TEACHER
EMPOWERMENT
FOR DISABILITY
INCLUSION

Empowering teachers for disability inclusion:

An evaluation of four short courses

Judith McKenzie, Jane Kelly and Richard Vergunst

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Co-funded by the European Union

ACKNOWLEDGEMENTS

This report forms part of an initiative by the University of Cape Town (UCT) in partnership with Christoffel-Blindenmission (CBM) Deutschland e.V. as the lead applicant for Lot 3 of the European Commission, Teaching and Learning and Inclusive Education EuropAid/150345/DD/ACT/ZA: 'Supporting emerging university-based centres focused on developing teachers that can address the specialised educational needs of children with profound visual, hearing and intellectual disabilities'. The Teacher Empowerment for Disability Inclusion (TEDI) project is a partnership between UCT and CBM, and is co-funded by the European Union and CBM.

The TEDI project gratefully acknowledges the input of Dr Brian Watermeyer, Nozwelo Shanda, Thandi Henkeman and Ncediwe Mdlulwa in contributing to the development of this report.

Teacher Empowerment for Disability Inclusion (TEDI) (2020). Empowering teachers for disability inclusion: An evaluation of four short courses. Cape Town: TEDI.

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Acronyms

AAC	Augmentative and alternative communication
AT	Assistive technology
CAPS	Curriculum and Assessment Policy Statement
CBM	Christoffel-Blindenmission
CPTD	Continuing professional teacher development
CSO	Community service organisation
DBE	Department of Basic Education
DBST	District-based support team
DeafSA	Deaf Federation of South Africa
DHET	Department of Higher Education and Training
DHH	D/deaf[1] and hard-of-hearing
DHH course	Navigating D/deaf and Hard-of-Hearing Education: Empowering Teachers course
DoE	Department of Education
DPO	Disabled persons' organisation
DSE course	Disability Studies in Education course
ECC	Expanded core curriculum
EU	European Union
EWP6	Education White Paper 6
FAMSA	Family and Marriage Society of South Africa
HREC	Human Research Ethics Committee
ICF	International Classification for Functioning, Disability and Health
ID course	Education and Care of Learners with Severe to Profound Intellectual Disability course
ISIS	Indicators of Successful Inclusion Scale
LOFOB	League of Friends of the Blind
LTSM	Learning and teaching support materials
MOOC	Massive open online course

NGO	Non-governmental organisation
NQF	National Qualifications Framework
SACE	South African Council of Educators
SASL	South African Sign Language
SIAS	Screening, Identification, Assessment and Support
SPD	Severe to profound disability
SPID	Severe to profound intellectual disability
SPSII	Severe to profound sensory and intellectual impairment
SSA	Statistics South Africa
TEDI	Teacher Empowerment for Disability Inclusion
UNCRPD	United Nations Convention on the Rights of Persons with Disabilities
UCT	University of Cape Town
UDL	Universal Design for Learning
UWC	University of the Western Cape
VI	Visual impairment
VI course	Teaching Learners with Visual Impairment course
WCFID	Western Cape Forum for Intellectual Disability
WHO	World Health Organisation

[1] Deaf (with the 'D' capitalised) is used when referring to individuals who see themselves as members of a linguistic and cultural minority, namely the Deaf community, where sign language is used and Deaf culture is followed (Ladd, 2003).

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Executive summary

The TEDI project was developed in response to a call to address the exclusion and poor quality education of children with disabilities in South Africa, where the national prevalence rate of disability among school-aged children is between 2.6% and 10.8%. Its overarching aim is to empower teachers to provide quality education for learners with severe to profound disabilities (SPD) through training that is focused on inclusivity, diversity and addressing learners' impairment-specific needs. In doing this, TEDI developed four short, face-to-face courses, and four accompanying online courses (MOOCs) for educators. This report focuses on the four face-to-face courses: Disability Studies in Education (DSE course); Education and Care of Learners with Severe to Profound Intellectual Disability (ID course); Teaching Learners with Visual Impairment (VI course); and Navigating D/deaf and Hard-of-Hearing Education: Empowering Teachers (DHH course). TEDI also acknowledges the importance of evaluating the effectiveness of any teacher education that is developed, thereby contributing to a better understanding of whether teachers are being equipped with the necessary skills to meet the educational needs of learners with SPD. Thus, the aim of this research project was to develop, deliver and evaluate the effectiveness of TEDI's four face-to-face courses.

