DEAF PROFESSIONALS – A REVIEW OF BEST PRACTICES IN THE STEM FIELDS

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Introduction

This best practices document is based on the themes identified in Kurz et al (2016) promoting resilience of deaf researchers and staff in audio-centric environments that currently exist in Canadian post-secondary institutions. The "protective" factors that need to exist include:

1. Social support
2. Role models
3. Optimism (translated from ASL as "Deaf can").

The workplace risk factors that reduce resilience include audism and linguicism, networking challenges, additional workload (to one's accommodation) and promotion limitations.

Coming out of a large European research project (DESIGNS), with funding support from the Erasmus+ programme via the European Union, the employment of deaf signers was examined in depth (Napier et al 2020). With the usual employment pathways (1:1 meetings, group meetings, progression, conflict and social settings), the themes that emerged from the qualitative data collected were identified as:

1. Barriers to employment/to or as a result of interpreting provision
2. Strategies that were employed by key stakeholders
3. Positive and negative aspects of the familiarity of the job and with each other

Those three themes had gaps identified in knowledge, organization culture, lack of experience and feedback mechanisms.

Employers need information to what supports are recommended that are available to deaf employees was an identified gap. The available supports need to be viewed by employers as part of the routine administration in business, so that stigma of deaf employees as burdensome is avoided. Determining how to best deliver training to deaf employees and ensure that this kind of access is the same as in the range of supports that hearing counterparts can receive. This is thought as providing in-house training – equivalent to both deaf and hearing employees from an accessibility point of view (examples: videos to be signed or closed captioned, provide advice to all staff to how to properly work with deaf sign language users). Moreover, employee assistance programs should be accessible, i.e. interpretation should be made available as needed. It is emphasized that Employers to commit embedding sign language classes and information about deaf communities in the annual programme of activities so that hearing colleagues can engage directly with deaf colleagues. This could be developed as deaf awareness training modules. Lastly mentorship programme should be developed for deaf employees so that career progression can be supported and planned, as a solution to the observed confidence gap that employers report for some deaf employees (Napier et al 2020).

Organization culture gaps are identified as needed guidance to what customs and practices exist, norms to expect. This can be connected to mentorship programming mentioned previously. This is intended so that knowledge is easier to acquire and ease challenges in navigating the institutional culture that is dominated by hearing people. Employers are to recognize that deaf employees can feel isolated, so need to foster office 'chit chat' in that employees are able to include and engage each other in information sharing (Napier et al 2020).

Employers need to be aware of the benefits of creating opportunities of interviews, starting as "mock" set ups so that deaf interviewees and interpreters can have the opportunity to learn from feedback through such scenarios. Additional experience in work opportunities could be provided through job related leadership training. Lastly, to avoid misunderstandings and tackle those issues immediately, it was suggested that feedback that is timely, focused and can be acted on would resolve such issues (Napier et al 2020).

The protective factors will be discussed first with provided solutions (if any) to the gaps identified by Napier et al (2020) coming out of the DESIGNS project. Along with the protective factors as best practices, the risk factors will be described last, for the reader to be aware of.

Protective factors – essential to resilience in the workplace

Having a social support system in place was identified as one of the protective factors (Kurz et al 2016). This is similar to the theme of relatedness need (i.e., in Alderfer's ERG theory) in a job be associated with friendly co-workers, to socialize and to be accepted (Lussier et al, 2000). This can be from mentors being available to having deaf colleagues or colleagues who are allies in the workplace (Kurz et al 2016; Listman & Dingus-Eason 2018; Smith & Andrews 2015). For instance, the incidental learning which is important for Deaf professionals in the workplace. In terms of incidental learning, this can be through workplace chatter which is commonly limited to verbal communication (Kurz et al 2016; Lussier et al 1999; Lynn et al 2020; Hauser et al 2022). As noted in Lussier et al (2000), quoted:

"Where there is a group discussion or conversations, both social or work related, I generally get left out, then get summary from one person later"…by an employee who is deaf." (Lussier et al 2000).

As well as the journal title of Majocha et al (2018), with a 18 year interval between the two journal articles, as quoted:

"Everyone was nice…but I was still left out" (Majocha et al 2018).

