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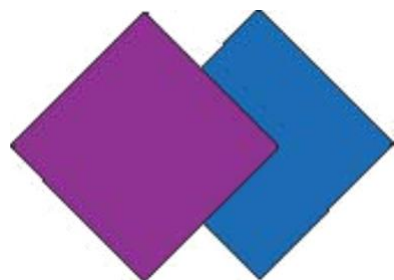
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# **International Journal of Interpreter Education**

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# Collaboration and Creativity During a Global Pandemic

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At the time of writing this editorial, the COVID-19 pandemic is still raging around the world and has taken a huge physical, financial, and emotional toll on many of our readers in many countries; thanks to the work of dedicated researchers, however, viable vaccines will soon become available (Chow, 2020). The creativity that led these researchers to their innovative vaccines is reflected, on a different level, in the ways interpreter educators and researchers internationally have come up with novel solutions in high-pressure situations. Conferences and workshops of course continue to be cancelled and replaced by online events, but, as Dr. Oktay Eser (Amasya University, Turkey) remarked recently in a Zoom meeting with Ineke, the pandemic has encouraged increased collaboration and sharing between interpreter educators globally. Educators in a wide range of spheres have come up with novel ways to interact with their students and colleagues. It is fascinating to see these creative solutions begin to be shared through research articles. For example, Braun, Davitti, and Slater (2020) describe highly multimodal and interactive Virtual Learning Environments (VLE) and the opportunities these provide for collaborative learning in interpreter education; and Henderson and colleagues (2020) report on the success of using Microsoft Teams to disseminate medical training and as a discussion platform for staff in London.

Figueroa and colleagues (2020) surveyed the responses of orthopedic residents in Chile on the use of several online learning modalities. They found that respondents missed the usual mix of practical and theoretical activities, and the same will have been true for students in our field. We know first-hand how very challenging it is for students to practice their interpreting skills in relative isolation online; even with well-organized mechanisms for teacher and peer feedback it is just not the same. We have a new appreciation for our face-to-face interpreting classes after this year! We have to acknowledge that we are in the privileged position of being in New Zealand, where – at least at the time of writing this editorial – our early and strict lockdowns have allowed us to return to relatively normal life. We are thinking often of our colleagues in other countries who are still in the thick of COVID-related challenges, especially while entering into the winter months.

Online events can result in new opportunities for joint research and collaboration from afar, which many readers may also have experienced this year. Ineke has presented to colleagues and students in Spain, the Netherlands, Hungary, Turkey, Australia, and the United States using a range of different online presentation modalities including Zoom, Google Meet, GoToWebinar, and Teams. In each instance, testing the “system” a few days ahead of the online event provided an opportunity to identify and address possible technical issues. Many of us will have become experts in a variety of new online teaching tools this year, whether it was a welcome challenge, or just out of sheer necessity!

Another positive that has come out of the COVID-19 pandemic has been the shining humanity and collegiality across our field. In our own work environment, first Ineke and then George have been lucky to be able to take 6-month sabbaticals this year, and our colleagues (including junior colleagues who are relatively new to teaching) have stepped up and taken responsibility for teaching and assessment, allowing us to take this opportunity. It has

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## Editorial

often required innovative responses to lockdowns at short notice, and we have been absolutely blown away by their commitment, creativity, and collegiality. They and we have grown a lot in the process, although given the financial restraints many higher education providers now face, we must hope that the increased workloads will not become the “new normal.” Many educators are still struggling with unprecedented workloads as they try to rethink sustainable delivery of classes, practicum components, and assessment.

As mentioned in our previous editorial, (Crezee & Major, 2020) pressures on educators and researchers have caused some delays in the review process. However, in all instances, correspondence with reviewers and authors alike have reflected kindness and collegiality which we appreciate so much. A good friend reminded us that no storm lasts forever, and together we will get through this.

Moving on to issue 12(2) of IJIE, we are very pleased to bring you a range of contributions from around the world: from the United States, China, New Zealand, and Norway.

We start with a research article by George Major, Rachel McKee, Karliah McGregor, and Lynette Pivac, “Deaf Women’s Health Vocabulary: Challenges for Interpreters Working in a Language of Limited Diffusion.” Motivated by a lack of description of women’s health vocabulary in New Zealand Sign Language (NZSL), the authors describe both ‘frozen’ and depicting signs (classifier constructions) used by deaf women to describe women’s health concepts and discuss implications for interpreters and interpreter educators.

Staying on the theme of specialized vocabulary, a research article by Judy Vesel, M. Diane Clark and Tara Robillard explores life science vocabulary (“Use of a Signing Bioscience Dictionary in Increasing Student Interpreters’ American Sign Language Life Science Vocabulary”). The researchers trained interpreting students on how to use a Signing Bioscience Dictionary (SBD), and then investigated the impact of this on the students’ ability to interpret undergraduate biology courses. Their detailed analysis highlights both the advantages and challenges of this approach to preparing students for interpreting work in this specialized domain.

Fang Tang’s research article, “Repair Strategy in Consecutive Interpreting: Comparing Professional Interpreters and Interpreting Trainees” focuses on spoken Chinese-English interpreting: Interpreters and interpreting students completed an interpreting task, which was analyzed for repair types, and then follow-up interviews were conducted. Tang discusses some interesting differences in the types of repair made by the two groups, which has useful implications for interpreter education.

Our commentary section begins with “Driving Without Directions? Modifying Assignments for Deaf Students in an Interpreter Education Class,” by Margie English, Brenda Nicodemus, and Danielle I. J. Hunt. Based on their own classroom experiences, the authors discuss practical considerations when adapting assessments for deaf interpreting in programs that have been more traditionally targeted to hearing students.

The commentary by Daniel Gile and Jemina Napier published in IJIE 12(1) sparked a response by Hilde Fiva Buzungu and Jessica P. B. Hansen, “Bridging Divides in the Interpreting Profession.” Buzungu and Hansen’s thoughtful contribution continues the commentary by Gile and Napier, further exploring the depth to which signed and spoken language interpreting are interconnected.

This issue also features an interview by Jo Anna Burn with Hoy Neng Wong Soon, a health and legal interpreter, about the challenges of interpreting between English and Samoan in forensic psychiatry settings. Our dissertation abstract section includes a PhD abstract by Paul B. Harrelson from Gallaudet University, an EdD abstract by Teddi Lynn Covey von Pingel from Arizona State University, and a PhD abstract by Amy C. Williamson from Gallaudet University.

Thinking ahead to our next issue (June 2021), we already have some interesting papers relating to online and integrated learning planned. However, there is still space for more! We would love to have an issue focused on interpreting teaching and research in these times of coronavirus. We welcome submissions (not just research articles, but also commentaries, interviews, and student papers) on all topics relevant to the journal, but we will particularly prioritize this topic for the next issue.

We hope all of our readers will stay safe and well – and find ways to connect with family and friends over the festive season, however creative they may need to be. We end with two quotes that we think relate to these challenging yet creative times:

*The difficulty lies not so much in developing new ideas as in escaping from old ones. (John Maynard Keynes)*

*You must do the thing you think you cannot do. (Eleanor Roosevelt)*

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# Deaf Women's Health Vocabulary: Challenges for Interpreters Working in a Language of Limited Diffusion

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## Abstract

Interpreters are aware that signed languages often do not have 'established' vocabulary for specialized topic domains, including topics that may occur regularly in situations that require interpreting. Healthcare is one such domain where interpreters are often challenged for equivalent signed language vocabulary or ways to communicate about the details of physical conditions, processes and treatments. Motivated by this practice reality, this study analyzed a corpus of deaf New Zealand Sign Language users' accounts of women's health-related experiences, to examine the language forms they used to communicate such topics. In this article, we present an analysis of how deaf women express women's health-related issues, with the aim of determining shared vocabulary that exists in the corpus, and variation among these forms. As predicted, we found that the use of depicting signs (classifier constructions) and constructed action feature strongly in their accounts. The extent and limits of 'frozen' lexicon, and key productive strategies for talking about women's healthcare concepts must be made explicit in interpreter training and practice.

Keywords: women's health, lexicon, NZSL, variation, depiction.

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# Deaf Women's Health Vocabulary: Challenges for Interpreters Working in a Language of Limited Diffusion

## 1. Introduction

In this article we present an analysis of deaf women's narratives about healthcare experiences to identify how deaf women express women's health-related concepts in New Zealand Sign Language (NZSL), and discuss implications of this for interpreters and interpreter educators. In our experience as interpreters, there is much variation amongst deaf women in the signs they use for women's health concepts in NZSL. Interpreters are often challenged for equivalent signed language vocabulary or ways to communicate about the details of physical conditions, processes and treatments. Interpreters know that signed languages often do not have 'established' vocabulary for specialised topic domains, and healthcare, specifically, women's healthcare, is one such domain (Major, Napier, Ferrara, & Johnston, 2012). There are relatively few women's health signs recorded in the NZSL dictionary to date. The aim of this study was to take a step back from examining interpreting directly to explore and describe how women's health topics are discussed by deaf women themselves, which allows us to then consider implications for interpreters and interpreter education.

## 2. Background

Interpreting is critical to achieve equitable health access in general, and particularly so for users of signed languages and speakers of other languages of limited diffusion in medical settings. The following review of literature indicates that signed languages in general are under-described and are known to have limited health-related lexicons. Moreover, deaf people, in parallel with some other migrant groups, often have lower health literacy due to systemic issues of access to education and comprehensible health information.

### 2.1. *Health terminology and health literacy*

Clear communication is vital to accessing healthcare, so that patients can understand the information, ask questions, and make decisions about their own health. However, studies have shown that non-English-speaking patients tend to face greater barriers to communication and less satisfaction in health appointments generally (Gray, Stanley, Stubbe, & Hilder, 2011; Jacobs, Shepard, Suaya, & Stone, 2004; Jones, Renger, & Firestone, 2005; Kushalnagar, Holcomb, & Sadler, 2019). One crucial part of this issue is the complexity of health terminology, which can be a barrier to understanding and accessing information even in a monolingual health interaction (e.g., Morgan, 2013; Slade et al., 2008; Zeng & Tse, 2006). Differing levels of understanding between patients and health practitioners can sometimes lead to misunderstandings within the same language (Koch-Weser, Dejong, & Rudd, 2009; Zeng & Tse 2006). When differing languages and health knowledge disparities are involved in clinical encounters, deaf patients may not achieve clear understanding and thus cannot comply with instructions (Davis, Crouch, Wills, Miller, & Abdehou, 1990; Harmer 1999; Napier, Major, & Ferrara 2011).



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## Women's Health Vocabulary in NZSL

Provision of professional interpreters for non-English-speaking patients seems to be an obvious solution to ensuring understanding and treatment compliance and patient safety in general (Crezee & Roat 2019; Jacobs et al., 2004). Indeed, in New Zealand, as in many countries, interpreting in health settings is government funded. But even when skilled interpreters are provided, that does not guarantee clear understanding: Standard medical questions and terminology can prove challenging to interpret (Swabey, Nicodemus, & Moreland, 2014), and even where signs do exist for certain concepts, not all deaf patients are familiar with those signs or concepts (Pollard & Barnett, 2009). Interpreters in general should exercise a high level of caution when it comes to explaining or expanding upon technical concepts (Crezee & Roat, 2019; Major et al., 2012). For example, an interpreter may not be aware that 'complex cysts' and 'complicated cysts' are different, and therefore they may not accurately convey the differences between them (Mendelson, Berg, & Merritt, 2001). Training programs will ideally cover healthcare interpreting, given that this is such a high consequence yet prevalent area for work; however, introductory level healthcare interpreting is not equivalent to medical training. In addition, interpreters are not always provided or available, especially in emergency settings, and medical staff may use written communication instead, which may not be accessible for all deaf patients (Major, Pivac, & Ovens, 2017; Ubido, Huntington, & Warburton, 2002).

Signed languages themselves present inherent constraints in a medical context. They are often referred to as 'languages of limited diffusion' in that they are unwritten, nonstandardized languages used by small communities, in a relatively limited set of domains (Johnston & Napier, 2010; Major et al., 2012; Mikkelsen, 1999). Johnston (2012) observes that the established lexicons of signed languages are typically small in size and that published dictionaries generally do not exceed about 4,000 entries. Many signed languages have underdeveloped healthcare lexicons because they have been less used by patients or professionals in healthcare settings, compared to English, which has a long history of specialized use in this domain and an extensive technical vocabulary, most of which has been developed historically from Latin or Latinized Greek words (Džuganová, 2013). However, as Johnston observes,

whatever it is that signers are using in meaning production, their [signed languages] obviously "do the job" that all languages are asked to do in face-to-face interaction. There is no expressive "limit" in this regard whatsoever for users of [a signed language]. (2012, p.185)

Similarly, Major et al. (2012) point out that "deaf people can communicate about health issues and interpreters can convey health information" (p. 38). In a study of healthcare vocabulary in Australian Sign Language (Auslan), Major et al. found that in the absence of established signs for certain concepts, deaf people deployed a range of strategies including fingerspelling English terms, creating nonce (one-off) signs, asking interpreters to paraphrase information, and using depicting signs and strategies. Depicting signs are partly conventional and partly gestural, and are used to describe referents in an analogue manner, often with constructed action or enactment which 'demonstrates' meaning (Liddell, 2003). Depiction is a common way in which signers supplement the established lexicon, and we expected to see its use in the data in this study. Fingerspelling is less frequent in NZSL discourse than in Auslan (Johnston, 2012; Pivac Alexander, 2008) and some other signed languages, but is another resource through which NZSL signers can transfer healthcare terms.

Internationally, deaf people tend to have a lower 'health literacy', that being "the degree to which individuals can obtain, process, understand, and communicate about health-related information needed to make informed health decisions" (Berkman, Davis, & McCormack 2010, p. 16). Regardless of education level, deaf people throughout their lives have often had much less opportunity to build health literacy through incidental learning, such as overhearing health information in conversations and the media (Harmer, 1999; McKee & Paasche-Orlow, 2012; Pollard & Barnett, 2009). In New Zealand, Witko, Boyles, Smiler, and McKee (2017) reported negative outcomes of low health literacy, such as deaf patients discontinuing medication or follow-up tests because they did not understand their purpose as part of treatment. The 2017 Deaf Health Stories resource<sup>2</sup> includes many such accounts in NZSL, such as a deaf man explaining that he did not understand his diagnosis of diabetes, nor did he know that there was a history of diabetes in his family (Major et al., 2017). Health staff and practitioners may not realize that deaf people are unfamiliar with even relatively common terms such as 'smear test' or 'bowel', and therefore fail to explain the information sufficiently (Ubido et al., 2002). Outcomes are further complicated by the fact that people

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<sup>2</sup> The Deaf Health Stories YouTube resource is a compilation of illustrative excerpts from a larger NZSL health corpus, focusing on deaf people's experiences of accessing healthcare. It is captioned and can be accessed at [https://www.youtube.com/watch?v=bZ\\_mQWB64bk](https://www.youtube.com/watch?v=bZ_mQWB64bk)

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## Women's Health Vocabulary in NZSL

with lower health literacy often do not understand consequences of healthcare decisions and treatments (McKee & Paasche-Orlow, 2012), or the level of personal responsibility needed in making healthcare decisions (Harmer, 1999).

### 2.2. *Lexical variation in NZSL*

Studies have shown that systematic sociolinguistic variation occurs in Deaf communities internationally, driven by factors such as region, age, gender, and ethnicity (Schembri et al., 2010; Schembri & Johnston 2013). Deaf education policy plays a role in signed language variation. In New Zealand, for example, the NZSL lexicon changed with the introduction of Australasian Signed English in 1979, and furthermore, transmission of NZSL has changed across generations due to a change from residential schooling in two main regions to mainstream school enrolment which disperses child signed language users (McKee & McKee, 2011). Many deaf signers have late exposure to NZSL acquisition, which also contributes to idiosyncratic variation in language use (McKee & Kennedy, 2005).

Whereas spoken languages exhibit systematic variation, often at sublexical and grammatical levels, NZSL has a striking degree of lexical variation, with even high frequency words such as 'father' and numerals having multiple variants (McKee, Major, & McKee, 2008; McKee & McKee, 2011). We might expect even more variation in vocabulary that is less commonly discussed within the Deaf community and in specialized domains, such as women's health topics.

Lexical variation can be a challenge for interpreters, and particularly so for novice interpreters (Crasborn & Bloem, 2009; Leeson 2005; McKee et al., 2008). Most NZSL interpreters are nonnative signers; they do not have the same exposure that deaf people do to different variants and language styles that may exist among various subgroups within the Deaf community, yet they must be able to work with deaf people of various ages and language backgrounds (McKee et al., 2008; Napier, McKee, & Goswell, 2018). Interpreters may attempt to predict which signs will be used by particular clients and which variants would be more appropriate based on audience social characteristics of age group, region, or school background; however, variant selection can be difficult to attend to while interpreting, especially if the assignment proves demanding in other ways. If the deaf client shares their variant with the interpreter, they may assume it is intentional if the interpreter does not adopt the variant shown to them, perhaps being unaware of the challenge of monitoring sign choices on the spot (Leeson, 2005; McKee et al., 2008). Juggling the cognitive demands of interpreting as well as lexical variation, and the pressure of potential criticism for their own variant choices, it is understandable that interpreters view variation as a challenging aspect of their job (Leeson 2005; McKee et al. 2008).

As mentioned above, the use of productive, depicting signs to supplement established signs is another source of variability that interpreters and deaf individuals deal with in medical contexts. Productive, depicting strategies for explaining physical referents and processes can be highly effective, but the resulting signs are not necessarily conventionalized (predictable) nor transparent.

### 2.3. *Vocabulary for women's health in signed languages*

Medline<sup>3</sup> defines women's health as "the branch of medicine that focuses on the treatment and diagnosis of diseases and conditions that affect a woman's physical and emotional well-being". Examples of women's health topics therefore include pregnancy and childbirth and gynecology and breast screening, among many others. Having access to women's healthcare terminology can allow patients to directly describe their health issues effectively, as well as to gain a better understanding of the information given by their healthcare provider (Mendelson et al., 2001).

Our review of literature has revealed that the topic of women's health vocabulary is scarcely addressed in the context of signed languages, reflecting Ubido et al.'s (2002) observation that little research addresses the healthcare needs of deaf women generally. In their UK/British Sign Language-based study, they conducted discussion groups and a questionnaire with deaf and hard of hearing women focused on their access to healthcare. Participants reported that the medical language used by medical professions was often unfamiliar to them and they often did not understand what was being said. The internet has proved to be a powerful tool in bridging the information and

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<sup>3</sup> <https://medlineplus.gov/>

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## Women's Health Vocabulary in NZSL

language gap, allowing women to be informed and to gain more control over their health decisions (Pandey, Hart, & Tiwary, 2003). However, this tool is not equally accessible to all deaf women due to literacy barriers that are common in deaf populations (Diaz et al., 2002; Jones et al., 2005; Kushalnagar et al., 2019).