Chapter 1 of this report looks at the international and national policy frameworks that are pertinent to these issues, before focusing on learners with SPD and teacher education, and the role of teacher empowerment. It concludes with the specific aims of this evaluation. In Chapter 2, the development of the TEDI face-to-face short courses is explained, with descriptions of each of the four courses focusing on content and enrolment. The research design and methods that were used for this course evaluation are presented in Chapter 3. We begin by discussing the design, followed by a description of the participants and recruitment methods, the data collection and analysis methods, validity and reliability, ethical considerations, and finally the limitations of the methods used. Chapter 4 then considers the data from the TEDI courses, including participant demographics, how the course participants and facilitators experienced and rated the courses, their suggestions for improving the courses, and the results from the quantitative scales. These scales included the ISIS and specific scales designed for each course according to its learning outcomes. Chapter 5 focuses on the qualitative data gathered from the face-to face course evaluations, which is divided into four broad themes: understanding disability and implementing inclusion, collaboration, advocacy, and empowerment. And finally, Chapter 6 completes the report with a discussion and conclusion.

Globally there is no single approach to implementing inclusive education. It is suggested that several different strategies should be used, from policy to localised interventions – all dependent on context. In the South African context, the Constitution (Act 108 of 1996), Education White Paper 6 (EWP6), and the Screening, Identification, Assessment and Support (SIAS) policy play a major role in disability education. A strategy of curriculum differentiation, which enables educators to address barriers to learning, has also been adopted.

South African research shows that teachers are concerned about the inclusion of learners with disabilities in mainstream schools. Poor quality education for children with disabilities is, in part, the result of a lack of adequate teacher training (Human Rights Watch, 2015, The Right to Education

for Children with Disabilities Alliance, 2017). However, teachers in South Africa usually enter special schools with no specific training in the nature of impairments and the associated pedagogy. This highlights a need for more in-depth formal training in the impairment-specific needs of learners with SPD in special, full-service and mainstream schools, and for district-based support teams (DBSTs) to be better resourced to provide adequate support.

Kelly and McKenzie (2018) provide an evidence base of the availability of teacher education in South Africa that is specifically focused on teaching learners with severe to profound sensory or intellectual impairments. They found that: there is a lack of teacher education at universities and universities of technology to equip teachers with the skills needed for inclusive education; minimal provision of teacher education to equip teachers to offer specialised support within the domains of vision, hearing, learning and cognition, and so forth, as they are outlined in the SIAS policy (DBE, 2014) and the draft National Guidelines for Resourcing an Inclusive Education System (DBE, 2018); and that, while there is impairment-specific training available for teachers at non-governmental organisations and disabled persons' organisations, there are few incentives for teachers to complete this training, particularly if it is not accredited. Pedagogical training must be supplemented with training that focuses on teacher empowerment, so that teachers not only have the knowledge, but also feel empowered to fulfil their role as more effective educators and become lifelong, self-motivated learners. It is only through teacher empowerment that real and meaningful change can happen in the educational context.

Key research questions for this research project were: 'How confident do course participants feel (before and after taking the courses) in teaching learners with SPD?' and 'What are the course participants' attitudes (before and after taking the courses) towards disability inclusion?'. As this was the first time the courses were implemented, it was important to gain a better understanding of the general experiences of participants in order to inform future iterations of the course. Thus, an additional three research questions were addressed that covered how course participants and facilitators experienced the course, and how effective the structure, content and delivery of the courses were in meeting participants' needs.

