

# Engagement of dietetic students and students with hearing loss: Experiences and perceptions of both groups

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**Background.** Final-year dietetic students from Stellenbosch University (SU) present selected training sessions during their Rural Clinical School (RCS) rotation to professional cookery students of the National Institute for the Deaf (NID).

**Objective.** To describe experiences and perceptions of dietetic students and NID students before and after training sessions.

**Methods.** A descriptive, phenomenological approach was followed. SU students ( $N=23$ ) reflected on experiences before and after providing training to NID students. Two focus group discussions were conducted with NID students ( $N=19$ ) after training to explore their experiences related to the training. An experienced interpreter facilitated discussion topics using South African Sign Language (SASL). Voice recordings were transcribed verbatim and thematic content analysis was performed manually.

**Results.** NID students described feelings of uncertainty and fear of the unknown prior to the training. These feelings turned to excitement and curiosity as the presentations continued. They were positive about the learning experience and described it as wonderful and interesting. SU students described it as challenging, but valuable in gaining insight into living with deafness. The experience positively influenced their professional and personal development. Students were appreciative of and grateful for the opportunity to engage with and learn from each other. Suggestions were made to improve future training sessions based on identified barriers, such as overcoming communication challenges and clarifying reciprocal misperceptions. Perceptions changed when similarities between student groups were realised.

**Conclusion.** The overwhelmingly positive experience of both groups is a strong motivation to continue with this initiative. SU students recognised the importance of health promotion to persons with impairments.

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When referring to the audiological condition of deafened individuals, 'deaf' is used. An uppercase D is used when writing about Deaf Culture, a group with which many prelingually deaf individuals affiliate themselves. Culturally Deaf individuals have their own language, specific customs and ways of behaving.<sup>[1]</sup>

The deaf and persons with hearing loss (D/HL) are a minority group worldwide that faces challenges to achieve optimal health owing to various factors,<sup>[1-4]</sup> such as inequities in accessing healthcare, low reading levels, writing levels that often do not exceed those of 6th-grade English pupils,<sup>[3,5]</sup> not understanding health-related terminology, with a resultant inability to interpret written prescriptions,<sup>[5]</sup> missed appointments and misunderstood diagnoses.<sup>[1]</sup> D/HL find the attitude of healthcare professionals (HCPs) patronising, creating a barrier between them and HCPs in general. Due to poor communication, there is very little transfer of information, leading to inaccurate interpretations by D/HL, which may negatively affect health outcomes.<sup>[1,2,5]</sup>

There is a need to educate HCPs about the unique problems faced by D/HL,<sup>[2,4]</sup> as even well-educated deaf individuals may have difficulty understanding written English. Mastering of basic sign language by HCPs could help to build trust during consultations, as the use of interpreters could lead to fear of being judged by the interpreters<sup>[1]</sup> and has the potential of breaching confidentiality<sup>[5]</sup> and privacy. Enhancing these communication skills among HCPs will comply with the development of professional competencies that extend beyond disciplinary expertise or

technical knowledge, such as those of communicator, collaborator, scholar, health advocate, manager and leader.<sup>[6]</sup>

The Rural Clinical School (RCS) of the Faculty of Medicine and Health Sciences (FMHS) of Stellenbosch University (SU) is based in Worcester, Western Cape Province, South Africa (SA). The RCS provides students from FMHS with exposure to rural community health, allowing for real-life experiences during their placement at the RCS and rendering services in a rural community setting.<sup>[7]</sup> It further promotes community-orientated education and training through engagement of students via a multitude of learning activities in under-served areas.<sup>[7]</sup> Final-year dietetic students complete a 6-week rotation at the RCS as part of their internship, thereby providing services at various facilities in the Worcester district. RCS facilitators affiliated to the Division of Human Nutrition, SU, have fostered relationships with several community partners (Box 1).

