group page where students could access the content and, in turn, comment by uploading video responses. Students were also set tasks and required to upload their work to the site. In a necessarily brief section such as this, whose overall intention is to establish the broad scale of

⁶⁷ Live Without Limits

⁶⁸ LIBRAS Literature

⁶⁹ Ministry of Education and Culture

⁷⁰ Centre for Culture and Expression

difference between Brazil and Northern Ireland, mention of this one course must suffice to underpin the general conclusion that the variety and scale of teaching currently being offered across Brazil is inspiring. Whereas this current research project constitutes seminal doctoral academic work in Northern Ireland, Brazil by comparison has developed a huge infrastructure of research and teaching in a relatively short time. This seemingly small scale LIBRAS poetry project reaches out to students right across Brazil, and the poetry being created and shared by the students offers a significant contribution to the overall body of literature being produced in LIBRAS. This links into the next theme, which is that of, Publications.

Publications

In addition to the volume of work being produced in LIBRAS both through formal University programmes and extension projects, such as the LIBRAS poetry group, there is a significant amount of research relating to LIBRAS produced annually in UFSC alone. One-off funding enabled the publication of summary papers of all of the relevant research carried out within the academic year 2012-13, leading to an edited publication that required three volumes to contain a single year's research – the specific content is, for our purposes here, largely irrelevant, as what the central concern of this brief case study is to highlight differences of scale in subsequent response to recognition in both countries. The funding secured for this project was designed to increase the volume of work relating to signed languages, available in Brazilian Portuguese. Although the international lingua franca of research in most subjects is English, so that work published in English would in all probability achieve greater global impact, Ronice de Müller de Quadros explained that the work carried out on LIBRAS is concerned to support the development of research in Brazil and that, by publishing research in Brazilian Portuguese, it is simply much more accessible to Brazilian deaf students, whose first language is LIBRAS, than it would be through the medium of English, no matter how much more internationally prestigious English-language publications may be. The priority of the department at

UFSC is, put simply, to develop research and opportunities in Brazil, rather than to build up an international profile.

A further example of this commitment to the national, and in addition to the Brazilian language publications that are produced in UFSC, the University also houses a large LIBRAS corpus project. This takes the form of a vast digital language archive, with work being carried out by students under university staff supervision. It is significant that, although the original project funding had come to an end prior to my visit, the project was continuing unfunded and staffed in the main by volunteers. This community-driven research demonstrates the value that is placed by the academic community of increased visibility for LIBRAS, and in pursuit of that key goal the corpus is hosted publicly online in order to offer national access to the resource.

Social Attitude

Central to all of this, of course, is how LIBRAS is viewed both by users themselves and in the wider community. In this regard, one of the most striking differences in the social attitudes of signed language users in Brazil compared to Northern Ireland was the proportion of correspondence conducted in LIBRAS in everyday life. In Northern Ireland the growing popularity of Facebook in recent years and, more recently, the development of live video messaging services, such as FaceTime and Glide, have led to an increase in signed correspondence. Many users elect to maintain routine and business correspondence in LIBRAS - students, for example, would routinely submit essays in LIBRAS, and would 'text message' and email video files rather than using typed language. This broad acceptance of LIBRAS as having communicative parity with the written language, is a key item of faith in the LIBRAS department at UFSC, which contributed to the natural integration and inclusion of all staff and students based on shared LIBRAS fluency and unaffected by audiological profile.

There has been a corresponding growth in the recognition of the importance of LIBRAS outside the academy, with the Federal Government adopting an

educational agenda that enables the inclusion of LIBRAS in tertiary level education, categorising it not in terms of special educational needs but rather as a national minority language that puts it on a par with other indigenous languages. In contradistinction to this ruling at tertiary level, in the contexts of primary and secondary education LIBRAS remains classified with the remit of special education. This is the first similarity between Brazil and Northern Ireland, where deaf children who use BSL or ISL are also routinely issued a statement of 'Special Educational Needs', whereas signed languages at University level falls, rather bizarrely, under the umbrella of modern foreign languages.

Education of Interpreters

The most surprising finding of this very brief research fact-finding visit was the relative unimportance that seemed to be attached to the FIPSE-CAPES cross-border partnership programme with Gallaudet University. While some staff were aware of the exchange programmes existence, there was limited interest in the continuation of the project among Brazilian colleagues. I did meet a limited number of students who had participated in the project and who, in consequence, felt they had benefited from the opportunity but this was not reflected in the staff's reporting of the project's success. The focus of the staff appeared to be in developing local resources rather than exploring international partnerships. On reflection this focus on national rather than international development is understandable as the market demand for multi lingual LIBRAS<->ASL<->Brazilian Portuguese<->English interpreters in Brazil or USA, is not as great as the equivalent in Northern Ireland would be for BSL/ISL/English interpreters. Despite the perceived importance of international partnership and shared education by the UFSC staff being less than I had expected, I believe there remains value in the adoption of a bi-lingual, bi-national model of interpreter education on the island of Ireland.

This comparative Brazilian case study has been necessarily brief, but it has thrown up two distinct manifestations of recognition, which is the topic that will now concern us in greater detail. This narrative account of two recent

provides an important context for understanding the current status of recognition in each country, and informs any judgement that we might finally make as to the possibility of fuller recognition being achieved in Northern Ireland.

In the first instance, what the Brazilian case highlights is the importance of community momentum, demonstrated both in the support for continuing the corpus study beyond the lifetime of the funding term, and in the determination of the department itself to eschew a potentially more prestigious international connection in order to develop from within and to respond to the perceived requirements of the immediate context. The commitment of UFSC in developing and sustaining LIBRAS teaching provision, promoting a better shared understanding of the language, and creating resources in both LIBRAS and Portuguese to support future advances and progress in the field, is an undeniably positive factor in the achievement of recognition. But it is equally important to note that such determination and commitment, entirely laudable in their own terms, are also supported at a national level by Federal Government funding. In short, there is much that Northern Ireland can learn from the Brazilian experience, which will, in turn, be reflected in the optative spirit of Chapter 5 - Conclusions. To summarise here, they are the clarity of the legislation that sets out and guarantees rights, opportunities and quality of access for deaf signed language users, and the support that the university sector can offer when it garners community support.

Chapter 4 - Deficit of Opportunity

Section - 4.0 Introduction

From the outset, this research project has been concerned to highlight problematic issues in the perceptions of and value placed upon deaf signed language users. It is a concern that is a direct and primary response to the fact that the project itself only came about – at least in terms of the funding that made it possible – because of the increasing perception of what we have been referring broadly to as the gap in understanding between the English-speaking majority community and deaf signed language users. It is in this gap that the problematic issues of perception held by the majority community of these users are, in turn, rooted.

Consequently, it is worth recapping how this thesis has attempted to gauge and address deficit. The lack of existing fundamental population data was addressed in Chapter 2, with the development of the User Model proposed as a tool to capture this data via the use of pre-existing information. The limitations of resources available to support deaf people - in terms of the current support infrastructure, the legislative entitlement for deaf signed language users to have access to interpreters, and the limited numbers of interpreters themselves in Northern Ireland - were considered as key determining factors as well as symptoms of deficit in Chapter 3. These resources of language support, limited though they are, may be regarded as incipient manifestations of language recognition, but a more realistic sense of how far we have come in Northern Ireland in terms of full recognition, and how much more remains to be done, may be gleaned from the support and recognition accorded to LIBRAS in Brazil.

The concept of recognition as a manifestation of perceived value is central to all of this. Accordingly, Chapter 4 will begin by exploring the philosophy and ethical positions of what has been termed a 'Politics of Recognition' by scholars including, but not limited to, Charles Taylor (1994) and Nancy Fraser (1995, 2000a, 2000b, 2000c and 2003). It is, of course, important to consider the extent to which deaf signed language users may be seen as

existing within the framework of a Politics of Recognition in their interactions with the majority population, before proceeding to test the applicability of the theory to our population of interest by revisiting the case study of a service provider's refusal to provide an interpreter when requested, together with the ensuing media attention the case received, which was introduced in section 1.3 of this thesis. What might such an application bring to this thesis? If found to be relevant, a Politics of Recognition can provide the framework to better understand deaf signed language users, an understanding that goes beyond population demographics and measures of resources and takes us to the heart of their shared lived experience.

Recognition, considered in this sense, does not imply an act of normalisation nor is misrecognition about ignoring a population. Neither can recognition exist in superficial displays of political correctness, as indeed the 2004 statement of 'recognition' may well be considered. Words alone are meaningless and it is only by also considering the actions of those involved in the dialectic that we can understand the true perception of the minority group by the majority group in a meaningful way. A Politics of Recognition frames both the interactions between minority and majority groups, and the implications of these interactions. In this way it is the social dialectic that leads to meaningful recognition and individual cases of conflict between majority and minority communities that arise within a broader social context, as considered in Section 4.2, must be interrogated in terms of the processes of misrepresentation and, ultimately, the consequences of misrecognition that the imbalance of power engenders.

Section 4.1 - A Politics of Recognition

The discussion that follows here is based on the presupposition that the societal majority has an ethical responsibility to accommodate the needs of the minority. To meet a need we must first understand what that need is in order to meet it effectively. Without understanding what is required, we cannot hope for any interventions to be appropriate or effective. It is from this need to understand the Other so as to better understand the Self that the philosophical and ethical system of a Politics of Recognition draws upon. In turn, it provides the framework from which to glean both a deeper understanding of the needs and identity of deaf signed language users, and to identify ways in which those needs might be addressed.

Until this juncture, the thesis has been driven largely by data, based on an examination of the need of deaf signed language users to have linguistic access, facilitated by the provision of an interpreter. Linguistic identity is, of course, a fundamental element of the identity of this minority group, not least because, as we have noted, it is a defining factor in the delineation of the group (along with the medical condition of hearing loss). Language, indeed, constitutes one quarter of the Baker-Shenk and Cokely model, *Avenues of Membership to the Deaf Community* (1980), that has underpinned this research and used explicitly in Sections 2.4 and 3.3. But the implication of this is that, while linguistic identity should be weighted with heightened importance in the consideration of the understanding of the needs of the minority, it is only one aspect of the multifaceted identity of this linguistic minority. In other words, our discussion would be incomplete if it did not frame the need for linguistic access within a greater philosophical and anthropological framework. While, of course, ensuring the provision of linguistic access is valuable in the everyday experiences of deaf signed language users in terms of active and meaningful participation in education, medical appointments and social and cultural events etc., it is a short term solution to the problem of a much wider societal culture of inaccessibility. Providing interpreter support for every interaction between deaf signed

language users and non signers is not only impossible, but also undesirable. To put it simply, the provision of signed language interpreters is a compensation for inaccessibility and rather than compensation, wider society should strive for uncompromised inclusion. However, for as long as society continues to react to encounters of difference in the way that it does, inaccessibility and the need for compensation will remain. In order to more fully understand the daily encounter with difference, of deaf signed language users, the discussion that follows will draw upon the insights of a Politics of Recognition in order to consider that experience within the wider framework of exclusion. In that sense, effectively, it is in the attitude of the majority and the effect of that attitude on the minority which is of concern in this part of the thesis. The discussion up to this point has been driven by recognition that need for encounter between signing and non-signing groups must be facilitated, but there is a political dimension to that recognition that we should also consider, political because it encapsulates a set of relations, or relatedness, between a majority community empowered by linguistic hegemony and a minority community that is not simply set apart linguistically, but whose whole experience is ignored or misunderstood.

In a practical sense, linguistic difference is a key factor in terms of directing and managing resources, but it is a dangerous over-simplification to assume that the needs of deaf signed language users are solely linguistic and that such needs may be met wholly through the provision of a signed language interpreter. Linguistic access is undeniably paramount for ensuring inclusivity, indeed for any linguistic minority; however, community needs go far beyond that of language. In that sense, our discussion to this point has been guilty of a sort of pragmatism, a misrecognition of the complexity of experience of deaf signed language users that resides in a failure to move beyond the reductive, to recognise, in short, that whatever identity is, it is much more complex than linguistic badging suggests. The term 'Politics of Recognition', when used in this context does not refer to understanding the needs arising from immediate context, but rather to a deeper understanding of the

combination of influences and determinants that produce and characterise that context.

To signal that specificity of meaning, the term will be presented with upper-case initial letters. It is a specificity of meaning that resides in the knowledge that to work towards a full recognition, we must first understand what it is that is not recognised. There is no paradox here: put simply, what we do not know what we do not yet know; but through the attempt to apply the insights and anxieties of a Politics of Recognition to deaf signed language users, I hope to make these unknowns known, at least in part. For that reason, the following section will outline the major protagonists in the development of the underlying concerns of the Politics of Recognition and their key arguments and stances on Recognition, before translating these ideas to the experience of signed language users, and particularly deaf signed language users. The resulting deepening of the case study in Section 4.2, (originally discussed in Section 1.3) furthers the initial analysis of the specific request by deaf signed language users for the provision of an interpreter, a situation through which the interplay of a series of different perceptions and positions of empowerment can only be fully understood and assessed through the application of the methods of a Politics of Recognition. The incident was widely covered in the media and, therefore, offers an opportunity to consider both the attitudes of a service provider, whose attitudes and responses reflect those of other providers, and of the general public, where the many public comments reported in the media can be taken as a cross-section of publicly-held opinion. In short, therefore, this chapter begins as largely axiological in terms of the discussion of the Politics of Recognition, moving to an ontological perspective in terms of its consideration how this theory might be meaningfully applied to deaf signed language users, both of which can be grounded through consideration of the case study of documented experience and public response, discussed in the introduction to this thesis.

Ultimately, as we have noted from Ricoeur (2006), recognition is contingent on the specificity of the relationships operative within the context in which it is applied. For that reason, we will turn our focus on the specific dynamic of recognition of deaf signed language users by non-deaf, non-signers (which for ease of reference has been referred to as wider society or the majority population). The implication of the foregoing discussion is that, in terms of our population of interest, it is no longer sufficient to consider similar characteristics of individuals within the group as defining the group but rather we need to adopt an approach that offers greater insights into, and potential to understand, the shared experience of the group. Indeed, recognition without experience, that is, without application and action, is meaningless. However, while acknowledging that the politics of recognition is inseparable from the lived experience of subjects, and that such experience has to be documented through a variety of methods, this thesis is more centrally concerned with the broad contexts of resources and deficit of opportunity. The politics of recognition equally provides an important tool of analysis for understanding how a group is marginalised (as Fraser (1995, 2000a, 2000b, 20001 and 2003) and Stuart Hall (2001), in his work on ethnic minorities, show), although my emphasis on this does not deny the validity of applying the anxieties of a politics of recognition to a fuller and ultimately more meaningful understanding of the individual life.

Consider, for instance, signed languages in Northern Ireland and the campaign for language recognition as discussed in Chapter 3 of this research under Legislative Entitlement. The UK-wide campaign for language recognition culminated in ministerial statements given in Westminster and Stormont in 2003 and 2004 respectively. But since these apparently landmark events, recognition has been notional and limited largely to one off funding for projects related to signed languages. The narrow conception of recognition as a protective measure or as a means to establish language rights has revealed the deficit of understanding within the statement of recognition itself, exposing it as merely symbolic and devoid of the deeper processes and meanings of recognition, about which Taylor and Fraser write.