A collaborative, consultative process was followed to develop the TEDI courses, whereby the project team worked with representatives from government, universities, special schools and non-governmental organisations. Appendix A contains a full list of collaborators. Course conveners were selected on the basis of their experience and expertise within their fields, and teacher practitioners ensured the courses addressed the practical needs of teachers of children with SPD. Once the course outlines had been developed, accreditation for the short courses was obtained through the Schools Development Unit at the University of Cape Town. Applications to attend the courses were assessed by the course conveners and the TEDI project team according to pre-established criteria.

Assessments were developed by the course conveners to give participants the opportunity to apply what they had learnt during the course to their work environment. A written component was marked by the course conveners and moderated by external moderators.

The table below summarises enrolment and attendance across all the courses.

Enrolment across all the courses				
	DSE course	ID course	VI course	DHH course
Number of course applicants	33	41	38	40
Number of applicants accepted	28	30	38	35
Number of participants	26	30	26	32
Awarded Certificate of Completion	16	30	22	9
Awarded Certificate of Attendance	10	0	4	21

A convergent mixed-methods research design was employed, collecting and analysing both qualitative and quantitative data. The specific qualitative design used as part of this mixed-methods approach was the qualitative description method, which focuses on providing a comprehensive summary of the topic. This is achieved by ensuring both descriptive and interpretive validity. A pre-experimental design (or AB design) was used for quantitative data. This design is used to measure correlation, but not necessarily causation, between the independent and dependent variables.

Data was collected from course participants through pre- and post-course surveys, a final survey two months after course completion, and focus-group discussions. Data was also obtained from course facilitators through focus-group discussions. The data from the open-ended survey questions and from the focus-group discussions was analysed using thematic analysis. Data from the Indicators of Successful Inclusion Scale (ISIS) and learning outcomes surveys was analysed descriptively using the non-parametric Wilcoxon signed-rank test. Construct validity of the survey data was measured using factor analysis, and the internal consistency (reliability) was measured using Cronbach's alpha. The results are presented in Chapter 4 and Appendix G of this report.

Credibility was ensured through triangulation, while transferability was facilitated by providing 'thick descriptions' of the participants and the research process. Dependability and confirmability were ensured by transparently describing the research process from start to finish, and keeping a thorough record of all steps followed and actions taken. Ethical approval for this study was granted by the Human Research Ethics Committee within the Faculty of Humanities at the University of Cape Town.

The findings of this evaluation indicate that all course participants have a more comprehensive understanding of disability after attending the courses. This occurred primarily at four levels: human rights and social justice issues; parents and family networks; understanding specific medical aspects and more general issues of disability; and how to more effectively implement inclusive education.

While the DSE course learning outcomes survey did not produce a significant result overall, two items were significant: communication, and teacher support and development. This indicates that participants felt better equipped to manage these barriers after the course. The ID course learning outcomes survey produced a significant result, highlighting that participants on this course felt more confident in teaching and caring for learners with SPD. Two of the three factors on the VI course learning outcomes survey (pedagogical elements related to teaching learners with VI, and psychosocial support for learners with VI) had significant results, illustrating that participants felt more confident in these teaching areas. Lastly, the DHH course learning outcomes survey also produced a significant result, indicating that participants felt more confident about teaching DHH learners after the course.

Participants who attended the TEDI face-to-face courses experienced them as transformative. They were enabled to rethink issues around the education of learners with SPD, recognising the importance of understanding disability in specific as well as broad terms, the significance of collaborations, the relevance of advocacy, and how all of this promotes empowerment both professionally and personally. This understanding of disability paves the way for better collaboration, which in turn provides for more effective advocacy work and ultimately leads to empowerment so that educators are active participants (not passive recipients) in the transformation of education in South Africa.

While there has been a dearth of studies looking into the issue of disability-inclusive teacher education in South Africa, this study has highlighted that teacher empowerment is crucial for more effective disability inclusion in the classroom setting. When it comes to previous training on disability issues, there were many participants who did not have training, and those who did receive some form of training only did short courses with little consistency. This gap in training is where this study can offer some pertinent recommendations.