One of these partners is the National Institute for the Deaf (NID), a private training institution registered with the Department of Higher Education and Training (DHET) that caters for specific training needs of deaf students. The NID offers hospitality courses, one of which is Professional Cookery (PC). The main aim of these courses is to increase employability of these special needs students.<sup>[8]</sup> The NID employs a multidisciplinary approach to their teaching to meet the diverse needs of their students.<sup>[8]</sup> 'Deaf students are not simply hearing students who cannot hear',<sup>[9]</sup> is a message continually emphasised by numerous researchers in the field of D/HL education.<sup>[1,2,5,9-11]</sup> The literature reports that the cognitive functioning of D/HL differs

## Box 1. Context

The RCS rotation allows students the opportunity to experience how different dietetic subjects link with one another and where the translation of theoretical knowledge into practical skills is practised through appropriate responses to the health needs of community members.<sup>[13]</sup>

An assignment introduced in 2014 involved dietetic students who had to give presentations to NID students on nutrition-related topics not covered in the NID professional cookery curriculum. This assignment contributed to the enhancement of professional competencies of SU students in more than one way.

After consultation with the NID co-ordinator, topics for four training sessions were identified: (i) healthy eating; (ii) healthy cooking methods; (iii) meal planning; and (iv) menu planning. Training material developed by the SU students was evaluated prior to the training sessions by two lecturers from SU and one lecturer from the NID for conciseness, accuracy and suitability for the target group. Training sessions were limited to 3 hours and comprised two components: a theoretical component presented in a classroom and a practical session in a well-equipped kitchen. The ratio of the SU:NID students was 4:10.

In preparation for their duties during the RCS rotation, dietetic students attended an introductory session of one of the NID lecturers regarding the skills necessary to communicate with persons with hearing loss.

from that of hearing learners and may possibly affect learning, language comprehension and literacy.<sup>[1,2,5,11,12]</sup> Contact with NID students provides an opportunity to raise awareness among SU students of the unique needs of the D/HL.<sup>[2,11]</sup>

Currently, the literature on the experience of HCPs providing services to D/HL relates to medical, nursing, occupational therapy and speech therapy professionals or students.<sup>[14]</sup> This study is the first to explore the experiences of dietetic students in providing health-promotion sessions to deaf students, a vulnerable group,<sup>[4]</sup> who have the right to health and to be informed.<sup>[4]</sup> They are more likely to be forgotten in healthcare programmes owing to language differences, health knowledge limitations and cross-cultural differences.<sup>[4,11,15]</sup>

The literature reports that HCPs expressed feelings of fear, anxiety and discomfort when dealing with D/HL patients,<sup>[11,14]</sup> as well as lack of knowledge and experience in counselling them.<sup>[14]</sup> For HCPs to communicate effectively<sup>[11]</sup> and build a relationship of trust<sup>[4,5,11]</sup> with D/HL, they need the knowledge and skills to adapt to the special needs and preferred way of communication of this group.<sup>[1,5,11]</sup> Satchidanand *et al.*<sup>[14]</sup> report that previous training and experience in treating persons with physical disabilities furnish HCPs with more favourable attitudes. As SU dietetic students have the unique opportunity to interact with deaf students, this article reports the experiences and perceptions of both groups of students after four training sessions, including perceived barriers to successful training.

## Methods

### Study participants

A qualitative, descriptive phenomenological approach (Fig. 1) was followed to describe the lived experiences of the study participants.<sup>[16]</sup> All NID students ( $N=19$ ) registered for the professional cookery module and final-year dietetic students ( $N=23$ ) provided consent and were included in the study. All NID students included in this study were fluent in SA Sign Language (SASL).