In devising a conceptual schema by which to understand real world complexities, Taylor (2000) identifies two facets of injustice; cultural and economic. Taylor recognises that both are, in reality, inseparable but suggests that in academic testing, it may be helpful to consider them separately. For the purposes of this research, I will focus on demonstrating cultural injustice among deaf signed language users, although as both are interrelated in a number of ways, it can be assumed that cultural injustice and economic injustice do not exist in a vacuum from each other. It is important, that in order to better understand the needs of deaf signed language users in Northern Ireland, which has been consistently stated throughout as the central objective of this research project, we must first discover what we do not yet know. Or, in terms of this particular part of the discussion, we must recognise what we do not yet recognise. The time is right to move beyond the discussion of the population of deaf signed language users defined by the most obvious shared characteristics – that is, as a linguistic minority who share a medical condition; this is only to recognise the character of the group in part. In order to develop a fuller recognition, and considering the assumed requirement for signed language interpreters that this thesis is based upon - a requirement arising from the fact that encounter with the majority population is an inevitable feature of everyday life – we must widen the consideration of this minority group to include accounts of how such instances of encounter, without the remedial intervention of interpreter provision, might be experienced. Recognition, in this more urgent sense, becomes a measure of needs met through participation. Not only does mis(non)recognition produce a clear reification, discussed by Fraser (2000a), in terms of the internalisation by the majority of the perceived inferiority of the minority group. In the sense of recognition as a meeting of needs met through participation, misrecognition is by definition a factor that leads to a denial of full access, a refusal to admit full participation. Fraser suggests that misrecognition in this sense is a consequence of, "institutionalised patterns of cultural value that constitute one as comparatively unworthy of respect or esteem" (ibid), and it is by identifying these institutionalised patterns that we

can better understand the experience of deaf signed language users in Northern Ireland. In a sense, of course, some of the operative circumstances that impede participation have already been discussed in this thesis, which has acknowledged that the provision of signed language interpreters is not the only need of deaf signed language users; but it remains an important remedial intervention and as such, in the absence of the sort of wider educational campaigns foreseen by Freire (2000), it is crucial to note that there are two factors related to interpreters that serve to inhibit full and equal participation. In the first instance, the limited availability of interpreters, as demonstrated through the development of the Resource Model, outlined in Section 3.3, is a clear and decisive factor. Secondly, we must consider the lack of legislative entitlement designed to ensure interpreter provision, as discussed in Section 3.2. Both of these factors also demonstrate that there is at least potential for ongoing misrecognition to be partially redressed through the introduction of measures geared to increasing the number of interpreters, and to strengthening the legal requirement to provide signed language interpreters for deaf signed language users.

If at the heart of this we accept that there is a disjunction, a misalignment, between the experiential opportunities available, on one hand, to the majority population and, on the other, to the population of deaf signed language users, then the benchmark for such opportunities must be set with reference to the majority experience. Put simply, it is not enough to facilitate interpreter provision as a complete solution because the quality of communication that is achieved in an interpreted encounter must always be carefully negotiated. It is not the objective of this study to discuss in depth the implications of what it means to communicate through an interpreter; but it is nonetheless important within the context of this particular research project to remind ourselves that communication through an interpreter, despite the aspirations to fidelity of the interpreter's Code of Conduct, (NRCPD) offers the received message as a translation that, as such, is filtered through the interpretative processes of the interpreter. In short, the requirement for interpretation removes the possibility of accessing the original message, just as the necessity for a lag time delays

the reception of the message; the reality of translational and interpretative processes are in themselves a powerful indication of fundamental misalignment and, in the final analysis, unequal participation.

Misrecognition can also be indicated through the framing and linguistic choices within the narrative of an encounter. The interpreter's presence can immediately be off-putting to anyone not used to working with interpreters, leading to frequent demands placed upon the interpreter from hearing interlocutors – drawing upon my own experience – for interpretation of the signed language user's perceived opinions, assumptions and, indeed, quality of experience; this is in itself a fundamental outworking of misrecognition in the way that it assumes a subtle but pervasive sense of alterity. It functions as a sense of disconnect between the general population and people who are deaf that is reflected in the continued use of out-dated descriptive terms and phrases that serve to define, corral and reify. If we revisit our earlier discussion on the capitalisation of 'deaf' and 'community' and consider this now from the perspective of a Politics of Recognition, defining a community becomes much less important than identifying how shared experience of is rooted in an unfulfilled entitlement to access. Participatory parity may only be secured and sustained if participation is real; if there is no equality in terms of the quality of experience, where 'quality' is the operative word, then rights of participation become no more than a tick-box exercise.

To identify deaf signed language users in terms of an isolated homogenous group identity is unhelpful. Identity politics reinforce difference and isolation, breeding an attitude of self-pity, superiority and perceived victimisation which is not conducive to more meaningful political engagement. By contrast, the Politics of Recognition offers an opportunity to take stock and, through that, to redress imbalance implicit in encounter. Whether this be through the redistribution of resources in the case of economic inequality, or the hope of changing attitudes in terms of the reification of minority identity, what is needed at base is a shift towards the sort of awareness upon which mutual respect and understanding might be predicated.

Section 4.2 - Case Study: Interpreter Provision; Further Consideration

In light of the preceding discussions on the current linguistic support for signed language users (3.1), the legislative entitlement of deaf signed language users (3.2), the international contextualisation by considering language recognition in Brazil (3.4) and, most recently, the application of the insights of the Politics of Recognition to deaf signed language users (4.1), I wish to once more consider the case study on interpreter provision, introduced in section 1.3 of this thesis. The additional conclusion that can now be drawn, with the benefit of insights arising from the preceding discussions, as to the misrecognition of deaf signed language users offers a new perspective on the relevant legislation - the DDO (NI) (2006), quoted in the service provider's letter remains enforceable law; they fail, however, to cite the most recent relevant legislation in UK law, which overrides the DDO (NI) in terms of the rights of disabled persons, implying grave ignorance on the part of the service provider as to their legal responsibilities. Put succinctly, it is the responsibility of service providers to be compliant with relevant legislation; failing to demonstrate full or up-to-date knowledge of the legislation suggests that they are not fully aware of their responsibilities to their customers who are deaf signed language users. It is a blatant failure not only to recognise the validity of difference, but also to understand the full implications of the way that rights of difference are enshrined in law. At the heart of this is a bias towards protecting the experience of the majority (general customers) and an unwillingness to compromise the majority experience so as to guarantee the principle of inclusivity.

What remedies might be available to this issue? While any meaningful response to this would occupy a thesis in its own right, it is worth briefly referring to the principle of Universal Design, a design concept that influences the development of a product or service from conception rather than being the result of an after thought or subsequent adaptation. While it cannot provide a direct solution to the conflicting wishes of the customers

and service providers, it is possible to think how principles of Universal Design might be incorporated into existing services, such as the concert, as a model of inclusion that ensures that products and services are designed in line with its principles in order to be accessible to everyone that wishes to use them. (Story, Mueller and Mace, 1998)

Without adopting a model of Universal Design,⁷¹ whose underlying principles, which need to be firmly spelled out, fall outside the immediate concerns of this thesis, it is unreasonable to expect service providers to arrange provision of interpreters automatically for any event, especially when one takes into account the relatively small size of our population of interest. Furthermore, in light of the shortage of qualified interpreters who are able to provide such access, as identified in Chapter 3 of this thesis, not only is it not reasonable, but also impractical in terms of the insufficient resources with which this thesis is more centrally concerned. Therefore provision of signed language translation or interpretation must be, on the most part, reactive to service users requests.⁷² In that sense, it is not remarkable that the request for signed language provision at the concert needed to be made. What is both unfortunate and indicative, however, is that, the request having been made, provision was still not arranged. This decision to refuse the request is compounded with the implied meaning in the wording of the letter that they would not allow even the attendance of a 'signer' at the event, regardless of whether they were or were not liable for the provision.

There is no possibility of the signer being placed on the stage, and any other location would detract from the usual impact of the performance.

[Promoter]

⁷¹ See Story et al. 1998, particularly principle four: Perceptible Information

⁷² An argument can be made that for particular events of most likely to be of interest to deaf signed language users, provision of sign language interpreters should be arranged as a matter of course.

Here, crucially, the service providers not only refuse to provide an interpreter, but, irrespective of who has to bear the cost, continue to refuse to allow an interpreter to work at the event on the basis of an impaired experience for general customers. The implied attitude in the service provider's response is that adjustments can be made as long as such adjustments do not notionally impinge upon the experience of the non signing population. This runs counter to the principles of design outlined above, which stresses that the Universal Design of inclusion benefits all.

Universal Design represents the ideal standard in terms of models of inclusion and, while it would be encouraging to see disability, as understood by the Social Model, challenged and even removed, since Universal Design is a practice that is voluntarily adopted, it is perhaps not surprising that it is not incorporated into the design of the event in this case study. What is concerning is a willingness not to meet the needs of some to prevent the inconvenience of others. Minority needs are weighed against majority expectation and found to be less worthy. It may be the expectation of general consumers that they have an uncompromised focus on the concert performer (which may be perceived to be compromised with the introduction of a signed language interpreter), but the decision that meeting this expectation should be found more worthy than allowing disabled customers the opportunity to participate more fully in the concert alongside their non-disabled peers is, at the least, morally questionable. It is a bias that, in short, derives from the combined misrecognition of interpreters, signed languages, and deaf signed language users as a minority of linguistic need.

The refusal of the service provider both to provide the requested adjustment for inclusion and to propose an alternative adjustment derives from a behaviour that might be termed 'prescriptive inclusion'. Prescriptive inclusion should not by default be considered bad practice, although in the context of this case study, which is centrally concerned to identify the workings of misrecognition, it has been demonstrated to be just that. The term, as I intend it to be used, infers the final decision of accessibility adjustments to be

at the discretion of the service provider. It is possible to widen this description to safeguard against the damage of inappropriate adjustments and maximise the potential effectiveness of adjustments by adapting the practice to 'informed prescriptive inclusion' or 'negotiated prescriptive inclusion', both of which facilitate better understanding of whether measures of inclusion are appropriate. As misrecognition by the service provider has been argued in this case study, it can be said that the prescribed inclusion measures were not informed. Moreover, as the initial request for adjustment was declined, an unrelated alternative offered, and the invitation to comment further on the issue (by both myself and local media) was declined, we can conclude with confidence that the prescriptive inclusion measures were also not negotiated. In that sense, the actions of the service provider in this case study – concretely, the offer of providing a written English format rather than, as requested, a signed language interpreter - will be referred to simply as 'prescriptive inclusion', which can be shown to be both uninformed and un-negotiated.

To elaborate on the previously mentioned potential damage that inappropriate adjustments for inclusion may cause (in the context of the Social Model of disability), prescribed adjustment that does not take into consideration the individual's specific needs, risks further alienating the disabled party. Where the provision of measures of prescriptive inclusion may seem to comply with the service provider's obligation, if the adjustment is not appropriate to specific needs the disabled person it is rendered as useless if no adjustment had been made. Furthermore, inappropriate adjustments may also be damaging in as much as, if no adjustment is in place, it is more likely that the disabled person will feel entitled to challenge the lack of provision, whereas if inappropriate prescriptive adjustment measures are in place, they have the potential to disempower the disabled person – effectively acting to reinforce the disability. One direct consequence of misrecognition is disempowerment and, indeed, discrimination. For that reason, it can be argued that uninformed prescriptive inclusion, as demonstrated in this case study, can reinforce the disability. To relate this to the previous discussion on

Universal Design, inappropriate adjustment can reinforce the disability, appropriate access will mitigate it, but Universal Design, if incorporated into planning as well as implementation, will remove it.

Finally, within the prescriptivity of the proposed adjustments for inclusion, the service provider attempts to reduce their responsibility and accountability to deliver the prescribed access arrangements by passing responsibility to the artist's management to approve the proposal before the adjustment arrangements can be arranged. The relevant words, once again, are:

We will, however, attempt to present you with a set list and the lyrics of the songs, *if this is approved by the artist's management*.

[Promoter] (My emphasis added)

This speaks strongly of a lack of value being attributed to the customers by the service providers. The adjustment requested will not be provided, and although an unrelated alternative has been suggested, the suggestion is both tentative and conditional, once again drastically limiting the accountability of the service provider.

Misrecognition and its more extreme counterpart nonrecognition have been identified as operative across all of these themes. The primary purpose of the service provider's letter is to relay their decision not to provide a signed language interpreter, but through this case study, deeper meaning has been considered and more profound attitudes towards deaf signed language users revealed. Misunderstanding, on the part of the service provider, of key elements of deaf signed language users' identity, and in their language and communication support requirements, has been demonstrated as a set of attitudes that impinges more widely on the shared experience of the misrecognised population. The letter has also provided evidence that allows us to explore in microcosm attitudes towards inclusion and control. The case study has shown that the service provider has placed little value on deaf signed language users as a consumer group through a double-barrelled

refusal, firstly, to accept the customer's own assessment of their communication requirements and, secondly, to meet the resulting request. The response is invested with an unwillingness to compromise on regular procedure, and the case study has revealed a fundamental gap in understanding the accessibility opportunities required to meet the needs of deaf people, particularly of signed language users.

The discussion so far has focused on the attitude of the service provider. However, media interest in the events of this case study also provides a somewhat rare opportunity to explore wider public perception of deaf signed language users. In keeping with the discussion so far, the following evidence is taken from multiple sources so as to sample a broader availability of material.⁷³ The public responses to the story are of particular interest in order to better understand the experiences of signed language users in Northern Ireland through the prism of a Politics of Recognition. While the customers did have supporters, the majority of the opinions expressed through media were critical of both the request for provision and the actions of the complainants in bringing the disagreement into the public arena under the banner of discrimination. The comments selected are not intended to be representative of all the opinions expressed, but do nonetheless highlight a broader public perceptions that has the potential to limit or exacerbate the disability⁷⁴ of deaf signed language users. Dismissive phrases and expressions of faux outrage, characteristic of which was "Shocking demands from these people!", (The Nolan Show) are eloquent in the way in which they depict indirectly a clear division between what is deemed to be normal and expected, and what represents an unwarranted demand for special treatment. This sense of division is evident throughout. Other commentaries embodied the same degree and operation of misrecognition that we have already identified in the service provider's response. The customers were asked in a broadcast interview, for example, "Would it not be better to have a

⁷³ Where quotes are taken from the Nolan Show or Nolan Live, I have created the transcription.

⁷⁴ As understood by the Social Model of disability

friend do it for you?” (referring to translating English to BSL), which although acknowledging linguistic need, is founded on a profound misunderstanding of both the role of interpreters, and the degrees of need that deaf signed language users have of them. The misunderstanding is serious in that the question is posed by a public service broadcaster, and is compounded by the fact that the interviewer was conducting the interview through the medium of a BSL/English interpreter, and is therefore forcibly aware of the need for the interpreter to be able to communicate with his interviewees. The same interviewer, Stephen Nolan, had also interviewed the customers two days earlier⁷⁵ and, therefore, one might reasonably expect that he should have started, at the very least, to develop a greater awareness of the needs of deaf signed language users. Of course, Nolan’s own personal position is in many ways immaterial here; but the fact remains that, as a public service broadcaster, he felt the need to pose questions which he assumed would reflect the core questions in the minds of his listeners (by definition, the hearing population).

Echoing the the service provider’s failure to recognise responsibility, a number of commentators displayed deep misunderstanding as to the responsibilities of service providers to provide access, on the basis that access is a private issue and only a nanny-state would be concerned with what is essentially a frivolous concern. The misrecognition here is, at heart, a refusal to consider both the ethics and the costs of inclusivity, and is underpinned by broader misconceptions about disabled people generally. One commentator, in a notable example, struggled to understand why deaf people would want to go to a concert and sarcastically questioned, “Do blind people want to go to art galleries?(!)” Many art galleries are, of course, accessible to blind people and developments in assistive technology allow patrons to experience the arts through a range of media, such as audio description and touch tours. Once again, the issue at play here is both an ontological ignorance and a wilful disregard for the ethics and the

⁷⁵ On 18th May the customers were interviewed on the Nolan Show, and on 20th May they were interviewed on Nolan Live.

enforceability of inclusivity. One radio listener summarised what is essentially a position of denial when he stated, with apparent simplicity, that “Those two girls are being totally unreasonable”.