Knowing this kind of information allows workers to know announcements related to changes being made within the organization as chatter already was providing this kind of information (Kurz et al 2016; as noted by Foster (1992) described in Hauser et al 2022). As well, to identify allies who are known to be generous with information allows Deaf professionals to be filled in about workplace chatter or is happening at the watercooler (Kurz et al 2016; Lussier et al, 2000; as noted by Foster (1992) described in Hauser et al 2022). The watercooler chatter may appear not important to job performance, it is however essential to job satisfaction and integration with colleagues, leading to networks set up to inform the Deaf professional (as noted by Foster (1992) described in Hauser et al 2022).

Role models are essential in sharing critical information to how to function in the workplace through learning about such information (Kurz et al 2016; Listman & Dingus-Eason 2018; Holgate 2015; Lynn et al 2020). Role models or mentors will be able to advice on self-advocacy skills, STEM knowledge in how to be a scientist and so on to mentees who are deaf students or professionals (Listman & Dingus-Eason 2018; Smith & Andrews 2015; reviewed in Punch 2016; Hauser et al 2022). Information should be provided about social norms in the academic STEM culture which is less obvious to deaf scientists, as this culture has phonocentric hegemony and limited awareness of ASL and deaf culture (Listman & Dingus-Eason 2018; Lane 2005; Trowler and Turner 2002). Knowing the social norms means the capacity of identifying the cues and nuances of communication and behaviour in the environment (Listman & Dingus-Eason 2018; Trowler and Turner 2002). This means deaf scientists need to be prepared before entering such academic STEM culture, in a sense building "navigational capital"

(Listman & Dingus-Eason 2018). Preparation can include introducing deaf scientist to meetings with vendors of scientific equipment as well as sharing personal narratives including sharing challenges when making accessibility requests (Listman & Dingus-Eason 2018). Making requests for accessibility was particularly important, when to share concerns when this was not working well as quality interpreting is what enables access to the navigational capital into the academic STEM culture (Listman & Dingus-Eason 2018). This self-advocacy skill is based on the rights that is given to each Canadian through the Charter, so providing this knowledge to deaf scientists in Canada is critical. Geyer & Schroedel (1999) observe that the lack of knowledge or information about accessibility (accommodation) was an important reason to why lack of accessibility in the workplace is occurring. This varying lack of availability was thought to be due to type of occupation, education level and need of the employee along with the size and type of employer (Geyer & Schroedel, 1999).

This also requires some assertive involvement by the Deaf professional to identify and recruit fellow role models and set up as a network (Kurz et al 2016; Lussier et al 1999). The role models then can arrange meetings with other STEM professionals or hearing allies that could be important advocates for the Deaf professional (Listman & Dingus-Easton 2018). Once set up this allows strategies to be shared within the network and be able to apply those proposed strategies in the workplace (Kurz et al 2016). An excellent example of a strategy is that proposed by Greene & Scott (2021) where a Deaf culture in applied anatomy module was developed for first year medical students with tracked improvement in knowledge via surveys. This is important as it is often the hearing allies that Deaf professionals can ask a favour from rather than those who remains uninterested for other reasons (Listman & Dingus-Easton 2018). This distinctness between a hearing ally and who are not (non-allies) may be associated to who are friendly to the Deaf professional (Lussier, et al 2000). Setting up a network is part of the navigation capital that is required to understand the social norms of the academic STEM culture (Listman & Dingus-Easton 2018).

“Deaf can” is a translated phrase commonly used in ASL as an optimal approach, especially when in circumstances that are known risk factors to one’s resilience. This allows a Deaf professional to focus on the right places to work on and be positive when doing this kind of work, that is to take the approach of thinking of one’s strengths in the workplace (Kurz et al 2016; Lussier et al 1999).