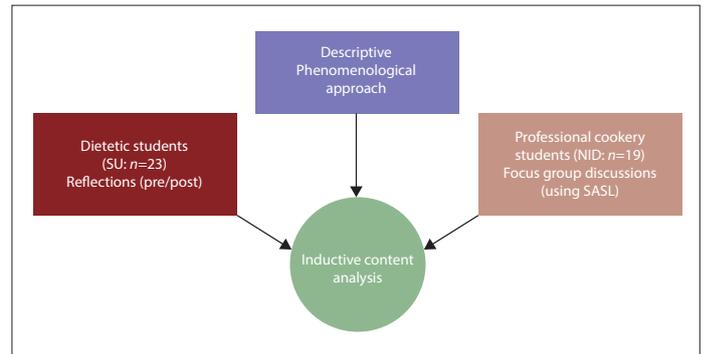


Fig. 1. Study design and population ( $N=42$ ). (SASL = South African Sign Language; NID = National Institute for the Deaf; SU = Stellenbosch University.)

### Data collection

Data were collected in 2015 in Worcester using structured reflections of the SU students and focus group (FG) discussions with the NID students. SU students ( $N=23$ ) completed two separate structured written reflections based on their experiences pre- and post-training. Students have been guided in the skill of reflecting since their 2nd year of study. The three-stage model of reflection guided students to capture the 'what' (describe experience and emotions), 'so what' (describe importance) and 'what now' (describe influence on professional development).<sup>[17]</sup>

According to the literature, FG discussions are regarded as a more suitable research method to elicit responses from the PC students,<sup>[15,18]</sup> as SASL is the preferred means of communication for the deaf.<sup>[11,15,19]</sup> In the Deaf culture, people share information and openly discuss even sensitive topics in groups.<sup>[4,19]</sup> Furthermore, it is possible that reflections and questionnaires would not be a reliable method of obtaining data in this group of students, as vocabulary and sentence construction are different when using SASL.<sup>[15]</sup>

A FG discussion guide compiled by the researchers consisted of questions and probes to investigate NID students' perceptions of being trained by dietetic students, learning experiences, as well as barriers to successful training and suggestions for improvement. The FG discussion guide was sent to two NID lecturers before the FG discussions to evaluate the validity of its content. The face validity was also assessed by NID lecturers to ensure that the questions and probes were phrased correctly to optimise the use of SASL by the interpreters.

Two FG discussions ( $n=10$ ,  $n=9$ ) with the NID students, guided by the FG discussion guide, were conducted by an SU lecturer after their fourth training session. The RCS facilitator(s) assisted with obtaining informed consent, managed the voice recordings and acted as an observer. The FG discussions were held at the NID College, and were conducted in a classroom that was familiar to the NID students and the interpreter. NID students were seated facing the interpreter to ensure that the facial expressions and hand signs of the interpreter were clearly visible.<sup>[5]</sup> A trusting relationship between an interpreter and the deaf is deemed important to optimise the dynamics of the discussions.<sup>[20]</sup> An interpreter with 32 years of experience facilitated communication using SASL. Fortunately, after 10 years of employment at the NID, the interpreter was familiar with the different dialects used by NID students. The interpreter signed the questions asked by the SU lecturer and verbalised the responses given by the NID students for voice-recording purposes. Probes were used to encourage further input from NID students, and the SU lecturer had an opportunity to ask for clarification or restating

of the issue if misunderstanding arose. The duration of the FG discussions was 45 minutes, by which time data saturation was reached, as discussions started to deviate from the topic.

## Data analysis

Voice recordings of the FG discussions were transcribed verbatim. Transcriptions were checked to ensure that the text was a true reflection of the recorded interviews. A systematic approach was used to do content analysis. An inductive process was followed, as common themes emerging from the text were used to compile a code list and themes were grouped into categories.<sup>[21]</sup> To enhance validity and limit possible inconsistencies, the text was independently re-read by two researchers. A third researcher was consulted if there was uncertainty, which allowed consensus to be reached before the findings were reported. The same content analysis process was performed for the written reflections and the voice recordings.

The reflections and FG discussions were analysed separately using the same framework, but reported simultaneously. The findings were reviewed by the NID co-ordinator to verify accuracy and ascertain that the information was disseminated appropriately.