### 2.4. *What do we know so far about women's health vocabulary in NZSL?*

A search by the topic 'health' in the NZSL Online Dictionary<sup>4</sup> reveals 247 entries, with 155 entries under the topic 'body', some of which overlap. These comprise mainly concepts relating to common illnesses and conditions, and terms that might arise in routine health checks, such as 'blood pressure', 'prescription', 'stethoscope', 'stroke', 'x-ray'. This represents a rather restricted set of vocabulary identified through ongoing lexicography research. From within both of these topic areas in the dictionary, there are signs for 28 women's health concepts. Deliberate creation of new signs is unlikely to resolve the current challenges in women's healthcare interpreting and is not the direct purpose of this study. Purposeful attempts to standardize sign languages are limited in effectiveness (Crasborn & de Wit, 2005; Johnston, 2003; Johnston & Napier, 2010), and health literacy issues are systemic and go far beyond issues associated with small health vocabularies. Nonetheless, exploring vocabulary and strategies used by deaf people within a health field will help to identify shared vocabulary already in use, variation among these forms, and the extent to which such forms are or could be represented in a dictionary of NZSL. It will also illuminate strategies to share with interpreting students, to better equip them to convey women's health information, as well as raise awareness in the interpreting field of the extent and limits of 'frozen' lexicon within interpreted interaction in this context.

## 3. Method

The data set used in this study was extracted from Deaf Health Stories, a corpus of videos created to illustrate the barriers deaf people in New Zealand face in accessing healthcare (Major et al., 2017). The corpus includes health-related narratives from 40 deaf NZSL users who were asked to share their experiences accessing healthcare in a wide range of settings. There were no further prompts from the (deaf) interviewer other than to clarify details or to steer participants back to the topic where necessary. In the videos, participants share recent experiences as well as reflect on childhood and young adult experiences in the healthcare system; many participants recount trying to access the healthcare system prior to the availability of professional interpreting services in the early 1990s. Story recordings average 31 minutes in length, with approximately 20 hours of data in total.

Stories told by women most commonly address pregnancy and childbirth. Women also describe experiences related to breast cancer, screening procedures such as mammograms and cervical smears, and pathologies of reproductive organs. Because the stories describe individuals' subjective experiences, they contain relatively little technical detail or medical jargon; in fact, many participants mention having lacked access to technical details about their health condition or treatment.

As we composed an initial description of the Deaf Health Stories corpus for publication (Major, Pivac, Ovens, & Terraschke, submitted), we noticed that women use quite different signs for even common concepts (such as 'midwife') and sometimes even use different variants within their own narratives. We also observed that depiction plays an important role in circumnavigating lexical gaps, aligning with our experience as interpreters and educators and, in addition to identifying lexical signs, we wanted to systematically describe this phenomenon. Our observations thus inspired us to document and more closely analyze the sign choices women made in retelling their stories.

We created the participant set for the study by identifying those women who spoke specifically about women's health topics (not all women did), resulting in a subset of 14 of the 27 female participants in the larger corpus. These 14 participants range in age from 18 to over 60 and represent a variety of social, ethnic and regional backgrounds. All are fluent users of NZSL, and all had attended deaf education settings of various kinds.

Our data set therefore comprised 14 narratives of women's healthcare-related experiences (a total of 104 minutes). Data excerpts were glossed and annotated using ELAN (see <https://archive.mpi.nl/tla/elan>).

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<sup>4</sup> <https://www.nzsl.nz>

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## Women's Health Vocabulary in NZSL

Glossing conventions followed the main glosses for signs in the Online NZSL Dictionary. This was partly to ensure consistency of glosses amongst the research team, but also to make it easier to contribute variants from this study to the dictionary in future. In addition to lexical gloss and translation, we also captured descriptive information about the signs, such as the type of depiction, which hand it was made with, and relevant nonmanual details. Following initial glossing and annotation, files were checked to ensure translation and glossing were correct, before identifying instances of signs related to women's health, and comparing these across participants.

### 4. Findings and discussion

The overall number of health-specific tokens (instances of signs) in the women's health data set was 567, which includes many depicting constructions and also many concepts that are not restricted to women's health only (e.g., 'bleeding', 'injection'). Due to the data comprising diverse personal stories, some participants used a wide range of health-specific signs in describing their experiences whereas others used a more limited range of signs. Therefore, some participants, topics and thus specific signs are overrepresented in this data set. From all the health-related signs, we focused our attention on those specific to women's health. Table 1 below shows the subset of women's health-specific vocabulary extracted for further analysis, their frequency of use, and the number of variants, or differing forms, observed for each one.

*Table 1: Range of women's health vocabulary in the data set.<sup>5</sup>*

Concepts	Tokens (uses) per concept	Number of lexical variants
Birth	54	2
Midwife	41	6
Ovaries	37	1
Labor	27	1
Pregnancy	19	2
Cesarean	13	1
Mammogram	12	1
Cervical smear	8	1
Breast	7	2
Cyst	5	2
Period	5	2
Scan	5	2
Epidural	4	2
Labor breathing	4	3
Breech baby	3	1
Water break	3	1
Baby	2	1
Miscarriage	2	1

From this set of 251 women's health-specific tokens, the seven most frequent signs (i.e., those that occurred more than 10 times in the data set) were extracted for more detailed description and analysis. These were: 'birth', 'midwife', 'ovaries', 'labor', 'pregnancy', 'cesarean', and 'mammogram' (Table 1 above). These seven lexical items represent 166 of the total 251 tokens.

Close analysis of this subset of data revealed variation in lexicalized signs and strong use of depicting strategies. Many concepts exhibited phonological variation, that is, signs that are similar in form but differing in one

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<sup>5</sup> Table 1 does not include concepts with fewer than two tokens in the dataset, because we do not have enough evidence to comment on their variability.

## Women's Health Vocabulary in NZSL

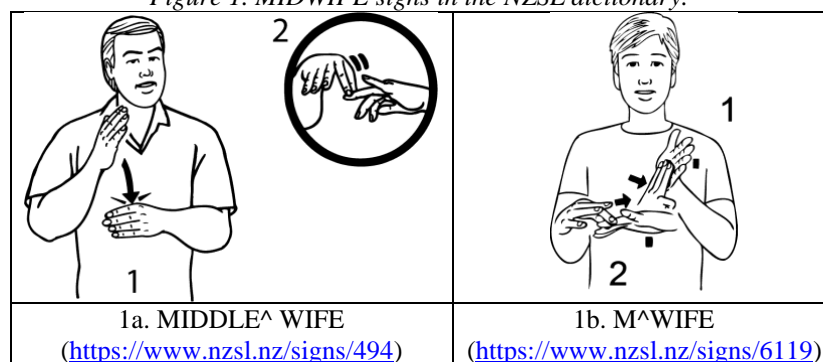
phonological parameter such as handshape or orientation. In the sign for 'cesarean,' for example, the handshape can have either the index finger or the thumb extended (representing the cutting instrument). In this article we focus on lexical variants and do not report details of phonological variation, because these have relatively less impact for interpreters. We also found evidence of language contact in the form of English elements incorporated into signs.

### 4.1. Contact: English elements in signs

Many of the signs used by the deaf women show language contact with English. Examples of English elements within signs include 'waters breaking' (WATER ^ BREAK) and 'cesarean section' using a 'C' as one component (see Figure 7a below). It is important to note that for many of these signs, other variants exist; for example, a depicting sign that shows liquid expelling from the body can be used for 'waters breaking'. It is likely that some signers favour one form over others, or use alternate forms in different contexts; a larger data set would be needed to explore usage patterns in more detail.

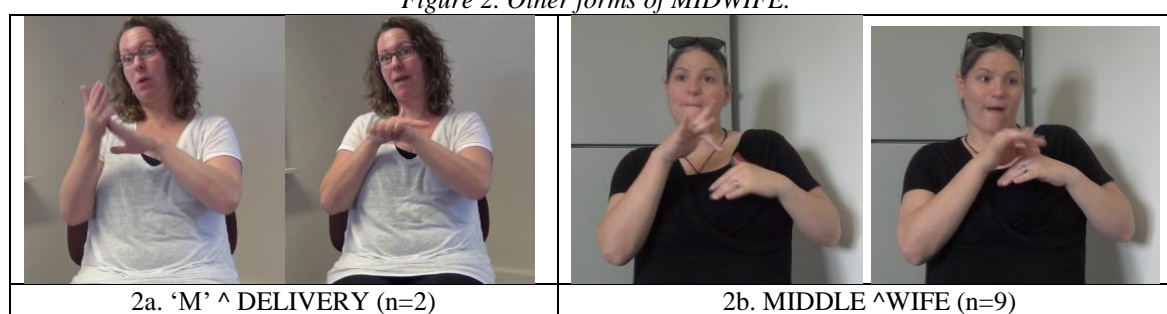
A particularly interesting example from the data set is 'midwife' (41 tokens in total), which revealed a high number of variants (6) as well as a strong influence from the English word for the concept. Figure 1 shows forms of 'midwife' that are recorded in the Online NZSL dictionary. These are both calques of the English term.

Figure 1. MIDWIFE signs in the NZSL dictionary.<sup>6</sup>



The sign shown in Figure 1a above did not occur in our subset of data, whereas Figure 1b occurred 24 times. Additional variants in our data are shown in Figure 2 below.





Figure 2. Other forms of MIDWIFE.



<sup>6</sup> Images are from the NZSL Online Dictionary (<https://nzsl.nz>) by the Deaf Studies Research Unit, Victoria University of Wellington, and are licenced under Creative Commons BY-NC-SA 3.0.



## Women's Health Vocabulary in NZSL

			
2c. MIDDLE ^ 'W' (n=1)	2d. WIFE (n=4)	2e. NURSE <sup>7</sup> (n=1)	


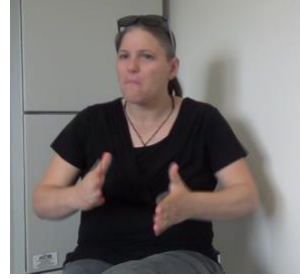
It might be surprising to readers that such a high frequency concept has so many variant forms, but this may suggest that its use in NZSL is relatively recent. The 'independent midwife' model of care came into being in NZ only in the early 1990s<sup>8</sup> and may not yet be a common part of NZSL discourse across all generations. An older signer referred to this role using the general sign NURSE (mouthed 'midwife'; Figure 2e), which in the past was the professional designation for a midwife working within the hospital system, and thus would have been referred to in this way by older deaf women. All other forms for 'midwife' are loan translations, with much variation in the way that signers construct these. One signer used three different calques within one narrative (Figures 2b, 2c and 2d). We are aware of some community discussion in recent years on social media about a more 'conceptually accurate' (i.e., less English influenced) NZSL sign for 'midwife', but in practice it appears that a variety of loan translations remain in common use. It appears that reference to this concept is most easily recognised by deaf women when the English form is transferred, possibly because this term is also commonly encountered in written form throughout a pregnancy.

### 4.2. Lexicalized and productive signs

For some concepts, signers produced varying forms on a spectrum from lexicalized ('frozen') signs to productive, depicting signs which combine both conventional handshapes and gestural elements to map entities and events onto the hands (Emmorey, 2003; Liddell, 2003). Most of the productive instances in this data depict parts and actions of the body (such as labor contractions), or an instrument acting on a body part (such as 'mammogram', represented by the machine parts pressing the breast, or 'cervical smear', represented by a long, thin instrument brushing a handshape that represents the cervix).

In using some lexical verbs, the signer adopts character perspective (Perniss, 2007) to depict specific path, manner, and location features. An example is 'give birth' (Figures 3 and 4 below), which occurred 54 times in the data, in the form of two different lexical variants and sequences of depicting signs. In Figure 3b, the signer uses BIRTH-1 in its citation form (as listed in the NZSL dictionary; Figure 3a); this variant was not usually modified to add information about manner of birth. This sign occurred the most frequently (48 tokens, used by 12 participants), to refer to the whole event of childbirth or delivery.

Figure 3. BIRTH-1.

	
3a. (give) birth ( <a href="https://www.nzsl.nz/signs/233">https://www.nzsl.nz/signs/233</a> )	3b. BORN


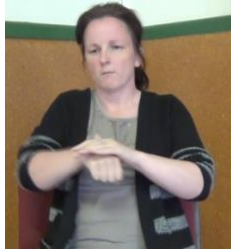


<sup>7</sup> A clear photo from the video was not available for this sign.

<sup>8</sup> See [www.midwiferycouncil.health.nz](http://www.midwiferycouncil.health.nz).

## Women's Health Vocabulary in NZSL


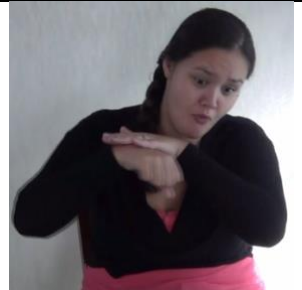

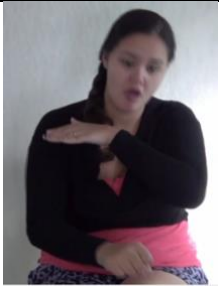
Figures 4 and 5 show a second variant, BIRTH-2, which also has a citation form in the dictionary; however these two signers both use it productively to depict a baby's passage down the birth canal. In Figure 4, the signer's right hand represents the baby's head descending (crowning) and then receding, while the nondominant hand represents the end of the birth canal.

Figure 4. BIRTH-2, depicting crowning.

			
4a. (give) birth <a href="https://www.nzsl.nz/signs/3542">https://www.nzsl.nz/signs/3542</a>	4b. BPCL-baby's-head-emerging-receding-descending		

In Figure 5, the signer fully deploys the productive potential of the sign to depict the baby's head crowning, emerging, and then the whole body exiting, represented by the 'head' (body-part) classifier on the dominant hand landing below the nondominant hand that represents the vaginal opening, which has now receded into the background. The signer in Figure 4b also adopts first-person character perspective (Perniss, 2007) as she recounts her experience as the mother watching the baby's exit from above. This type of character perspective is typical with depicting constructions (Cormier, Quinto-Pozos, Sevcikova, & Schembri, 2012; Quinto-Pozos 2007).

Figure 5. BIRTH-2, depicting crowning and delivery.


			
BPCL-head-crowning	BPCL-head-emerging	BPCL-head-out	BPCL-whole-baby-delivered

### 4.3. Using depiction to name versus to describe

As previously mentioned, signed language vocabularies are supplemented by the expression of meaning in productive ways, including depicting signs. In this data, one sign can do a lot of work, as already seen for the sign BIRTH in Figures 4 and 5 above. Another example is the sign that translates variously in the narratives as 'labor', 'contraction', 'cramp', 'pain' – serving as a noun for the overall process of 'labor' (Figure 6a) or as a predicate describing stages of the process, as in Figures 6b-d.

## Women's Health Vocabulary in NZSL


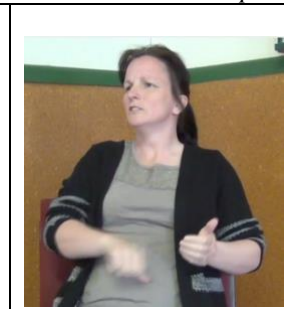

Figure 6. LABOR/CONTRACTION.

			
6a. 'labor' (N)	6b. contraction/pain	6c. contraction - sustained	6d. contraction - intense

The sign shown in Figure 6a occurs the most frequently (23 times), as a lexical noun to refer to the event of 'labor', indicated by its regular form, consistent mouthing of 'labor', and the syntactic context (e.g., "The midwife doesn't stay for the whole labor"). However, all the women who described their experience of childbirth also used various modifications of this sign (with character perspective) to describe the frequency and intensity of contractions during their labor.

A similar noun-predicate pairing is seen with the depicting sign 'cesarean' (also with mouthing of the word) – which is used to name the overall procedure (Figure 7a), and to describe an experience of the procedure, with the addition of adverbial nonmanual modifiers and character perspective (Figure 7b).

Figure 7. CESAREAN – noun/predicate.

		
7a. CESAREAN (N)	7b. HAVE-A-CESAREAN	

Examples like these, in which one sign is used productively to convey much detail and nuance are likely to be very challenging for students and newer interpreters to translate, particularly those who are second-language learners of NZSL and perhaps those who do not have personal or observed experience of childbirth.

## 5. Implications for interpreters and interpreter education

### 5.1. Challenges for interpreters

Examination of natural NZSL data confirms that a relatively small set of conventional signs are used to discuss some common women's health concepts, and that depicting strategies and mouthing of familiar terms are important to discourse in this topic domain. There are also noticeable challenges for interpreter educators in helping students (mostly second-language learners of NZSL) to develop confidence and accuracy in interpreting about women's health topics.

Phonological variation identified in the articulation of conventional signs, as well as the amount of lexical variation (even for rather common concepts) reinforces that interpreters should expect and be open to variation.



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## Women's Health Vocabulary in NZSL

That is, regardless of whether a sign is commonly used and in the dictionary, there may still be variation in its use across the community. It is important for interpreters to be aware that although terms for common procedures such as 'mammogram', 'cervical smear', and 'epidural' are conventional (fixed) in English, at this point in NZSL these are expressed using depicting signs that contain some common elements, yet still vary considerably across individuals. The example of 'midwife' reflects the importance of mouthing as a meaningful component in NZSL (McKee, 2007), including with depicting signs (McKee, Safar, & Pivac Alexander, submitted). We know that variation can be a very daunting prospect for interpreting students (McKee et al., 2008; Pivac Alexander & Major 2020).

In addition, our analysis revealed creative and productive use of signs for very specific meanings, which interpreting students need to experience in combination with contextual knowledge of the topic in order to start developing skills to understand and use NZSL in this way. Receptive use of mouthing cues can be challenging for less experienced interpreters – because the pairing of signs with mouthing can be either conventional or idiosyncratic. Interpreting students and interpreters must become familiar with varying signs associated with common healthcare concepts as well as develop an awareness of which English words are more likely to be familiar, and paired as mouthing with these signs. Highly variable forms such as 'midwife' simply need to be learned in all their variants.

Interpreting students should be exposed to as much authentic NZSL interaction in this setting as possible, to become familiar with the variety of ways women's health concepts are conveyed in NZSL. Observing professional interpreters and deaf women interacting in health settings is ideal, although in our experience health observation opportunities can be difficult to obtain for students due to the sensitivity of this setting. Video collections like the Deaf Health Stories resource (Major et al., 2017) provide valuable opportunities for exposure to a wide variety of signers, allowing students to review and analyse the narratives, as well to practice interpreting them. Recorded narratives can also be developed into teaching resources for the interpreting classroom, to help students develop explicit strategies to improve their own comprehension and use of NZSL to convey women's health topics. The use of authentic data encourages students to be observant and curious, and to accept that being responsive to variation is part of communicative competence in the Deaf community. Taking this curiosity into their professional practice as interpreters will help new graduates improve their skills as they are exposed to new settings and a wider variety of signers.

### 5.2. *Less is more sometimes*

In addition to drawing attention to women's common use of depicting strategies to describe their healthcare experiences, we also point out that the potential of a signed language to depict objects and actions in 'iconic' ways (using classifiers and constructed action) might lead interpreters to assume that elaborate visual detail is necessarily informative, especially regarding physical processes. Our data suggest that elaborate or literal depiction is not always what occurs in natural signed language discourse about bodily experiences. For one thing, detailed depiction (and understanding depiction) of bodily parts and processes requires prior knowledge of how those parts look or interact, and signed language users may not necessarily have access to detailed knowledge of anatomy. Secondly, detailed description is not the most efficient way to refer to something if both interlocutors are familiar with a concept or term. Two examples of this in our data were 'breech' and 'epidural'. The English term 'breech' typically evokes a mental image of a baby in utero with its bottom or feet pointing downwards, and we might assume this to be the relevant visual image to translate, using a 'two-legged' classifier sign. However, in the corpus, 'breech' is expressed by inverting a nonspecific two-handed classifier sign ('holding-a-rounded-object'), that translates as '(something) turned upside down', without literal reference to the literal orientation of a baby's body or feet. In the case of 'epidural', in one instance this is referred to by the fingerspelled letter 'e' with mouthing 'epidural' (suggesting the interlocutor's assumed familiarity with the term), and in another case, by indicating the lower back, and then signing 'inject' located in a neutral space – which is a metonymic (abbreviated) description rather than a literal depiction of how an epidural is administered. These examples point to the need for interpreters to know how to use depicting signs to describe physical detail when this needs to be in focus, but also to be familiar with more economical ways in which deaf women might refer to shared knowledge of physical experiences among themselves, and to judge when less literal detail, and more summary level information, may be effective.