What is lost here is the human perspective on which recognition is based. One caller to the broadcast interview likened the request for ‘a signer’ to wanting ramps built up Everest so that he (later established not to be disabled) could reach the summit, following the comment with, “There’s [sic] limitations to what disabled people can do.” The comparison is bizarre, but it highlights a fundamental misunderstanding not simply of the ethics of inclusivity, but of the quality of experience of disabled living. The Nolan interview closed with a comment from a journalist who was taking part in the discussion panel, “I don’t see how you can be deprived of having less of an experience because you can’t hear [PERFORMER] saying, ‘Hello Belfast’ or ‘We love you!’” This comment is contradictory as not being able to experience something that the rest of the customers can is not accepted as the hallmark of a lesser experience, which of course by definition it is. As Nancy Fraser (2000) states, misrecognition does not necessarily take place along the lines of identity, but across participation in society.” ‘Not hearing’ the concert impedes the customers’ opportunity to fully participate in the event, and to accept such an impediment as being part of the normal course of things is to accept misrecognition. The similarities between Freire’s description of the oppressor and the oppressed is an evident outworking of the majority’s perception and attitude towards the minority shared identity. In his work, Freire offers strategies to redress this imbalance, stressing, pivotally, that the action undertaken to redress must be instigated by the oppressed.

The public nature of the dialogue between service provider, service users and members of the public at least served to raise the profile of deaf signed language users as well as their expectations of their right to equal participation. However, it must also be recognised that the fundamental misalignment in the expectations of key stakeholder groups, exacerbated by

a divided understanding about the translational relationship between sameness and difference (understood in this instance by something along the lines of “if their experience is not the same as mine, then it can’t be as good”) meant that the dialogue developed in a hostile manner, not conducive to fostering understanding. This risk of further damage is always implicit in the the pursuit of recognition; Fraser notes that the reified group, when asserting its own rights, will inevitably meet a hostile response:

...struggles for recognition do not promote respectful interactions across differences in increasingly multicultural contexts. They tend rather, to encourage separatism and group enclaving, chauvinism and intolerance, patriarchalism and authoritarianism
(2003: 22)

What this case study serves to highlight is the prevalence of misrecognition within the majority population of deaf signed language users, creating barriers between the populations that are attitudinal in nature, but enshrined in the power of language to shape and control the world. In her perceptive article on the relationship between discourse and assumption, Myriam Winance notes that “discourse, being descriptive, prescriptive and embodied, creates differences for individual people. Words define a person's world, body and (dis)abilities. They thus define the way in which this world can (or cannot) be changed through political action and by creating a group” (2007: 228). In that way, while this thesis itself may serve to highlight the need for enhanced interpreter provision as a response to this disempowerment, the issues themselves are wider and, in many ways, more fraught. At heart, the battle is with language itself.

Chapter 5 - Recommendations and Conclusions

Section 5.0 - Introduction

The recommendations that I wish to propose emerging from the research conducted in this thesis are grouped into four categories: three of them reflect the structure of the thesis; Improved Record Keeping; Improved Resources; Improved Opportunities; and finally, Further Research, that emerges and reflects from the research project considered holistically. The specific recommendations within each of these categories have been developed in response to the constraints and limitations placed on deaf signed language users that this research has identified. The recommendations themselves are based on the moral obligation, explored in Chapter 4, to understand signed language users as a currently misunderstood, misrecognised and under-researched minority.

Principal among the recommendations proposed in this final chapter, I believe priority should be given to the adoption of the User and Resource Models, by the Department of Communities (formerly DCAL), drawing on with cross-departmental support in order to fully understand the demographics of the linguistic minority of deaf signed language users in Northern Ireland. This recommendation will be further discussed under the categories of Improved Recording and Further Research. This project has demonstrated proof of concept of the User Model as a means of establishing reliable population data, and demonstrated the importance of establishing such information; however, due to sensitivity of the input data, it has not been possible to access the full data in order to calculate true returns. As a government commissioned research project, I argue strongly that there is a moral duty on local government to act on the findings of this project, and to build on the concept of calculation developed and tested in this research, by adopting the tool which will enable it to take the final steps in establishing reliable population information for and about deaf signed language users.

Section 5.1 - Improved Recording

The primary concern of this research topic arises from the identified need for greater understanding of the population size of deaf signed language users in Northern Ireland in the absence of established, reliable evidence. A comparison between existing measures and estimates, discussed in Section 3.3, highlights the huge discrepancies between existing data. The User Model, developed in this research as a proof of concept, has demonstrated a product by which existing data can be meaningfully compared when considered within a framework of GIS, as the basis for a fuller and more meaningful understanding of that population.

The first recommendation proposed here is for improved record keeping of data concerning deaf signed language users. I have identified three specific areas in which improvements can be made in order to maximise the impact of improved record keeping. Deafness is often considered alongside visual impairment, under the umbrella term of sensory impairment, yet when we consider statutory record keeping of each type of sensory impairment, the requirement is very different. As mentioned in the Introduction to this thesis, visual impairment is a reportable disability, although hearing loss is not. The first area of improved recording is to introduce an equivalent requirement to report and record the condition of deafness (hearing loss, see Introduction) which, if introduced, would negate the requirement for the first stage of the User Model, as developed in this research. The second area in which recording should be improved is by introducing a directive under which stakeholder service providers (identified as the record keepers of the Indicators of the User Model), are obliged to disclose anonymised data required for full calculation by the User Model. This recommendation should be considered alongside the aforementioned recommendation in the introduction to this chapter, that local government should adopt the models developed in this thesis. Some of the indicator data will already be available to the authorities, whereas for data not already held, the Executive can ensure that requisite information is made available. Following on from this,

there needs to be improved cooperation between data holders to ensure the accuracy of the User and Resource Models. Specifically, this recommendation is directed at the Department of the Communities (DCAL) to require the supply of local data, held by charity and health sectors, to be included within the User Model, with the proviso, of course, that all reasonable confidentiality would be strictly maintained.

The final area of improvement is to maximise the existing source of compulsory information collection - the census. The shortcomings of the census methodology for building an understanding of the profile of deaf signed language users in Northern Ireland has been mentioned throughout this thesis, and discussed in detail in Section 2.5. Following on from this discussion, my final proposal for improved record keeping is to modify the census to improve the usefulness of information gathered in the 2021 census. I recommend modification in two ways: firstly, in terms of the accessibility of the census and, secondly, in the phrasing of the questions related to language. Improvement on both these points would at least, provide a more reliable indicator for use within the User Model which, in turn, would provide a more reliable calculation of population size and distribution. The accessibility of the census can be improved by producing a translation of the census questionnaire in BSL and ISL. Producing translations for signed language users to receive the questions in their first and preferred language also has the potential to improve the accuracy of the results by improving the likelihood that the questions as formulated will be understood. The second modification of the census that I recommend is to alter the question that is actually asked. The constraining nature of the 2011 census question has been fully discussed in Chapter 2.5 and, in conclusion to this, I propose that the language question on the census should incorporate the concept of bilingualism. These recommendations in relation to the census are designed to increase the return of data related to signed languages, therefore potentially decreasing the geography size against which publicly available data is released (since the smaller the total returns in a category, the larger the geography against which they are released in order to minimise

disclosive risk). This is significant as, currently, the census as a User Model indicator assumes even spread across the population of Northern Ireland, whereas the release of census data in smaller geographies can be accommodated into the User Model to increase the reliability of the results that it calculates. Regardless of whether the recommendation increases publicly available data, the implementation of these recommendations will serve to ensure that more accurate data is gathered for use within government, and in particular by NISRA (Northern Ireland Statistics and Research Agency) whose figures underpin public planning and policy.

The next recommendation I propose is in relation to the legacy of this research, extending the lifespan of the resources developed in this research through maintenance of the models to retain the relevance of the calculated outputs. The model has been designed as a dynamic tool that can be adapted to the specific context in which it is to be used, whether that be a geographical location or a temporal location. By regularly updating the data relating to each of the indicators in the User Model, and the aggregated data input of the Resource Model, the calculations the tool is able to produce remain relevant to the time in which it is used. In order to do this, however, there must be accepted ownership of the tools which, again, relates to my overarching recommendation that the Department of Communities should adopt the tool and assume responsibility for its maintenance.

In terms of the legacy of this project and in order to maximise the impact of this work, it is important, however, that a tool developed with public money and reliant, as it is, on the cooperation of a number of data holders, that the output results of the models, as a key resource, are available beyond that of the body responsible for maintaining them. These models are primarily designed to address a gap in crucial knowledge, and although, as Chapter 2 acknowledges, the data contained within the User Model is sensitive and presents disclosive risk in certain circumstances, the results generated from both the User and the Resource Model should be available outside the organisation hosting the models in order to support and extend integrated

planning and policy. There are, of course, further ethical considerations as to whether it should be made available only to those who supply input data, or only to statutory, charitable or philanthropic organisations, or whether it should be made entirely public. Allowing the resources to become entirely public, it should be noted from the outset, creates the possibility of this research being used for commercial gain. But the final answer to this question is, at least in part, the responsibility of the licensee and is too complex an issue to rehearse its arguments in any detail here. But clearly one of the advantages of wider ownership of the information that the User Model calculates is that it can lead to better targeting of support services (by statutory and charitable service providers). Beyond this, the Resource Model can provide the opportunity for more informed purchasing for any service user or provider, and provide evidence of the need for greater training opportunities for and regulation of interpreters. These functions of the Resource Model will be discussed further in Section 5.4 - Further Research.

This resource was developed on the basis of the data sources currently available. However, a greater volume of indicator inputs will enhance the accuracy of the generated output data. Therefore, I propose, that maintenance of these models should also include responsibility for the incorporation of new indicators of deafness as new source of data are collated. An example of this is the potential development of a new data source in the form of a collation of the individuals who respond in signed languages to the consultation on the proposed BSL/ISL framework. Once collated, this information would feed usefully into the Political category of indicators, which is currently under-represented in the User Model design. In the specific context of this recommendation, I propose that there should be continued collaboration between myself, as the developer of the resource, and the Department of the Communities to ensure that the designs of the models remains current. Within the framework of this collaborative relationship, the Department of Communities would be responsible for the maintenance of data and the hosting of the models in the secure location of

the government network, where sensitive data can be held securely, while I, as the designer, would maintain the models themselves.

The recommendations outlined in this section relate to recording of data and the utilisation of the models in order to maximise the impact of this research, since from the outset, the focus of this work has been that of impacting upon and improving the lived experience of deaf signed language users in Northern Ireland.

Section 5.2 - Improved Resources

Turning to the issue of resources for signed languages users, there are four constraints that have become apparent through this research, in response to which I have derived the following set of recommendations. These limitations are as follows: insufficient workforce, insufficient training opportunities, insufficient easily accessible information to utilise the resource of interpreters that are available, and, insufficient articulation and understanding of linguistic rights for deaf people to use signed languages.

Considering firstly the issue of insufficient work force, the low number of interpreters working in Northern Ireland reveals the limited size of workforce of signed language interpreters. My research has identified 40 working as interpreters, of whom only 27 are regulated - the importance of which is discussed in Section 3.3. Of these 27, all work between BSL and English, and no regulated ISL/ English interpreters have been identified in my research. This workforce as identified is insufficient, both in terms of size and quality (as measured by regulation), to adequately meet the needs of a population that, conservatively and according to the WHO ratio estimate, can be considered as numbering 2,000 deaf, British and Irish Sign Language Users. Immediate action is required to redress this deficit of resources, both in terms of the number of available practitioners and the level of service they provide. I propose this should be achieved by means of two-fold action – firstly, by increasing the expectations of service procurers and service users, and, secondly, by improving the training opportunities for signed language interpreters in order both to facilitate responsive action to higher expectations, and to increase the working population of appropriately accredited and regulated professionals.

This proposal also has a bearing upon the second limiting factor of insufficient training opportunities for signed language interpreters. But as a preliminary to that we must consider the need to increase the expectations of

service procurers and users, before then considering the requirement to improve training opportunities.

The first proposed recommendation in the category of improved resources is to increase the expectations placed on people carrying out interpreting work between English and signed languages in Northern Ireland. This can be achieved in a number of ways, ranging from the enforceability of the designation of signed language interpreting as a protected profession, as discussed in Section 3.3, to increasing public awareness in order to create an underlying demand for higher standards. Both of these options are labour intensive and so, I propose a more manageable recommendation – namely, that all public tender documents for the provision of signed language interpreting services should require interpreters to be regulated. This recommendation echoes a recommendation contained within the Northern Ireland Languages Strategy, to the effect that interpreters should be educated to Masters level. Introducing such a requirement is the first step towards achieving protection for any person requiring signed language interpretation, which, as the workforce develops, can be amended to reflect the increased availability of persons with higher qualifications. However, in order for the workforce to develop there must also be improvements in training opportunities for signed language interpreters in Northern Ireland. Increasing expectations on service delivery without also increasing training opportunities risks creating unattainable demands and enshrining an inability to deliver what is required. This relates to the second constraint discussed here – that is, that the current training infrastructure is insufficient to increase the workforce.

The funding awarded to a number of Northern Ireland education providers by the Department of Employment and Learning (DEL), in 2011, to increase training opportunities for signed language interpreters in Northern Ireland, referred to above, proved successful in the first instance; however, since then the training pathway has, in part, ruptured. Currently there is a gap in the qualifications pathway meaning that students are once again unable to

achieve the required qualifications within Northern Ireland to be submitted onto the MA in Interpreting (with signed language options) at Queen's University Belfast. I propose that immediate action should be taken by funders to reestablish the level 6 language qualification that, since the initial funding finished, has not been re-offered. This would once again provide the opportunity for students to train as BSL or ISL interpreters, to masters level, without leaving Northern Ireland. This, at a stroke, minimises the risk of professional emigration and facilitates growth in the Northern Ireland signed language interpreter workforce.

In relation to the case study discussed in Section 3.4, setting issues pertinent to the education of interpreters in Brazil, my final recommendation designed to redress the dearth of training opportunities identified in this research, is to develop a transnational training programme, similar to the Brazil/USA collaborative project, to enhance the educational opportunities of interpreters training in Northern Ireland and the Republic of Ireland. In this sense, the development of joint accreditation, all-island interpreting and translation training programmes between Queen's University Belfast and Trinity College Dublin would contribute powerfully to the enhancement of service profession on both sides of the border. The sum of the partnership would, effectively, be greater than its parts. Such a programme would utilise the experience of both institutions and facilitate the opportunity for bilingual signed modality education and qualifications, as has proved so successful in Brazil.

The third constraint identified in relation to Improved Resources is the insufficiency of easily accessible information to utilise to best effect the currently available resource of interpreters - that is to say, those that are appropriately trained and equipped to provide interpreting services, but not easily sourced. This limitation is significant since, despite potential improvements in the workforce, if the information to access the workforce is unavailable, the improvements will be negligible. In the development of the Resource Model, due to the need for multiple indicators to identify all interpreters, it became apparent that those who require interpreters

frequently experience difficulties in finding them. Even within the category of regulated interpreters, due to the limited information made available by current regulators, it is still difficult to identify interpreters to meet the needs of customers. These issues result in the two following recommendations: NRCPD, as the primary regulator of signed language interpreters in Northern Ireland, currently does not supply information about the language pairs of the interpreters they regulate. For countries with only one national signed language this, of course is acceptable, but in the context of Northern Ireland it creates a complication in terms of sourcing interpreters and requires the procurer either to approach interpreters individually to ascertain their language pair, or to rely on the experience and knowledge of others. It is an issue that can easily be resolved by listing the language pair on the searchable NRCPD public database. The first recommendation relating to the insufficiency of easily accessible information on available resource of interpreters is that regulators operating in Northern Ireland should be more responsive to the linguistic profile of the country by making public the language pairs of the interpreters that they regulate. The NRCPD database presents another level of complication for people trying to source interpreters because it presents search results for a particular area based on interpreters' willingness to work in an area, not the area in which they are normally located. The next recommendation aims to address this issue and to increase the return of search results beyond a single regulator. This would be readily achieved through the creation of a NI Directory of Signed Language Interpreters and Translators. Development of such a resource would allow for enhanced access to the current resource of interpreters, as well as maximising the impact of future improvements made in the workforce and/or by training opportunities. Such a resource would allow interpreters the freedom of choice as to the regulators (if any) they choose to register with, and would provide a single point of indispensable information from which procurers of interpreting services could identify all available resources. Including all interpreters in one resource rather than a resource specific to one regulator would not only allow all information to be held in one place, but also, potentially, to function as a way of sensitising public opinion by

professionalizing the Northern Ireland workforce. This thesis has not only highlighted the need for such a resource, but also has, hopefully, begun to meet that need through the development of the Resource Model itself. But while the model was developed to understand the relation between need and supply, it can be expanded, further enhancing the impact of this research, to include contact information for interpreters wishing to be identified, so that it becomes a spatially referenced directory for purchasers of interpreting services.