To reframe, the use of “deaf gain” is another term in common use (Smith & Andrews 2015; Bauman & Murray, 2014). Of particular note is the framing of being deaf as a natural human variation that persists (Bauman & Murray, 2014). Genetics has noted that deafness has persisted over thousands of generations and exist everywhere on Earth (Bauman & Murray, 2014). The mutated Cx26 gene is associated with individuals observed to have thicker skin (Bauman & Murray, 2014; Meyer et al 2002). This property leads to increased protection from bacterial infections and wounds are healed faster (Bauman & Murray, 2014). This is thought to exist as sweat hyperomolarity, with sodium and chloride concentrations higher, creating an osmotic environment that is not favourable for bacteria growth and becomes a more strong mechanical barrier (Meyer et al 2002). This Genetics framing of deafness shows that evolution aims is why deafness occurs and any negative connotation of deafness is due to society’s frameworks in place.

As well, “deaf gain” has come from the contributions of Deaf professionals in the academy, with George T. Dougherty completing analytical chemistry school work to specialize in metallurgy in early 1900’s (Deaf-Mutes’ Journal, 1934) and that of Wladislav Zeitlin with a background in physics and engineering who visioned the video phone and was born in 1907 (Zarurov, 2014). These are examples of the early stages of Deaf science with the earliest doctoral degree (in law) by Charles Bonnet by 1743 to the present day with the current total at 809 doctoral degrees by 2023 (No author, tinyurl.com/deaf-docs).

Risk factors – to be aware of in the workplace

The communication barrier is a feature of audism (Kurz et al 2016; Bauman 2004; Woodcock et al 2007; Trowler and Turner 2002). To understand how this comes from audism, Harrelson & Nicodemus (2022) asserts that the standard for communication access is that of direct communication. This comes from setting the standard from the experience of employees who are not deaf in the workplace in which this should be the same standard for Deaf employees when assessing the provided communication access (Harrelson & Nicodemus 2022). Of note is that this standard of communication includes protocols to be in place for the Deaf professional to successfully work in the workplace is not always included in the concept of "reasonable accommodation" (Harrelson & Nicodemus 2022). To meet this standard of communication, it is imperative that employers establish such a system in the workplace – in particular to be well designed rather than be ad hoc or not well thought out (Harrelson & Nicodemus 2022; Lynn et al 2020; reviewed in Punch 2016; Scott et al 2023; Woodcock et al 2007). Published 25 years ago, Lussier et al (1999) describe how the employer could improve the work situation by offering American Sign Language (ASL) classes for hearing colleagues of Deaf professionals, which is an environment adaptation (i.e. the social model) instead of the medical view of accommodation. As well, it was noted that the most common method of communication between Deaf and hearing employees was sign language (Lussier et al 1999). In Woodcock et al (2007), it was noted by the authors that motivated learners of ASL can be achieved within a year or so, so this solution of direct communication with Deaf professionals is possible.

While it is common to suggest technology as a solution to communication barriers, as Woodcock et al (2007) has stated, the use of spoken language to text is not always effective in resolving the communication barrier. Currently, there is spoken language to text translation available, that could be used between hearing individuals that don't sign and deaf professionals. This use of spoken language to text translation is not effective for unlimited vocabulary, which is particularly of relevance to STEM terminology (Woodcock et al 2007). This type of technology is also problematic in multiple speaker environments, as the input of each speaker is not identified within the text that is produced (Woodcock et al 2007). However, the use of CART (communication access real-time translation) is a relevant use of technology which involves a human reporter (usually advanced court stenographers) who take the spoken language into a specific type of keyboard (Woodcock et al 2007). The output is then shown on a screen for the Deaf professional to read and follow the discourse. One limitation of CART is the inability to move this technology to remote areas for research studies, etc (Woodcock et al 2007). Another limitation, same as that of spoken language to text translation, is the inability to identify who is speaking in the translated text produced by CART, as opposed to ASL interpreting where the interpreter is able to identify a new speaker by pointing or identifying in some characteristic way (Woodcock et al 2007). Lastly, the translated text produced by CART does not have the capacity to record the non-verbal language (facial expression, tone of voice, etc) where it is known that non-verbal language is intrinsic to a language to express emotions, attitudes and personality (Woodcock et al 2007). Ultimately it is ASL interpretation that is effective in overcoming the communication barrier (Woodcock et al 2007). Due to the STEM specific terminology, it takes time in workplace contexts to obtain language receptivity for access in meetings with expressive fluency slower to obtain by the interpreter (Woodcock et al 2007).