### 6. Conclusion

This study investigated women's health-related vocabulary in a language of limited diffusion – NZSL – with the dual aims of identifying any undocumented signs in this domain and informing interpreters how such concepts might be expressed when conventional (frozen) signs are not available. The study was based on the narratives of a small sample of women signers (14), drawn from an existing data set; therefore, our findings are descriptive and exploratory. Based on this sample of corpus data, we confirm that vocabulary specific to women's health experiences is limited in NZSL, as has been reported for health-related terms in other sign languages (Johnston & Napier, 2010). In this corpus, seven frequently occurring signs were examined in closer detail: 'birth', 'cesarean', 'labor', 'mammogram', 'midwife', 'ovaries' and 'pregnancy'. The form of these signs was variable, with lexical alternates, and phonological variants, including intra-individual variation; that is, some signers used varying forms for the same key concept within a single narrative (e.g., labor, midwife) suggesting that these are not highly conventionalized. Unsurprisingly, contact with English terms was evident in a number of signs used by the deaf women, in the form of fingerspelling elements, mouthing, and literal loan translations (such as various forms of 'MID^WIFE'). Depicting (classifier) signs are important in supplementing a relatively small set of established vocabulary in this domain. Terms for common female procedures such as 'mammogram' and 'cervical smear' are expressed in NZSL using depicting signs that contain some common elements, yet vary in use across individuals. Depicting strategies are not necessarily anatomically literal (in terms of detail), but rather assume shared knowledge between interlocutors about the experience or object referred to.

Authentic corpus data is a rich learning resource for interpreting teachers and students, providing direct insight into language use at the levels of lexicon and discourse. The creation of collections like Deaf Health Stories (Major et al., 2017) provides valuable exposure to a wide variety of signers and the variants they use. This exposure encourages students to be alert to the linguistic variation and the translational challenges that they will encounter as interpreters serving a Deaf community that has traditionally experienced barriers to health literacy and healthcare.

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# Use of a Signing Bioscience Dictionary in Increasing Student Interpreters' American Sign Language Life Science Vocabulary

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## **Abstract**

Interpreters who are skilled in academic ASL content, such as the vocabulary needed to interpret postsecondary science courses, are rare. This is not surprising, because interpreting training programs focus on developing the skills to fluently interpret from sign to voice as well as voice to sign, not on the specialized vocabulary for more specialized content. This study examined the impact of training interpreting students on the use of a Signing Bioscience Dictionary (SBD). Research involved incorporating terms found in undergraduate biology courses into the SBD, conducting an evaluation, and soliciting recommendations for improvement of the SBD. Key findings showed that using the SBD to teach life science terms resulted in students' increased knowledge of ASL life science vocabulary and abilities to sign these terms. These skills transferred to interpreting skills for a life science lecture only in those students who were more advanced in the program.

Keywords: interpreter education, science interpreting, ASL science vocabulary, dictionary

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# Use of a Signing Bioscience Dictionary in Increasing Student Interpreters' American Sign Language Life Science Vocabulary

## 1. Introduction and background

Research focusing on inclusion of deaf and hard of hearing students in science learning experiences was characterized more than a decade ago as scant (Stinson & Kluwin, 2003). To date, there are many major gaps that exist (Moon, Todd, Morton, & Ivey, 2012), and the knowledge base continues to be in need of expansion (Gormally & Marchut, 2017). Research shows that one of the educational barriers that deaf and hard of hearing students face, particularly at the postsecondary level, is that they often do not have access to a full range of accommodations, including access to sign language interpreters that facilitate communication and promote inclusion (Powell, Hyde, & Punch, 2014).

This article describes a study that focuses on a Signing Bioscience Dictionary (SBD), which presents life science terms and their definitions in ASL as well as in written and spoken English. We explore the effectiveness of the SBD when used in conjunction with Lamar University's interpreting program, specifically, the degree to which use of the dictionary increases student interpreters' ASL life science vocabulary and content knowledge and ability to interpret material fluently and accurately.

## 2. Literature review

### 2.1. *Research as it relates to availability and training of interpreters of science material*

Although language proficiency is a prerequisite for interpreting, it is no guarantee of interpreting skill (Dean & Pollard, 2001; Finton, 1998; Frishberg, 1986; Napier, 2002), and in fact "interpretation, like translation, involves a multi-dimensional competency that is hard to define and to teach, and even harder to evaluate" (Roberts 1992, p. 16). It is apparent from the literature that many and varied skills, a broad knowledge base, general cognitive ability, vocational aptitude, and attitude all contribute to interpreter competence, and, therefore, to interpreter performance (Bontempo & Napier, 2007). The key skills, knowledge, and abilities that can be drawn from the literature and applied to sign language interpreters result in an extremely long list. Among these are "sign language skills; spoken language skills; interpreting/translating skills; a sense of ethical responsibility and integrity; cultural sensitivity; interpersonal skills; willingness to learn; self-discipline; trustworthiness; professionalism; flexibility; and a sense of humor, among many more specific components for competent practice" (Bontempo & Napier, 2007, p. 277; see also Frishberg, 1986; Napier, 2002; Solow, 1981).

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## Use of a Signing Bioscience Dictionary

Creating programs that accomplish the above list of skills is not an easy feat. Currently, there are 2-year associate degree programs in ASL interpreting as well as 4-year BA degree programs (Landa, 2018; Landa & Clark, 2018, 2019) with more graduate programs emerging. Accreditation agencies are moving toward eliminating certification for AA degrees (Landa, 2018), and many students now transfer to 4-year programs at the end of their AA program (Z. Smith, personal communication, August 2020). Research (Smith & Maroney, 2018) has shown that interpreter education has primarily focused on ASL acquisition and competence and neglects development of the whole interpreter as it relates to the professional practice of interpreting. It is important to note that most interpreter training programs accept students with little to no sign language skills. However, entry-level skill is critical in the development of interpreters' skills because skills in social language require 2 to 4 years to develop, whereas academic language skills require 7 years to become well developed (Cummins, 2008). Therefore, many interpreting graduates have not developed academic level skills in sign language and learn these skills later, on the job. Moreover, the curriculum used in interpreting training requires little to no science background (Cooke & Graham, 2012; Graham, Solomon, Marchut, Kushalnagar, & Painter, 2012). Results from a study that used the Educational Interpreters Performance Assessment (EIPA), an evaluation instrument used to assess and certify K-12 classroom interpreters, to evaluate approximately 2,100 educational interpreters from across the United States showed that approximately 60% of the interpreters had inadequate skills to provide full access to the general curriculum (Schick, Williams, & Kupermintz, 2006). This lack of skilled interpreters at the primary grades is compounded at the postsecondary level, especially in STEM fields.

Given the lack of postsecondary science programs that are delivered in ASL, and the availability of only one science PhD program that uses direct communication in sign—the Program in Educational Neuroscience, Gallaudet University—for many sign language users who are deaf, the only way to achieve productive communication of STEM content is through the use of qualified sign language interpreters who are able to interpret effectively and accurately using the necessary specialized vocabulary (Americans With Disabilities Act, 2014). However, research (Gormally, 2017; Kurz, Schick, & Hauser, 2015) shows that students in science courses frequently receive content translation from interpreters who are unfamiliar with concepts or do not have a command of the necessary specialized vocabulary and content needed for accurate interpretations. Those interpreters who are available may fail to make the scientific language “visible” or comprehensible and may rely heavily on citation fingerspelling and word-for-word transliteration, thereby rendering science course content minimally accessible (Seal, Wynn, & MacDonald, 2002). This puts many students who are deaf or hard of hearing at a disadvantage when it comes to STEM learning and can result in discouraging them from pursuing science degrees.

### *2.2. Research as it relates to the characteristics and availability of STEM ASL lexicons*

Complicating the scarcity of interpreters with STEM knowledge is the lack of a common ASL lexicon for scientific terms (Lang et al., 2007). In recent years, several online databases with ASL signs for technical scientific terms and concepts have become available. Among these are several math and science lexicons that feature searchable collections of a small number of basic STEM terms presented as videos of terms and signs. These are available online and include the Rochester Institute of Technology's /National Technical Institute for the Deaf (RIT/NTID) math and science lexicons (Rochester Institute of Technology, n. d.); ASL STEM forum (University of Washington, n. d.); DEAFSTEM (DEAFSTEM, n. d.); and the Texas Math Sign Language Dictionary (Texas School for the Deaf, n. d.), and the Signing Math & Science Dictionaries.

The Signing Math & Science Dictionaries (Signing Math & Science, n.d.) are a series of grade-level and content-specific standards-based sign language dictionaries that were developed by TERC (an educational research and development organization) and Vcom3D (developers of SigningAvatar assistive technology). The dictionaries for Grades 9-12 focus on different areas of science content — life, physical, Earth, and space science. Although the dictionaries were originally intended for student use, researchers soon discovered that teachers were using them before teaching a unit to check the accuracy of the signs they use and to learn signs for terms they did not know (Vesel, 2014, 2015). An unexpected finding was that many of the terms incorporated into the Signing Life Science Dictionary (SLSD), one of the dictionaries in the series for grades 9-12, are also used in undergraduate biology courses (Vesel & Robillard, 2014). For these reasons, and because interpreters are often called upon to interpret material that includes life science terms with high levels of technical vocabulary (Garberoglio, Cawthon, & Sales,



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## Use of a Signing Bioscience Dictionary

2017; Madhusoodanan, 2016), biology was selected as the focus and source of terms for the SBD that was used for the study and is discussed in this paper.

The SLSD comprises approximately 1,000 terms students most frequently encounter when studying life science. Identification of terms and development of English text definitions was led by the lead author of this article. This involved collaboration with a range of scientists and classroom educators who were hearing, hard of hearing, and deaf. Creation of signs was led by Jason Hurdich one of the two primary investigators (hereafter “co-PI”) from Vcom3D who is deaf, holds an MEd in Sign Language Interpretation, and is a Registry of Interpreters for the Deaf (RID) Certified Deaf Interpreter and a university lecturer of ASL. Because signs for many of the terms in the dictionary do not exist, they had to be created. To create them, the co-PI worked with scientists from Gallaudet University and RIT/ NTID who were also deaf, as well as science educators at schools for the deaf. The process of sign development involved identifying signs for terms that are in usage in different parts of the country and overall. In cases where different signs for the same term were used, the sign selected for the SBD was based on the sign that specialists in the field determined conveyed the most accurate scientific meaning of the term. (Many signs in the SBD incorporate fingerspelling because the consensus was that use of fingerspelling or a combination of sign and fingerspelling was the best way to convey the scientific meaning of a term.) Each SBD term incorporates a Signing Avatar that signs on demand the English-text version of the term and its definition. In most cases, an illustration is provided. The three principles of universal design for learning (Rose & Mayer, 2006) are incorporated to avoid a “one size fits all” approach. Terms and definitions are represented as static images, text, human narration, and signing to give learners various ways of acquiring knowledge. Users can select ASL, English text, illustrations, or voiced text. Results of field test evaluations show that the SLSD serves as a communication bridge that makes science more accessible (Vesel, 2014; Vesel & Robillard, 2014).

### *2.3. Contribution of the study to the existing research base*

Research shows that supporting the undergraduate science education of the next generation of students who are deaf or hard of hearing will require increasing the pool of interpreters who can convey science content (Cooke & Graham, 2012; Witter-Merithew & Nicodemus, 2011). To accomplish this, one of the resources interpreters need is knowledge of a signed STEM vocabulary (Grooms, 2015; Lang et al., 2007; Solomon, Graham, Marchut, & Painter, 2013) and of the STEM content they will be called on to interpret (Gormally, 2017; Kurz et al., 2015). The study that follows focused on the acquisition of life science vocabulary knowledge and content. Results provide new information about use and effectiveness of a Signing Bioscience Dictionary specifically designed to help interpreting students at Lamar University build a robust life science vocabulary and knowledge of the content they are interpreting. These new understandings provide new information about the effectiveness of the SBD in strengthening Lamar’s undergraduate interpreters’ STEM ASL vocabulary and knowledge, to better prepare them to interpret in undergraduate life science content. Use of the SBD in other interpreting training programs is likely to be similarly effective.

## **3. Method**

To study use of the SBD, researchers investigated four research questions:

1. How do undergraduate interpreting students use the SBD to learn life science terms?
2. How effective is the SBD in increasing undergraduate interpreting students’ knowledge of the vocabulary and their ability to sign life science terms?
3. How effective is the SBD in increasing undergraduate interpreting students’ capacity to accurately and clearly interpret content typically taught in undergraduate biology courses?
4. What additions and/or changes would make the SBD more effective?

To answer these questions, the team first prepared the SBD (see Section 3.1 below). We then evaluated the use and potential effectiveness of the SBD in supporting undergraduate students in Lamar’s interpreting program to

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develop an ASL life science vocabulary and use it to interpret content taught in undergraduate biology courses (see Sections 3.2 & 4.1-4.3 below). Last, we identified terms to include in an expanded version of the SBD and solicited recommendations for improvement from participating students and interpreting instructors (see Section 4.4 below). The demographics of the undergraduate ASL interpreting student participants is shown in Table 1.

*Table 1: Demographics of study participants (N = 26).*

Ethnicity	
White	12
Latinx	10
Black	4
Gender	
Female	26
Male	0
Year in program <sup>a</sup>	
First	4
Second	8
Third	11
Fourth	2
ASL proficiency <sup>a</sup>	
Level 1	4
Level 2	1
Level 3	5
Level 4	6
Level 5	6
Level 6	3

<sup>a</sup> Data missing for one student.

### *3.1. Procedure for development of the SBD*

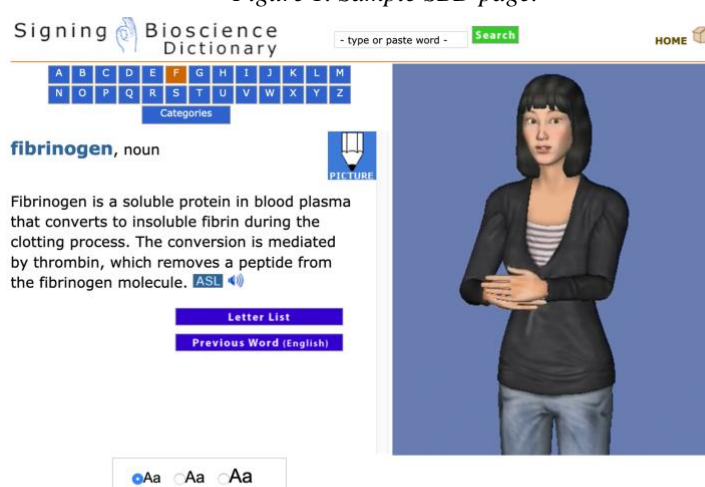
The Lamar University SBD development team included a lead researcher and assistant professor in the Department of Deaf Studies and Deaf Education who is deaf and uses ASL as her preferred method of communication; and several research assistants who are deaf. The team developed the SBD during the first year of the project, beginning by reviewing the glossary entries in *Campbell Biology*, 8<sup>th</sup> ed. (Reece & Campbell, 2008), to identify an initial set of terms. This text was selected because it is used in undergraduate biology courses at the university. The review resulted in a list of terms that was submitted to the TERC Research and Development (R & D) team with the terms organized by text chapter. The R & D team then identified those terms that are included in at least one of the signing dictionaries for Grades 9-12. They also identified additional terms that were not in the university list and are necessary for fully understanding the meaning of a dictionary term or content directly related to a term. This resulted in a final list of 1,580 terms to incorporate into the SBD.

The university team then used the *Campbell Biology* chapter headings to create content categories for the terms from the text that had been incorporated into the final list. Review of the additional terms drawn from the signing

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dictionaries with respect to their fit with a category resulted in the R & D team creating a modified set of categories that included most of the terms identified for inclusion in the SBD. It also resulted in a set of terms that did not clearly fit into a category and would appear in the letter list only. The final list of 12 categories that emerged was as follows: Animal Structure & Function, Atomic & Molecular Structure, Cellular Structure & Function, Ecology & Ecosystems, Energy & Magnetism, Evolution & Diversity, Health, Heredity & Genetics, Matter & Substances, Plant Structure & Function, Reproduction, Scientific Methods, and Measures & Tools. TERC's web designer then adapted the existing interface for the signing dictionaries to create an interface for the SBD that is compatible with Mac, Chromebook, and a wide variety of platforms and web browsers and with iPads. Figure 1 provides an example of a term page, definition, access to the categories and letter list, and the interactive features available.

Figure 1. Sample SBD page.



### 3.2. Research procedure for studying use and effectiveness of the SBD and identifying improvements needed

After preparing the SBD, the university team, in consultation with the R & D team, identified three topics and sets of terms to use for testing. These were Reproduction, Heredity & Genetics, and Ecology & Ecosystems. These topics were selected because they incorporate biology terms and content that interpreters are likely to encounter in a variety of academic and non-academic settings. Evaluation incorporated a mixed-measurement design (Cresswell & Plano Clark, 2007; Johnson, Onwuegbuzie, & Turner, 2007) that integrated qualitative and quantitative methods, in which the outcome of interest was measured for participants only.

The university team, under the leadership of the co-PI, had primary responsibility for all aspects of the research associated with incorporating the SBD into interpreter training instruction at Lamar and having students use it to learn signs and practice using them. They also had primary responsibility for data collection. Responsibilities for data preparation and analysis were shared by both teams. The PI from TERC and the co-PI from Lamar collaborated and provided guidance throughout the study.

The study was conducted over 9 months and divided into three units. Each unit focused on terms for one of the SBD topics identified for the study. Unit 1 focused on Reproduction; Unit 2 focused on Heredity & Genetics; and Unit 3 focused on Ecology & Ecosystems. Each unit was done using computers within the Deaf Studies and Deaf Education labs equipped with ScreenFlow (Telestream, n. d.) software to capture participants' use of the dictionary. Research included a pre-session, two study sessions that took place over a 2-week period following the pre-session, and a post-session the week after the end of the study sessions. Each individual session was 2 hours long. To recruit

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participants, flyers were posted throughout the Department of Deaf Studies and Deaf Education building. Faculty also announced it in their classes and gave students extra credit for participating. IRB approval for the study was obtained from both TERC and Lamar University's IRB.

At the beginning of the pre-session, participants read and signed an informed consent form. They also filled out a participant information form. This form provided information for use during analysis such as ASL course level and ASL proficiency level. The remainder of the pre-session involved a brief introduction to the unit topic, a matching-vocabulary pre-test, a signing pre-test, and a pre-interpreting sample.