The final constraint to be discuss here concerns the insufficiency surrounding the linguistic rights of deaf people to use signed languages. Positive developments, such as improvements to the resource, training opportunities and availability of information, are in themselves unlikely to improve the actual provision of interpreters for signed language users without accompanying improvements in rights. Provision of resources, such as interpreters, requires investment which, without sufficient requirement, is unlikely to happen in the majority of instances. The requirement to provide interpreters, as discussed in Section 3.2, is, put simply, not robust. The development of specific legislation to redress this unclear and relatively unenforceable right is the single greatest action that will improve the quality of linguistic access for deaf signed language users, which is why, the final recommendation I propose in this section is, to legislate for the linguistic rights of deaf signed language users to use signed languages. In its own way, this would be one of the logical outcomes of our application of a Politics of Recognition to the particular situation of deaf signed language users in Northern Ireland.

The recommendations outlined in this section aim to ensure easier access to signed language interpreters through improvements in the resource, availability of information, and rights of deaf signed language users. Improvements in availability require an increase in the expectations of interpreters and the improvement in training opportunities. Availability of information includes increasing the information about interpreters that is

currently publicly available from regulators, and developing a Northern Ireland specific directory resource to assist in the procurement of interpreting services. Above all the practical developments geared at ensuring provision, the right to use signed languages must be protected in legislation so as to ensure that the resource is able to be utilised where and when it is required.

Section 5.3 - Improved Opportunities

Chapter 3 notes that interpreters are the primary resource for accessibility to the majority language population; but this is not, and was never assumed to be, a complete solution to the isolation experienced by deaf signed language users. Legislative language recognition, as discussed in the previous section of recommendations, is important, but must also be predicated upon a greater recognition of deaf people throughout the wider population. By the same token, developing the resource of interpreters and other communication support is important, but is not a guarantee to parity in accessibility. The third perspective that this thesis has considered, after its analysis of the linguistic demographics and resources related to signed language users in Northern Ireland, is the deficit of opportunities that is experienced by deaf signed language users, an impoverished condition of being that is explored through the framework of the Politics of Recognition in Chapter 4. The consideration of this philosophical, ethical and political framework, geared to understanding and combatting linguistic isolation, has led to the development of the recommendations proposed in this section under the rubric of Improved Opportunities.

A Politics of Recognition reveals the dynamic relationship between minority and majority groups, and in particular the implications of the way in which any majority view of a minority reflects back upon, and informs, the self perception of that minority. The inference to be drawn from this is that by addressing the majority population's perception of deaf signed language users a significant improvement will be effected in the lived experience of deaf signed language users in Northern Ireland. While some of the recommendations outlined above will result in an enhanced public awareness and knowledge of deaf signed language users, such as, for example, the increase in visibility of the minority population that would result from the introduction of statutory duty to record related information, the following recommendation is proposed as direct action to redress the misrecognition of deaf signed language users.

The need for legislation to protect the rights of deaf people to use signed languages has already been mentioned in relation to improved resources for deaf signed language users; however, in order to raise awareness of deaf signed language users within the wider population of Northern Ireland, I propose that signed languages should be incorporated into language policy and legislation. I propose that current existing pan-language policies should be extended to include signed languages, where that is not yet the case, and that new, signed language specific legislation be developed to protect the right to use British Sign Language and Irish Sign Language as indigenous languages. In terms of incorporating signed languages into existing policy, I specifically recommend that BSL and ISL become firmly rooted in the Languages for Understanding thread of the Languages Strategy (2012). The incorporation of signed languages into existing policy, future relevant policies, existing legislation, and future relevant legislation would not only increase the legal protection of the languages but also, and more importantly in this context, would stimulate greater recognition of deaf signed language users as a minority population through the value placed on them by the inclusion of their needs and interests into national policy and legislation.

The second recommendation proposed here, once again, results from the consideration of deaf signed language users within this broad framework and, within the scope and spirit of Freire's pedagogy of the oppressed. That is, in order to redress perceived poverty of opportunity, (oppression), the oppressed themselves must challenge the imbalance of power. I propose that, in order for meaningful improvements in the opportunities afforded to deaf signed language users to be made, there must be investment by signed language users in redressing actions and they themselves must engage in the process of improvement. It is vital that, in all actions taken to redress the imbalance, deaf signed language users must be involved at every level from planning to implementation. This is particularly important in the context of the ongoing government consultation on the recognition of signed languages.

Effectively, what this means is a shift at policy level from planning *for* the deaf, to planning *for* and *with*.

The final recommendation I propose in relation to Improved Opportunities seeks, once again, to broaden the perspective of the needs of signed language users from a focus on language, with its resulting need for communication support, to consider a holistic perspective of deafness. The recommendations proposed thus far represent opportunities to make significant improvements to the lived experience of deaf signed language users in Northern Ireland. However, there are many more areas of experience that impact upon the daily lives of deaf people that this thesis has not been able to consider. These include extremely significant issues, such as education for deaf people, employment opportunities and health care provision. These areas are not directly concerned with language, which is the central focus of this thesis, but the subjects are inextricably linked through the constraints and limitations that derive from problems of communication. These significant issues, particularly education, featured very little in the development of the User Model as there were insufficient records to make a significant contribution to our central purpose of how we understand the linguistic demographic profile of deaf signed language users. But this lack of available information underpins this final recommendation, which is to create targeted funding streams for further academic research in related fields such as Deaf Studies, signed languages and translation and interpreting of signed languages, in order to develop further understanding of the lived experience of deaf signed language users in Northern Ireland. As a recommendation, this is different to those contained in the following section which outlines the specific details of future research opportunities deriving from this work. Effectively, this recommendation is that greater importance must be placed on research into deaf people and their experience that goes beyond this language-focussed work. This research was, however, designed to function as a springboard for further research, and a number of specific research themes follow on from this work. These specific themes are discussed in the following section.

Section 5.4 - Further Research

Unlike the previous three sections within this chapter, this section contains only one recommendation. That, following on from the research undertaken in this doctoral project, further research should be carried out into the areas outlined below in order to continue the work that this thesis can only claim to have initiated. These areas can be categorised into four research topics; temporal research, further interpreter research, model development, and exportation of research.

The topic of temporal research refers to the development of this doctoral research in terms of keeping up to date with changes within the population of signed language users. This stems from the previous recommendation proposed in Section 5.1 - Improved Recording – in that it relies on the data and inputs in the User Models being able to be updated so that newly available data and data sources may be fully integrated as they become available (recommendations 3.1 and 3.2 in the Summary of Recommendations, Section 5.6). This also requires ongoing modification of the User Model so as to incorporate functionality for data to be added against a timeline in order to reveal temporal trends within the population of deaf signed language users. An understanding of temporal trends within the population will further develop understanding of this under researched minority and inform future research, as well as beginning to offer insights into the forecasting of service provision for deaf signed language users by predicting future population trends. In this regard, one of the reasons why the models were developed using GIS, specifically ArcGIS software, was to facilitate the development of such functionality, by means of ArcStoryboard, so that, with minimal development, functionality can be enhanced to incorporate spatial information across time as additional information becomes available.

In terms of further interpreter research, there are two gaps in our knowledge that this research has identified but not fully addressed. Further research with

regards to interpreter research should be carried out for two broad purposes; put succinctly, for the benefit of service purchasers, and for the benefit of the profession. This first area of recommended further research relates to the issue of the limited availability of information relating to the procurement of interpreting services, as discussed in Section 5.2. In addition to the need for greater accessibility to the information currently recorded, there is further important information that is not currently reported but that would serve positively to inform the choices of procurers of interpreting services. In conjunction with the recommended need to increase the expectations of service users (recommendation 4 in Section 5.6 - Summary of Recommendations), service users must also better understand the level to which interpreters are qualified. Currently the only information recorded, related to qualification level is whether or not an interpreter is regulated which, if they are, denotes merely that they meet the minimum standard of professional competency. For purchasers to be better informed, the Northern Ireland Directory of Interpreters, proposed as recommendation 6.2, in Section 5.6, should reference the highest qualification interpreters hold - making such information public helps service procurers to make informed choices and has the potential to drive up qualifications through market demand. This information, however, is not currently recorded and therefore, to be included in the model requires further research in order to collate the information.

The remaining areas of further interpreter research relate to the development of the workforce by capturing information that will inform interpreter-training programmes and generate evidence for further funding to grow the profession. Despite the fact that this project has established basic essential data of the number, location, language and regulation status of interpreters in Northern Ireland, further important information remains unknown. From the Queen's University MA graduation indicator mentioned in the section on Resource Model design, I have begun to explore the level to which interpreters are educated, although much remains to be done and achieved in this regard. If interpreters are to function meaningfully as a means of both

accessing and ensuring real participation in communication across society, it is necessary that they are educated to a standard that is appropriate to the complexity of the issues and relationships they must necessarily confront in their work. Put simply, vocationally trained interpreters may not possess the English language skills necessary to support deaf professionals or higher education learners. A more detailed workforce analysis than the one that was completed in this thesis would reveal details about the potential limitations of the current workforce. This detailed insight into workforce profile, of course, has other benefits – for example, the prediction of losses due to retirement would enable strategic planning development for the continuation of provision of interpreters and potentially to provide evidence to support requests for further funding for interpreter training. The research presented here has revealed the relatively small resource of signed language interpreters in Northern Ireland, recommending in consequence a concerting of efforts from all stakeholders to grow this resource pool. Following on from this, it is clear that further research drilling down into detailed workforce analysis, specific to Northern Ireland but similar in nature to Mapson's 2013 research, *Who Are We?*, to reveal the backgrounds of the current population of interpreters, would bring additional benefits to educators and providers of interpreting programmes to inform both recruitment strategies and curriculum development at both academic and ongoing professional development levels.

The User Models developed within this research are presented as proofs of concept. In light of the huge discrepancies highlighted in the existing population measures and estimates, and the rudimentary nature of the data contained within the proof of concept design, I propose that it is hugely important to continue to develop a tool capable of accurate measurement of the population. The User Model, as a tool of population capture, has been demonstrated to be workable. Development of this tool requires two further steps: primarily, to replace the fictional data, added to the model for the testing stage of the model design, when more data becomes available (the temporal issue, referred to above). It will then be possible to further develop the background algorithms running the calculations of population estimates

and to weight indicators differently depending on the reliability of collected data. Currently, all data is weighted evenly as the majority of inputs are fictional; however, as true data becomes available, deeper calculations can be undertaken so as to further increase the accuracy and reliability of the calculated population measures. As discussed in Section 2.5, in terms of the purposes of this research, the stage to which the model is currently developed is sufficient; however, the algorithmic calculations and weighting of different indicator data present a significant opportunity for further development which has not been possible within the scope and constraints of this doctoral project.

The final research topic I have identified in relation to further research is the exportation of this research. Specifically, exportation of the User Model to other geographical locations. Unlike the Resource Model, which relies on manual collation of sensitive, identifiable data points, the User Model is designed to run calculations of total population within the model from group data applied to geographical areas. This difference in the aggregation of information (manual versus automatic calculation) is the factor that creates the functionality for the User Model to be exported and used in other geographical regions with at least a semi-developed infrastructure of services for deaf people and deaf signed language users. The specific indicators within the four categories can be adapted to reflect the infrastructure of the geographical region to which it is being applied. The concept of a single model being able to combine individual measures of the prevalence of deafness and the use of signed language, based on the Baker-Shenk and Cokely model of deafness has been proved, in this research, to be feasible. Therefore, it presents an opportunity for further research in the application of this model to other geographical regions, of any scale, including countries, states and regions. Although the focus of this research is Northern Ireland, with reference to the internationalising context of Brazil, the computer models developed in this research offer export opportunities in order to develop understanding in territories beyond Northern Ireland. It may be worth noting at this point that, while undertaking this PhD I have had opportunities to

share my research internationally at conferences in Ireland, Spain and UK, spoken on the subject in Lebanon and UK, and shared my work with researchers in Hawaii, Spain and Brazil. With each of these opportunities I have been overwhelmed by the interest in the models I have developed, and the demand to replicate their functionality in each of the countries visited. It is my intention to continue this research beyond the lifespan of this PhD in order to address this demand.

Section 5.5 - Conclusions

As a reflection of the wide ranging nature of this thesis, the recommendations proposed embrace a wide range of priorities. This final chapter began by stressing the importance of the specific recommendation that local government should adopt the User and Resource Models. This recommendation, discussed in greater detail under the categories of Improved Recording and Improved Resources, has the greatest potential impact of all the recommendations outlined in this chapter. All the recommendations presented in this chapter, it should be noted, offer opportunities to significantly improve the lived experience of deaf signed language users in Northern Ireland, and beyond – an aspiration which I hope, with collaboration between stakeholder organisations, will be achieved. Many of these recommendations can be put into practice through a specific act of legislation, as evidenced by the LIBRAS Act in Brazil and the BSL (Scotland) Act. Such legislation establishes the requirement for action, defines how action should be undertaken, and consolidates the rights of those it seeks to protect. With the potential framework offered by the developing BSL/ISL Framework in Northern Ireland, there is an opportunity to present these recommendations and, hopefully, an arena in which they might command attention.

Any thesis has a point at which writing must stop. However, within the timeframe of this thesis there have been significant developments in terms of raising the profile of signed languages in the political arena in Northern Ireland and in the UK. Significant among them, the passing into law of the BSL (Scotland) Act on the 29th October 2014, the declaration of intent on the 1st December 2015 by Carál ní Cuilín, then Culture Arts and Leisure Minister, to publish a Framework for Signed Languages, to include proposals for legislation in the next Assembly, and the subsequent launch of the public BSL/ ISL consultation on the framework in April 2016 have all acted to strengthen the position of signed languages in the ongoing dynamic social dialectic of recognition of deaf signed language users in Northern Ireland.

Section 5.6 - Summary of Recommendations

1. Adoption of the User and Resource Models by the Department of Communities (formerly DCAL)
2. Improved record keeping of data regarding deaf signed language users
 - 2.1 Make deafness a reportable disability
 - 2.2 Oblige health and charity organisations to supply data for use in the User Model
 - 2.3 Produce ISL and BSL translations of the census and adapt the language question to account for bilingualism
3. Create and protect the legacy of this research
 - 3.1 Maintenance of the model, updating data as more current data becomes available
 - 3.2 Maintenance of the model design, adding indicators as new datasets are recorded
 - 3.3 Make the output calculations of the models more widely available than the organisation(s) responsible for their maintenance
4. Introduce higher standards for interpreters by raising expectations for public service signed language interpreters
5. Improve the training opportunities for signed language interpreters in Northern Ireland
 - 5.1 Address the gap in qualification providers for access to the established Masters in Interpreting
 - 5.2 Develop an all island training programme for signed language interpreters and translators
6. Improve identification of signed language interpreters

- 6.1 Response on the part of regulators operating in Northern Ireland to the linguistic profile of the country by making public the language pairs of interpreters they regulate
- 6.2 Development of a NI Directory of Signed Language Interpreters from the Resource Model

7. Legislate the linguistic rights of deaf signed language users to use signed languages

8. Greater recognition of deaf signed language users within the wider population

- 8.1 Incorporation of signed languages into existing pan-language policies and legislation

- 8.2 Creation of specific British Signed Language and Irish Signed Language legislation to increase recognition of these languages as indigenous languages of Northern Ireland

9. Deaf signed language users themselves must have the opportunity to be fully engaged as active participants with the process to redress the current deficit of opportunities

10. Increase funding for further academic research in related subjects to develop further understanding of lived experience of deaf signed language users in Northern Ireland

11. Further research be carried out, following on from the research introduced in this thesis

Addendum: Actions Taken to Implement Recommendations

- Following the completion of this research I have met with Department of the Communities (DCAL), specifically the office of Research and Statistics, to work together to implement the use of both the User and Resource Model
- Negotiations are ongoing to secure further funding to continue a funded course to train signed language interpreters to Masters level at Queen's University Belfast recommencing in 2018.
- I am working with the SDLP to develop a campaigns strategy for the development of an all-island policy for the training of signed language interpreters.
- I am currently working on the Resource Model as an enterprise opportunity under Sign Language NI so that it may develop into a Northern Ireland Directory of SLIs, as per recommendation 6.2.