Four key conclusions were able to be drawn from TEDI's evaluation research:

1. *There is very little teacher training that focuses on teaching learners with SPID.*
   The dearth of teacher education for children with disabilities needs to be addressed urgently if their right to quality education is to be realised. The findings of this evaluation point to the need for all educators (pre-service and in-service) to be educated on disability issues.

2. *Short courses are one way in which the training gap can be filled, particularly while full degrees are being developed.*
   The evaluation presented here addressed only one avenue for teacher education: short courses for in-service educators. However, our experience in this domain brings to light recommendations for the overall teacher landscape, of which these short courses are a small part. Urgent attention is needed for specialised training for teachers who will work in special schools. This should consist of full qualifications at a pre-service or in-service level that relate to the special educational needs of learners in special schools.

3. *Teacher training should focus not only on instrumental/technical skills, but also on empowerment.*
   As much as teachers in special schools need training in specialist skills, they also need to be expert in supporting inclusive practice through collaboration with classroom teachers and a multidisciplinary team. Teachers need to empower themselves to access training and to develop their disability-inclusion skills over time. While this must be the responsibility of teachers themselves, there should be increased support for teacher development from all relevant stakeholders..

4. *Any training that is developed needs to be evaluated so that we know whether or not it is effective*
   Further research needs to explore the long-term impact of this type of training and compare it with other forms of training to understand better what type of training works best and for what purpose. Future research should be able to help ascertain what will facilitate the training of teachers to be more empowered in offering quality education to learners with SPD.

   The following recommendations can be made based on the findings from the evaluation research conducted by TEDI:

   - There needs to be greater provision of teacher-education courses on disability-inclusive practice for all teachers at pre-service and in-service levels.

- There needs to be a focus on ongoing professional development through the provision of multiple learning opportunities that are incentivised.
- All teacher-education courses need to have a significant focus on disability rights and family involvement in the education of children with disabilities.
- Specialist full qualifications need to be supported and teachers need to be incentivised to do these courses.
- Attention should not only be given to specialist skills, but also to collaboration and team work.
- More engagement and collaboration among relevant stakeholders should be encouraged.
- Teachers should be supported to take responsibility for their own learning so that they become empowered to adopt an attitude of lifelong learning and ongoing professional development.
- More research evaluation studies should be conducted on the role of teacher education in building disability-inclusive education in South Africa.

While this study has addressed a gap in inclusive education in South Africa, we hope that it will act as a catalyst for further important work in this area. We hope that this report can make a positive contribution toward stimulating, embracing and providing high quality disability-inclusive education both now and in the future.

CHAPTER 1

Background, rationale and literature review

> Access to education for children with disabilities remains a significant challenge in many countries despite international agreement of its importance (Kiru and Cooc, 2017:34)

1.1 Background

The Teacher Empowerment for Disability Inclusion (TEDI) project is a partnership between the University of Cape Town (UCT) and Christoffel-Blindenmission (CBM), and co-funded by the European Union (EU) and CBM. The project is the successful applicant for Lot 3 of the European Commission, Teaching and Learning and Inclusive Education EuropAid/150345/DD/ACT/ZA: 'Supporting emerging university-based centres focused on developing teachers that can address the specialised educational needs of children with profound visual, hearing and intellectual disabilities'.

TEDI's work is based on the premise that relevant educator skills need to be based on an understanding of learner needs within the South African context. The overarching aim of the project is to empower teachers to provide quality education for learners with severe to profound disabilities (SPD) through training that is focused on inclusivity, diversity and addressing learners' impairment-specific needs. In doing this, TEDI has developed four short, face-to-face courses, and four accompanying online courses (MOOCs) for educators. This report focuses on the four face-to-face courses:

- Disability Studies in Education (DSE course)
- Education and Care of Learners with Severe to Profound Intellectual Disability (ID course)

- Teaching Learners with Visual Impairment (low vision and blindness) (VI course)
- Navigating D/deaf and Hard-of-Hearing Education: Empowering Teachers (DHH course)

The scope of TEDI, then, is to develop, deliver and evaluate preliminary training that can empower teachers to address the learning needs of children with SPD through continuing professional development. It is not within our scope to address the full range of teacher education needs in this highly specialised area, but rather to develop and evaluate modules that provide a resource that can be drawn upon within the overall teacher education landscape in this underserved area.