## Ethical approval and legal aspects

Approval to perform the study was granted by the Health Research Ethics Committee of the FMHS, SU (ref. no. S13/10/210), and permission to conduct research on students was subsequently obtained from the Division of Institutional Planning, SU, as well as the NID College co-ordinator.

All participants in the study provided written informed consent in their language of choice (Afrikaans or English). Consent forms for NID students were amended using simplified terminology. The forms included a separate section for voice recording of the FG discussions. The consent forms were explained by the NID co-ordinator and all students were provided with an opportunity to clarify queries before signing the forms. Voice recordings were password-protected and destroyed after completion of the research, while interview data and reflections were stored separately from the consent forms. Anonymity and confidentiality were ensured, as it was not expected of participants to identify themselves at any point. The information will be disseminated by sending copies of the final article to all participants to assure them that their participation made a contribution to the education of HCPs.<sup>[5]</sup>

## Results

### Sociodemographic information

The study participants were mostly female and <24 years of age (Table 1).

### Students' responses before training

The main themes identified before training were emotions, expectations and insight.

**Table 1. Demographic information of students**

	SU students (n=23)	NID students (n=19)
Male, n (%)	0 (0)	8 (42.1)
Female, n (%)	23 (100)	11 (57.9)
Age (yrs), mean (SD)	22 (0.99)	24.15 (3.59)

SU = Stellenbosch University; NID = National Institute for the Deaf.

### Emotions

SU students felt positive and optimistic about the assignment that they had received. Although many conveyed mixed feelings at the onset, these were mainly due to excitement at the challenge ahead of them, combined with the uncertainty of exploring relatively unknown territory. This uncertainty stemmed largely from 'having no previous experience communicating personally with hearing-impaired persons':

'Receiving the task of presenting to the NID students, strengthening their knowledge on healthy eating and healthy lifestyle choices was very exciting, as this is a challenge I have never been confronted with, and an important skill for me to develop to grow best as a holistic professional.'  
(SU student)

NID students shared comparable sentiments, as they were positive about the learning experience, described varying emotions when they learnt of the training sessions and wondered 'who these people were'. NID students were initially apprehensive, 'scared and shocked' when they were informed about the purpose of the presentations by the SU students.

### Expectations

SU students realised the possibility of not only teaching the NID students, but at the same time benefiting from their time together as '... there is no better way to learn how to work with people that are different to you than to spend time with them'. They regarded this as a unique opportunity that would afford them the chance to interact with deaf students, instil confidence, encourage 'out of the box' thinking and experience overall growth as HCPs:

'Being exposed to as many different target audiences as possible will expand our skill levels and adaptability as professionals, and working with hearing-impaired students will allow us to develop a sense of understanding and respect which would not be achieved otherwise.'  
(SU student)

'I think there is so much they can share with us that we would never have known before had we not been put in this situation.'  
(SU student)

NID students were also positively curious and expressed hope for developing reciprocal relationships. Students admitted to 'not knowing what to expect' and not knowing what the sessions would entail.

### Insight

SU students admitted to 'not knowing what to expect' before the training. They had a preconceived idea that they would need to move out of their 'comfort zones' to adapt to the needs of deaf students, which led some to experience feelings of doubt, pessimism and discomfort. SU students expressed anxiety and perceived intimidation on presenting food preparation techniques to culinary students owing to an apparent threat of prior above-average knowledge of NID students in this field.

### Students' responses after training

The main themes identified after completion of the training were insight, communication, impact of training and barriers to optimal learning.

### Insight

The SU student group recounted feelings of admiration and respect for their fellow NID students. Although the NID students were initially perceived as

being shy, the increasing time spent together allowed students to relax. As time wore on, the NID students became more animated and were actively engaging in the training sessions. SU students appreciated the friendliness and positive attitude of the NID students. Several students noted the absence of self-pity of the NID students, and were subsequently motivated and inspired by their empowering attitudes, passionate communication and teamwork. Their prowess and knowledge in the kitchen were admired by the SU students, as was their thirst for knowledge and active participation during the sessions.