Appendix 1: Ethics Approval Documentation

QUEEN'S UNIVERSITY BELFAST

School Research Ethics Application Form: Research Involving Human Participants

1.	Title of Research Project	Demographics of the Deaf Community in Northern Ireland				
2.	Applicant (normally the Chief Investigator, in the case of staff-led research projects, or the student in the case of supervised research projects):					
Title:	Miss	First Name:	Sally	Last Name:	Gillespie	
Post:	PhD candidate	School	Modern Languages			
Email:	sgillespie10@qub.ac.uk	Telephone:	07814159615			
3.	Is this a student project?	Yes <input checked="" type="checkbox"/>		No <input type="checkbox"/>		
	If yes, please provide the Supervisor's contact details:	David Johnston (d.johnston@qub.ac.uk)				
4.	Other Key investigators/co-applicants (within/outside University), where applicable:					
Please list all						
	Title	Full Name	Post	Responsibility in Project	Organisation	Department
5.	Proposed Project Duration:	Start Date:	01.07.12	End Date:	01.07.15	
6.	Mark 'X' in the appropriate box:					
		Yes	No			
a	Does the study involve participants who are particularly vulnerable or unable to give informed consent? (e.g. children, people with learning disabilities, your own students)	<input checked="" type="checkbox"/>	<input type="checkbox"/>			

b	Will the study require the co-operation of a gatekeeper for initial access to the groups or individuals to be recruited? (e.g. students at school, members of self-help group, residents of nursing home)	X	<input type="checkbox"/>
c	Will it be necessary for participants to take part in the study without their knowledge and consent at the time? (e.g. covert observation of people in non-public places)	<input type="checkbox"/>	X
d	Will the study involve discussion of sensitive topics (e.g. sexual activity, drug use)?	<input type="checkbox"/>	X
e	Are drugs, placebos or other substances (e.g. food substances, vitamins) to be administered to the study participants or will the study involve invasive, intrusive or potentially harmful procedures of any kind?	<input type="checkbox"/>	X
f.	Will blood or tissue samples be obtained from participants?	<input type="checkbox"/>	X

g	Is pain or more than mild discomfort to participants likely to result from the study?	<input type="checkbox"/>	X
h	Could the study induce psychological stress or anxiety or cause harm or negative consequences beyond the risks encountered in normal life?	<input type="checkbox"/>	X
i	Will the study involve prolonged or repetitive testing?	<input type="checkbox"/>	X
j	Will financial inducements (other than reasonable expenses and compensation for time) be offered to participants?	<input type="checkbox"/>	X
k	Will the study involve the recruitment of patients or staff through Health and Social Care or the use of Health and Social Care premises?	<input type="checkbox"/>	X
l	Will the study involve clinical trials of medicinal products involving patients or healthy volunteers?	<input type="checkbox"/>	X
m.	If yes, to l, has Clinical Trial Authorisation been obtained from the MHRA and/or ORECNI approval?	<input type="checkbox"/>	<input type="checkbox"/>

n	Will the study involve medical devices (all products, except medicines, used in healthcare for diagnosis, prevention, monitoring or treatment of illness or disability)?	<input type="checkbox"/>	X
7	Briefly summarise the project's aims, objectives and methodology (this must be in a language comprehensible to a lay person).		
<p>The aim is to evaluate the Deaf community's access to services by comparing what is possible in theory (or notionally enjoyed by the hearing) to the real and actual experiences of Deaf individuals. Through secondary research I will establish the access that, theoretically, the Deaf community should enjoy. Through primary research, specifically interviews with individuals in the community, I will develop a body of case studies, from which themes can be extracted to draw comparisons between the two perspectives. A set of recommendations will be developed in order to improve the access to services experienced by Deaf people. When discussing access to 'services', such services will be explored individually under two distinct headings, or groups. The first group, statutory services, includes healthcare, education, social services and employment. The other group, enrichment services, includes arts, sport, and leisure services. By drawing a distinction between services, I am then able to compare the access that Deaf people have within each group, and begin to hypothesise what affect any notional improvement in experience of access may have on the community.</p>			
8	What is the potential for physical and/or psychological harm/distress to participants?		
<p>Physical risk- nil. Psychological risk- low. Research will require participants to discuss their life experiences, which may include stressful or traumatic experiences, the retelling of which could potentially cause distress.</p>			
9	What is the location of the research/fieldwork to be conducted?		
<p>Various locations across NI in environments the interviewees feel comfortable, eg. Community centres, home visits (if requested by the interviewee), hired office space. Interviews expected to be 1:1.</p>			
9.1	Have you obtained permission to access the site of research? N/A	Yes <input type="checkbox"/>	No <input type="checkbox"/>
9.2	Have the necessary police checks been undertaken?	Yes X	No <input type="checkbox"/> N/A <input type="checkbox"/>
10	How will the potential participants in the project be:		
(i) Identified	Community engagement / word of mouth		

(ii) Approached	Individually either in person or by sending a request (in BSL and English) explaining the aims of the interview; gatekeeper organisations (BDA, AoHL) may provide contact details	
(iii) Recruited		
11	Will your project involve deliberately misleading participants in any way?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
11.1	If YES, give details stating why it is necessary and explain the debriefing process:	
12	Will Informed consent be obtained from the participants?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
12.1	If informed consent is not to be obtained please explain why:	
12.2	How do you plan to obtain informed consent? (i.e. the proposed process)	
	An outline of how the information is to be used will be provided in the participants chosen language (English, BSL ISL). If the preferred language is English, a printed copy of the information will be available for the participant to keep. If the preferred language is signed, filmed translations will be used to ensure consistency of the information given to participants. Copies of these translations will also be available. The interviewer will also be prepared to answer relevant and appropriate questions the participants may ask with regard to the research.	
13	How will you ensure appropriate protection and well-being of participants?	
	Provide information about free counselling services for the Deaf as standard after all interviews (SignHealth)	
14	What measures will be put in place to ensure confidentiality of personal data, where appropriate?	
	All identifying material will be erased. All data will be kept on a secure data storage devise in compliance with Data Protection.	
15	Will financial/ in kind payments (other than reasonable expenses) be offered to participants?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

15.1	If yes, indicate how much and on what basis this has been decided:	
16	Will the research involve the production of recorded or photographic media?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
16.1	How will you ensure that there is clear agreement with participants as to how these recorded media or photographs may be stored, used and (if appropriate) destroyed?	
This will be covered in the information provided to the participants as outlined in 12.2		
16.2	If observational research/filming is to be undertaken without prior consent, describe the situation and how privacy and individual confidentiality will be preserved.	
17	Is there any realistic risk to any paid or unpaid participant(s), field assistant(s), helper(s) or student(s) involved in the project, experiencing either physical or psychological distress or discomfort?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
17.1	If yes, have the appropriate risk assessment procedures been adhered to?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

18	Do you think the process, including any results of your research have the potential to cause any damage, harm or other problems for people in your area of research?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
20	If you have answered 'yes' to the previous questions write a clear statement of the ethical considerations raised by the project and how you intend to deal with them	

9.2. An enhanced disclosure from 2010 is available**12. See 12.2**

16. Due to the visual languages in which the interviews will be conducted, video recording is necessary. Audio recording could be used in conjunction with sign language interpreter(s); however the quality of the information recorded is dependant on the quality of the interpretation. Source data is obviously more reliable. Video recordings will not be published without permission of the participants and will be stored on a password protected external hard drive in accordance with the Data Protection Act 1998 and deleted from the recording device as soon as it is possible to transfer the files to this secure storage. As well as myself as researcher, interpreters may also view the files if transcripts are required and I am unable to produce them myself. In this instance, only registered and qualified interpreters would be used as they adhere to a professional code of conduct that includes maintaining confidentiality.

17. There is risk to myself as the interviewer that traumatic or psychologically damaging experiences may be disclosed. In this instance, professional counselling services will be used.

The Signed Declaration		
1	Title of Research Project:	Demographics of the Deaf Community in Northern Ireland
2	Name of applicant:	Sally Gillespie
3	Name of supervisor (if a student project)	David Johnston
<p>I confirm my responsibility to deliver the research project in accordance with Queen's University Belfast Regulations, Code of Good Conduct for Research and, where externally funded, with the terms and conditions of the research funder.</p>		

In signing this research ethics application I am confirming that:

- The above-named project will abide by the University's Regulations for Research Involving Human Participants*;
- The above-named project will abide by the University's Code of Conduct for Research*;
- The above-named project will abide by the University's Code on the Ethical Approval of Research*;
- This research ethics application form is accurate, to the best of my knowledge and belief;
- Subject to the research being approved, I undertake to adhere to the project protocol without unagreed deviation and to comply with any conditions set out in the letter from the appropriate ethical committee;
- I undertake to inform the ethics reviewers, research governance officer(s) and funding bodies of significant changes to the protocol;
- I am aware of my responsibility to be up to date and comply with the requirements of the law and relevant guidelines relating to security and confidentiality of personal data;
- I understand that the project, including research records and data, may be subject to inspection for audit purposes, if required in the future;
- I understand that personal data about me as a researcher as contained in this form will be held by those involved in the ethics review procedure.

4	Signature of applicant:	
5	Signature of Supervisor if required.	
6	Date	

*You will find all of these at <http://www.qub.ac.uk/rrs/webpages/research-governance.htm>

Consent Form

1. 1. I confirm I have been provided and understood information about this study in my preferred language and have asked and received answers, in my preferred language, to any questions raised
2. 2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving a reason and without my rights being affected in any way
3. 3. I understand that the researcher (Sally Gillespie) will hold all information and data collected securely and in confidence and that all efforts will be made to ensure that I cannot be identified as a participant in the study (except as might be required by law) and I give permission for the researchers to hold relevant personal data
4. 4. I agree to take part in the above research

Name of Interviewee: _____

Interviewee signature: _____ Consent date: ___/___/___

Researcher signature: _____ Consent date: ___/___/___

INFORMED INTERVIEWEE RELEASE FORM

I hereby agree to participate in an interview in connection with research being conducted by Sally Gillespie in connection with work for her PhD thesis.

The interview will be video recorded. In the interview I will be identified by name.

I understand that, upon completion of the interview, the video and information content of the interview may be used as follows:

Material from this interview may be quoted in the research papers and PhD thesis of Sally Gillespie, but I will remain anonymous.

I would like to receive a video copy of the interview printed copy of the interview and a printed copy of any transcript produced.

I understand that at the conclusion of this particular study the completed PhD thesis will be kept for public use by Queen's University, Belfast and may also be published.

Interviewer signature: _____

Interviewee signature: _____ Consent date: ___/___/___

Address _____

Preferred mode of contact: email/ text/ typetalk/ voice call/ video call/ other _____

Contact number/email _____

Risk assessment for research conducted by Sally Gillespie with members of the public as part of the PhD (research) program through Queens University Belfast. Duration of research: 3 years. (01.07.12- 01.07.15)

Hazards	People potentially harmed	Risk	Prevention	Further action (if required)	Person responsible
Trips, slips, falls/ injury from physical environment	Sally Gillespie	Low-research locations present minimal risk	Sally Gillespie has been involved in health and safety in the workplace training on a number of occasions	Visual risk assessment to be carried out when entering a new research location	Sally Gillespie
Psychological damage from disclosures	Sally Gillespie	Low/ Medium-abuse and mental health problems are documented to be more prevalent in the Deaf community than in wider society. Interviewees may choose to use the interview forum to disclose traumatic experiences	Research questions do not extend to sensitive topics.	In the case of a disclosure, relevant professionals will be informed and Sally Gillespie will engage in counselling services	Sally Gillespie

Appendix 2: Summary of significant indicators of deaf signed language populations

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Category	Indicator	Source	Scale	Potential population capture
M	Self Identification of deafness	Census 2011	Total per SA (small area)	1 (total)
M	Audiology department records	NHS (Trust)	Patient numbers per audiology department	1 (total) 2 (total identified as signed language user) 3 (identified by language preference)
M	GP surgery records	NHS	Patient numbers per surgery	2 (total patients identified as signed language user) 3 (total patient numbers using each SL)
S (P)	BDA membership	BDA	By postcode (Although information is recorded to this scale, to respect confidentiality, total numbers by SA would be sufficient)	2 Total members listing deaf 3 Total members listing deaf and BSL or ISL
S	Hands that Talk (membership)	HTT	As above	2 Total members 3 Total members listing BSL or ISL

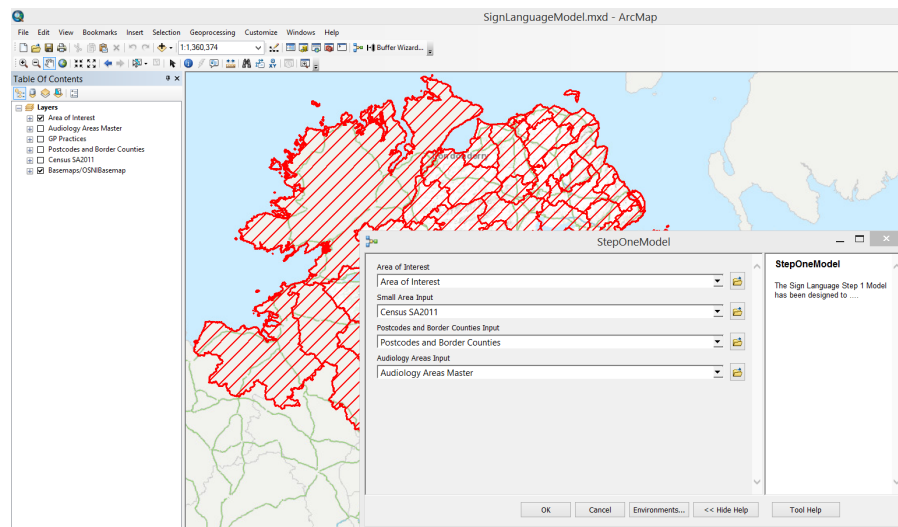
Category	Indicator	Source	Scale	Potential population capture
	(communication support)		By postcode (Although information is recorded to this scale, to respect confidentiality, total numbers by SA would be sufficient)	As above
L	Census 2011 main language (signed language)	Census 2011	Released for Northern Ireland but will be broken down to SA. NI(SL_tot)/NI(language_tot)*10 0 applied against SA(tot_pop)	2 (total identified as signed language user)
E	1:6 (AoHL)	AoHL	Per SA	1
E	1:1000 (WHO)	WHO	Per SA	2
E	2-3,000/ 5,000 (RNID)	RNID	Per SA	3

KEY		
M	Medical	1 Total deaf population who may use a signed language
S	Social	2 Total deaf signing population
P	Political	3 BSL and/or ISL population
L	Linguistic	
E	Estimate	

Appendix 3: User Model Configuration And User Guide

User Model

Configuration and User Guide



Guide written by Adam Glover
Designed by Sally Gillespie

Introduction

The User Model has been designed to calculate an estimated population total of deaf signed language users, within a user defined area.