Smith & Andrew (2015) recommend that if an accommodation request comes up and no one within the institution has versed experience, a team approach of trained officials and Deaf professionals be done at the start of the accommodation process so that a win-win situation then is more likely. Hauser et al (2022) note that such systems (agencies, accommodation offices, supervisors, colleagues and so on) should trust the Deaf professional's judgement to best provide accommodation so that can work effectively and efficiently. Woodcock et al (2007) point out that the environment needs to be made trustworthy where disclosure of one's disability is accepted and worthwhile to get accommodation without repercussions. Despite literature describing the importance of establishing a well designed

system or alternative possible solutions to access direct communication, Smith & Andrew (2015) suggest that post secondary institutions do not pay attention and go into the legal reasonable accommodation as default comes from the issue of funding and resources. The policy change to mitigate this issue is to recommend to be using central funding sources so that the academic levels do not have to concern themselves with those issues, and be more welcoming to Deaf professionals (Smith & Andrew 2015; Woodcock et al 2007). Additionally in doing so, the central funding source is then protected with confidentiality under various laws so that only those who are directly responsible for handing such account know (Smith & Andrew 2015, refer to Woodcock et al (2007) for Canadian perspectives). Smith & Andrew (2015) state that it is the managers in the workplace that play the most critical role, when it is perceived that the benefits associated with accommodations outweighing the costs, much lower level of prejudice in departments and a more conducive work environment are then seen. This is also reported in Trowler & Turner (2002) were leaders (at the department level and elsewhere) should develop interpretative and analytical skills to better understand the social worlds they and their colleagues operate in and determine what possible consequences can occur due to statements, actions or policies coming from the workplace environment.

At the same time, to date, such systems that operate the ad hoc interpreting is not sufficient for the workplace environment, rather the interpreter must be experienced and self-reflective as the minimum requirement (Harrelson & Nicodemus 2022). The Deaf professional preferences in interpreter language fluency, educational background, experience in the workplace and interpersonal skills are critical to success but not always accounted for in the ad hoc systems currently place (Harrelson & Nicodemus 2022). Scott et al (2023) suggest this is perhaps partially due to sign languages being stigmatized and propose this as “minoritized” languages due to the power differentials that exist.

Noting the issues of how a system is set up and how the interpreting is conducted, it is imperative that guidelines be found to promote positive experiences while interacting such systems. The proposed system should have the following identified behaviors (Harrelson & Nicodemus 2022):

- Interpreting office or agency ensures small group of interpreters assigned on an ongoing basis
- Interpreter office or agency provides streamlined and efficient interpreting request system
- Employer provides interpreters for short-notice requests
- Interpreting office or agency follows Deaf consumer’s preferred interpreters list
- Interpreting office or agency follows Deaf consumer’s unsuitable interpreters list.

It is noted in Smith & Andrews (2015); Trowler and Turner (2002) that flexibility to which approach (part-time, on contract, outside agency, experienced interpreter as the administrator of interpreting programs, etc) depend on the circumstances of the Deaf professional being hired, with complexity added when more than one Deaf professional is working at a post secondary institution.

As described in Harrelson & Nicodemus (2022), the work by Dickinson (2017) describes the critical management by interpreters of knowing how to interpret small talk, joking exchanges, ability to participate in activities that require collaboration. Meetings (in the workplace or conferences) for interpreters is another challenge due to the presence of unclear turn taking, talking over others, unclear role responsibilities of participants in the meeting (Harrelson & Nicodemus 2022; Smith & Andrews 2015; Woodcock et al 2007; Trowler and Turner 2002). Not doing those well (by the interpreter) impacts the interaction success between deaf professionals and hearing colleagues, as this management has a direct impact on collegial relations to exist in the workplace (Harrelson & Nicodemus 2022; Smith & Andrews 2015; Trowler and Turner 2002). Additionally, discourse in the workplace is based on STEM-

specific terminology and jargon and this is a well-known issue in interpreting (Majocha 2023; Harrelson & Nicodemus 2022, as described in Dickinson, 2017).