SU students came to realise that, despite previous misconceptions about students with hearing loss, their affective abilities were no different from those of other students, such as thinking, interaction or possessing an enquiring mind:

'A perception that definitely changed during the activity was the realisation that hearing-impaired students are just like any other students in their interaction with each other and within the learning environment.' (SU student)

The overall sentiment of SU students on completion of the training sessions was one of appreciation and gratitude. They were overwhelmingly positive about the experience and described it as being 'rewarding', 'enriching', 'inspiring', 'indispensable', 'an eye-opener' and 'better than I could ever have anticipated'. Similarly, NID students felt it was 'wonderful' and 'interesting':

'I was surprised at one point when a student [NID] burst into laughter for some or other reason. The outburst of delight among a room full of quiet reminded me that these students with such a disability as deafness, still experience laughter and pain.' (SU student)

### Value of communication

Despite some frustrations, the end-goal was ultimately achieved as SU students began to realise the importance of communication in their everyday lives, both personally and professionally. With time, SU students adapted their approach and began to modify rate and tone of speech, sentence structure and complexity of messages to facilitate easier translation. SU students also realised the need to talk directly to the deaf students (as they tended to address the interpreter) and not use confusing hand gestures, which resulted in greater confidence in speaking to this particular target population:

'I found it extremely rewarding and amazing to see the [NID] students' facial expressions and realise that they understood what I was saying through the interpreter.' (SU student)

Working with an interpreter was a challenging but enlightening experience for the SU students. They were positive about the presence of the interpreter, but at times felt uncomfortable with longer periods of silence or talking slowly. They realised later that the deaf students did not perceive this as uncomfortable because it is their 'normal'.

Even in situations where the interpreter was not available on a one-on-one basis, SU students were able to improvise and make use of simple visual and non-verbal cues to communicate on a basic level with the NID students. 'This made me realise how we actually don't realise how easy it is for us to communicate with one another.' This fostered a feeling of accomplishment among the SU students. The majority of SU students were grateful for this opportunity to rethink the value of conveying simple, yet effective, messages to their audiences.

Although the SU students might have felt initial trepidation with regard to interacting with NID students, the latter group was grateful for the attempts made to communicate, be it via simple hand gestures or writing messages to one another:

'It stretched the abilities I thought I had and showed me that with a bit of confidence and a good attitude, I can talk to anyone – even if they can't hear me.' (SU student)

### Impact of learning activity

SU students were appreciative of skills gained and commented on improved confidence levels, being less apprehensive in new environments, being able to 'think on their feet', as well as gaining invaluable practical experience in dealing with diverse target audiences. 'I understand how this task can help us to grow as dietitians – it broadens our scope, our knowledge.' Their role as health professionals became clearer in terms of seeing how working with individuals with any form of disability would affect them in their future professions:

'Everyone has the right to education, no matter their background or disability and we need to all respect everyone and be aware of what is going on around us.' (SU student)

SU students also expressed personal anecdotes of how the experience had strengthened their levels of gratitude at being blessed with the ability to hear, becoming more patient and respectful of those with disabilities and to be more open-minded when faced with new experiences:

'I personally feel that engaging with people/patients with disabilities is often overlooked, despite the fact that there is a large population of South Africans who are living with disabilities, and require dietetic services/health knowledge.' (SU student)

NID students realised the potential impact of pooling resources and learning from one another. 'We can also teach them what *we* know. So we can teach each other.' NID students expressed a deep desire for more intricate and in-depth learning opportunities. They wanted to know more about healthy eating and the role of the dietitian in the greater community. 'They teach us the basics, but we want to learn something a little bit more difficult; what dietitians can do; things dietitians do.'