The following document has been designed to detail the input, workflow and outputs from the model. Using this document will allow a user to set up, and run the User Model.

USER MODEL CONFIGURATION AND USER GUIDE

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USER MODEL CONFIGURATION AND USER GUIDE

Key Datasets

Within the model there are a number of key datasets. This chapter details the schema of each dataset;

Area of Interest

The Area of Interest dataset has been configured to allow the user to define a particular extent of Northern Ireland that they wish to find out the total number of Sign Language users within. The user can define their own area using the edit tools within ArcMap, or alternatively, the ArcGIS Desktop 'Simple Data' loader or 'Append' geoprocessing tool can be used to load in existing boundary datasets for evaluation.

Schema

FieldName	Type	Length
AcceptedValue	Double	8
AcceptedIndicator	String	50
AnsCensusKStat	Double	8
AnsAOHL1in6	Double	8
AnsAOHLMembership	Double	8
GlobalID	GlobalID	38
ModelGlobalID	GUID	38
AnsGPPpractice	Double	8
AnsBDAMembership	Double	8
AnsHTTMembership	Double	8
AnsHTTcommunicationSupport	Double	8
AnsAOHLcommunicationSupport	Double	8
AnsWHOEstimate	Double	8
AnsRNID7500	Double	8
AnsAudiologyPatients	Double	8
AnsAudiologySignLanguageUsers	Double	8

AcceptedValue

When either **Step One** or **Step Two** models are run the tool will return an accepted value. This value relates to the number of predicted deaf (step 1) or deaf signed language users (step 2) within the Area of Interest. The field is a double so that it can accept values which contain decimal places. This field is linked to AcceptedIndicator

AcceptedIndicator

When either **Step One** or **Step Two** models are run the tool will return an accepted indicator. This value tells the user which of input field the AcceptedValue has been taken from. The field is formatted as string and is 50 characters long which is ample to store the name of all indicator fields. This field is linked to AcceptedValue.

USER MODEL CONFIGURATION AND USER GUIDE

AnsCensusKStat

When the **Step One** model is run the tool will return a result for Census Key Statistic. This value tells the user what the predicted number of people living with “Deafness or Partial Hearing Loss” as per KS302NI in the 2011 Northern Ireland Census. Census values have been mapped using Census Small Areas and a percentage has been taken as per the geographic overlap between the Area of Interest and the Census Small Area.

AnsAOHL1in6

When the **Step One** model is run the tool will return a result for Action on Hearing Losses prediction that 1 in 6 people will have a hearing loss. This value tells the user what the predicted *number of people living with hearing loss* as per the Action on Hearing 1:6 predication. The 1:6 ratio has been applied to the total population taken from the 2011 Northern Ireland Census values, which have been mapped using Census Small Areas. A percentage has been taken as per the geographic overlap between the Area of Interest and the Census Small area.

AnsAOHLMembership

When either **Step One** or **Step Two** models are run the tool will return a result for Action on Hearing Loss (AOHL) membership. This value tells the user a predicted number of members of Action on Hearing Loss within the defined boundary. AOHL Membership has been mapped using the first half of the member postcode. This has been done so that members cannot be identified individually. A percentage has been taken as per the geographic overlap between the Area of Interest and the Postcode and Border County boundaries.

GlobalID

This field is a unique identifier for each polygon that is added to the Area of Interest dataset. The value is system generated, and is used by the model to collate values for all indicator values.

ModelGlobalID

This field contains is a static copy of the GlobalID so that this value persists against each feature when the model runs area of interest geoprocessing tool. Ordinarily the ArcGIS for Desktop software will issue a new GlobalID to the intersected polygon as it is a new polygon in a new feature class. To keep the GlobalID value static is had been copied into the ModelGlobalID field where it will be transferred to each intersected polygon. The model will sum indicator values of all intersected polygons which share a ModelGlobalID, thus generating a total value for the original polygon within the Area of Interest dataset. It is the GlobalID and ModelGlobalID fields that make it possible to accept multiple polygons within the Area of Interest dataset.

AnsGPPractice

When the **Step Two** model is run the tool will return a result for the number of GP Patients who have been diagnosed with a hearing loss within the defined area of interest. GP Boundaries have been mapped by generating a polygon around each GP listed on the NINIS NISRA spatial dataset of Northern Ireland GP locations. Each polygon holds the values for the nearest GP. Proximity is measured in Euclidean distance, or “as the crow flies”. A percentage has been taken as per the geographic overlap between the Area of Interest and the GP Practices boundary dataset.

AnsBDAMembership

When the **Step Two** model is run the tool will return a result for the number of members of the British Deaf Association (BDA) within the defined area of interest. BDA members have been mapped using the first half of the member postcode. This has been done so that members cannot be identified individually. A percentage has been taken as per the geographic overlap between the Area of Interest and the Postcode and Border County boundaries.

AnsHTTMembership

When the **Step Two** model is run the tool will return a result for the number of members of the Hands that Talk (HTT) within the defined area of interest. HTT members have been mapped using

USER MODEL CONFIGURATION AND USER GUIDE

the first half of the member postcode. This has been done so that members cannot be identified individually. A percentage has been taken as per the geographic overlap between the Area of Interest and the Postcode and Border County boundaries.

AnsHTTCommunicationSupport

When the **Step Two** model is run the tool will return a result for the number of users of Hands that Talk (HTT) Communication Support service within the defined area of interest. HTT Communication Support users have been mapped using the first half of their postcode. This has been done so that users cannot be identified individually. A percentage has been taken as per the geographic overlap between the Area of Interest and the Postcode and Border County boundaries.

AnsAOHLCommunicationSupport

When the **Step Two** model is run the tool will return a result for the number of users of Action on Hear Loss (AOHL) Communication Support service within the defined area of interest. AOHL Communication Support users have been mapped using the first half of their postcode. This has been done so that users cannot be identified individually. A percentage has been taken as per the geographic overlap between the Area of Interest and the Postcode and Border County boundaries.

AnsWHOEstimate

When the **Step Two** model is run the tool will return a result for World Health Organisation (WHO) prediction of 1 in 1,000 deaf signed language users. This value tells the user what the predicted number of signed language users as per the WHO 1:1,000 predication. The 1:1,000 ratio has been applied to the total population taken from the 2011 Northern Ireland Census values, which have been mapped using Census Small Areas. A percentage has been taken as per the geographic overlap between the Area of Interest and the Census Small area.

AnsRNID7500

When the **Step Two** model is run the tool will return a result for the Royal National Institute for the Deaf (RNID) prediction of 7,500 BSL and ISL users within Northern Ireland. This value tells the user what the predicted *number BSL and ISL users* as per the RNID predication. A ratio of the population calculated using the estimated value and the population as per the 2011 Northern Ireland census. This ratio has then been applied to the total population taken from the 2011 Northern Ireland Census values, which have been mapped using Census Small Areas. A percentage has been taken as per the geographic overlap between the Area of Interest and the Census Small area.

AnsAudiologyPatients

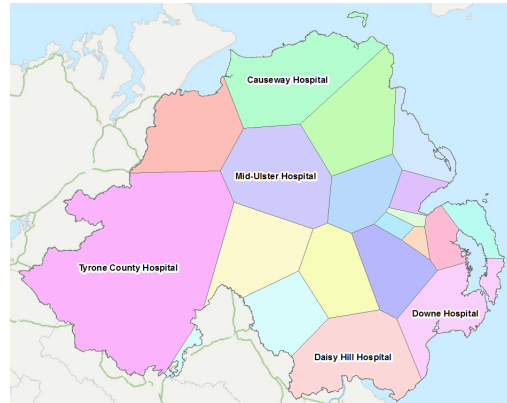
When the **Step One** model is run the tool will return a result for the number of registered patients of Northern Irelands 19 Audiology departments. Audiology Unit boundaries have been mapped by generating a polygon around each Northern Ireland Hospital with an Audiology Unit. Locations have been taken from the hospitals on the NINIS NISRA spatial dataset of Northern Ireland hospital locations. Each polygon holds the values for the nearest Audiology Department. Proximity is measured in Euclidean distance, or "as the crow flies". A percentage has been taken as per the geographic overlap between the Area of Interest and the Audiology department boundary dataset.

AnsAudiologySignLanguageUsers

When the **Step Two** model is run the tool will return a result for the number of sign language users accessing services from Northern Irelands 19 Audiology departments. Audiology Unit boundaries have been mapped by generating a polygon around each Northern Ireland Hospital with an Audiology Unit. Locations have been taken from the hospitals on the NINIS NISRA spatial dataset of Northern Ireland hospital locations. Each polygon holds the values for the nearest Audiology Department. Proximity is measured in Euclidean distance, or "as the crow flies". A percentage has been taken as per the geographic overlap between the Area of Interest and the Audiology department boundary dataset.

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Audiology Area



The Audiology Area dataset has been generated to divide Northern Ireland into regions based on their nearest Audiology Service. The ArcGIS for Desktop software has been used to run a geoprocessing tool called “Create Thiessen Polygon” which can turn point locations into polygon boundaries by dividing an extent into its nearest point.

Illustration

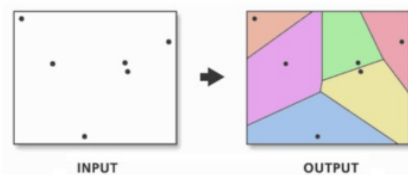


Illustration taken from ArcMap help pages for Create Thiessen Polygon Geoprocessing Tool.

This dataset is used to collect two indicator values used within the models;

- AllPatients
- SignLanguageUsers

Schema

Name

This field holds the hospital name, and is populated from the NINIS NISRA hospital locations dataset.

Address

This field holds the hospital address, and is populated from the NINIS NISRA hospital locations dataset.

Lat

This field holds the hospital latitude, and is populated from the NINIS NISRA hospital locations dataset. The value is decimal degrees referencing the World Geodetic Survey of 1984 Web Mercator Auxillary Sphere (WGS84) spatial reference. The dataset has subsequently been

USER MODEL CONFIGURATION AND USER GUIDE

converted into Irish National Grid to match the boundary datasets available for download from the NINIS NISRA website.

Long_

This field holds the hospital longitude, and is populated from the NINIS NISRA hospital locations dataset. The value is decimal degrees referencing the World Geodetic Survey of 1984 Web Mercator Auxillary Sphere (WGS84) spatial reference. The dataset has subsequently been converted into Irish National Grid to match the boundary datasets available for download from the NINIS NISRA website.

AllPatients

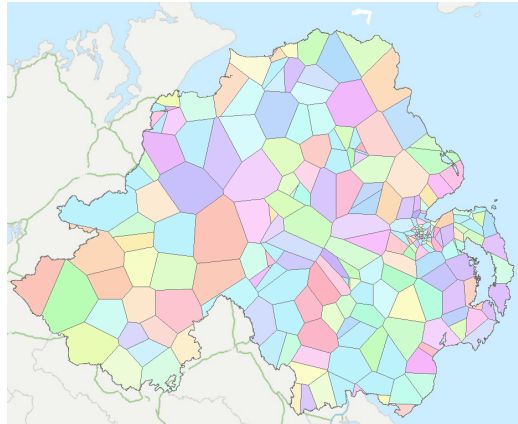
This field holds a value recording the total number of patients registered to the Audiology department. This field is populated with test data and will need to be updated with values provided by the Department for Health.

SignLanguageUsers

This field holds a value recording the number of sign language users registered to the Audiology department. This field is populated with test data and will need to be updated with values provided by the Department for Health.

USER MODEL CONFIGURATION AND USER GUIDE

GP Practices



The GP Practice dataset has been generated to divide Northern Ireland into regions based on their nearest GP Practice. The ArcGIS for Desktop software has been used, to run a geoprocessing tool called "Create Thiessen Polygon" which can turn point locations into polygon boundaries by dividing an extent into its nearest point.

Illustration

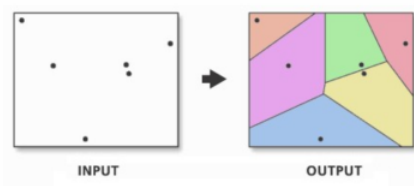


Illustration taken from ArcMap help pages for Create Thiessen Polygon Geoprocessing Tool.

This dataset is used to collect one indicator values used within the models;

- GPIndicator

Schema

Name

This field holds the GP name, and is populated from the NINIS NISRA GP locations dataset.

Address1

This field holds the GP address, and is populated from the NINIS NISRA GP locations dataset.

Address2

This field holds the GP address, and is populated from the NINIS NISRA GP locations dataset.

Address3

This field holds the GP address, and is populated from the NINIS NISRA GP locations dataset.

Postcode

This field holds the GP address, and is populated from the NINIS NISRA hospital locations dataset.

USER MODEL CONFIGURATION AND USER GUIDE**X**

This field holds the X coordinate, or “easting” for the GP practice location. This value is populated from the NINIS NISRA GP locations dataset. The coordinate is measured in meters, and relates to the Transvers Mercator of 1965 (TM65), spatial reference 29902. (Also commonly referred to as Irish National Grid)

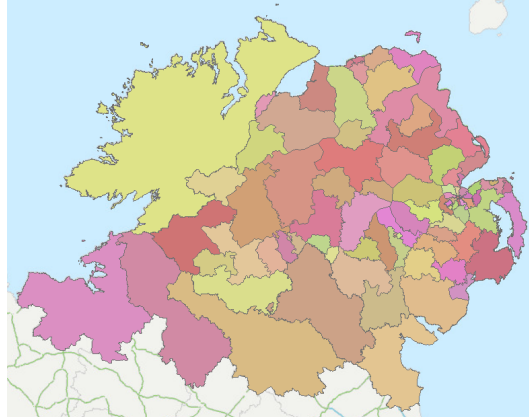
Y

This field holds the Y coordinate, or “northing” for the GP practice location. This value is populated from the NINIS NISRA GP locations dataset. The coordinate is measured in meters, and relates to the Transvers Mercator of 1965 (TM65), spatial reference 29902. (Also commonly referred to as Irish National Grid)

GP Indicator

This field holds a value recording the number of sign language users registered to the GP. This field is populated with test data and will need to be updated with values provided by the Department of Health.

USER MODEL CONFIGURATION AND USER GUIDE

Postcodes and Border Counties

The Postcodes and Border Counties dataset has been generated to divide Northern Ireland into regions based on the first half of the postcode, to which the border counties of Ireland have been added to the dataset. To generate the postcode areas ArcGIS for Desktop software has been used, to run a geoprocessing tool called "Create Thiessen Polygon" which can turn point locations into polygon boundaries by dividing an extent into its nearest point.

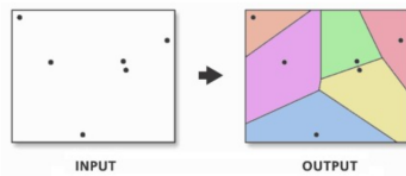
Illustration

Illustration taken from ArcMap help pages for Create Thiessen Polygon Geoprocessing Tool.

This generated boundary dataset for all postcodes which needed to be generalised to join all postcode areas which had the same first half. This generalisation was achieved using a geoprocessing tool called "Dissolve" which merges polygons with the same attribute value together into a single polygon.

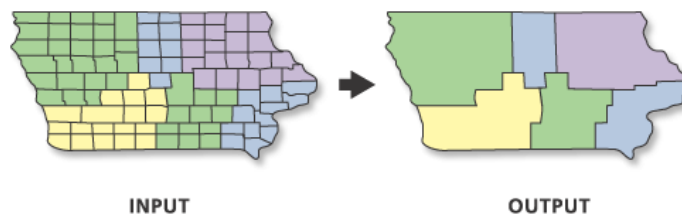
Illustration

Illustration taken from ArcMap help pages for Dissolve (Data Management) Geoprocessing Tool.