The matching-vocabulary pre-test was a paper-and-pencil test that asked participants to match each of the terms for the unit topic with their definitions. Scores provided baseline information about participants' knowledge of the biology content for the unit prior to using the SBD. For the signing vocabulary pre-test, each participant was asked to sign the terms for the unit topic while a researcher watched and recorded whether the sign was correct or incorrect or if the participant did not know the sign for the term. Scores provided baseline information about participants' ability to sign the terms for the unit topic prior to using the dictionary.

For the pre-interpreting sample, participants were asked to interpret content that was provided by one of the researchers as a spoken language presentation that included slides from a pre-recorded video, to provide consistency across participants. The interpreting sample was video recorded and used for coding and analysis. Scores provided baseline information about participants' ability to interpret material that incorporated the unit terms prior to using the SBD.

At the beginning of the first study session, a university team member demonstrated use of the SBD and distributed a terms list. During the study sessions, participants used the SBD to study and practice terms in the vocabulary list for the unit while ScreenFlow recorded, for example, terms looked up and interactive features used to practice signs and study the meaning of terms. Faculty observed each participant at work and completed an observation form. The ScreenFlow recordings and observations data provided information about how students used the dictionary.

During the post-session participants completed a matching-vocabulary post-test, a signing vocabulary post-test, and a post-interpreting sample that were the same as those used for the pre-session. Differences in before and after scores provided information about the change in participants' knowledge of the topic content and ability to sign relevant terms.

Scoring of the pre- and post-interpreting samples was done as follows: Two interpreters created an overall interpretation score for both the pre-interpretation as well as the post-interpretation. Each of the three units was evaluated and then averaged into an overall score for the pre- and post-interpretation. Each video was scored on five measures using a 5-point scale, with 1 being *poor* and 5 being *excellent*. The measures were fluency, sign production and clarity, fingerspelling production and clarity, conceptual accuracy, and processing time.

Each participant also completed a student participation survey (see Appendix) that provided information about their experiences in using the dictionary and their thoughts as to how it could be improved. Scoring involved tallying Likert-scale responses about satisfaction with features. Particular likes, dislikes, and aspects that could be improved were identified and the number of participants who mentioned each aspect was tallied.

## 4. Results

### 4.1. *Results for Research Question 1: How do Lamar undergraduate interpreting students use the SBD to learn life science terms?*

The observation form provided data for the results for each of the three units (Reproduction, Heredity & Genetics, and Ecology & Ecosystems) related to use of the interactive features and activities related to use. ScreenFlow recordings provided data for the number of terms looked up and average time spent per term. Tables 2a, 2b, and 2c show these results.

*Table 2a: Student usage of the interactive SBD features.*

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## Use of a Signing Bioscience Dictionary

Interactive features <sup>a</sup>	Number of students (N = 26)
Played video/watched avatars	243
Signed with the avatar	61
Found terms using alphabet bar	52
Found terms using search box	22
Found terms using categories <sup>b</sup>	0
Use/scrolled terms list	10
Read English definitions	151
Viewed pictures	22
Listened to audio	5
Used pause, play, rewind	23
Changed text size	1
Used full screen	3

<sup>a</sup> Numbers represent the total number of students the observers saw doing the action while circulating from computer to computer and observing students using the SBD to learn and practice terms during Study Sessions 1 and 2 for the three units combined.

<sup>b</sup> This feature was not demonstrated during the part of the session that involved showing participants how to use the tool.

*Table 2b: Activities students performed during use of the SBD.*

Activities performed	Number of students
Followed written word list	79
Practiced signing (not watching avatar)	68
Fingerspelled	2
Took notes	107
Reviewed notes	38
Used flash cards	5
Highlighted	2
Drew pictures	1
Asked for clarification of signs	22

*Table 2c: Number of SBD terms looked up and average time spent per term.*

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Unit name and study session number	Number of terms looked up	Average time per term (minutes)
Reproduction: 1	41	2.0
Reproduction: 2	47	2.5
Heredity & Genetics: 1	44	1.3
Heredity & Genetics: 2	18	5.0
Ecology & Ecosystems: 1 <sup>b</sup>	32	3.7

<sup>a</sup> Participants looked up terms in an order that suited them. The terms looked up are presented in the order which terms appeared in the ScreenFlow data.

<sup>b</sup> There are no ScreenFlow recordings for Study Session 2 for Ecology & Ecosystems because researchers neglected to turn ScreenFlow on.

Table 2d: Participants' perceptions of SBD use.

Survey Question	Responses*
How easy for you was it to find information?	very easy-20, 22, 24; fairly easy-5, 4, 2; possible with trial and error-1, 0, 0
How easy was it for you to use without help?	no help-19, 22, 21; some help-6, 4, 5; a lot of help-1, 0, 0
How helpful was the dictionary?	a lot-25, 23, 25; a bit-1, 3, 1
How did you use the dictionary?	learn new signs-26, 26, 24; learn science-16, 18, 21; be able to discuss/explain things-18, 16, 16; understand written information-14, 14, 9; to help do homework-0, 1, 0; hear definitions-14, 20, 7; look up words in English-4, 2, 1
How did you look at words?	ASL-26, 23, 24; English text-26, 24 5; voiced-26, 4, 2
How did you look at definitions?	ASL-25, 24, 26; English text-24, 26, 25; illustrations-9, 8, 9; voiced-2, 3, 1
How did you find terms?	search box-12, 13, 15; alphabet bar-19, 17, 20; categories-1, 1, 1
Would you like to use the dictionary again?	yes-26; 26; 26
Using the signing dictionary was fun.	agreed-25, 26, 26; disagreed-1, 0, 0
It made it easier to learn science words/ definitions.	Agreed-26; 26, 26
Using the dictionary helped me learn on my own.	agreed-25, 26, 26; disagreed-1, 0, 0
Did you use the dictionary to learn new signs?	yes-26 (reproduction-9; all terms-8; mammary gland-5; sperm-5; scrotum-4; fertilization-4; embryo-3); 26 (chromosome-10; all terms-8; genetics-4; haploid-4; trait-3; DNA/RNA-3); 25 (predator-8; all terms-1; environment-4; ecosystem-3; resources-2
Did you use it to learn the meaning of a word that you did not know or were not sure about?	yes- 24 (all terms -6; amniocentesis-4; ascus-2); 25 (all terms-7; all terms-7; chromatid-3; oncogene-20); 22 (all terms-7; estivate-6; heterotroph-2)

\*-Data are grouped together the for Reproduction; Heredity & Genetics, Ecology & Ecosystems unit

Results for Research Question 1 indicate that participants used the SBD during the study sessions in ways that met their individual needs. Most of them found the SBD helpful and easy to use. They used it to look up terms and

## Use of a Signing Bioscience Dictionary

definitions in ASL and English; see words signed; view illustrations; learn new signs; and learn more about science. Only a few used the category look-up or audio feature. Most participants used the SBD to learn new signs and to learn the meaning of a term either because they did not know it or to help them review their knowledge of an aspect of biology content. They were generally satisfied with the information that was available for each term, with the accuracy of the signs, with their ability to understand the avatar, and with the avatar's facial expressions. All of the participants found that use of the dictionary made learning science terms and definitions easier. It also helped them learn on their own. Most had fun using the dictionary and would use it again.

### 4.2. Results for Research Question 2: How effective is the SBD in increasing Lamar undergraduate interpreting students' knowledge of the vocabulary and their ability to sign life science terms?

The matching vocabulary pre- and post-tests asked participants to match each of the terms for the unit topic with their definitions prior to and after using the SBD. Change in scores provided data about effectiveness of the SBD in increasing participants' knowledge of the unit vocabulary as shown in Table 3a.

Table 3a: Effectiveness of the SBD in increasing participants' knowledge of the unit vocabulary (N=26).

Unit: Pair	Mean score	Standard deviation	Standard mean error	95% confidence interval of difference <sup>a</sup>
Reproduction: 1				
Matching pre-test	18.50	8.377	1.643	
Matching post-test	31.73	9.804	1.923	
Pre-/post- difference	13.23	7.112	1.395	Lower: 10.358; Upper: 16.105
Heredity & Genetics: 2				
Matching pre-test	13.58	10.041	1.969	
Matching post-test	23.38	12.293	2.411	
Pre-/post- difference	9.808	5.933	1.164	Lower: 7.411; Upper: 12.204
Ecology & Ecosystems: 3				
Matching pre-test	29.46	10.277	2.016	
Matching post-test	41.96	10.348	2.029	
Pre-/post- difference	12.500	6.288	1.233	Lower: 9.960; Upper: 15.040

<sup>a</sup> See paired differences below.

#### Paired Differences

Unit: Pair	<i>t</i>	<i>Df</i>	Significance (two-tailed)
Reproduction: 1	9.486	25	.000
Heredity & Genetics: 2	8.429	25	.000
Ecology & Ecosystems: 3	10.136	25	.000

The signing vocabulary pre- and post-tests asked participants to sign the terms for the unit topic prior to and after using the SBD. As the individual signed, a researcher watched and recorded *yes* if the sign was correct and *no* if it was incorrect or if they did not know the sign for the term. Change in scores provided data about effectiveness of the SBD in increasing participants' ability to sign the unit vocabulary, as shown in Table 3b.

## Use of a Signing Bioscience Dictionary

Table 3b: Effectiveness of the SBD in increasing participants' ability to sign the unit vocabulary (N = 26).

Unit: Pair	Mean score	Standard deviation	Standard mean error	95% confidence interval of difference <sup>a</sup>
Reproduction: 1				
Signing pre-test	8.92	12.293	2.411	
Signing post-test	56.50	20.217	3.965	
Pre-/post- difference	47.58	22.536	4.420	Lower: 38.475; Upper: 56.679
Heredity & Genetics: 2				
Signing pre-test	11.08	12.834	2.517	
Signing post-test	46.19	17.915	3.513	
Pre-/post- difference	35.12	24.382	4.782	Lower: 25.267; Upper: 44.964
Ecology & Ecosystems: 3				
Signing pre-test	15.85	15.309	3.002	
Signing post-test	57.96	17.505	3.433	
Pre-/post- difference	42.12	16.640	3.263	Lower: 35.394; Upper: 48.837

<sup>a</sup> See Paired Differences below.

### Paired Differences

Unit: Pair	<i>t</i>	<i>Df</i>	Significance (two-tailed)
Reproduction: 1	10.765	25	.000
Heredity & Genetics: 2	7.344	25	.000
Ecology & Ecosystems: 3	12.905	25	.000

The results for Research Question 2, as shown by the change scores, indicate that use of the SBD resulted in increased performance in participants' knowledge of the unit vocabulary and ability to sign the terms. Although the standard deviations for participants' before and after knowledge of the unit vocabulary and their ability to sign it show a high level of variability, the paired *t* tests for the change in vocabulary knowledge and signing ability confirm that both increased with use of the SBD.

### 4.3. Results for Research Question 3: How effective is the SBD in increasing Lamar undergraduate interpreting students' capacity to accurately and clearly interpret content typically taught in undergraduate biology courses?

As described, each of the three units was evaluated and then averaged into an overall score for the pre- and post-interpretation. Each video was scored on five measures using a 5-point scale, with one being *poor* and five being *excellent*. The measures were fluency, sign production and clarity, fingerspelling production and clarity, conceptual accuracy, and processing time. Averages of pre- and post-interpretation scores for each unit show the mean score for the pre-interpretation measures as 11.2 out of 25, with a range of 5 to 20 and a standard deviation of 4.2. The mean score for the post-interpretation scores was 11.0 out of 25, with a range of between 5 and 20 and a standard deviation of 4.3.

Because there were no changes across the participants, correlations were conducted on the post-interpretation scores using Spearman correlations, because the background variables were categorical. The only significant correlation that emerged was year in program and ASL level ( $r = .66$ ,  $p = 0.01$ ; two tailed). This relationship is colinear in that for many of the students, year in program was related to their class level of ASL. It is not perfectly



## Use of a Signing Bioscience Dictionary

colinear because many students entered the program with higher levels of ASL skill while others entered having never taken an ASL class prior to enrolling in the program.

Both variables (year in program and ASL level) were entered into a regression analysis using SPSS. Only ASL level was significantly related to the outcome. Therefore, a simple regression was rerun and is shown in Table 4.

Table 4. Analysis of the variables of year in program and ASL level.

Coefficients <sup>a</sup>							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	6.051	2.250	2.689	.013	1.385	10.717
	ASL level	1.285	.537	.455	.026	.172	2.398

a. Dependent Variable: Post Interpreting Scores

The *R* for this model is .455 and the *R* square is .207. Therefore, ASL level predicts a bit more than 20% of the variance in the post-interpretation measure.

The results for Research Question 3 indicate that only two participants were able to produce a fluent interpretation. These students incorporated classifiers into interpretations and demonstrated an effective use of space. The other 24 participants were unable to effectively follow the typical pace of a biology lecture. Many made sign production errors while interpreting. In addition, their signs were not conceptually accurate, they used almost no classifiers, and they were unable to effectively set up items in a spatial grammar. Their fingerspelling was also not smooth.

The two students who were able to produce a fluent interpretation were in the fourth year of the program. The other participants were in lower level ASL classes and had not yet developed the ability to produce a coherent interpretation. These results suggest that being able to keep up with the pace of a typical biology lecture and interpret it is a two-step process. The first step involves learning the content for the terms and the sign vocabulary related to this content. The second step is learning how to integrate this knowledge to produce a fluent and accurate ASL interpretation of the content being presented.

### 4.4. Results for Research Question 4: What additions and/or changes would make the SBD more effective?

The survey of student participants provided data for the results related to participants' level of satisfaction with features that were incorporated into the SBD, things they liked and did not like, and aspects that could be improved as shown in Table 5.

Table 5: Participants' Level of Satisfaction with the SBD

Survey Question	Responses*
How satisfied are you with: information available for each term?	completely satisfied-20, 24, 25; somewhat satisfied-4, 2, 1; not satisfied-0, 0, 0

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<i>accuracy of the signs?</i>	<i>completely satisfied-17, 15, 15; somewhat satisfied-7, 11, 10; not satisfied-0, 0,1</i>
<i>understanding of the avatar?</i>	<i>completely satisfied-10,9,8; somewhat satisfied-13, 16, 17; not satisfied-1, 1, 1</i>
<i>avatar's facial expressions</i>	<i>completely satisfied- 16, 12, 15; somewhat satisfied-6, 14, 10; not satisfied-2, 0,1</i>
<i>What are examples of signs that were not accurate or made them hard to understand?</i>	<i>signs varied for some words which was confusing-3, 4; struggled to understand a sign-3, 2 (sign for "sugar" as it was old),</i>
<i>What do you like about the dictionary?</i>	<i>options for learning-11, 4,0 bilingual (available in ASL and English)-11, 8,10 learning independently at own pace-3,1,0 can re-watch/replay as often as you want-3, 3, 3 accessibility-3, 3, 0 ease of use-11, 8, 6</i>
<i>What do you dislike about the dictionary?</i>	<i>avatars are difficult to understand-8, 5, 7 (choppy; lack of contrast in skin color and clothing) no way to slow the video-2, 6, 5 do not like avatars, prefer a person-2, 0, 0 not all terms within the definitions were not included-2, 0, 2 signing more English than ASL-0, 2, 0</i>

\*-Data are grouped for Reproduction; Heredity & Genetics, Ecology & Ecosystems

Results show that most participants were generally satisfied with the information that was available for each term, with the accuracy of the signs, with their ability to understand the avatar, and with the avatar's facial expressions. Some preferred a human signer to an avatar or found the avatar difficult to understand. Some found the signing choppy and the contrast between clothing and skin color insufficient, and expressed that this interfered with seeing the signing. Others mentioned not being able to change the signing speed as a drawback. Some would like all of the terms in the definitions included in the word lists and the signing for some of the terms to be updated and reviewed for accuracy in context of use.

## 5. Discussion

This study of first-time use of the SBD among interpreting training students shows that the SBD contributes to students' ASL life science vocabulary and ability to sign life science terms. Such knowledge may, however, benefit only those students who are in the advanced level of the program and can keep up with the pace of a typical undergraduate biology lecture and accurately and clearly interpret the content. Student interpreters in the lower levels of the program may not yet have achieved the fluency in ASL to make effective use of the ASL life science vocabulary included in the SBD. Findings also indicate that the dictionary's interactive features promote individualized learning for students in all levels of the program, and makes the learning of life science terms and definitions easy and fun.

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### 6. Limitations and further research

The present study has some important limitations. The findings of this study of SBD use cannot be generalized to all interpreting students in the Lamar program, nor to interpreting students in other programs. A larger, more representative sample of Lamar's interpreting students from all levels of the program is needed, as well as samples from 2-and 4-year programs in other parts of the country. Additionally, the present study focused on use of a first version of the SBD and was intended to provide preliminary information and insights into the use and benefits of the intervention, as well as to identify how it could be improved. Additional research is needed to further evaluate the SBD to identify signs that have evolved or are conceptually inaccurate and to examine use of an avatar rather than a human signer. Only then will we begin to discover the true benefit that use of the SBD adds to the preparation of interpreting students.

### 7. Conclusion

Conducting a first-time study of use of the SBD enabled researchers to begin to see first-hand the benefits and challenges that exist for interpreting students in learning ASL life science vocabulary and using it to interpret undergraduate biology course content. We were able to see how students use the SBD and integrate it into their learning of ASL life science terms and gained insight into how an interactive signing dictionary that incorporates a comprehensive set of life science terms can affect interpreting students' learning. Although this study provided important information about use of the SBD to improve student interpreters' life science vocabulary, additional research at Lamar and in a wide range of programs is needed to explore and assess the SBD's full potential. The SBD is available free from <https://signsci.terc.edu/video/SBD.htm>.

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# Repair Strategies in Consecutive Interpreting: Comparing Professional Interpreters and Interpreting Trainees

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## Abstract

This empirical study investigates features of interpreters' use of repair strategies in Chinese-English consecutive interpreting. The data were collected from a consecutive interpreting experiment in which nine professional interpreters and nine interpreting trainees (all native speakers of Chinese with English as their B language) were invited to interpret an authentic speech from Chinese into English. A parallel bilingual corpus was built comprising transcripts of the speech and the interpreting output. All the repair strategies therein were coded for analysis. Follow-up interviews were conducted to elicit interpreters' recall of their adoption of such strategies. Results show that in general, professional interpreters made significantly fewer repairs. Striking differences between the two groups were found in (a) trainees' more frequent use of repetitions, restart repairs, as well as grammatical and lexical error repairs, which can be attributed to trainees' lower proficiency in formulating ideas in English with proper lexical choices, correct collocations, and efficient syntactical structures; and (b) professionals' more frequent use of synonym repairs, which are presented mainly in disguised forms and applied skillfully as buffer strategies. The pedagogical implications and possible extensions of the study are also discussed.

Keywords: repair strategy; Chinese-English consecutive interpreting; professional interpreters; interpreting trainees

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# Repair Strategies in Consecutive Interpreting: Comparing Professional Interpreters and Interpreting Trainees

## 1. Introduction

This study examines repairs, an important index of fluency (Koponen & Riggenbach, 2000; Skehan, 2003), in Chinese-to-English consecutive interpreting. Interpreters have often been advised to avoid repairs for improving the fluency of their delivery (Tang, 2020a; Tissi, 2000). Yet, few scholars have gone deeper into this subject and questions remain as to whether such strategies would present different features with the improvement of interpreters' expertise. It is the aim of this study to contribute to the literature regarding repair strategies that interpreters use, and to examine their possible changes with interpreters' expertise by way of an experimental study. To start investigating this subject, a professional group and a trainee group were invited to interpret the same speech. Repairs used by both groups were coded and then compared, revealing differences that have implications for interpreting pedagogy as well as further studies.