NID students were also thankful to have benefited from knowledge dissemination, and mentioned that 'it was something new to learn' and that they had 'heard some information for the first time'. The students particularly enjoyed the practical sessions more than the theoretical presentations and described them as being 'nice'. 'They didn't complain when we made mistakes, they just encouraged us to work on our future.' On a personal level, the SU students motivated the NID students to 'eat healthy' and the NID students felt that 'without the training, if people had asked about healthy food, we never would have known about it, so this [the training] was good'.

### Barriers

SU students described occasional frustration at not being able to communicate optimally with the NID students. The desire to be able to interact with the deaf was often overshadowed by feelings of helplessness, as they needed to rely on the interpreter to facilitate an interactive conversation:

'There were so many occasions where I just wanted to talk to them and get to know them but because I was unable to communicate in a way that they

would understand, this was impossible. It was such a frustrating feeling that I have never experienced before.' (SU student)

Despite planning the sessions in advance, SU students discovered that the actual training was a lengthier process than they had anticipated, given the need for interpretation, which often relied on greater concentration and adaptability on their part. They also expressed concerns that NID students would perceive them as being 'condescending', given the need to speak more slowly than they would usually do.

On occasion, some SU students left immediately after the training was concluded owing to commitments elsewhere and several NID students considered this as being rude. The perceived apprehension of the SU students towards the NID group was seen as a barrier. A lack of confidence in communication skills and discomfort on the part of the SU students could have been erroneously interpreted by the NID students as a lack of interest in communicating with them, when it could rather be explained by a feeling of uncertainty or difficulty adapting to a new environment:

'So are they scared of deaf people? Are they scared to talk to us? What is the problem ... why are they never communicating with us?' (NID student)

The curiosity regarding the dietetic students distracted NID students from focusing on the discussion topics. NID students expressed a need to learn more about the SU students on a personal level by spending more time with them on an informal basis.

To summarise, feelings of discomfort and uncertainty soon eased when the SU students were welcomed on the NID campus, where an atmosphere of calm, peace and hospitality prevailed. A few SU students admitted to feeling slightly uncomfortable at the difference in communication techniques and felt fortunate at being blessed with the gift of hearing. NID students expressed feelings of appreciation towards the SU students for trying to forge relationships with them, despite communication barriers.

The experience was insightful and changed the reciprocal perceptions of both groups. It is important that SU students are equipped with the skills necessary to facilitate communication with persons with hearing loss. Maintaining collaboration with the NID College serves as an opportunity to facilitate the translation of knowledge to students with hearing loss.

## Discussion

Positive feedback from dietetic students who completed the assignment during previous years led to the question of whether the NID students had the same experience and whether the assignment should be repeated. Recommendations could be made to improve training sessions for the benefit of persons with hearing loss.

Deaf students are more heterogeneous than their hearing-abled peers and vary in their cognitive abilities and knowledge.<sup>[4,11,12,22]</sup> The unique study population facilitated an enriching experience embraced by both groups of students. Even so, it is crucial to bear in mind that the majority of participants were female, which could have influenced the finer nuances of the discussions and reflections as female HCPs have more favourable attitudes towards persons with physical disabilities.<sup>[14]</sup>

## Experiences and insight

SU students admired the absence of self-pity on the part of the NID students, and were subsequently motivated by their empowering attitudes,

passionate communication and teamwork. It was inspiring that this group of students with hearing loss were very positive and appreciative of the efforts of SU students, not only in conveying new knowledge, but also in engaging with them. These findings contradict findings of Furnham *et al.*,<sup>[23]</sup> who reported that deaf students had the perception that hearing individuals have more negative attitudes to deafness than they actually have. It could possibly be explained by NID students being unaware that dietetic students form part of HCPs, and therefore did not project the mistrust or anger towards HCPs as reported elsewhere.<sup>[5,11,19]</sup>