A well known solution to those issues is the deaf professional and designated interpreter paradigm which is not well known in post secondary institutions (Hauser et al 2022). This is not the same as to speech to text software application as the environment and individuals involved in the communication are not accounted for (Hauser et al 2022). Rather the communication with the interpreter involved reflects the concept of 'intersubjectivity', so to interpret means more than just language, need shared knowledge between the participants be also available to the interpreter to reduce the number of assumptions when interpreting (Hauser et al 2022). For the interpreter, this includes judgements to the intentions and frame of reference for the participants, especially so with two languages that are quite different (Trowler and Turner 2002; Holcomb 2018). To be a designated interpreter means having the same "…mutually shared view with the participants" as quoted by Sedran (2012) in Hauser et al (2022). Trowler and Turner (2002) point out that in monolingual interactions in everyday conversations, it is assumed that intersubjectivity has been "achieved", but in actuality it's a complex matter. In short, this paradigm allows the Deaf professional to focus on "what" to say, instead of being concerned to "how" their self would be expressed by the interpreter (Hauser et al 2022).

More recently, Young et al (2019) has examined the point of view from the Deaf professional rather than the interpreter and observed that while interpretation is a positive approach to enable interpretation and/or accommodation, this approach has thought to be with serious concerns, more than just the linguistic context. Firstly, the interpreter (as the "other") has to make choices to how the Deaf professional is represented, so the Deaf professional has a loss of agency in being able to communicate and projecting their identity (self) (Young et al 2019). Secondly. the interpreter has powers in the making of choices of tone of voice, lexical choices, register and the identity of themselves, implying that hearing individuals will perceive the deaf person as a "other" through the interpreter (Young et al 2019). Again the situation of intersubjectivity comes up, where the understanding of the "other" is not direct (Young et al 2019). In the workplace it is important that strategies meant to overcome the communication barrier is to be understood in terms of different linguistic (language) context and intersubjectivity (Young et al 2019).

In the lens of phonocentrism the communication path between the Deaf professional and the non-signing individual (professional, scientist, et cetera) is not direct, so the privileged use of the body to express a language is disconnected (Young et al, 2019). The third person, the interpreter, is the source of the language (i.e. the spoken voice) so the body of the Deaf professional is not there along with the linguistic aspects of the language itself adding complexity (Young et al, 2019). So the concern from the Deaf professional point of view is that fellow professional who do not sign perceive the Deaf professional as an "interpreted self" or way of being through an interpreter (Young et al 2019).

Moreover, from the study of Young et al (2019), to build rapport between the Deaf worker and the hearing individual, as done in alternative ways, i.e. by email or dependent on the interpreter (the third person) will take much longer as opposed to direct communication between the two. Moreover for leadership, who would not know well colleagues with non-leadership titles, rapport was found to be consistent to status of the workplace, rather then the issue of communication which implies other factors are at play (Young et al 2019). For a work team to be coherent, it was pointed out that it is important to know your colleagues socially (Young et al 2019). Even with the presence of an interpreter, when comparing to informal chats between two hearing individuals, it was felt that this social aspect was observed to be not informal or even spontaneous – with chats in an elevator as a specific example (Young et al 2019).

So for hearing individuals, working with Deaf professionals means giving up the natural possibility of forging a relationship with the Deaf professional, to get the language discourse by the same Deaf professional, through an interpreter (Young et al 2019). Generally, this is not what hearing individuals experience in the workplace, as language is not a limited resource as typically acquired in one's family and community (Young et al 2019). This implies a trade-off when using such an interpreter in this interaction between the Deaf professional and the non-signing professional. It has been commented by hearing colleagues that one has to pay attention to both the interpreter and the Deaf professional, in the sense to be able to capture the emotions, behaviour, state of being coming from the Deaf professional as this does not necessarily be captured by the interpreter (Young et al 2019). Reasons for this can include time lag (in interpretation) or simply not captured (Young et al 2019). Moreover, the hearing professional perceptions may be baised by viewing Deaf as a detrimental disability or thinking the interpreter is "for" the Deaf professional. Properly, the interaction should be an intercultural and bilingual approach (Young et al 2019). The reverse can also be true, where the hearing professional is "masked" or known less by the Deaf professional or even that the Deaf professional must experience discomfort to adapt communication to work with hearing individuals in the workplace (Young et al 2019). This is not necessarily known by the hearing professionals in the workplace (Young et al 2019). Moreover, the need to want to know the Deaf professional can be impacted either detrimental or conductively by the interpreter, which often depends on the context and the complexity of the information discussed (Young et al 2019).