## 2. Resolving a moot point of repair in interpreting

The concept of *repair* was initially discussed by Schegloff, Jefferson, and Sacks (1977) in their analysis of people's daily conversation. They made a distinction between *repair* and *correction*. Whereas *correction* refers to the replacement of speech errors by what is correct, *repair* is a broader concept not limited to error replacement. Because repairs can also be commonly found in interpreting and can help unveil interpreters' monitoring mechanisms, they were later analyzed in the field of interpreting studies as an indicator for enriching understanding of the interpreting process. Repair in interpreting is commonly known as "an utterance rectifying what the interpreter has just said or certain errors because of slip of tongue" (Tissi, 2000, p. 114).

Although there is consensus on the definition of repair, its classification in interpreting has been heterogeneous. A first step in a systematic comparison of the repair strategies of professional interpreters with those of interpreting trainees must be to resolve this moot point of repair research and produce a taxonomy that can be applied specifically to the analysis of interpreted discourse.

Three systematic taxonomies of interpreting were relevant to this investigation. Petite (2005) created the first such categorization in a corpus-based analysis of repair mechanisms in simultaneous interpreting. After analyzing data collected from eight professional interpreters recorded at four international conferences on topics of general interest, she established a classification model based mainly on Levelt's (1983, 1989) taxonomy. Because Levelt's classification was originally established for self-repairs made in spontaneous speech production, Petite made the following amendments: (a) breaking the trichotomy of overt repairs, covert repairs and rest repairs into a dichotomy of overt repairs and mid-articulatory repairs; (b) introducing a new dimension and dividing occurrences into input-generated and output-generated repairs; (c) deleting ALC (a repair made by the speaker to make a level adoption or



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establish coherence); and (d) adding EG (a repair to correct a grammatical error). This taxonomy eliminates categories virtually impossible to analyze, like covert repairs, and puts more emphasis on the interpreting process by proposing mid-articulatory repairs. Yet Petite's taxonomy is problematic for two reasons: first, Levelt's proposal of ALC indicates that there are cases in which it is impossible to determine whether a repair belongs to AL (moving from a less to a more precise term) or AC (creating coherence with previous text or terminology). Petite did not draw a clear line between these two categories either. Second, although Petite added EG, there are still certain interpreting-specific repairs that have not been included, for example, repairs to correct semantic errors after the interpreter realizes s/he misunderstood the original meaning. Such corrections are not rare in interpreting and should not be neglected.

Shen & Liang's (2020) taxonomy, derived from a study of consecutive interpreting, identified five major repair forms: repetition, restart, replacement, rephrasing, and delayed repair. These repairs are clearly defined, with no overlaps. However, likely due to a small sample size and the selection of source speech, their taxonomy fails to include some repairs common in interpreting (i.e. repairs for correcting semantic error mentioned above) and thus may not be universally applicable.

In an earlier study for the investigation of repair strategies, Tang (2020b) built a parallel corpus of source speech and interpreting output provided by invited interpreting trainees. She then classified all the repair cases identified from that corpus based on (a) the linguistic information in the output, (b) the paralinguistic features of the output, (c) the participating trainees' notes, and (d) the participating trainees' report from retrospective interviews conducted following the interpreting session. The resulting taxonomy model sorts interpreters' repair strategies into five major categories and nine subcategories (see Figure 1).

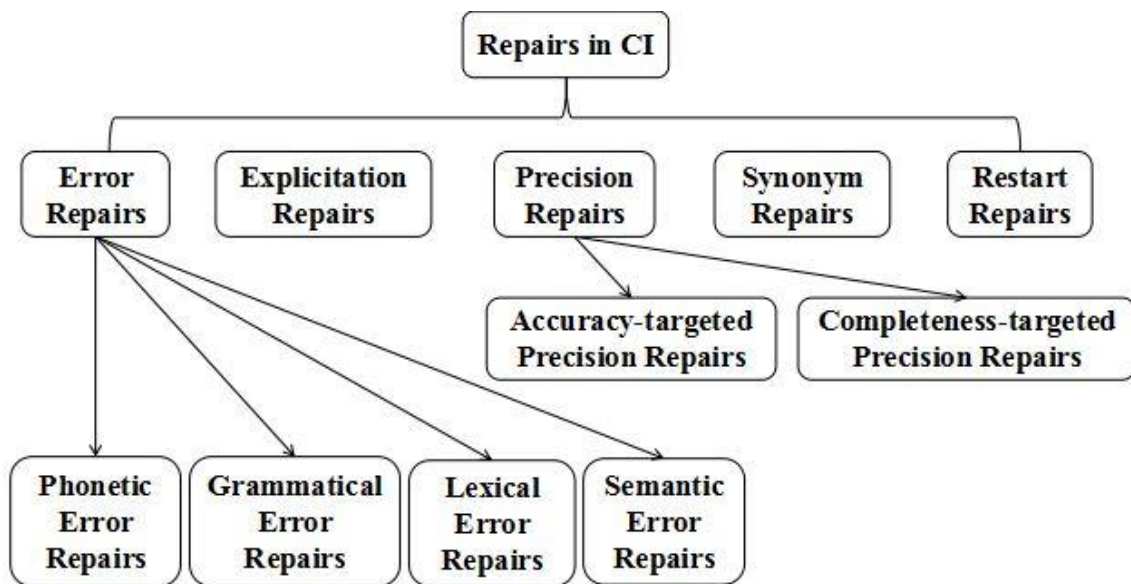


Figure 1. Taxonomy of repairs in consecutive interpreting (translated from Tang, 2020b, p. 75).

Due to the data-driven nature of the above taxonomy, there may be repair categories which failed to be listed since they did not appear in the corpus. However, compared with the two others described above, the third taxonomy has already covered a wider range of repair strategies used commonly by interpreters and can help present features of repair strategies in interpreting with a broader vision. As it has resolved the moot point of repairs in interpreting to a greater extent, the third taxonomy will work as a theoretical basis for categorizing repairs in the current study.

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### 3. Research design

Two groups of participants were asked to complete a Chinese-English consecutive interpreting task. A follow-up interview was then conducted with each participant to explore the interpreting process and identify the underlying differences between professional interpreters and interpreting trainees in their interpreting performance and monitoring mechanisms.

#### 3.1 Participants

The research involved nine professional interpreters and nine interpreting trainees, all Chinese native speakers with English as their second language. All trainees were postgraduate students majoring in Translation and Interpreting at a university in China. Having attended one semester of interpreting courses, they were familiar with the basic principles and ethics of interpreting and trained to develop CI-related skills such as active listening, chunking, logic integration, note-taking, and others. However, their field experience was quite limited. The professional group consisted of five interpreting trainers working at universities and four in-house interpreters, two in government departments and two in foreign companies.

#### 3.2 Source material

The original speech for the CI task was excerpted from the former Minister of Education's press conference, which was impromptu and delivered in Chinese. It is 6 minutes and 50 seconds long with 1,566 Chinese characters in total. In the audio excerpt, the former minister answered a question raised by a journalist on China's educational reform.

#### 3.3 Procedure

Participants completed the interpretation task one at a time. The task began with a short briefing to inform participants of the procedure of the experiment. Participants received a handout containing information about the speaker, the audience, the length and topic of the speech, and a glossary. They were permitted to take notes as a physical aid for memorizing information. The source speech, followed by each participant's interpreted version, were recorded as audio files and later transcribed for analysis.

Following the briefing session, participants participated in a warm-up session in which they listened to an excerpt of a speech delivered by the same speaker, to familiarize themselves with the delivery style of the speaker and the working condition. Participants then completed the interpretation task individually in a quiet room with broadcasting and recording facilities.

A follow-up interview took place immediately after the CI task. Because all the participants were compound bilinguals who were more fluent in their A language than their B language, it was easier for them to express ideas and provide explanations in their mother tongue. Thus, the interview was conducted in Chinese. They were asked to describe the interpreting process while listening to the recording of their interpreting output and reading the transcript of the original speech. Participants had been briefed at the beginning of the experiment that the interview would not be used to evaluate their performance but to investigate the difficulties they encountered and the strategies they adopted during the interpreting process. Hence, their major task was to recall and verbalize what they had been thinking about when they used certain strategies, that is, to help identify the main triggers for those strategies.

During the interview, participants could stop the recording at any time to comment. When researchers identified repairs that the participants had not commented on, they stopped the recording and elicited recalls by raising questions for clarification, such as "Why did you restart the sentence here?" and "Did you encounter any difficulty here?" Each interview was recorded and transcribed for analysis.

#### 3.4 Data analysis

After all follow-up interviews had been completed, recordings of both the source speech and the interpreting product by each participant were transcribed and aligned, and a bilingual parallel corpus was built from the transcripts of

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one source text and 18 target texts. Paralinguistic features were also transcribed with special markers (e.g., <uh> for hesitations; <p> for pauses; ~ for stretched pronunciations) (Tang, 2018). The corpus analysis was also supported by interpreters' protocols provided in their self-reports; their explanations of their repairs were highlighted and considered when analyzing motivations for the use of different repair strategies.

### 4. Results and discussion

The analysis resulted in the identification of 439 repairs. Based on features of the collected data and also for the convenience of intergroup comparison, repairs were put into the following nine categories (see Figure 2): error repair (ER), explication repair (XR), precision repair (PR), synonym repair (SR), restart repair (RR), and repetition (RP). Error repairs were subdivided into phonetic error repairs (ERPs), grammatical error repairs (ERGs), lexical error repairs (ERLs), and semantic error repairs (ERSs).

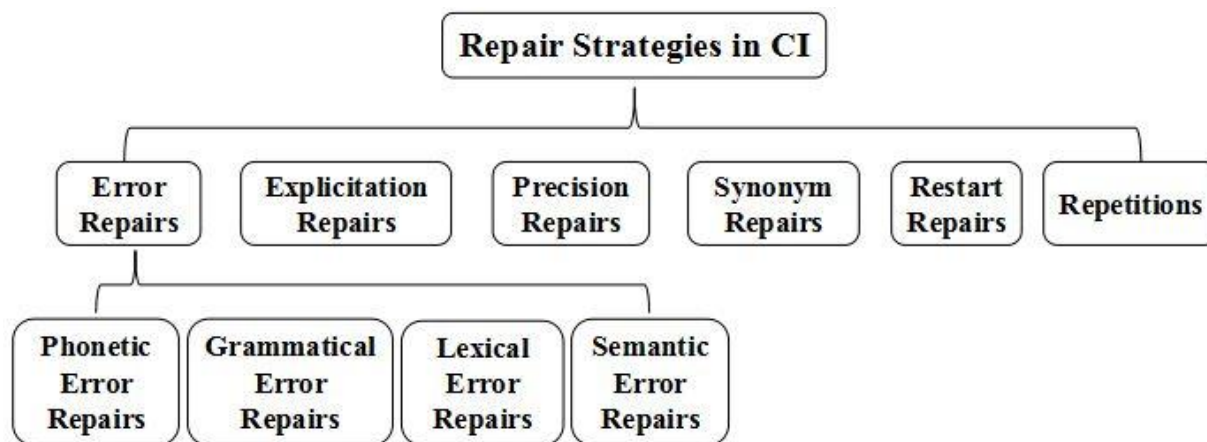


Figure 2. Categorization of repair strategies in CI.

Two amendments were made to Tang's (2020b) taxonomy (see Figure 1): First, precision repairs were no longer subdivided into accuracy-targeted precision repairs and completeness-targeted precision repair. As only a limited number of precision repairs could be found in the collected data, no further division was needed for analysis and difference measurement. Second, repetition was added as a category. Although Dailidénaité (2009) and Shen & Liang (2020) classified repetition as "no repair", since repetitions made by interpreters in the current study functioned similarly to repairs, they were classified here as a form of repair strategy.

The Mann-Whitney test (Corder & Foreman, 2009), a nonparametric test used to measure intergroup differences, was applied to measure differences between the professional and the trainee group. The nonparametric test was used because a sample size of 30 is required for parameter tests (Salkind, 2011) and this study included only nine participants in each group.

Table 1 shows the frequency, percentage, and relative ranking of each repair category identified by each group, together with the *p* value yielded from the Mann-Whitney test (using SPSS v.22.0). A total 273 repairs made by interpreting trainees and 166 by professional interpreters signifies a significant intergroup difference. The finding that interpreting trainees made noticeably more repairs than their professional counterparts indicates, as expected, that professional interpreters with a higher level of expertise interpreted more fluently than interpreting trainees.

Table 1. Statistical comparison of repair strategy between trainee and professional groups.

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Repair Type	Trainees	Ranking	Professionals	Ranking	<i>p</i> value
ERP	8 (3%)	9	6 (3%)	7	0.667
ERG	23 (8.5%)	3	5 (3%)	8	<b>0.002*</b>
ERL	12 (4%)	7	2 (1%)	9	<b>0.008*</b>
ERS	21 (8%)	6	15 (9%)	5	0.570
XR	12 (4%)	7	11 (7%)	6	0.963
PR	22 (8%)	5	23 (14%)	4	0.928
SR	23 (8.5%)	3	45 (27%)	1	0.131
RR	56 (21%)	2	23 (14%)	3	<b>0.006*</b>
RP	96 (35%)	1	36 (22%)	2	<b>0.008*</b>
Total	273 (100%)		166 (100%)		<b>0.021*</b>

\*[All significant differences were marked with an asterisk.]

Quantitative and qualitative analysis of interpreters' output addressed the following questions: Why did interpreting trainees perform less fluently? What repair forms were used most frequently by trainees and professional interpreters? Which repair forms presented statistically significant intergroup differences?

### 4.1 Differences in high-frequency repairs

Analysis revealed that repetition was the major repair strategy across both groups; synonym repair was the repair strategy most frequently used by professional interpreters; and restart repair was the second most frequent repair strategy (after repetition) used by interpreting trainees.

Not only did repetition rank as one of the most-used strategies by both groups, but also a significant difference existed in the way the two groups used this strategy. To be specific, interpreting trainees used repetitions more frequently than professional interpreters ( $p = 0.008$ ), a finding that contradicts Shen and Liang's finding (2020) that repetition accounted for about 20% of the total repairs in either group, with no significant intergroup difference. The notable intergroup difference found in the current study derives from the two groups' differing motivations for using repetition in their interpretation. Example 1 illustrates typical scenarios in which both trainees and professionals made repetitions. TT1 was excerpted from trainees' output, TT2 from professionals' output.

#### Example 1.

ST: 我们经过多年的努力，我们希望大大改进农村教师的质量，能够为我们农村的孩子们，能够提供更加优质的教育资源，使得他们接受良好的教育。

*Gloss: Through years of efforts, we hope to greatly improve the quality of rural teachers, to be able to provide our rural children with more quality education resources, so that they can receive good education.*

TT1: <uh> After <uh> a lot of year's <uh> hard working, we've already made a lot of <uh> progress in improving teacher's <uh> performance and, quality. <uh> And our stu-, our~ students <uh> have a lot of opportunity to enjoy this resources, and to have more~ chances to <uh> receive higher education.

TT2: The ultimate goal, is to pro- to provide, high quality education, to children in the rural areas, through high quality teachers.

In TT1, the trainee, having not finished saying the word "student," stopped and repeated the expression "our~ student." The trainee's hesitation <uh> at the beginning and the stretched way of pronouncing "our" indicated that

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she may have encountered difficulties here. The trainee reported that while verbalizing “our stu-,” she recalled that the original word used by the speaker is “孩子(children).” After hesitating, she became convinced that “student” is an English word that can express the original meaning and said “our student” again. Other trainees’ use of repetition was similarly mainly triggered by uncertainty regarding the meaning of the original expression.

In TT2, while saying the word “pro(vide),” the professional interpreter suddenly stopped and later repeated “to provide.” The professional recalled that knowing that the original information can be expressed more concisely, she opted not to follow the original syntactical structure but to rephrase this part. Instead of keeping the order of the original information by expressing “high-quality teachers” first and “high-quality education” later, the professional reversed the terms’ positions; that is, the point of this repetition was syntactical restructuring. Similar to this case, other repetitions made by professionals were triggered largely by splitting attention on formulating ideas that followed.

Example 1 demonstrates that repetitions made by interpreting trainees were usually motivated by their uncertainty about the uttered expressions *per se*, indicating that they were less proficient in finding proper lexical resources to express ideas in their second language. In contrast, repetitions made by professional interpreters were principally motivated by them being less skillful in attention-sharing, or in the “coordination” of “efforts” (Gile, 2009, p. 176), suggesting that they may use repetition to delay the delivery of new information.

The significant intergroup difference in using repetition can be further explained by professional interpreters’ preference for synonym repairs, the most frequently used repair strategy among professional interpreters. Synonym repair is, to some extent, similar to repetition; however, although this strategy is labeled as a form of repair, semantically it repairs nothing. The added synonym exerts barely any impact on the semantic meaning of the output. So why did interpreters make such repairs? Retrospective feedback shows that synonym repairs and repetitions made by professionals were not triggered by lexical-level difficulties. Instead, they were mostly adopted as buffer strategies, through which interpreters could slow down the information production and gain extra time to organize the ideas that followed.

### Example 2.

ST: 我们的一个基本思想就是要吸引社会上优秀的人才来当老师，要吸引优秀人才到农村，到基层，去长期从教，终身从教。

*Gloss: One of our basic principles is to attract outstanding talents from the society to become teachers, to attract outstanding talents to rural areas [and] grassroot units, to teach for a long time, [and] to teach for life.*

TT: But one principle for us is, we want to make sure that we have the, we have the condition, to attract high quality talents in, to become teachers in the rural areas, and not just **ad hoc or temporary** teacher, but a teacher <p> but a life-time teacher.

In Example 2, the interpreter reported that while saying “ad hoc or temporary”, s/he split half of his/her attention to figuring out an appropriate translation for “去长期从教，终身从教 (to teach for a long time, to teach for life)”. The expressions “ad hoc teacher” and “temporary teacher” are synonymous. With or without the added “temporary,” the semantic meaning of the output does not change. Yet, the semantically unchanged synonym addition helped the interpreter delay the rendition of the original phrase.

### Example 3.

ST: 如果说现在城乡之间教育还存在着比较大的差距的话，硬件差距还有，但是不是最重要的。

*Gloss: If [we] say there is still a large gap between urban and rural education, there is still a gap in hardware, but it is not the most important one.*

TT: We all realize that there are [sic] still a huge gap, between the education in rural and urban areas, especially in <p> **the facilities and equipments**. However, these are not the most important <p> discrepancies.

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In Example 3, the professional interpreter first translated “硬件(hardware)” as “facilities” and then added a synonym, “equipments” [sic]. The interpreter reported in retrospect that she did not think “hardware” was a good choice, because it usually referred to smaller items. According to her understanding, the gap here referred to things like classroom, multimedia, and so forth, so she used “facilities.” Afraid of being too general, however, she decided to add a repetitive expression, “equipments” [sic]. Because the added synonym did not change the semantic meaning of the output, she could then gain some time to check if she had missed any information.