USER MODEL CONFIGURATION AND USER GUIDE

This dataset is used to collect five indicator values used within the models;

- AOHLMembership
- BDAMembership
- HTTMembership
- HTTCommunicationSupport
- AOHLCommunicationSupport

Schema

Postcode

This field holds the first half of the postcode which has come from the NISRA Central Postcode dataset.

AOHLMembership

This field holds the value for the number of Action on Hearing Loss members. The totals have been generated by summing the number of members with the same first half of their postcode. Figures to be provided by Action on Hearing Loss. At present this field holds a test value.

BDAMembership

This field holds the value for the number of British Deaf Association members. The totals have been generated by summing the number of members with the same first half of their postcode. Figures to be provided by the British Deaf Association. At present this field holds a test value.

HTTMembership

This field holds the value for the number of Hands that Talk members. The totals have been generated by summing the number of members with the same first half of their postcode. Figures to be provided by Hands that talk. At present this field holds a test value.

HTTCommunicationSupport

This field holds the value for the number of Hands that Talk Communication Support users. The totals have been generated by summing the number of users with the same first half of their postcode. Figures to be provided by Hands that talk. At present this field holds a test value.

AOHLCommunicationSupport

This field holds the value for the number of Action on Hearing Loss Communication Support users. The totals have been generated by summing the number of users with the same first half of their postcode. Figures to be provided by Action on Hearing Loss. At present this field holds a test value.

CalcAOHLMembership

Field only used when intersect is applied.

This field holds the calculated value for the number of Action on Hearing Loss members once an overlap percentage has been applied during the intersection between the Area of Interest and the Postcodes and Border Counties dataset. If the whole postcode falls within the Area of Interest, then 100% of the indicator is used. If 50% of the Postcode and Border Counties polygon intersects with the Area of Interest, then 50% of the indicator value will be taken as the calculated value.

CalcBDAMembership

Field only used when intersect is applied.

This field holds the calculated value for the number of British Deaf Association members once an overlap percentage has been applied during the intersection between the Area of Interest and the Postcodes and Border Counties dataset. If the whole postcode falls within the Area of Interest, then

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100% of the indicator is used. If 50% of the Postcode and Border Counties polygon intersects with the Area of Interest, then 50% if the indicator value will be taken as the calculated value.

CalcHTTMembership

Field only used when intersect is applied.

This field holds the calculated value for the number of the Hands that Talk members once an overlap percentage has been applied during the intersection between the Area of Interest and the Postcodes and Border Counties dataset. If the whole postcode falls within the Area of Interest, then 100% of the indicator is used. If 50% of the Postcode and Border Counties polygon intersects with the Area of Interest, then 50% if the indicator value will be taken as the calculated value.

CalcHTTCommunicationSupport

Field only used when intersect is applied.

This field holds the calculated value for the number of the Hands that Talk Communication support users once an overlap percentage has been applied during the intersection between the Area of Interest and the Postcodes and Border Counties dataset. If the whole postcode falls within the Area of Interest, then 100% of the indicator is used. If 50% of the Postcode and Border Counties polygon intersects with the Area of Interest, then 50% if the indicator value will be taken as the calculated value.

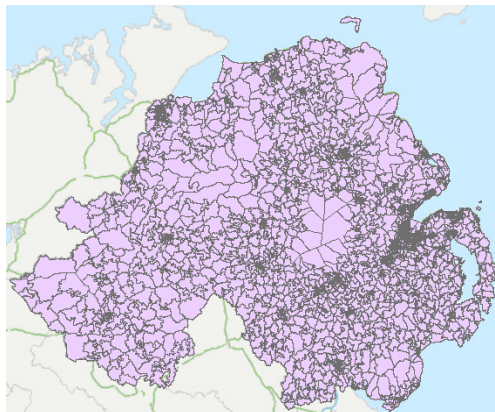
CalcAOHLCommunicationSupport

Field only used when intersect is applied.

This field holds the calculated value for the number of Action on Hearing Loss Communication Support users once an overlap percentage has been applied during the intersection between the Area of Interest and the Postcodes and Border Counties dataset. If the whole postcode falls within the Area of Interest, then 100% of the indicator is used. If 50% of the Postcode and Border Counties polygon intersects with the Area of Interest, then 50% if the indicator value will be taken as the calculated value.

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Census SA2011



The Northern Ireland 2011 Census Small Area datasets has been taken direction from NINIS NISRA. This boundary dataset is the largest scale at which census information is made available to the public. It gives the most detail of population distribution for use with the prediction estimates from AOHL, RNID, and WHO. It also the most details level available for Key Statistic KS302NI, specifically population living with “Deafness or Partial Hearing Loss”.

This dataset is used to collect one indicator values used within the models;

- AOHL1in6
- WHO1in1000
- RNID7500
- CensusKStat

Schema

SA2011

This field holds the value for Small Area code. This code can then be used to join non spatial tables such as the KS302 to record the values spatially.

SOA2011

This field holds the value for Super Output Area code. Each of the census geometries fit inside smaller scale census geometries. As such a number of Small Areas merged together make up a Super Output Area. This level of detail could be used to generalise the information, but is not used within this model.

LGD2014

This field holds the value for Local Government Area code. Each of the census geometries fit inside smaller scale census geometries. As such a number of Super Output Areas merged together make up a Local Government Area*. This level of detail could be used to generalise the information, but is not used within this model.

*With the change to Local Government Boundaries in 2015 the LGD2014 boundaries are a “best fit” of census geographies created by NISRA.

LGD2014NAME

This field holds the value for Local Government Area name. Each of the census geometries fit inside smaller scale census geometries. As such a number of Super Output Areas merged together make

USER MODEL CONFIGURATION AND USER GUIDE

up a Local Government Area*. This level of detail could be used to generalise the information, but is not used within this model.

*With the change to Local Government Boundaries in 2015 the LGD2014 boundaries are a “best fit” of census geographies created by NISRA.

Population

This field holds the values for population as taken from the Northern Ireland 2011 census at a Small Area scale.

AOHL1in6

This field holds a value for the AOHL 1 in 6 estimate applied to the population recorded in the population field.

WHO1in1000

This field holds a value for the WHO 1 in 1000 estimate applied to the population recorded in the population field.

RNID7500

This field holds a value for the RNID 7500 estimate spread across Northern Ireland total population.

CensusKStat

This field holds the values for population living with “Deafness or Partial Hearing Loss” as taken from KS302NI at a Small Area scale.

CalcAOHL1in6

Field only used when intersect is applied.

This field holds the calculated value for the Action on Hearing Loss 1 in 6 estimate once an overlap percentage has been applied during the intersection between the Area of Interest and the Census SA2011 polygon. If the whole Small Area falls within the Area of Interest, then 100% of the indicator is used. If 50% of the Small Area polygon intersects with the Area of Interest, then 50% if the indicator value will be taken as the calculated value.

CalcWHO1in1000

Field only used when intersect is applied.

This field holds the calculated value for the World Health Order 1 in 1000 estimate once an overlap percentage has been applied during the intersection between the Area of Interest and the Census SA2011 polygon. If the whole Small Area falls within the Area of Interest, then 100% of the indicator is used. If 50% of the Small Area polygon intersects with the Area of Interest, then 50% if the indicator value will be taken as the calculated value.

CalcRNID7500

Field only used when intersect is applied.

This field holds the calculated value for the Royal National Institute for the Deaf estimate of 7500 people within Northern Ireland, once an overlap percentage has been applied during the intersection between the Area of Interest and the Census SA2011 polygon. If the whole Small Area falls within the Area of Interest, then 100% of the indicator is used. If 50% of the Small Area polygon intersects with the Area of Interest, then 50% if the indicator value will be taken as the calculated value.

CalcCensusKStat

Field only used when intersect is applied.

This field holds the calculated value for the number of people living with “Deafness or Partial Hearing Loss” once an overlap percentage has been applied during the intersection between the Area of Interest and the Census SA2011 polygon. If the whole Small Area falls within the Area of Interest, then 100% of the indicator is used. If 50% of the Small Area polygon intersects with the Area of Interest, then 50% if the indicator value will be taken as the calculated value.

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Using the Models

The User Model toolbox consists of two models.

Model one has been designed to;
Identify the prevalence of deafness within a defined area.

Model two has been designed to;
Identify the prevalence of the use of signed languages model one, within the same defined area.

Pre-Requisites

The SignLanguageUser models have been designed to run using ArcMap 10.3.1 or later. This software is the most current release of ESRI's "ArcGIS for Desktop" software which in turn is part of the wider ArcGIS Platform. This software represents the industry standard GIS software used worldwide, as well as within Northern Ireland. It is readily available to the Department for Communities as they have an existing software license agreement with ESRI Ireland for provision of GIS software.

Pre-Requisites for this software can be found at the following website;

<http://desktop.arcgis.com/en/arcmap/10.3/get-started/system-requirements/arcgis-desktop-system-requirements.htm>

The model has been designed to be run in ArcMap using an **Advanced license**.

Note: Using a lower level license will result in the model failing or not generating results correctly.

SpatialNI Account

A SpatialNI account will be required to add the Northern Ireland base mapping into the background of the MapDocument.

Accessing the Model

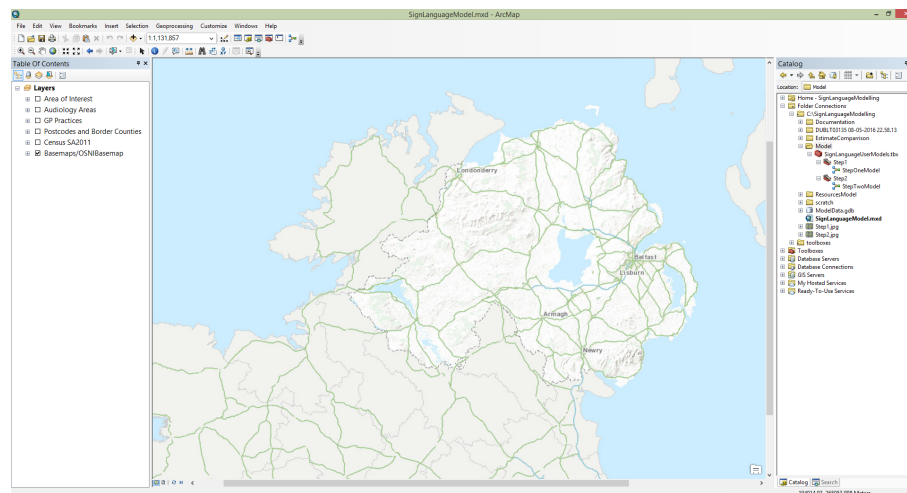
The models have been designed to work within ArcMap. As they reference layers present within the MapDocument (MXD) the tools will fail if attempted to run from within ArcCatalog. As such an mxd has been provided and should be used when working with the User Models.

Mxd Name: SignLanguageModel.mxd
Mxd Location: C:\SignLanguageModelling

This mxd can either be opened by launching ArcMap 10.3.1 or later and navigating to the mxd location, or simply by double clicking the mxd file.

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Once launched the user will be faced with an application that looks similar to the following;

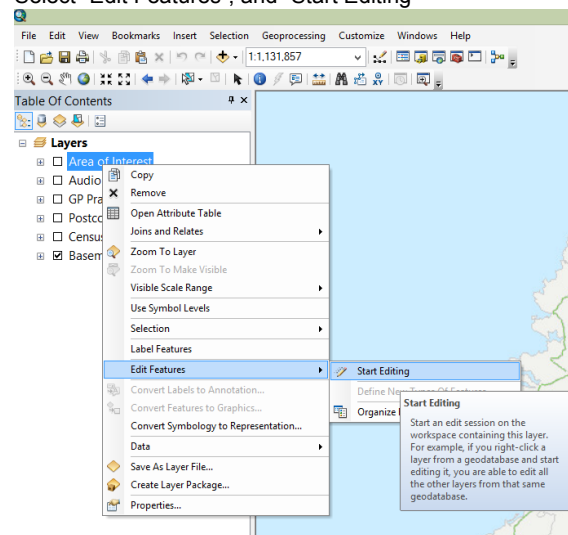


The first step that the user must undertake for either model is to define an area of interest. This can be done either by drawing an Area of Interest or by loading a predefined boundary dataset (such as Local Government Boundaries).

Manually drawing an Area of Interest

To manually draw an area of interest the user must edit open an editing session and draw their area onto the map.

1. Right Click on the Area of Interest layer in the Table of Contents.
2. Select “Edit Features”, and “Start Editing”

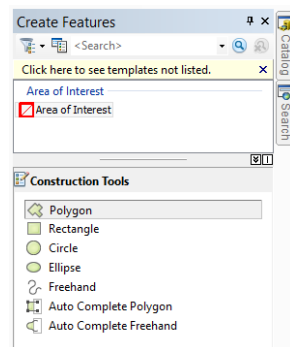


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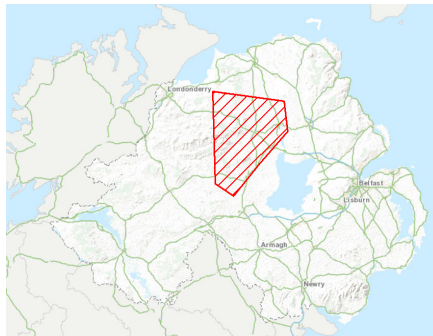
- The Editor toolbar will now be displayed



- The "Create Features" window should also have opened on the right hand side of the screen. If it does not open it can be manually opened by clicking on the last icon on the Editor toolbar.
- Click on the "Area of Interest" feature template in the Create Features window and select a construction tool.



- Now click on the map to begin marking out the area of interest.
- Once editing is complete, finish the sketch by double left clicking, or right clicking and selecting "Finish Sketch".
- On the Editor toolbar now click Editor > Stop Editing
- When asked "Do you want to save your edits?" select "Yes".
- Now an area of interest has been captured and will be displaying on the map with a red outline and a red crosshatch.



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Loading a predefined boundaries dataset

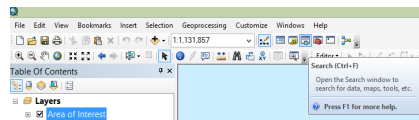
The models can be run using a predefined boundary as the Area of Interest. This allows the user to generate values for Local Council Areas, Parliamentary Constituencies, or any other boundary dataset that requires reporting.

To do this the user will need to use the Append tool.