SU students learnt not to underestimate the abilities of students with hearing loss purely on the basis of their living with a disability. As a communicator, an HCP needs to have the ability to develop rapport, trust and ethical therapeutic relationships with clients from different backgrounds, having distinct skills and competencies.<sup>[6]</sup> This role of communicator links strongly to the required graduate attributes that have been widely embraced by the health science curricula of SU.<sup>[24]</sup> The invaluable role of communication, not only in day-to-day existence, but also in the essential role of fostering optimal healthcare, was realised by the students. NID students responded well to the effort of the SU students to communicate, which may be due to deaf students' ability to make inferences and connections with world knowledge associated with incidental learning, enabling them to react appropriately.<sup>[11,25]</sup> The active engagement of D/HL students proves that even with linguistic difficulties it is both important and feasible for them to participate in research.<sup>[15]</sup>

HCPs need to be educated with regard to the barriers experienced by individuals from the Deaf culture relating to access to healthcare.<sup>[1,3,4,11]</sup> Effective communication can be improved via frequent contact of students with the Deaf culture during their training.<sup>[14]</sup> The experience of interacting with the deaf contributed to the professional and personal development of final-year dietetic students and added to a deeper understanding of the different dimensions of their role as healthcare advocates.<sup>[6]</sup> SU students' ability to recognise the importance of health promotion to individuals with disabilities and not limiting valuable health-promotion messages to only hearing-abled individuals exemplifies their role as scholar<sup>[6]</sup> to disseminate and translate nutrition knowledge to the broader community.<sup>[5,19]</sup>

As D/HL students have different backgrounds and experiences than hearing-abled students, both their knowledge and learning strategies differ. Marschark<sup>[9]</sup> describes deaf learners as 'visual-learners', which explains why NID students clearly enjoyed the practical part of the training sessions the most.<sup>[3]</sup> The literature advises the use of visual aids<sup>[19]</sup> and a variety of media, including videos using sub-titles.<sup>[5]</sup> Deaf learners fluent in sign language have the ability to generate complex visual images.<sup>[9,12]</sup> It was therefore deemed appropriate to conduct FG discussions, facilitated by an interpreter fluent in SASL, to gain insight into the way the NID students experienced the training provided by hearing students.<sup>[18]</sup> Theoretically, it would have been ideal to obtain written reflections from the NID students, but this was not practical. Most D/HL display lower vocabulary levels compared with hearing peers owing to their limited access to full, fluent language.<sup>[3,10,26,27]</sup> Having smaller FGs might be considered in future, as 5 - 8 participants per group are advised for the deaf.<sup>[20]</sup>

Fluency in a sign language is a predictor of reading level, as research shows that those most proficient in a sign language were better readers. Recent literature found that post-secondary students learned just as much from text as they did from sign language, despite the reading difficulties they experienced.<sup>[10]</sup> Therefore, printed information leaflets to

support the messages conveyed during practical training sessions can be beneficial, provided the necessary modifications of materials are made to accommodate their needs,<sup>[20,28]</sup> such as using an easy handwriting/font type and basic vocabulary that does not exceed 6th grade reading level.<sup>[5]</sup>

Deaf learners can learn as much as their hearing peers when taught by skilled teachers of the deaf.<sup>[9]</sup> A clear understanding of the content of previous modules and the level of knowledge are crucial when developing new training material.<sup>[9]</sup> Prior knowledge of the curriculum enables SU students to build on the existing knowledge of the NID students to open up a world of new information to them. Training sessions presented by the SU students successfully complemented the PC course. Future collaboration between the two parties should therefore be encouraged, as NID students requested more information.

### Perceived barriers experienced during the training

The desire to be able to interact with the hearing-impaired group was often overshadowed by feelings of helplessness, as SU students needed to rely on the interpreter to facilitate an interactive conversation. Uncertainty surrounding the role and competencies of each group was explicitly expressed by both groups. SU students were afraid of being viewed as condescending, whereas the NID students perceived them to be rude owing to SU students' seeming inability to reach out. Meador and Zazove<sup>[5]</sup> report that in the Deaf culture, it is considered rude to be excluded from any conversation, which easily happened when SU students had private discussions among themselves or had to leave suddenly at the end of a contact session. Helen Keller is quoted as saying that 'being deaf isolates one from people.'<sup>[5]</sup> Spending more time together on an informal level<sup>[1]</sup> could help to diffuse the tension, as both groups tended to relax after a while and adopt a reciprocal attitude of tolerance and appreciation.