Compared with repetition, synonym repair is less detectable. Moreover, 69% of the synonym repairs in the professional group share a common feature with Examples 2 and 3: the “reparandum” and the “reparatum”<sup>2</sup> are connected by the linking words “or” or “and.” Such “disguised repairs” were less likely to be detected by listeners and less likely to influence the fluency of the delivery. Listeners may even regard those synonym repairs as interpreters’ active strategies for further clarification and give higher evaluation for interpreters’ performance.

The second most frequently used repair strategy among trainees was restart repair. In Shen and Liang’s (2020) study, students were found to restart sentences more frequently than professionals, yielding a significant intergroup difference ( $p = 0.000$ ). Again, a significant difference was found in this study between the way the two groups used restart repairs ( $p = 0.006$ ). Comparatively speaking, professional interpreters employed remarkably fewer restart repairs than their trainee counterparts. Trainees’ tendency to restart a sentence suggested that they encountered more difficulties at the syntactical level. After starting a sentence, even though the first version can express the original meaning, they tended to reorganize the information and change the initial syntactical structure. Generally, this was because they found it hard to finish the formulation of the following information based on the initial starts.

### Example 4.

ST: 我们已经从一个人口大国建设成为一个人力资源大国, 但我们现在要向人力资源强国进军。

Gloss: *We have already, from a country with a big population, become a big country with human resources, but we now are going to march towards a powerful country of human resources.*

TT: China, now~, has developed, from~ a country with large number of population to <uh> it solved the <uh> it satisfied the human resources <uh> and now~ it is going to a <uh> stronger level.

Example 4 provides two typical cases of restart repairs among trainees. After verbalizing “from a country with large number of population to”, the trainee suspended the ongoing encoding and started a new sentence, “it solved the”. Having not finished the second try, the trainee started again, saying “it satisfied the human resources”. The hesitation marker <uh> appeared twice, indicating possible difficulties. The trainee later recalled that the two changes mentioned in the original information — “从一个人口大国建设成为一个人力资源大国...向人力资源强国进军” (from a country with a big population to a big country with human resources ... to a strong country with human resources) — were not what she had anticipated, which influenced the encoding process. In fact, the initial start “from a country with large number of population to” is unproblematic and can be followed by “a country with large number of human resources,” through which the original meaning is well conveyed. Instead of figuring out ways to express the original idea with the start which had already been verbalized, the trainee abandoned the initial start. The frequent use of restart repairs increases the number of fragmented sentences and decreases the fluency of the output, showing that trainees, compared with professionals, lack flexibility and proficiency in formulating ideas in English.

The striking differences between the two groups’ use and type of high-frequency repair strategies clearly demonstrate that professionals interpret more fluently than trainees, because their higher level of expertise makes them less likely to become stuck on lexical or syntactic difficulties and more skillful in avoiding unfinished sentences and adopting well-disguised synonym repairs.

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<sup>2</sup> The term “reparandum” refers to the item to be repaired and “reparatum” refers to the repaired item (see Levelt, 1983; Petite 2005).

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### 4.2 Differences in error repairs

Researchers have found a tendency to associate repairs with errors. For instance, Postma and Kolk (1993, p. 474) proposed three stages in a repair — “error detection, interruption or cut-off, and the correction itself” — that limited the scope of repairs to error correction. However, previous studies had already shown that only a small part of repairs in interpreting are error-triggered (Petite, 2005; Sheng & Liang, 2020). Statistics in the current study also confirm that for both interpreter trainees and professionals, the majority of those identified repairs were not related to error detection or correction: only 16% of professionals’ and 24% of trainees’ identified repairs involved error correction. Among the four types of error-related repairs, no significant differences were found in phonetic error ( $p = 0.667$ ) and semantic error repairs ( $p = 0.570$ ). Yet, striking differences were identified between the two groups’ use of grammatical error ( $p = 0.002$ ) and lexical error repairs ( $p = 0.008$ ).

Grammatical error repair was a repair strategy used by only three participating professionals but by every single participating trainee. The revised grammatical errors involved errors of tense, preposition, subject-predicate consistency, and singular-plural consistency, among which the revision of incorrect tenses and subject-predicate inconsistency was found to be the most common.

#### Example 5.

ST: 温家宝总理专门到北京 35 中听了 5 节课, 这个, 召开了教师座谈会

*Gloss: Premier Wen Jiabao actually attended five classes in the No. 35 Middle School of Beijing, held a meeting with the faculty members*

TT: Premier Wen Jiabao visited Beijing <uh> thirty <p> fifth <uh> middle school and~ visited~ five lessons, with students there and he also <p> have a has a had a meeting with staff there

Example 5 presents a typical scenario in which trainees made grammatical error repairs. The example contains two grammatical error repairs, one to correct an error of subject-predicate consistency and the other to correct an error of tense. The trainee initially said “have,” then, realizing that “have” cannot collocate with the subject “he,” used “has” instead. Upon recalling that the action occurred in the past, she made another revision which changed the predicate to “had.” Such repairs demonstrate that trainees still lack mastery of English grammar.

Lexical error repair was identified in the output of seven of the nine participating trainees, yet appeared in the output of only two of the nine professional interpreters. Lexical errors revised by trainees primarily resulted from their lack of proficiency in accessing appropriate English collocations.

#### Example 6.

ST: 当然, 绩效工资制度不仅仅是收入的提高, 同时也是一次人事分配制度的改革。

*Gloss: Of course, the merit pay system means not only an increase in income, meanwhile [it] is also a reform about personnel distribution system.*

TT: We can say that the merit paid system is not only~ about the improvement about teachers’ salary, but also about the re~composition or the resoursh, resource distribution in teaching team.

Example 6 illustrates two error repairs, one lexical error and one phonetic, made by a trainee. The trainee later reported that because the reference of “it” was unclear, she intended to change “人事分配制度 (personnel distribution system)” to “资源的重新调配 (reallocation of resources)”; however, she failed to find the proper English translation of “资源的重新调配”. Realizing that “re~composition,” was not a good collocation with “resource distribution,” she abandoned this word and verbalized “resource distribution” directly. Maybe triggered by the uncertainty, the trainee mispronounced “resource” as “resoursh” but immediately corrected that error.

The striking differences between the two groups’ use of grammatical and lexical error repairs demonstrate that professional interpreters interpret in a more fluent manner, because they are less likely to make grammatical errors

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and lexical errors, and because they are more capable of retrieving appropriate collocations to express ideas in English.

### 5. Conclusion

The results of the present study show that expertise does impact types and frequency of interpreters' repair strategy. Interpreting trainees' fluency was severely diminished by a higher frequency of repetitions, restart repairs, lexical error repairs, and grammatical error repairs, triggered mostly by uncertainty in lexical choice, inflexibility in syntactical construction, and unfamiliarity with English grammar. On the other hand, professional interpreters, with their higher level of expertise, delivered with better fluency through more skillful use of synonyms and conjunctions to disguise repairs and to gain extra information-processing time. They also had faster responses in finding proper lexical and syntactical choices so as to avoid the appearance of repetitions, broken sentences, and grammatical errors.

These results have a bearing on interpreting pedagogy. For instance, upon completing self-assessments of their Chinese-English interpreting output, trainees could be asked to (a) identify all the improper lexical collocations, ungrammatical expressions, and unfinished sentences, then (b) present at least two revised versions, and, finally, (c) apply those revisions in the second or following practice of the same material. Identification may help trainees become more sensitive to errors and improper collocations. Revision may enrich their English lexical and syntactical repository (reducing lexical and grammatical error repairs) and help them formulate ideas in a more flexible manner (reducing restart repairs). Application may activate their English lexical and syntactical repository and help them express their intentional meaning in a quicker and more automatic manner. In addition, upon teaching buffer strategies, interpreter trainers can remind trainees that if they need more time to process information, using the "and/or + synonym" structure can better maintain fluency than using abrupt repetitions (reducing repetitions).

The different findings on repetitions between this study and that conducted by Sheng & Liang (2020) (see Section 4.1 above) suggest that further studies comparing interpreters with different levels of expertise are needed, because results may be influenced by factors such as competence of each invited participant, language proficiency gap between groups, features of the selected original speeches, and others. Additionally, the current repair investigation explored only the consecutive mode of interpreting and focused only on the Chinese-English language pair. Future research could extend a similar comparison to other language pairs and other modes of interpreting, such as simultaneous interpreting or sight interpreting.

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# Driving Without Directions? Modifying Assignments for Deaf Students in an Interpreter Education Class

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## **Abstract**

In the U.S. and other countries, deaf interpreters are increasingly providing professional interpreting and translation services between one or more languages. One outcome of this trend is that deaf individuals are enrolling in educational degree programs in pursuit of training and credentials for signed language interpreters. Interpreter educators whose experience may have only been with teaching non-deaf students are now seeking to create meaningful learning experiences for their deaf students. In this article, we discuss two course assignments modified for deaf students who were enrolled in a beginning translation course at Gallaudet University and we provide the students' perspectives about the efficacy of the assignments. The aim of this article is to share ideas about creating or altering tasks to better address the needs of deaf students enrolled in interpreter education programs.

**Keywords:** Deaf interpreters, interpreter education, teaching, assignments

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# Driving Without Directions? Modifying Assignments for Deaf Students in an Interpreter Education Class

## 1. Introduction

Progress means getting nearer to the place you want to be. And if you have taken a wrong turn, then to go forward does not get you any nearer. If you are on the wrong road, progress means doing an about-turn and walking back to the right road; and in that case the person who turns back soonest is the most progressive one. C. S. Lewis  
(1943)

Increasingly, deaf<sup>2</sup> individuals are enrolling in interpreter education programs with the aim of developing the skills and knowledge to become credentialed interpreters and translators. However, interpreter educators who want to provide meaningful instruction for deaf students may feel as if they are driving on an unmarked country road at midnight without headlights and with a map app that has lost its signal. That is, interpreter educators can feel disoriented and lost when teaching deaf students. In conversations with our colleagues, many express concern that they lack the knowledge and resources to provide deaf students with meaningful classroom instruction. They report that their teaching resembles “driving without directions,” an uncertain process based on trial and error. Deaf interpreting is expanding as a profession, but there is limited information on how to teach interpreting to deaf students (for exceptions, see Forestal, 2006; Lai, 2018; McDermid, 2010; National Consortium of Interpreter Education Centers, 2016; Rogers, 2016). As C. S. Lewis observes, making an uncharted journey may necessitate turning around repeatedly in order to find the “right road.” We offer this brief commentary on how we navigated our own road for teaching deaf students in an entry-level interpreting course.

For most of its history, signed language interpreting has been conceived as a service provided by non-deaf individuals; however, deaf individuals have also provided access to information through interpreting and translation. Historically, bilingual deaf people have long served as ad hoc language brokers for members of the Deaf community (Adam, Carty, & Stone, 2011). Thus, it is a natural progression for bilingual deaf persons to offer their services as professional interpreters. This shift has resulted in deaf individuals seeking educational and professional credentials as interpreters.

Professionalization of the field over the past three decades has shown promising developments in the advancement of deaf interpreting. Boudreault (2005) describes the history of the professional status of deaf interpreters (DIs) in the U.S. as beginning when the Registry of Interpreters for the Deaf (RID) established the Reverse Skills Certificate (RSC) in 1972. He states that, in the 1980s, U.S. legislation mandated communication accessibility in legal and medical services, which increased employment of DIs. In the late 1990s, RID promoted

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<sup>2</sup> Individuals who study interpretation and translation hold various identities. To avoid making assumptions about identity, the authors use the lowercase form – *deaf* – in instances where cultural identity is not explicitly known, and the upper case form – *Deaf* – in other instances..

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certification for DIs by establishing a provisional certificate as the Certified Deaf Interpreters-Provisional (CDI-P) and in 1998 offered the opportunity for full certification (CDI). Forestal (2011) notes that the RID developed a standard practice paper, *Use of Certified Deaf Interpreters*, that validates and supports deaf interpreting as a viable profession (RID, 1997). Further, Forestal describes how the development of competencies in interpreting by DIs became a primary focus of the National Consortium of Interpreter Education Centers.

Despite these advances, much work remains to be done. With the growing number of DIs in the field, many interpreter educators are reexamining their program structure, curricula, and assignments so they can meet the needs of deaf students. The presence of deaf students in interpreter education programs yields many benefits, including the opportunity for researchers to consider intriguing questions, such as the value of firsthand Deaf-world experiences on interpreting (National Consortium of Interpreter Education Centers, 2016), the differences between DIs and non-DIs (Boudreault, 2005), the types of assignments done by DIs (Adam, Aro, Duetta, Dunne, & af Klintberg 2014), how DIs and non-deaf interpreters prepare together for assignments (Nicodemus & Taylor, 2014), and, critically, the educational structure to effectively support the training of DIs (Lai, 2018). In this article, we add commentary by describing a small case study in which two assignments originally designed for non-deaf students were modified to be more beneficial for deaf students. The experience leads us to add some thoughts on the topic of creating meaningful learning opportunities for deaf students in interpreter education programs.

Fundamentals of Interpreting (INT 325) is an entry-level, undergraduate course in the Department of Interpretation and Translation at Gallaudet University. The course is a three-credit, one-semester class designed to cultivate basic skills in translation and consecutive interpretation. (See Appendix A for full course description.) The first half of the semester focuses on translating English texts into American Sign Language (ASL), and the second half focuses on ASL-to-English translation. When we taught the course in the fall semester of 2019, ten students – eight non-deaf and two deaf – were enrolled. We utilized five textbooks but relied primarily on Carol Patrie's (2001, 2012) translation workbooks and video materials. Additional texts included *Multiple Meanings in ASL* (Cartwright & Bahleda, 2012) and *Interpretation Skills* (Taylor, 1993/2002, 2017). Each text was used by both deaf and non-deaf students.

In August 2019, the two non-deaf instructors, Danielle Hunt and Brenda Nicodemus, began preparing to co-teach, for the first time, the INT 325 course. They quickly recognized that several assignments in the class would not be conducive to optimal learning by deaf students. Recognizing the limitations in their own knowledge and skills for teaching this population, they invited Margie English, a Deaf doctoral student, to be a teaching assistant in the course.

Danielle and Brenda first held individual meetings with the two deaf students to discuss Margie's engagement, specifically to providing them with support in the class. Upon agreement by the students, Margie began attending class sessions. Throughout the semester, Margie provided supplemental lectures, led class discussions, modeled ASL translations, and lectured on Deaf culture, community membership, and consecutive interpretation for the deaf and non-deaf students. Critically, she met with the two deaf students during in-class lab time to collaboratively create and modify course assignments and to discuss their experiences with the work.

## 2. Assignment modifications

### 2.1. Assignment 1: Translation of an ASL video lecture

#### 2.1.1 Modification: ASL interpretation of a cooking class

The goal of this assignment was to practice translation skills using a cooking class text from Patrie's instructional materials. In this particular video, a deaf woman used ASL to explain a recipe for making potato soup. Because we were teaching a translation course, all students were instructed to translate the ASL presentation into written English. Students' written English translations were then used to create a spoken English (non-deaf students) or signed translation (deaf students) of the video. When meeting with the two deaf students, Margie introduced the topic of creating an intralingual (ASL-to-ASL) translation. During their initial discussion of the assignment, one deaf student expressed hesitancy about creating a translation, recognizing that DIs typically produce a target text

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based on the specific needs of a deaf consumer. As a result, the three instructors agreed to create a profile of deaf consumers based on the specific skills each student wished to develop. One student expressed an interest in interpreting for a DeafBlind person who used close-vision interpreting; the other wanted to interpret for a deaf person who grew up signing a different signed language and who was an emerging user of ASL. Using these preferences, Danielle and Brenda customized the assignment by creating profiles of a mock consumer for each student, which included a photo of the “consumer” (i.e., images taken from the internet) to add more contextual cues. The instructors then provided the students detailed descriptions of their consumers, adapting instructions depending on the student’s individual goals. Despite their different consumers, both deaf students were informed that the event they were interpreting for was hosted by a local public library that offered cooking lessons in ASL. They also received a mock flyer to announce the event. (See Appendix B for assignment details.)

### 2.1.2 Student discussions regarding assignment 1

During their first meeting as part of the in-class lab, Margie asked one of the students (Student 1) to express his goals for the interpretation in which he would be working with an international consumer who had limited ASL skills. He stated,<sup>3</sup>

For me, as a CDI, my main goal would be to observe how the ASL [in the source message] is signed and then translate it to become clearer. My goal would center around processing the message, not just mirroring it. Would I be using more formal or informal ASL register? That’s the question I would have for performing this ASL translation.

Student 1 met with Margie again during the week to discuss this assignment before starting his translation. Initially, he expressed discomfort in completing the translation, saying,

This assignment is a little different because it’s not a live interpretation. Typically, I adjust my signing based on feedback I see with the consumer.

He connected his feeling of being physically removed from the consumer with no opportunities for changes in production based on live feedback. Instead of being able to connect with the consumer by actively responding to her reactions, he had to anticipate her needs based on his prior interpreting experiences. He described his process as follows:

I would need to build up a schema. I have had experience interacting with international deaf people in [English classes for international students at Gallaudet University].

Without authentic feedback cues from a consumer, Student 1 decided to perform a simultaneous interpretation of the prompt video, rather than a consecutive interpretation in which he could negotiate and co-construct the target message with the consumer.

Student 2 also performed a simultaneous interpretation of the video. The instructors observed that her approach was similar to that of the non-deaf students in the class. She described her thought process leading up to the decision she made about the production of her interpretation of the prompt video:

My audience is someone who is blind – her vision is not so good – so I need to sit closer to that person. I thought maybe I should also avoid excessive fingerspelling. For example, the speaker in the video fingerspells the word *mushroom*, and I substituted that with the sign MUSHROOM because that’s clearer. . . . I tried to do what was the best fit for my audience and not for myself.

Her process demonstrated an understanding of the importance of preparing to deliver a message based on the needs of the consumer, and she approached the task without any fears of experimenting with technology required of the assignment. She discussed her efforts to translate the message while being seated close to the consumer:

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<sup>3</sup>The initial meeting between Margie and the two students was not video recorded, but all subsequent sessions were recorded. All quotes in this paper were originally produced in ASL and translated into written English.

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During filming, I sat closer to my laptop than usual. Unfortunately, I had limited space. That was hard, because I only had a window to work with. That's the only problem I really had.

Her video resulted in an “interpreter-in-a-bubble” effect, with the interpreter in a smaller window, which may have been problematic for a close-vision DeafBlind person. Had she experienced an actual live interpretation for a close-vision DeafBlind person, she might have made a different decision for the set-up of the assignment. The decisions she arrived at around the interpretation provided an opportunity to discuss the outcome during subsequent conversations.

During their next session, Student 2 and Margie, with support from Student 1, discussed the general needs typically shared by a close-vision DeafBlind consumer. Margie asked prompt questions to help Student 1 consider the accessibility of a small video within a larger video, and the compensation required of a deaf interpreter in creating smaller signs. Margie employed coaching and scaffolding methods with the students and shared ideas on techniques that are used in the field of deaf interpreting.