Networking challenges even with accommodation made for communication between two linguistic groups (hearing and deaf) was a common factor identified for job success and mobility (Kurz et al 2016; Lussier et al 1999; Woodcock et al 2007). This is primarily due to Deaf professionals having a lived experience different from hearing individuals (Kurz et al 2016; Trowler and Turner 2002). So the differing cultural norms is challenging when entering networking events offered in the workplace (Kurz et al 2016). Woodcock et al (2007) has noted that academic colleagues may view accommodations or the presence of interpreters as "siphoning of funds" typically not understanding the presence of an interpreter is "two-way" communication (quotations as taken from Woodcock et al 2007). One common solution to this problem is to have a designated interpreter in place working with the Deaf professional (Kurz et al 2016). Although networking at conferences is often the main reason why Deaf professionals attend, typically the event organizers do not provide access for events as networking (Hauser et al 2022; Woodcock et al 2007). Not providing interpreters at such conferences are often due to claiming undue hardship (actually not justifiable) by stating do not have funds when in practice, they have organized such a conference with a profit expected to support their society activities (Woodcock et al 2007). There are few exceptions including the American Society of Limnology and Oceanography, the Association of Canadian Ergonomists (Woodcock et al 2007) and more recently by the Canadian Society for Chemistry (2024). If interpreters end up being provided they are often not designated interpreters of the Deaf professional, rather are generalists instead, this can become high risk for the Deaf professional as the voice of the Deaf professional can get lost and misunderstandings occur at high risk (Hauser et al 2022).

Additional workload was a common feature in finding employment, being able to get new positions within an organization or even internships (Kurz et al 2016; Chu et al 2017; Woodcock et al 2007). One way to resolve this is to examine the system in place that takes in requests of interpreters as this is a common additional workload for Deaf professionals (Harrelson & Nicodemus 2022; Smith & Andrews 2015). Such systems should have processes in place that shows the status of interpreter requests without having to do follow-up communication (i.e. emails) (Harrelson & Nicodemus 2022). Once resolved, it is observed that deaf professionals then have increased productivity as trust exists in the system, reducing anxiety and releasing the deaf professional from the unspoken burden and expectation of managing their

own interpreting services just to access everyday workplace communication (Harrelson & Nicodemus 2022). This is noted that hearing colleagues do not have to experience this kind of workload, creating labor that is unrecognized, unrewarded and unequal with psychological, emotional and time costs (Harrelson & Nicodemus 2022; Woodcock et al 2007). Another issue of additional workload is making short-notice requests (Harrelson & Nicodemus 2022). This issue is a tension between scheduling and spontaneous needs of the working Deaf professional, which has had deleterious issues for the Deaf professional to participate in ongoing projects (Harrelson & Nicodemus 2022).

Promotions are another identified issue by Deaf professionals, which is connected to networking (Lussier et al 1999), to dissertation in peer-reviewed journals (Marchut et al 2021), to selection committees within post secondary institutes viewing Deaf professionals as job candidates to further reduce available resources existing within that institute (Woodcock et al 2007) and being able to speak clearly, as an expected hearing culture norm (Kurz et al 2016). In a study of interpreting a job interview of a Deaf professional, Alley & Otto (2024) report a range of 37-52 hesitancy interjections by interpreters recruited (47 total) to interpret this filmed interview. It is clear that employers need to be aware that the speech expressed by interpreters can include verbal nuances (disfluencies and qualifiers) that is not representative of the ASL language used by the Deaf professional (Alley & Otto 2024). This can have a direct impact on the job candidate's suitability for a job position, in particular if the candidate is a Deaf professional (Alley & Otto 2024). Another lens on this issue is the need of having control over the selection of interpreters ('preferred list') when asked to do work beyond your current position (Harrelson & Nicodemus 2022). This was reported by deaf professionals as having an interpreter that knows one's signing preferences and is familiar with the workplace environment and colleagues the Deaf professional as critical to success (Harrelson & Nicodemus 2022). Additionally, the preferred list is also impacted to the external circumstances outside the workplace but required (i.e. conferences or meeting vendors) as well administrative structures in particular, the decision making done by schedulers within interpreting agencies and the way contracts are set up with interpreting agencies (Harrelson & Nicodemus 2022).