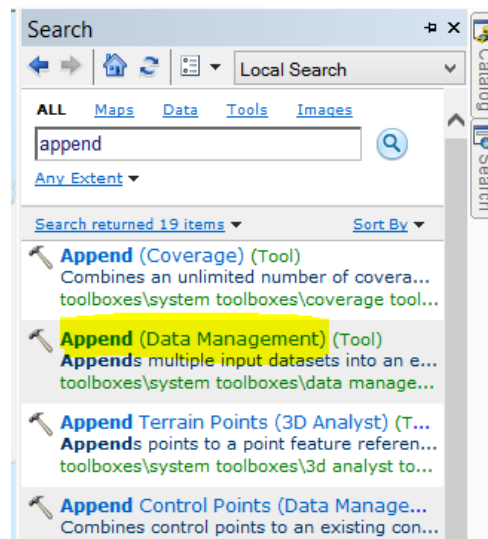
1. Within ArcMap open the Search window. By default this is minimised at the right hand side of the ArcMap application;



If it is missing it can be added by clicking on the Search icon on the Standard Toolbar



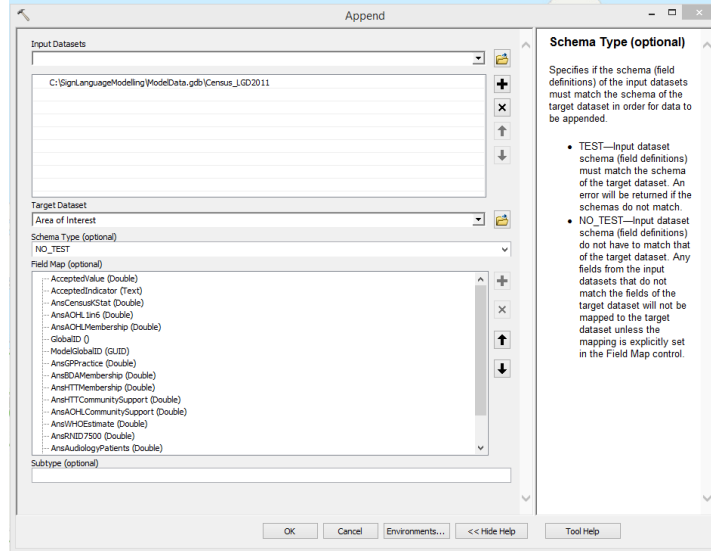
2. Type "Append" into the search textbox and click on the search button



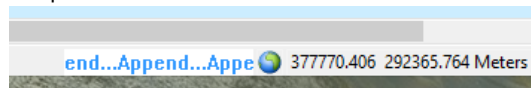
3. From the list of results click on "Append (Data Management)"
4. The Append tool will now open.
5. Add the boundary dataset(s) into the Input Datasets
Note: They should be in TM65 Irish National Grid
6. Set "Area of Interest" as the Target Dataset

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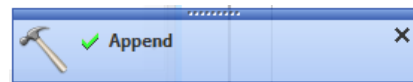
7. Set Schema Type (optional) to “No Test”. This means that the datasets listed in “Input Datasets” do not have the same schema (list of attributes) as that of the target dataset.



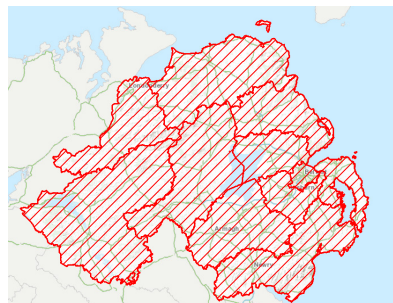
8. Click “OK” to run the Append tool
9. The tool will run in the background meaning that the user can navigate about the map or complete other tasks whilst the tool runs.



10. When complete the tool will return a confirmation message



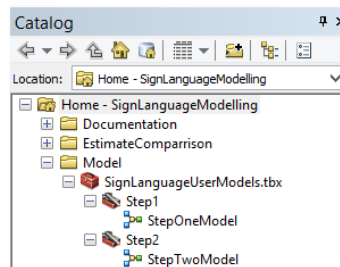
11. Now an area of interest has been captured and will be displaying on the map with a red outline and a red crosshatch.



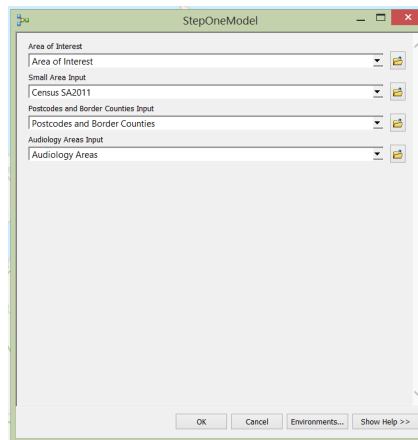
USER MODEL CONFIGURATION AND USER GUIDE

Running Step One Model

The Step One Model can be located within the SignLanguageModelling folder.



1. From the Catalog window within ArcMap, navigate to the “Home – SignLanguageModelling” folder.
2. Open the “Model” folder.
3. Both tools are found within the “SignLanguageUserModel.tbx” toolbox.
Open the Step1 toolset
4. Double click the “StepOneModel” by double clicking it.
5. The Model will now open

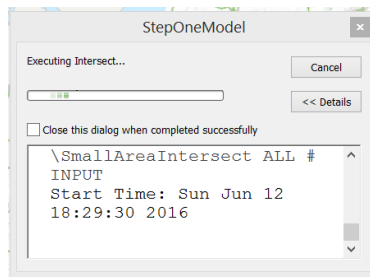


The model has been configured to look for layers within the MapDocument with the above names. If these names change the user will need to add the new layers from the drop down menu, or by dragging and dropping the required layer into the relevant input box. *Show Help can be clicked to view the in tool context sensitive help.*

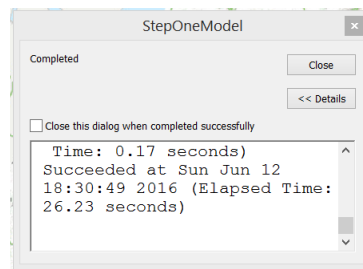
6. Ensure the correct layers are referenced within the tool. This should not need to be changed by the user.

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7. When ready to run, click "OK".
8. The tool will start to run and a progress box will appear.

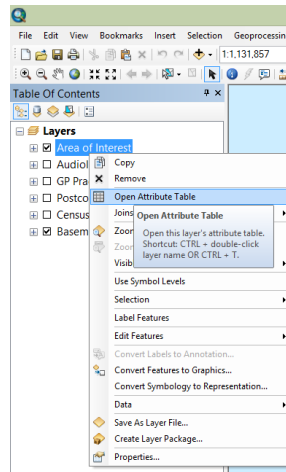


This box will detail each process that the model is running and will display a completion message to detail that the tool has run successfully.



9. Click "Close"
10. Now that the tool has completed the results can be found within the Attributes Table of the Area of Interest table.
11. Right click on the "Area of Interest" layer within the Table of Contents, and select "Open Attribute Table"

USER MODEL CONFIGURATION AND USER GUIDE



12. The results for the Step One Model have now been added into the relevant fields. The highest value that the model has predicated in any of the indicator fields has been added to the "AcceptedValue" field, and the indicator which this value has been taken from has been added into the "AcceptedIndicator" field.

APE *	AcceptedValue	AcceptedIndicator
lygon	12465.988542	AOHL1in6

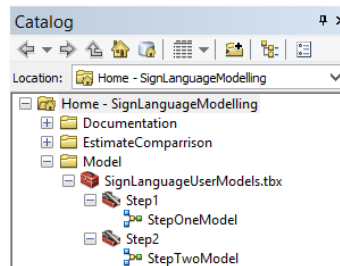
The model has now run successfully and returned the accepted value to answer the question, "How many people in the requested area are living with a hearing loss".

If multiple areas are included within the Area of Interest dataset each area will be given its own AcceptedValue and Accepted Indicator. This will not necessarily be the same AcceptedIndicator for each input area.

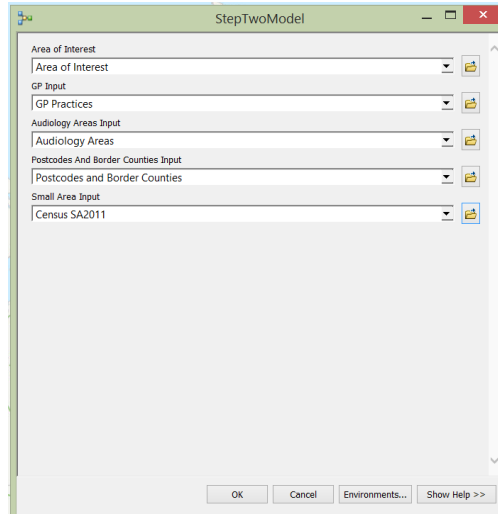
USER MODEL CONFIGURATION AND USER GUIDE

Running Step Two Model

The Step Two Model can be located within the SignLanguageModelling folder.



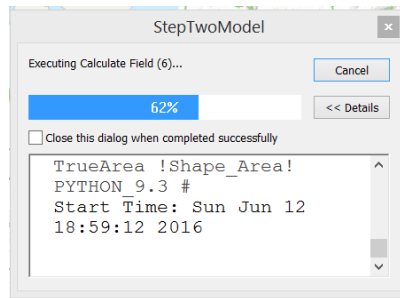
1. From the Catalog window within ArcMap, navigate to the “Home – SignLanguageModelling” folder.
2. Open the “Model” folder.
3. Both tools are found within the “SignLanguageUserModel.tbx” toolbox.
Open the Step2 toolset
4. Double click the “StepTwoModel” by double clicking it.
5. The Model will now open



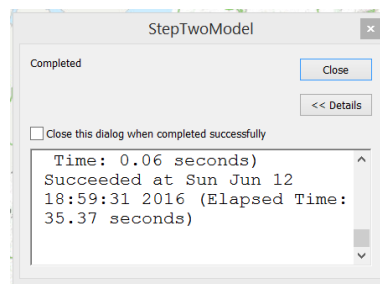
The model has been configured to look for layers within the MapDocument with the above names. If these names change the user will need to add the new layers from the drop down menu, or by dragging and dropping the required layer into the relevant input box.
Show Help can be clicked to view the in tool context sensitive help.

USER MODEL CONFIGURATION AND USER GUIDE

6. Ensure the correct layers are referenced within the tool. This should not need to be changed by the user.
7. When ready to run, click "OK".
8. The tool will start to run and a progress box will appear.

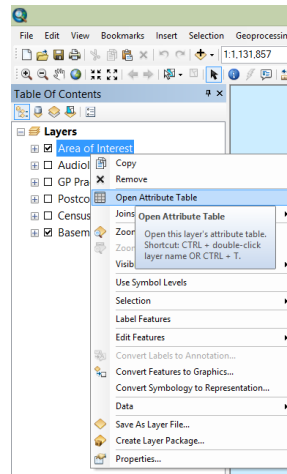


This box will detail each process that the model is running and will display a completion message to detail that the tool has run successfully.



9. Click "Close"
10. Now that the tool has completed the results can be found within the Attributes Table of the Area of Interest table.
11. Right click on the "Area of Interest" layer within the Table of Contents, and select "Open Attribute Table"

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12. The results for the Step Two Model have now been added into the relevant fields. The highest value that the model has predicated in any of the indicator fields has been added to the "AcceptedValue" field, and the indicator which this value has been taken from has been added into the "AcceptedIndicator" field.

PE #	AcceptedValue	AcceptedIndicator	
gon	1729.077943	GPIndicator	

The model has now run successfully and returned the accepted value to answer the question, "How many sign language users live in the requested area".

If multiple areas are included within the Area of Interest dataset each area will be given its own AcceptedValue and Accepted Indicator. This will not necessarily be the same AcceptedIndicator for each input area.

Appendix 4: Resource Model User Guide

Appendix 4: Resource Model User Guide

Similarly to the User Model, the design concept of the Resource Model is a live resource that is regularly updated in order to maintain its relevance and usefulness. Due to the existing availability of data, and that lesser sensitivity of data held in the model it is possible to release the model in its current form. The model is currently hosted at <http://signlanguageni.maps.arcgis.com/apps/dashboard/index.html#/90a652926b6b4bc19b552f78134047b8> and, while it doesn't list interpreters names or contact details, it offers potential clients the option to perform their own workforce analysis for either predefined areas or create their own search criteria. The text below is written to accompany the online hosting of the tool, explains the functionality of the service and sign posts to sites hosting contact information if they wish to contact interpreters. The accompanying text also summarises some of the relevant information from this chapter in accessible, plain English to educate potential purchasers of interpreting services. The aim of the page is to increase the impact of this research by making it immediately accessible in the public domain.

What is this?

This map was developed as part of my PHD research to better understand the resources of interpreters in Northern Ireland. It shows where sign language interpreters are located what languages they work between and gives some information about the level to which they are qualified. It also shows what registration category they fit into although 'status' information does not guarantee current regulation.

Why are there no contact details?

Some interpreters prefer not to advertise their information publicly. This resource explains why it might be difficult to find an interpreter or why you might have to pay greater travel expenses if you require an interpreter in an area where no interpreters are located. It isn't a directory but if that's what you're after, please have a look at www.nrcpd.org.uk, www.vlp.org and www.asli.org, all of which have members directories which list interpreters who wish to advertise.

What to do mean about 'the level to which they're qualified'?

Currently, the accepted measure of interpreter quality in the UK is registration status with NRCPD (National Register of Communication working with Deaf and Deafblind People) which is split into TSLI (Trainee Sign Language Interpreter) and RSLI (Registered Sign Language Interpreter). There are qualification criteria for each and requirement to complete continued professional development as well as other safeguards such as insurance and criminal record checks so if an interpreter is or has been registered in either of these categories they hold a certain standard of interpreting qualification. Registration status on this map is only a guidance and does not guarantee that an interpreter is currently regulated- you'll need to check NRCPD's website directly to be sure.

Why don't you include RBSLI registration status as an indicator of qualification?

RBSLI, Register of British Sign Language Interpreters, currently have no registrants in Northern Ireland. If this changes the model will be updated to include both regulatory bodies.

Your site is Sign Language Ni so why include the border counties?

Interpreters travel. Have a play about with the map and you'll see there aren't many ISL interpreters based in Northern Ireland but there are many deaf ISL users so to meet that demand interpreters in the Republic of Ireland are often asked to work across the boarder. There are many more ISL interpreters in

Ireland than are shown on the map but I've included the interpreters that my research highlighted as frequently working in Northern Ireland.

I'm an interpreter but I don't think I'm on the map- why not? Get in contact! If you're currently working as an interpreter but you don't think you're included in the map please let me know. It's great to get a more full picture of the availability of interpreters in NI which your feedback will help do but it will also improve the development of the methodology of this model when I find out how I missed you!

How did you build it?

In short, I compiled lists of interpreters held by various organisations such as NRCPD. I anonymised the information (removing names and generalising location) and fed it into a mapping software called ArcGIS. If you want the full methodology you'll have to read the thesis!

Why not just drop pins on a google map?

Good point, fundamentally Google Maps and ArcGIS are the similar technology (think MS Word and Apple Pages) so they are comparable. Using ArcGIS offers greater functionality so you can search by predefined location's ("How many interpreters are based in Belfast City Council area) or create your own search boundaries ("what interpreters are based near my house and along major arterial routes around it" and you can draw the area to be included). Most importantly, this model was developed in tandem with a User Model to identify the locations of deaf signed language users in Northern Ireland, which required more sophisticated developer technology. Building both models in the same software allows for comparisons between the models to understand patterns between supply and demand, but if you're really interested in that you should probably be reading my thesis rather than my website.

Appendix 5: Service Provider's Letter

Appendix 5: Service Provider's Letter

The following text is a transcript of the letter sent by the event promoters to the customers who had requested provision of a BSL interpreter:

I have been passed correspondence between you and the management of the [venue] in relation to your request for Interpretative Services at the forthcoming [performer] concert. I have taken time to consult with the [venue], our health and safety consultant, some other venues and some advisory bodies in order to inform this response.

[Event promoter] has an obligation to make its events as accessible as possible. We have venues which, in broad terms, have a number of accessibility features, depending on the age and nature of the building. Many venues, such as the [venue], are multi-purpose venues which do not have a single layout or function, as would be the case in a theatre. It is difficult, therefore, to have in place some of the features which you have outlined in your email to [venue's named person].

It is our considered view that the provision of a signing facility is not appropriate for this kind of performance. There is no possibility of the signer being placed on the stage, and any other location would detract from the usual impact of the performance.

We do not believe that your suggestion of a signer positioned at another point can allow you and others to experience both the usual performance of the act and the interpretation by the signer. Our information is that even if the set lists and lyrics can be provided there is limited prospect of this 'ad-libbing' of the act to be adequately reflected. We understand that some signers can 'dramatise' or 'code' such 'ad-libbing' but it is not always a true reflection of the performer's words.

We have given your request careful consideration but we believe that we cannot accede to your request. We will, however, attempt to present you with a set list and the lyrics of the songs, if this is approved by the artists management.

As promoters, we endeavour to meet the needs of all patrons as far as possible. We acknowledge that our obligation to try and make reasonable adjustment, and I believe that the offer of the set list and lyrics is such an adjustment. I am sorry that I cannot be of further assistance on this matter.

Appendix 6: Digital Resources

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