### 2.2. *Assignment 2: ASL-to-English consecutive interpretation of an ASL vlog*

#### 2.2.1 Modification: Sight translation of a District of Columbia driver's license exam

For the final assignment of the course, the non-deaf students were to follow a multistep process to create an ASL-to-English consecutive interpretation of an ASL vlog. The assignment was a cumulative project designed to assess what the students had learned during the semester. Danielle, Brenda, and Margie discussed potential modifications of this assignment for the deaf students in order to reflect the work of DIs. They decided that a similar, multistep sight translation from a different stimulus material – a driver's license exam in written English – would be a logical modification for the deaf students. Thus, the deaf students completed a sight translation; that is, they created an ASL version of a written English document. As in the modification for Assignment 1, the instructors provided the students with a profile of a mock consumer: a 16-year-old deaf student taking the driver's test in Washington, DC; the student requested an interpreter in case there were questions that he doesn't understand fully in English, which would then be translated into ASL. (See Appendix B for assignment details and the exam text.)

#### 2.2.2 Student discussions regarding assignment 2

Both deaf students were interested in this assignment and expressed comfort with its difference from the assignment given to their non-deaf classmates. Student 1 stated,

It is a sight translation. You're translating from what you're reading. So far, we have been working from videos. This assignment is different from other approaches so far. I think it's cool.

Student 2 agreed with her fellow classmate, saying,

This assignment is suitable to the work they [non-deaf students] do as interpreters, and our assignment is applicable to the work we do as deaf interpreters.

Before starting this task, both students met with Margie to review the terminology within the script from the driver's written examination. A question that used an unusual phrase – “space cushion” – to describe the expanse between cars stumped the students. Student 1 deciphered the meaning behind this phrase, whereas Student 2 associated the phrase with airbags. Both students expressed a concern about “giving away the answer” with their translation. Discussion ensued on deriving meaning from the context by using cues from any part of the language, including phonetics. If non-deaf test takers could draw meaning of a word through the phonetic value of a word or a phrase, deaf test takers should be able to as well. Margie then shared a personal recollection of a previous translation project involving a multiple-choice exam, which required negotiation with a team of non-deaf non-signers to understand the importance of performing an ASL translation rather than a transcode (ASL in English word order). After this discussion, both students began their own translation process.

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Both students were required to create simple concept maps, previously practiced in class, for each question asked on the driver's test. They reported finding this exercise helpful in preparing their sight translations. Student 1 created his map on paper, whereas Student 2 used Prezi (an online tool for creating digital slideshows) to map the concepts. Student 1 confirmed that this exercise helped him "remember the details" while performing the translation because "illustrating the concepts helps me conceptualize the relationship between the details." As the final part of the assignment, all students in the class (both deaf and non-deaf) completed a self-analysis of their work identifying features of the target text, areas of effectiveness, and areas needing improvement.

### 3. Conclusions

We offer this commentary of our experiences with two deaf students in an introductory baccalaureate-level course in an interpreting program to share our attempts to provide them with a meaningful educational experience. Our overall approach was to include the deaf students in classroom instruction with their non-deaf peers, but also to provide them with separate support by a doctoral student who is a professional, experienced, and certified DI, and an educator. Since this was the first interpreting course taken by new interpreting majors, the non-deaf instructors initially were unaware whether students were non-deaf or deaf. Additionally, the non-deaf co-instructors were assigned to teach the course only a week in advance of the semester. We strongly recommend early preparation and meeting with the deaf students in advance of the course. We recognize that we are fortunate at Gallaudet University to have numerous resources, including several certified DIs on campus, deaf doctoral students, and deaf teaching colleagues who can provide support and models for our deaf students.

Through our experience modifying two course assignments, we discovered beneficial teaching practices that can be applied in any course:

**First, negotiate the assignments with the students.** Collaborate with the deaf students, rather than merely assigning a set of prescriptive instructions that do not fit their learning needs. Working together will lead to buy-in and enthusiasm from the students about the assignments.

**Second, have students identify their preferred audience.** In our case, following the students' preference of consumers to work with, in each case targeting particular skills, increased students' engagement in the work. An individualized approach to crafting the assignments, in which the instructors determined the characteristics of the consumers based on student stated preference and their observations of student needs, proved to be motivating with the students reporting being highly engaged in their assignments.

**Third, draw on classroom instruction.** We found that the deaf students, irrespective of their level of interpreting experience, relied on both the general classroom instruction and their own skills and schemas in the process of creating translations and interpretations. Deaf and non-deaf students worked together well during the classroom activities and understood why certain assignments were being modified to meet the specific learning goals of the deaf students. The deaf students expressed satisfaction with our collaborative approach and expressed appreciation for being engaged with the assignment modifications.

As the instructors, we collectively agreed that the quality of the completed assignments by the deaf students was good to outstanding; however, we note that we did not create a separate assessment rubric for their work. Given more time to prepare for teaching the course, the instructions would have created more formal assessment measures.

We are excited about the interest and the enrollment of deaf individuals in interpreter education programs and are actively pursuing how our program can most effectively serve these students. One idea is to build a shareable resource bank of instructional materials and assignments for deaf students (such as the assignments we describe in this article), so instructors have ready access to them. We also call for more research on deaf interpreting in general and specific educational research on the teaching of deaf students in these programs. Finally, we advocate for the hiring of DI educators as full-time faculty. In the mid-to-late 2000s, Boudreault (2005), Collins and Walker (2005), Forestal (2006), Mathers (2009), Stone (2009), and others wrote about the practices of deaf interpreting.

We suggest that we need to continue to take positive action for the training needs of deaf students by conducting evidence-based research, confirming curriculum standards, and learning from the wisdom of DIs' lived experiences.

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## Modifying Assignments for Deaf Students

If we can point to the greatest lesson we learned in our journey, it is that working as a collective (non-deaf instructors, deaf instructors, and deaf students) reflected a community approach to learning. We suggest this type of collaborative decision making can become the norm in interpreter education as we move forward. We make no claims that we have found the “right road” for guiding deaf students in interpreter education; indeed, we are still searching for the most progressive route. Our aim in this article is to add to the discussion of how to get to the right road for DIs so we can continue our journey together.

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## Appendix A

### Fundamentals of Interpreting (INT 325) course description

This course focuses on the foundation skills required for effective translation and interpretation. The course includes critical analysis and application (a) for systematically analyzing interactions and texts in order to ascertain where meaning lies, and (b) of understanding and developing the cognitive skills for translating and interpreting. Students will be introduced to and practice intralingual translation and interpretation text analysis techniques through main point abstraction, summarization, paraphrasing and restructuring a message while retaining its meaning. Discussions will address theoretical aspects of translating and interpreting techniques as well as specific issues related to interpreting skills. This class focuses specifically on analysis and restructuring in interactive settings e.g., ASL-spoken English interaction, ASL-TASL interaction, and intermediary interpreting teams. This course will help students increase their range of proficiency, comprehension and production of the ASL language, and use of contact signing for interpretation and shadowing techniques.

## Appendix B

### Instructions for modified assignments

#### Assignment 1 modification: ASL interpreting for a cooking class

##### Close-vision interpreting

Your client is a 35-year old deaf female, Claudia, who lives in the DC metro area. Claudia has impaired vision and when she uses an interpreter, she prefers close-vision interpretation with the interpreter sitting about one foot in front of her. One afternoon, Claudia was in her local library and noticed a flyer about a cooking class in ASL. Claudia contacted the library by email, explaining that she would like to join the cooking class and would require close-vision ASL interpreting. You have been assigned to work with Claudia for this assignment. How would you

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## Modifying Assignments for Deaf Students

create a meaningful translation for Claudia based on the presentation of making creamy potato soup? Please video record your interpretation and submit it to the instructors.

### Interpreting for emerging signer

A 45-year old female deaf Syrian refugee, Rima, has moved to Washington, DC, with her husband, Farid. Both Rima and Farid are native users of Syro-Palestinian Sign Language and have only rudimentary fluency in ASL. Rima is interested in learning the basics of American cooking, as well as increasing her ASL vocabulary. One day when she was in the downtown library, Rima noticed a flyer that offered cooking classes in ASL. Rima contacted the library by email and, in her basic English, explained that she would like to join the cooking class with the support of an interpreter. The librarian and Rima decided that having the lesson interpreted by a CDI would be helpful. Rima stated that she wanted both to learn the recipe as well as acquire some ASL vocabulary. You have been assigned to work with Rima for this assignment. How would you create a meaningful message for her based on the ASL lecture about making creamy potato soup? Please video record your interpretation and submit it to the instructors.

### Assignment 2 modification: Sight translation of District of Columbia driver's license exam

You are interpreting for a deaf student at the Model Secondary School for the Deaf. He is 16 years old and taking the driver's test in D.C. He requested an interpreter in case there are questions that he doesn't understand fully in English, which would then be translated into ASL.

Directions: The District of Columbia driver knowledge examination tests your knowledge of traffic laws, road signs, and driving safety rules. It determines whether you are prepared to operate a vehicle in accordance with DC law. The test can be interpreted into American Sign Language. Audio assisted tests are also available for those who need assistance with reading.

Respond to each question with one answer.

1. When changing lanes:
  - a. Check your side mirror and look over your shoulder to make sure the lane is clear.
  - b. Check the inside rearview mirror.
  - c. Slow down.
2. You are driving when it begins to rain. You should:
  - a. Drive faster than surrounding traffic.
  - b. Drive at the maximum posted speed limit.
  - c. Slow down.
  - d. Drive closely behind the vehicle in front of you.
3. It is best to keep a space cushion:
  - a. Only in back of your vehicle.
  - b. Only on the left and right sides of your vehicle.
  - c. Only in front of the vehicle.
  - d. On all sides of the vehicle.
4. A driver's license is required for which of the following? (Pick a, b, c, or d)
  1. Sitting in the driver's seat of a car while the engine is running.
  2. Steering a car while it is being pushed or towed by another vehicle

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## Modifying Assignments for Deaf Students

- a. 1 only
  - b. 2 only
  - c. Both 1 and 2
  - d. Neither 1 nor 2
5. You will lose your license if you are convicted of:
- a. Driving without a license
  - b. Passing a stopped school bus
  - c. Failing to yield the right of way
  - d. Speeding more than 75 mph
6. If you refuse a legal chemical test issued by a law enforcement officer, the Division of Motor Vehicles is required to:
- a. Place you on probation
  - b. Wait for a court decision before taking action
  - c. Assign you to a Driver Improvement Clinic
  - d. Revoke your driver license for at least 12 months
7. You will lose your license if you are convicted of:
- a. Driving without a license
  - b. Passing a stopped school bus
  - c. Failing to yield the right of way
  - d. Speeding more than 75 mph
8. This sign represents:



- a. Two-way traffic
- b. Lane shifting
- c. Low clearance
- d. Added lane

# Bridging Divides in the Interpreting Profession: Response to Gile and Napier (2020)

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## Abstract

This commentary continues the discussion raised by Daniel Gile and Jemina Napier (2020) and aims to examine further the interconnectedness of signed and spoken language interpreting. Whereas Gile and Napier have drawn attention to some dimensions of complexity, we suggest that there are more to be explored. Focusing on the situated nature of interpreting, and including a broader range of practices of spoken language interpreting, we argue that complexities in interpreting are not inherently more present in signed language interpreting than in spoken language interpreting, and that there are situated and local contexts that must be taken more fully into account. As interpreters of signed (Hansen) and spoken (Buzungu) languages, we eagerly anticipate the rapidly approaching unification of the interpreting profession and the academic communities.

Keywords: spoken language interpreting, signed language interpreting, interpreting profession, professional development, complexity in interpreting

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# Bridging Divides in the Interpreting Profession: Response to Gile and Napier (2020)

## 1. Introduction

In the latest volume of this journal, Daniel Gile and Jemina Napier (2020) present their reflections on the interconnectedness of spoken and signed language interpreting. In their comparison between spoken and signed language interpreting, Gile and Napier differentiate spoken language interpreting according to settings, distinguishing between conference and community interpreting. We suggest that including a broader range of practices of spoken language interpreting and considering the situated nature of interpreting will contribute to furthering the discussion. In the conclusion of their article, the authors write, “There is clearly much common ground between spoken language interpreting and SLI, especially as regards community interpreting, and the differences make mutual neighborly interest productive” (p. 68). We agree fully with their conclusion, and the topic is a pertinent one for the interpreting studies academic community as well as for practitioners of interpreting. In this commentary, we build on Napier and Gile’s work and further explore some of the topics they address.

## 2. Complexity in interpreting

Gile and Napier write that “[signed language interpreting] is more complex than spoken language interpreting” (2020, p. 68). *Communicative complexity* is a notion that intuitively seems appropriate in discussions of language-discordant interpreter-mediated interaction. *Complexity* as a concept is often used in a sense that can overlap with ‘difficult.’ However, the notion of complexity goes beyond this, because it encompasses a greater number of relationships mutually influencing each other (Hylland Eriksen, 2007). In this sense, complexity signifies multiple dimensions and intersections of these, as well as a level of unpredictability in how the various elements interact. As Hylland Eriksen puts it, this entails that “complexity is [when something is] not only many times greater than supposed in simple causal accounts, it is of a different order” (2007, p. 1059). There are several possible dimensions along which to consider complexity in interpreting, one of these is linguistic complexity. In assessing the linguistically complexity of a particular communicative interaction, Juola (2008) emphasizes the extent of the shared knowledge among the participants. The less “common knowledge” there is between participants in communicative interactions, the greater the complexity. Both Juola (2008) and Scollon and Scollon (1995) link this to the degree of language concordance, in the sense that people with a shared language commonly have more shared knowledge than those who do not share a language. Therefore, language discordance in itself can be seen as a factor adding to the complexity of a communicative interaction.

Elaborating on the statement above, Gile and Napier link the complexity of signed language interpreting to several issues. First, they mention that minority language speakers may say something to a signed language interpreter while she is interpreting into the signed language. This also frequently occurs when interpreting in spoken languages, particularly during simultaneous interpreting without an interpreting booth, when the interpreter is interpreting in a soft voice while seated close to the minority language speaker in a meeting with several

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## Bridging Divides in the Interpreting Profession

participants. Second, they link the complexity to the fact that signed language interpreters must “mind their spatial position so as to see what they need to see and be seen at the same time” (Gile & Napier, 2020, p. 68). The inherent visibility of signed languages clearly distinguishes them from spoken languages; however, spoken language interaction is by no means strictly verbal. Direction of gaze and gestures can carry integral meaning in spoken language utterances. For instance, the multimodal organization of spoken language interaction is emphasized in video-mediated interpreting, where the participants, both interpreters and other participants, rely on embodied resources in the interaction, although they may not create an interactional space giving the participants visual access to each other (Hansen, forthcoming). Third, on the topic of complexity Gile and Napier mention that signed language interpreters “need to deal with highly variable signing styles and to adapt to deaf clients who may not have good mastery of their standard national sign language” (p. 68). However, the issue of variable language proficiency and language varieties and accents used in the interpreter-mediated interaction is also prevalent in spoken language interpreting, both in public sector settings (Buzungu, forthcoming) and conference settings (Gile, 2009). Moreover, in simultaneous interpreting between two spoken languages without an interpreting booth (so-called chuchotage interpreting) the fact that both input and output are auditive into the same room makes this a complex practice for both interpreters and primary participants in the encounter. Finally, in public sector interpreting in spoken languages, interpreters are still frequently working alone, as opposed to in conference interpreting and signed language interpreting, where two interpreters may be seen as the norm. Working alone adds to the complexity of the interpreting task, because the interpreter must simultaneously interpret and carry out any situational management needed. Thus, complexity when it comes to interpreting may occur along a range of dimensions, such as setting, content, participation framework, technological mediation, and physical conditions, not to mention interpreters’ linguistic competencies, experience, and prior knowledge. Based on our understanding of complexity, we would suggest that most interpreted encounters are marked by complexity along several dimensions, and that this complexity is not more inherently prevalent when the interpreter-mediated encounter includes a signed language than when it does not.

### 3. Size of lexicon in spoken and signed languages

Gile and Napier suggest that a fundamental difference between spoken and signed language interpreting is the size of the standardized lexicon available to interpreters, in the sense that “the lexicons of spoken languages are larger by at least one order of magnitude than the lexicons of signed languages” (2020, p. 64). Although this is often the case, what is urgent to an interpreter is not necessarily the size of the lexicon of a language per se, but rather the question of standardized lexicon available on the specific topic that is being dealt with in that particular interpreter-mediated encounter. For example, when interpreting a meeting between a social worker and a service user in Norway, the interpreter working in Norwegian and Norwegian Sign Language may have more standardized lexicon available to her in both her working languages than the interpreter interpreting between Norwegian and Kirundi or Burmese, because Norwegian social welfare benefits terminology is generally not standardized in these and many other languages. Similarly, when an interpreting student working with Norwegian and Sámi is asked to interpret in a role play of an asylum interview during her interpreting studies, this will offer her substantial terminology challenges, as Sámi language is rarely used in this context and standardized lexicon is thus not as available to her as it is to her colleague interpreting between Norwegian and English in the same role play. Among the factors contributing to the size of the lexicon in a language on a given topic—including available terminology resources and whether the language exists in written form, is a language used in education, or is a state-bearing language of administration—its modality (signed or spoken) is not a primary factor. Thus, interpreters in spoken languages of limited diffusion may be just as skilled as signed language interpreters at coping with challenges brought about by limitations to the standardized lexicon in the topic of the encounter in either or both of their working languages.

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## Bridging Divides in the Interpreting Profession

### 4. One interpreting profession

On the historical developments of the interpreting profession, Gile and Napier distinguish between spoken language conference interpreting, spoken language community interpreting, and signed language interpreting (2020, p. 63). However, is it really that simple? Can we separate the interpreting profession into these three neat categories? In the Norwegian context, for example, interpreting in the indigenous Sámi languages has developed to a large extent in isolation from other languages. Moreover, conference interpreting is a relatively marginal segment in Norway, limited to a few handfuls of interpreters in some major European languages. Still, conferences are held in other languages, and interpreters who may ordinarily take assignments in community interpreting carry out interpreting in these settings, similar to the signed language interpreters who interpret in both settings. As for issues of professional status, it is not clear-cut in the Norwegian context whether signed or spoken language interpreters have the highest status. Remuneration is generally higher in spoken language interpreting in Norway, both in the public sector and in the conference market, whereas signed language interpreting is more strictly regulated when it comes to a monopoly of practice for those with formal qualifications (Ministry of Children, Equality and Social Inclusion, 2014). In Norway, bachelor's programs have been established for the study of both spoken and signed language interpreting (OsloMet, 2020a, 2020b). A major difference in the current education of interpreters in Norway is that a bilingual proficiency test is required for admission into the spoken language interpreting program. Future signed language interpreters, however, are expected to start from scratch and develop full professional proficiency in Norwegian Sign Language, in addition to learning how to interpret, within their 3-year BA training. Whereas the bachelor's program for spoken language interpreting covers topics such as interpreting in public services (community interpreting), interpreting in complex meetings, and simultaneous interpreting, the signed language interpreting program includes topics such as interpreting for the deaf and blind, and speech-to-text-interpreting. Therefore, spoken language interpreters complete their education with more specific training on public sector interpreting than do signed language interpreters in Norway.

### 5. Towards a situatedness orientation in Interpreting Studies

Interpreting is a situated practice carried out in a wide range of settings where numerous factors may affect the complexity of the work being carried out by the interpreter, such as the institutional frame, the communicative setting, the language combinations and language varieties involved, and the physical setting. Rather than siloing our profession into different categories, such as “signed language interpreting,” “spoken language community interpreting,” and “spoken language conference interpreting,” we might be better served by recognizing interpreting as a practice that occurs in a diversity of language combinations and a diversity of settings.