Sarchet *et al.*<sup>[10]</sup> conclude that 'differences between students with hearing loss and hearing students do not necessarily reflect unsurmountable challenges but they do need to be acknowledged by students, instructors, and institutions if all are to succeed in the educational endeavour'. Research shows undeniably that HCPs lack the knowledge and skills to communicate effectively with the D/HL, as very few acquire SASL skills<sup>[2]</sup> and would benefit from having more opportunities to serve individuals with physical disabilities.<sup>[4,14]</sup> The need expressed by the NID students for healthcare students to learn at least a few signs<sup>[3]</sup> corresponds with the current literature.<sup>[2,11]</sup> Healthcare students need to be sensitised and encouraged to make a concerted effort to be cognisant of the Deaf culture and values.<sup>[1,2]</sup> Healthcare information disseminated in an appropriate manner could help this minority group receive quality healthcare, participate and feel valued as persons<sup>[5,20]</sup> and decrease anxiety and fear of HCPs.<sup>[1]</sup>

### Study limitations

The researchers were cognisant of the limitations of analysing the English-language translations of SASL conversations. The richness of emotions of NID students, as evident by sentiments such as being 'shocked' in anticipation of the training session, was probably limited by using SASL. The literature shows that students with hearing loss tend to overestimate their understanding and learning from reading and lectures.<sup>[10]</sup> The question arises as to how accurate the NID students' expression of emotions was, despite the prompting by an experienced SASL interpreter. Greenbaum<sup>[18]</sup> suggests using two interpreters, as often one will be able to understand something the other could not.

### Recommendations

To build trust and understanding, facilitators are encouraged to arrange additional contact sessions in the form of visits to both campuses and social interaction prior to the academic sessions.

Using smaller groups for discussion with deaf students could potentially provide greater insight regarding their perceptions and specific needs.

Hearing students should ideally develop a clear understanding of the context of the proposed module content and the knowledge level of the persons with hearing loss to apply the correct context and enable the 'training' students to build on the existing knowledge of the hearing-impaired students.

Communicating with individuals with hearing loss can also be strengthened to establish a trust relationship and encourage participation by acquiring basic sign-language skills, specific presentation proficiencies and communicating via a trained SASL interpreter.

Practical sessions that allow for hands-on demonstrations and greater communication between groups should be prioritised, as well as the importance of relaying feedback during and after each training session. The provision of hand-outs tailored to the linguistic needs of individuals with hearing loss is essential.

Deaf students should ideally also be provided with some background information regarding the dietetic students before the training sessions commence. This information could include snippets on the dietetic profession and curriculum to ease anxiety before the training.

A desire for a deeper level of learning about healthy eating was also expressed, and could perhaps be incorporated into the PC curriculum in the near future.

### Conclusion

Findings of this research provide some understanding of the way deaf students experienced training sessions provided by dietetic students. SU students were challenged to perform an assignment that required them to think and act innovatively, which appears to have been a valued experience in empowering them to effectively fulfil their role as HCPs. SU students were apprehensive prior to training commencement, but these emotions changed during the presentation of the training. SU students agreed that the assignment helped them to better understand the challenges that deaf persons face every day and subsequently gained respect for them. Preconceived ideas that NID students might not understand their training messages or that they were very different to the SU students were altered. The activity had a positive impact on both their personal and professional growth and development, as they gained increased confidence in working with individuals with disabilities.

As evidenced by the mutually beneficial outcome of this project and the overwhelmingly positive experience from both student groups, it is suggested that the collaboration between the NID and Division of Human Nutrition, SU, be continued and strengthened in the future. NID students were appreciative of the efforts to reach out to them and were keen to acquire new knowledge, which they claim to also utilise in their private lives.

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