1.2 Study rationale

TEDI was developed in response to a call to address the exclusion and poor quality education of children with disabilities in South Africa, where the national prevalence rate of disability among school-aged children is between 2.6% and 10.8%. However, in 2012 it was estimated that approximately 600 000 learners with disabilities were not in school (Department of Basic Education [DBE], 2015) which is more than double the 280 000 estimated excluded learners in 2001 (Department of Education [DoE], 2001). The 2011 census indicates that persons with severe disabilities are the most disadvantaged when it comes to educational outcomes (Statistics South Africa [SSA], 2011). This exclusion from education is out of line with the Constitution of the Republic of South Africa (Act 108 of 1996), and the goals of Education White Paper 6 (EWP6) (DoE, 2001). Furthermore, even for those learners who are in school, their learning and participation is not at all satisfactory, with only 0,5% of all learners writing the National Senior Certificate in 2018 being recorded by the DBE as having special educational needs (DBE, 2018).

While it is clear that the reasons for exclusion are many, including poverty and inadequate resourcing for disability, there are two key reasons for exclusion and marginalisation of learners with disabilities:

- The educational needs of learners with severe to profound sensory or intellectual impairments (SPSII) are not fully understood in South Africa, and
- Teachers lack skills in disability practice and are therefore unable to adequately meet the needs of these learners (Engelbrecht, et al., 2003; Shanda, et al., 2018; SSA, 2011).

Against this backdrop, this research project begins with the premise that an understanding of learner needs should be the basis for developing adequate teacher education programmes in order to provide quality education and support for learners with disabilities. We also acknowledge the importance of evaluating the effectiveness of any teacher education that is developed. This will contribute to a better understanding of whether teachers are being equipped with the necessary skills to meet the educational needs of learners with SPD.

With this background and rationale, this chapter looks at international and national policy frameworks that are pertinent to these issues. It then focuses on aspects around learners with SPD and the relevant teacher education, and how teacher empowerment can play a role. The chapter ends with specific aims of this evaluation.

1.3 Literature review

The number of people in the world with disabilities is growing (World Health Organisation [WHO], 2011). WHO and the World Bank jointly produced the first world report on disability, which suggests

that over a billion people globally – about 15% of the world's population – experience some form of disability (WHO, 2011). The vast majority of people living with disabilities are in low-income countries (MacLachlan and Swartz, 2009).

1.3.1 Policy framework

1.3.1.1 International perspectives

The Salamanca Statement (UNESCO, 1994) outlines a global approach for inclusive education, arguing that, where possible, inclusive education should be the universal norm. This approach has been supported by the United Nation's Convention on the Rights of Persons with Disabilities (UNCRPD).

UNCRPD is an international-level human rights instrument intended to protect the dignity and rights of persons with disabilities. The Convention sets out the promotion, protection and assurance of the full enjoyment of human rights by persons with disabilities, as well as full equality under law (United Nations, 2008). Article 24 of the UNCRPD recognises the right of all learners with disabilities to be included in the general education system and to receive the disability support they need. The UNCRPD stipulates that no person should be excluded from any level of education based on disability. All necessary provisions should be made to accommodate learners with various learning needs, including the training of teachers in relevant skills. Staff at all levels of education should receive training in disability awareness and other areas relevant to disability-related skills. Thus, teacher education should promote in all teachers a willingness to meet the educational needs of learners with disabilities. Included in this should be the development of a group of specialised teachers who are able to meet the impairment-specific needs of learners with disabilities.