Interpreting may be carried out between two spoken languages, a spoken and a signed language, two signed languages, a spoken and a written language, a signed and a written language, and so on. The languages involved may be closely related, such as Norwegian and Swedish, or they may be less closely related, such as spoken Arabic and Norwegian Sign Language, or spoken English and written Tigrinya. In cases where the languages are less closely related linguistically, this offers substantial challenges to interpreters. Moreover, working with languages that have less standardized lexicons in the domain the meeting is about may cause complications depending on the prior knowledge and common knowledge of the participants, including the interpreter.

Interpreting may be carried out in conferences, in public service provision, or in other settings such as international business (Gentile, Ozolins, & Vasilakakos, 1996), media (Englund Dimitrova, 2019), and research (Borchgrevink, 2003). Moreover, even though some languages may be more prevalent in some settings, such as English and French in international conferences, Tigrinya in asylum interviews, and Norwegian Sign Language in press conferences on Norwegian TV, there is no innate link between setting and language. When we silo “spoken language conference interpreting,” we may contribute to a view of signed languages as languages not meant for the international conference arena. In reality, most languages can be found in most settings: Conferences may require interpreting between Norwegian and Nuer, courts may require interpreting between English and Norwegian Sign Language, and orthopedic hospital wards may require interpreting between Norwegian and German.

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## Bridging Divides in the Interpreting Profession

### 6. Conclusions

Gile and Napier's (2020) commentary article provides an interesting and highly relevant discussion on the interconnectedness of signed and spoken language interpreting. They have opened an enriching discussion that will benefit both the academic community and the community of practitioners. As interpreters of signed (Hansen) and spoken (Buzungu) languages, we eagerly anticipate the rapidly approaching unification of the interpreting profession and the academic communities. Although Gile and Napier have drawn attention to some dimensions of complexity, we suggest that there are more to be explored, particularly given the situated nature of interpreting. Internationally, the interpreting profession has not developed uniformly. Not all countries have much conference interpreting; some countries have indigenous peoples and languages with specific language policies that have shaped the profession; and the flows of migration vary enormously. Therefore, the educational programs, qualification schemes, and professional status of interpreters are also situated by nature, developing within local contexts. In exploring the interconnectedness of signed and spoken language interpreting, these local contexts can enrich the discussions.

As Uldis Ozolins (2014) points out in his excellent article on how those in the field talk about interpreting as a practice and profession, the interpreting profession has historically been plagued by adjectival divides ("court interpreting," "community interpreting," "ad hoc interpreting," "liaison interpreting," "sign language interpreting," etc.), which have contributed to the fragmenting of the discipline. Only by radically changing our path from such divisiveness can we aspire for a more unified profession in the future. There is a risk of marginalizing certain language combinations or settings, while centering others. However, if we are able to avoid that predicament, we may aspire to a nuanced and situated understanding of the interpreting profession and the complexity of interpreting practice. As Jemina Napier points out:

If you ask any spoken or signed language interpreter for their definition of interpreting, it is likely they will give you the same answer. The goal for any interpreter is to ensure that two or more people who do not use the same language come to understand the same message. (2015, p. 132)

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# Interview with Samoan-English Specialist Mental Health Interpreter Hoy Neng Wong Soon

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## **Abstract**

**This interview was conducted with Hoy Neng Wong Soon, a specialist mental health Samoan-language interpreter from Aotearoa New Zealand<sup>3</sup>. Hoy Neng combines her work as a research project manager with the Pacific Islands Families Study with interpreting and translating and also works as a health interpreter and translator educator. Her experiences offer interpreters and educators an insight into mental health settings and into the very demanding area of forensic psychiatry. She is based in Auckland, Aotearoa New Zealand.**

**Keywords:** interpreters and interpreter education; interpreting in mental health settings; forensic psychiatry interpreting; Samoan language interpreting.

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<sup>3</sup> Aotearoa New Zealand is increasingly used by many New Zealanders to recognize the name given to New Zealand by Māori. Aotearoa means 'land of the long white cloud' in Te Reo Māori, the Māori language.

# Interview with Samoan-English Specialist Mental Health Interpreter Hoy Neng Wong Soon

**Hoy Neng Wong Soon** is a Samoan-English interpreter, translator, and editor. She holds a Master of Health Science degree and teaches health interpreting and translation at Auckland University of Technology. She also works as a Project Manager with the Pacific Islands Families Study. Hoy Neng was recently awarded a doctoral scholarship in the area of health navigation.

**Jo Anna Burn** is a linguist who also trained in law. She has been a legal interpreter educator at the Auckland University of Technology for over 10 years and has published widely on a variety of topics, including innovative approaches to non-language-specific legal interpreter education, legal discourse, community translation, and language maintenance.

*Jo Anna: How long have you been working as a specialist mental health interpreter?*

Hoy Neng: I have been working as a specialist mental health interpreter since 2008. I often work at the Mason Clinic in Auckland, New Zealand. The Mason Clinic is a secure unit that offers integrated forensic mental health services to the courts and prisons, and general mental health services in the Northern Region of New Zealand.

*Jo Anna: What prompted you to work in this field?*

Hoy Neng: I was able to specialize as an interpreter in the mental health area because Samoan-English interpreters who were called to work in forensic psychiatry settings such as the Mason Clinic and other mental health settings were often declining such assignments or reported feeling traumatized, sometimes giving other reasons not to work with psychiatric patients. I saw this opportunity as a challenge for me but rewarding because through interpreting I am helping the Samoan community to the best of my ability.

*Jo Anna: What other kind of settings do you work in?*

Hoy Neng: I work in any setting, from court hearings to interviews at police stations, secure mental health units, hospitals, and parole hearings.

*Jo Anna: Is it always face-to-face work, or do you sometimes work over the telephone or via audiovisual link?*

Hoy Neng: I almost always work face-to-face, but for some bookings I do telephone or video interpreting. I prefer face-to-face work because I like to interact with clients, patients, and professionals. When it comes to interpreting, no assignment is the same and that is what makes it more interesting and fun for me because I learn from all these different experiences, clinics, and other settings.

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## Hoy Neng Wong Soon: Samoan-English Interpreter

*Jo Anna: How do you prepare for an assignment?*

Hoy Neng: You have to have a very good understanding of every mental health condition before attending such assignments. It helps to know and prepare for each client you might be working with in a clinic. The booking clerk can provide information, so ask for it! Every patient, every clinic, every case, and every support person is different.

When interpreting at a parole review hearing you should be aware that the outcome can result in some prisoners being deported back to their country of origin. Your understanding of the New Zealand legal system and legal terminology is very important.

*Jo Anna: Do you recommend taking a specialized course of study?*

Hoy Neng: I believe that there should be a specialized course of study when it comes to mental health interpreting and that interpreters should be well trained for these settings. With some patients it is easier to relay their words, but others may not be mentally stable, and I have to be very conscious of that when interpreting their responses. This is why I usually interpret the utterances of patients with very severe mental disorders word-for-word. This is to help health professionals and the legal team or parole board panel with their diagnoses and decisions regarding patients. We may know about mental illnesses, but each case and patient is unique, and each may differ in terms of the severity of their condition.

There are cases where I can grammatically structure my sentences when interpreting because these patients talk normally. But there are other patients with severe mental illnesses who jump from one topic to another and most of the time it will not make sense to any “sane” person. However, health professionals such as psychiatrists or psychologists understand their patients and their conditions, and the way I interpret helps these health professionals to register and then to be able to diagnose the severity of the patient’s mental condition. Most of the patients I have worked with tend to talk about spirits. Such patients may be conveying memories they have from a period of their lives but then they mix it with some details from out of this world. In other words, they hallucinate for some short periods of time and when this happens, health professionals ask me to relay whatever the patient is saying. I even copy whatever actions accompany a patient’s words so health professionals can see what actions go with what utterances. I believe this may help them with their diagnoses.

One of the most important things that interpreters need to know is that they should always be alert and aware of their surroundings when they are interpreting in a mental health clinic. Not all patients are calm. An interpreter’s safety is paramount at all times! This applies to staff, patients, and health professionals too – safety should be a priority.

*Jo Anna: Have you ever been frightened or felt unsafe at work?*

Hoy Neng: Yes, I was a bit frightened and nervous when I went to my first job at the mental health clinic. When I found out that I would be interpreting for a patient with very severe mental health problems, I was advised to stay with the clinic guard who would accompany me to the meeting room where I would be interpreting for the psychiatrist and the patient. I was also warned that there would be other patients roaming the floor and that I must at all times stay close to the clinic guard or whoever was accompanying me inside the ward. Although I felt frightened, I did not feel unsafe because I had health professionals and the guards with me. Even so, I still made sure that I followed any advice that I was given during the briefing time prior to entering the wards.

*Jo Anna: What other challenges do interpreters face? For example, isn’t it very stressful?*

Hoy Neng: Consultations at the Mason Clinic are very traumatic ones and many interpreters cannot handle the severity of these jobs; they might be interpreting in very difficult situations, for instance, those involving physical violence, incest and child rape. You have to remember that these are prisoners with very severe mental health conditions. Personally, I have never asked for counselling after consultations at the Mason Clinic and other similar clinics. At some point I did feel overwhelmed by the accounts or situations I was asked to interpret in, but I told myself, “I am making a difference and I can handle this. I am helping my people and community.” I used negative experiences and stories I heard from my clients to motivate me to look at the brighter side of being an interpreter and working in the mental health area.

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## Hoy Neng Wong Soon: Samoan-English Interpreter

*Jo Anna: Are you ever called on to sight-translate documents? Can you give some examples please?*

Hoy Neng: Yes, many times! I sight-translate documents such as medication lists, the medications that the patient would be taking, the dosage, and why the patient has been prescribed the medication. I sight-translate documents relating to summaries from health specialists such as psychiatrists, and consent forms so that patients and their families are aware of the treatments and so on that the patient is recommended to have. There are also letters from families that I need to skim through to explain to the health professionals what is in the letters. By reading through and then sight-translating the correspondence from the family members who give accounts of their experiences or views, I can then make the health professionals aware of what may have triggered the symptoms the patients are displaying.

*Jo Anna: How do you relax after a job? Do you ever ruminate on difficult experiences?*

Hoy Neng: My job as an interpreter is very busy and can be draining – physically, mentally, and emotionally. Yes, the cases that I interpret in may seem potentially very traumatic, but I do not let them take over my life or my thoughts, either at work or at home. After every job, I make sure to leave what I learnt in the room where I worked. If I were not to do that, then it would affect me and people around me. I also believe that it would in a way be breaching the privacy of the patients and health professionals. I take pride in acting in a professional manner and reflect on every assignment I do, so that I can use any newly gained knowledge to develop skills and perfect them in my next assignment. That way, I know that I can provide the best interpreting to any of the clients, patients, and professionals I work with.

*Jo Anna: What advice would you give to an interpreter who wants to work in this field?*

Hoy Neng: Leave your work at the workplace after every assignment. See also the commentary by Crezee et al. (2015), which advises interpreters to practice selfcare during and after assignments. Also, these are psychiatric patients who are also prisoners. Interpret every movement, facial expression, tone, etc. This will help health professionals with their diagnosis and treatment report. If it is a parole review hearing, then do the same! In some consultations, patients are running or walking on a treadmill or doing some form of exercise or “work,” and you do what you need to do – interpret! See also Jim Hlavac’s (2017) very helpful guidelines for interpreting in mental health settings.

Always ask for help if a job is affecting you in any way. In New Zealand, District Health Boards<sup>4</sup> have services for their interpreters if needed

Each day is a different experience as I work with different patients with different mental health conditions and health and legal professionals – I take it as a new learning experience. It is professional development and remember that you are doing good and necessary work.

*Jo Anna: What makes interpreting between English and Samoan particularly challenging?*

Hoy Neng: When it comes to medical conditions (mental health), I have to unpack very complex concepts into informal everyday Samoan words so that clients and patients understand the message that I am trying to relay. English health language is very complex, too, but trying to interpret it into Samoan can be 10 times more complex because I firstly have to understand the medical concepts in order for me to interpret them. Samoan, our heritage language, has a very limited health lexicon, and it is very difficult to provide equivalents for most health terms in English. And it is even more difficult to find equivalents when interpreting in mental health settings. I need to understand each medical concept in order to unpack the message precisely and in detail for the patients I am interpreting for.

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<sup>4</sup> New Zealand is currently (2020) divided into 20 District Health Boards that receive funding from the Ministry of Health to deliver a wide range of primary, secondary, and tertiary healthcare services to people in their catchment areas (see <http://www.waitematadhb.govt.nz/Hospitals-Clinics/Regional-Forensic-Psychiatric-Services>).

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## Hoy Neng Wong Soon: Samoan-English Interpreter

I will finish with an example to illustrate this. If the doctor says to a patient, “You have malignant pleural effusion,” I will interpret this as:

*Samoan translation (spoken):* O le tulaga o le gasegase lea ua maua ai nei oe, ua iai le vai i le vaega oloo iai ou mama ma e mafua mai lenei mea ona o le tulaga ogaoga tele o lou kanesa o le mama.

*Back translation:* The condition of the illness that you have now, you have water/fluid at the part where your lungs are located at and the reason why this thing has happened/is happening is because of the seriousness of your lung cancer.

*Jo Anna:* Thank you very much for this interview, *Hoy:* fa'afetai tele lava – thank you very much.

Hoy Neng: E le afaina – you're welcome.

## References

- Crezee, I., Atkinson, D. P., Pask, R., Au, P., & Wong, S. (2015). Teaching interpreters about selfcare. *International Journal of Interpreter Education* 7(1), 74-83.
- Hlavac, J. (2017). *Mental health interpreting guidelines for interpreters*. Retrieved from <https://research.monash.edu/en/publications/mental-health-interpreting-guidelines-for-interpreters>.

# Dissertation Abstracts

In this section, we feature abstracts of recently completed doctoral or master's theses. If you have recently completed a thesis in the field of interpreter or translator education and would like it to be included, please send your abstract to [citjournaleditor@gmail.com](mailto:citjournaleditor@gmail.com). We urge all academic supervisors to encourage their students to submit abstracts of their completed dissertations for inclusion in the next issue of the journal, in order to help disseminate new research and to support the next generation of academic researchers.

## **Deaf Employees' Perspectives on Effective American Sign Language-English Interpreting in the Workplace: An Investigation Using the Critical Incident Technique**

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### **Abstract**

With legislated rights for employment of Deaf people in the United States and the greater availability of professional American Sign Language (ASL)-English interpreters, one might imagine that communication is no longer a barrier to workplace productivity, success, and job satisfaction. However, several studies suggest that conditions for Deaf employees remain less than ideal. In this study, I examine questions of what constitutes effective interpreter behaviors and systemic structures that underlie interpreter provision. Using the Critical Incident Technique documented by Flanagan (1954), I investigate the experience of 17 Deaf, white-collar employees, whose dominant language is ASL, regarding their observations of interpreter-mediated communication in the workplace. Specifically, I explore how Deaf professionals characterize both effective and ineffective interpreting, as well as the provision of interpreting services. Drawing on 947 critical incidents, I created a taxonomy of 270 desired behaviors, 50 themes, and seven thematic clusters surrounding interpreter behaviors and systemic factors. Data analysis resulted in six findings, including (a) Deaf professionals have a rich understanding of effective interpreter behaviors and systems of interpreter provision; (b) Deaf professionals are burdened with "access work" in relation to interpreters; and (c) Deaf professionals are acutely aware that they are being represented through interpreters. I argue in two recommendations and associated caveats that the only way forward in applying these findings is for interpreters to adopt a customer service frame and for institutions to recognize that Deaf professionals are the experts in access to workplace communication and their delineation of interpreting needs should be followed. The findings provide the first large-scale examination of Deaf employees' perceptions of interpreter-mediated communication in

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## Dissertation abstracts

the workplace. By providing a detailed account of what constitutes effective services, the results hold implications for interpreters, interpreter educators, professional organizations, employers, interpreting agencies, and Deaf employees themselves. Ultimately, this study provides vital concepts that may be used to fulfil the legislated promise of communication access in the workplace.

Keywords: work, Deaf, American Sign Language, ASL, interpreter, behavior, system, Critical Incident Technique

### Reference:

Flanagan, J. C. (1954). The critical incident technique. *Psychological Bulletin*, 51(4), 327.

## First Impressions: Improving the Connection between Deaf Consumers and ASL-English Interpreters

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### Abstract

This dissertation examines the first impressions that occur between Deaf consumers and American Sign Language (ASL)-English interpreters prior to a healthcare appointment. Negative first impressions can lead to a disconnect or loss of trust between Deaf consumers and interpreters and increase the risk for Deaf consumers to receive inadequate healthcare. The recognition of this risk led to an action research study to look at barriers to successful interactions between ASL-English interpreters and Deaf consumers. The mixed-methods research design and associated research questions discovered factors and perceptions that contributed to the disconnect and subsequently informed a 10-week intervention with a small group of ASL-English interpreters and Deaf consumers. The factors that influence feelings of connection are system related: the lack of a standardized approach to using name badges, missing or incorrect appointment details; and an inconsistent protocol for interpreter behavior when a healthcare provider leaves the room. The intervention allowed the interpreter participants to generate solutions to mitigate these barriers to connection and apply them during the 10 weeks. The generated solutions included redesign of an interpreter referral agency's name badge, using small talk as a way to learn information about the nature of the healthcare appointment, and proactively discussing procedures when a healthcare provider leaves the exam room. Deaf consumer feedback was gathered during the intervention period and was used to modify the generated solutions. Use of these solutions resulted in an increase of feelings of trust and connection for both interpreters and Deaf consumers. The findings of this study offer new approaches that create a sense of connection between interpreters and Deaf consumers and may lead to more satisfactory healthcare interactions for Deaf consumers.

Keywords: soft skills, connection, first impressions, medical interpreting, action research, communities of practice



### Deaf students' experience of engagement in a mediated education: It is what it is

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#### Abstract

The purpose of this comparative case study (Bartlett & Vavrus, 2017) was to gain insight into and greater understanding of the perceived impacts of the policy and practice of educational interpreters on the school engagement experiences of American deaf signing youth. This study examined educational policy as practice using multiple levels of analysis (vertical, horizontal, and transversal) to trace the line of inquiry in the following guiding questions. At the macro level: What is the state-level policy discourse informing the practice of educational interpreting, including qualifications, hiring practices, and interpreter supervision? At the meso level: How do local education agencies appropriate the provision of educational interpreting, including educational team decisions related to each student's Individualized Education Program? At the micro level: How do deaf signing youth and their parents experience educational engagement in mediated educational settings?

A multimethod approach to data gathering led to a review of archives, inventory of documents and public records, observations, and interviews to trace the actor networks across scales from macro to micro. Educational interpreters in the study setting are required to meet minimum performance standards but are not included in the student's Individualized Education Program as policy requires. Through interviews and observations of three deaf-of-deaf high school students who experience both direct and mediated instruction, the study examined students' perceptions of school engagement. Deaf student participants in this study exhibit a resigned, fatalistic, "it is what it is" perspective on the educational interpreting services they receive in their mainstream classes; however, they choose to remain in the setting in order to be exposed to the hearing world. Findings indicate that neither the policy nor practice of educational interpreting support the full educational engagement of signing deaf students in mediated classrooms.

Keywords: comparative case study, deaf education, deaf students, education policy, interpreters, sign language

#### Reference:

Bartlett, L., & Vavrus, F. (2017). *Rethinking case study research: A comparative approach*. New York, NY: Routledge.