With work presented at conferences usually written up and submitted to peer-reviewed journals, Marchut et al (2021) notes that most deaf doctoral professionals are forced to access content in spoken English through accommodations, rather than direct communication in ASL. This is a known concern as journal writing for academics is technical writing that requires mentoring (Marchut et al 2021) as described previously as a protective factor in this report. Due to the limited access of direct communication, opportunities to writing up research is limited (Marchut et al 2021). Those opportunities are typically thought limited due to two barriers: the hidden curriculum and audism (Marchut et al 2021). Audism has been described elsewhere in the report, not knowing the hidden curriculum means the status quo is maintained and this blocks success of Deaf professionals in writing articles (Marchut et al 2021). A proposed solution to this is a creation of a collective writing community or retreat that has Deaf academics available as a community of practice with direct communication (ASL) (Marchut et al 2021). Success of such a retreat depends on having experienced mentors provide support and guidance in a DeafSpace friendly environment, as a structured way to write (Marchut et al 2021). To initiate such a collective writing community will require the identification of mentors as a way to transfer cultural wealth to mentees (Marchut et al 2021).

A solution: DEAM approach for ASL to English interpretation

Based on the current best practices in place for ASL to spoken English interpretation, from the Deaf professional point of view it is almost not possible to determine the accuracy or effectiveness of the interpretation (especially in the STEM fields) (Holcomb 2018). This awareness comes from knowing there is discrepancies to how signed STEM terminology is being interpreted (Holcomb 2018; Smith &

Andrews 2015). This can be from not perceiving the singing correct, poor vocabulary selection, not knowing ASL discourse structure (Holcomb 2018; Smith & Andrews 2015). As this is the current best practice, there is current discussions in the Deaf community regarding solutions to this issue. Currently two proposed solutions exist to this issue. The first thing is to approach the interpreter team and come to an agreement to this issue so that there are no surprises. Next, the Deaf professional is to identify an ally who is willing to sit in the audience or near the interpreters. This ally can be a colleague, a close friend or family member depending on the context, with a colleague likely the most appropriate choice in STEM workplaces (Holcomb 2018).

The second solution, in the views of the author, is more of an appropriate fit in the STEM fields, due to the required knowledge of field-specific terminology. As background, previously this solution came from signers who were hearing presenting their work in ASL so those signers had the power to ensure they were presented accurately, by correcting errors and so on (Holcomb 2018). However, such presentations by Deaf professionals at scientific conferences are still lacking optimized experiences, as reported in Kasper et al (2024). This solution is the Deaf professional is to communicate with the interpreter team about the context to be interpreted and getting agreement, to add a third interpreter to the interpreter team. This third interpreter would focus on spoken words of the team interpreters and sign (word for word) to the Deaf professional, who is the source of the information being interpreted (Holcomb 2018). In doing so, the Deaf professional then becomes part of the team and is given the responsibility to decide what to do when an error comes up in the presentation as an example (Holcomb 2018). As well, the Deaf professional can also modify the presentation style (slow down the pace of signing, fingerspell to aid vocabulary selection, be precise in the vocabulary signed) as needed or continue on based on the feed from the transliterator (third interpreter) (Holcomb 2018). It should be noted again that the two solutions are recently presented to the Deaf community, so not yet in common practice (Holcomb 2018).

Acknowledgments

This best practices document was supported with funding from BCIT's Learning and Teaching Innovation Grant.

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