The World Report on Disability (WHO, 2011) mentions that inclusive education should enable schools to serve all learners in their local communities. Although full inclusion is the ultimate goal, this may, according to the report, be difficult. Flexibility and adaptation should be facilitated to make integration happen as far as possible. Thus, the educational needs must be addressed from the perspective of what is best for the learner in their context.

Globally there is no single approach to implementing inclusive education. It is suggested that a number of different strategies should be used, from policy to localised interventions, which all depend on context (UNESCO, 2015). The involvement of community members is 'more likely to provide sustainable, locally relevant solutions and foster a social model of inclusion' (UNESCO, 2015:103).

While international policies are in place, it is also important to look at policies in the South African context and how they are applied to disability in education.

1.3.1.2 South African perspectives

In South Africa the Constitution (Act 108 of 1996) protects all persons living in the country from any form of discrimination, including on the basis of disability (s. 9(3)). It states that everyone has the right to basic and further education (s. 29(1)). More specifically, the South African Schools Act (Act 84 of 1996) states that all children should be admitted to ordinary public schools, and that these schools should support children's various educational and support needs without discrimination. This includes, as far as possible, children with special education needs, whose parents have the right to decide which type of school they would like their children to attend, including enrolment into a public ordinary school instead of a special school.

EWP6 (DoE, 2001) covers South Africa's policy on inclusive education. It addresses the needs of learners who experience barriers to learning, including learners with disabilities. Barriers to

learning include inaccessible environments, language of teaching and learning, inappropriate communication, and unsafe environments. It is important that all educators are made aware of these potential barriers to learning and are trained to address them.

The Screening, Identification, Assessment and Support (SIAS) policy provides a process for allocating support to learners. It identifies barriers to learning and the resulting support needs, and the roles, responsibilities and resources required to address them (DBE, 2014). The intention of the policy is to ensure that learners have access to appropriate support that will enable them to achieve to their full potential. This includes the identification of educational placement options for learners in public ordinary, full-service and special schools. This is done through a focus on support needs (not disability type) and how the school can meet these needs.

Curriculum differentiation is another major strategy in South Africa that enables educators to address barriers to learning. It requires sound knowledge of the core curriculum combined with teaching and assessment adaptations to meet the learner's needs. DBE guidelines, together with the Curriculum and Assessment Policy Statement (CAPS) adopted in 2011, are aimed at assisting educators to develop 'differentiation strategies in order to accommodate learners who face various barriers to learning in the classroom' (McKenzie, et al., 2018:6).

1.3.2 Learners with SPD

Although there is sound policy in place in South Africa and beyond, implementation supporting the education of learners with disabilities is lacking. It is not only access, but also the quality of education that the majority of learners with disabilities receive, that is not up to standard. For example, there is a large percentage of learners who are unable to access the curriculum effectively, and many learners in special schools do not have access to the same subjects as those in mainstream schools (Human Rights Watch, 2015; The Right to Education for Children with Disabilities Alliance, 2017).

Historically, learners with disabilities in South Africa have been educated in special schools or excluded from education altogether (Donohue and Bornman, 2014). With the growing imperative for inclusive education, special schools were retained as a support system and resource for mainstream schools (DoE, 2001). With access and provision increasing under democracy, the number of learners in special schools escalated. For example, in 2001 there were 380 special schools with 64 603 learners (DoE, 2001), whereas in 2014 there were 444 special schools catering for 111 447 learners (DBE, 2016). In 2017, there were 11 461 learners on the waiting list for special schools (Parliamentary Monitoring Group, 2017). The majority of learners with disabilities who are in school attend special schools, while some are in ordinary schools and a lot fewer in full-service schools (DBE, 2015). In a DBE report on inclusive education implementation, the most common impairment type accommodated within special schools in 2013 was mild, moderate and severe intellectual disability, which accounted for just under 50% of the special school population (DBE, 2015). The report noted that 'in contrast with the special schools, the highest incidence of learners with disabilities in ordinary schools are learners with specific learning difficulties, attention deficit disorder and partial sightedness' (DBE, 2015:19).

According to Human Rights Watch (2015), learners with disabilities have not been provided with sufficient reasonable accommodation or support to ensure they can access education on an equal basis to that of their peers. Further, one of the biggest challenges in educating learners with disabilities is the attitudes of educators within schools.

South African research shows that teachers are concerned about the inclusion of learners with disabilities in mainstream schools. This includes being doubtful about the ability of learners with disabilities to participate academically and socially in the classroom, and being unsure of the consequences of inclusion (Bornman and Donohue, 2013; Savolainen, et al., 2012). There is also evidence that some South African teachers favour separate learning opportunities over inclusion in the classroom, which could reflect training that focuses on a deficit and individualised approach to barriers to learning and development (Engelbrecht, et al, 2015). Poor quality education for children with disabilities is, in part, the result of a lack of adequate teacher training (Human Rights Watch, 2015, The Right to Education for Children with Disabilities Alliance, 2017).

1.3.3 Teacher education

In the last two decades, there has been a growing effort to implement inclusive education around the globe (Crispel and Kasperski, 2019). An international study by Cooc (2019) found that, although educational opportunities have improved worldwide for children with disabilities, there are concerns about the preparation of teachers working with this student population. The following points are highlighted in the article, reflecting a global perspective:

- Teachers working with students with 'special needs' are less qualified than those who did not work with these students.
- Nearly 50% of schools reported a shortage of teachers with special needs competency.
- In 27 out of 38 countries, more professional development in special education is a priority.
- Teachers who worked with students with disabilities needed professional development.
- Teachers in schools with strong leadership needed less professional development.

Similarly, teachers in South Africa usually enter special schools with no specific training in the nature of impairments and the associated pedagogy. This highlights a need for more in-depth formal training in the impairment-specific needs of learners with SPD in special, full-service and mainstream schools (Kelly and McKenzie, 2018). It also appears that district-based support teams (DBSTs) may be under-resourced to provide adequate support.

As Kelly and McKenzie (2018) note, teachers in mainstream and full-service schools are more likely to receive training at district level. This implies ongoing support, but their training does not include impairment-specific curriculum adaptation for learners with SPD. Teachers in special schools receive limited training in specific impairments, but this takes place at a provincial level and is not supported by the district. Kelly and McKenzie (2018) argue that teachers in all schools should be trained in inclusive education aimed at responding to diversity. They go on to state that teachers in all schools, but not necessarily all teachers, should be able to respond to impairment-specific curriculum adaptation needs with varying degrees of support from the province and the district.

Kelly and McKenzie (2018:28) provide an evidence base of the availability of teacher education in South Africa that is specifically focused on teaching learners with SPSII. They found:

- There is a lack of teacher education at universities and universities of technology to equip teachers with the skills needed for inclusive education.
- There is minimal provision of teacher education to equip teachers to offer specialised support within the domains of vision, hearing, learning and cognition, and so forth, as they are outlined in the draft SIAS policy (DBE, 2014) and the draft National Guidelines for Resourcing an Inclusive Education System (DBE, 2018).

- While there is impairment-specific training available for teachers at non-governmental organisations (NGOs) and disabled persons' organisations (DPOs), there are few incentives for teachers to complete this training, particularly if it is not accredited.

McKenzie and Shanda (2018:89) have identified teacher-education needs based on the needs of learners with SPSII:

- *Understand disability as an issue of social justice:* This entails an awareness of the social identity of persons with disabilities in the South African context, and the difficulties this imposes. At the same time, teachers need to be aware that not all difficulties arise from impairments, but also through interaction with the environment.
- *Relationships with learners and families:* Teachers need support and training in how to develop and maintain empathic and caring relationships with learners and their families.
- *Responding to diversity:* Teachers need to be trained in inclusive teaching methods that enable them to respond to learner diversity and address additional barriers to learning.
- *Curriculum differentiation:* Curriculum differentiation strategies are the same as those required by any teacher who needs to be able to teach inclusively to meet diverse learning needs.
- *Impairment-specific knowledge:* Teachers need to understand the nature of different impairments. What are their causes and effects, and how do SPSIIs impact upon learners' ability to access the curriculum?
- *Impairment-specific pedagogy and curriculum, including adaptation of learning and teaching support materials (LTSM):* Teachers need to understand the additional support needs of learners with SPSII, and make appropriate additions and adaptations to the curriculum. Specific and detailed knowledge of what needs to be done to create equitable access to the curriculum and LTSM is required.
- *Skills in the selection and use of assistive devices:* Teachers need to develop their own technology skills and familiarity with assistive devices, as well as general digital literacy. They need to be able to identify devices specific to different impairments. This implies that they need to know how to maintain the devices and explore their uses. Given the potential of hardware and software, and access to the Internet, teachers should be encouraged to develop their own digital literacy so that they can support learners in finding innovative ways to access and express information.
- *Ability to teach learners to use assistive devices across the curriculum:* Teachers need to be able to teach learners using assistive devices across all aspects of the curriculum.
- *Skills in South African Sign Language (SASL), Braille, and augmentative and alternative communication (AAC):* Teachers need to be familiar with SASL, Braille and AAC in order to use them as languages and media of instruction and assessment.
- *Specialist skills in teaching SASL, Braille and AAC:* Teachers require specialist skills in teaching learners SASL, Braille and AAC as pathways to language and literacy.

It is therefore important to have pedagogical training for educators, so that the classroom experience for children with SPSII can be enhanced. This training, however, must be supplemented with training that focuses on teacher empowerment, so that teachers not only have the knowledge, but also feel empowered to fulfil their role as more effective educators and become lifelong, self-motivated learners.

1.3.4 Teacher empowerment

There has been a paucity of research looking at teacher empowerment within the disability realm. The research that has looked at teacher empowerment in general, shows that empowerment is linked to enhanced teacher leadership, professionalism, quality of work, and a sense of teaching effectiveness (Katzenmeyer and Moller, 2001). Furthermore, empowered teachers are thought to more readily adopt proposed school reforms and foster higher levels of student achievement (Martin and Crossland, 2000; Short, 1992). Thus, according to Harpell & Andrews (2010), achieving a sense of empowerment among teachers is crucial to the effective implementation of inclusive instructional practices.

Unfortunately, studies suggest that educational settings fail to generate a sense of empowerment among teachers (Hallinger and Richardson, 1988). Factors contributing to this problem include excessive routine and repetition, isolation from colleagues, time pressure, and under-staffing. Harpell and Andrews (2010:199) maintain that, ultimately, 'it is the responsibility of educational administrators to address these problems and empower teachers with the skills and motivation necessary to embrace inclusion, as well as be effective, comfortable, and content in inclusive classrooms'.

Teacher empowerment needs to be addressed and embraced in inclusive classrooms. It is only through teacher empowerment that real and meaningful change can happen in the educational context.

1.4 Specific aims

The overarching aim of this research project was to develop, deliver and evaluate the effectiveness of TEDI's four face-to-face courses. With the purpose of the courses being to provide skills and insights to empower educators of learners with SPD, a key research question was:

- How confident do course participants feel (before and after taking the courses) in teaching learners with SPD?

Given that a key focus of the TEDI project is disability inclusion, another research question was also addressed:

- What are the course participants' attitudes (before and after taking the courses) towards disability inclusion?

As this was the first time the courses were implemented, it was important to gain a better understanding of the general experiences of participants in order to inform future iterations of the course. Thus, the following three research questions were also addressed:

- How do course participants experience the courses?
- How do course facilitators experience the courses?
- How effective is the structure, content and delivery of the courses in meeting participants' needs?

CHAPTER 2:
TEDI SHORT COURSES

In this chapter we explain the development of the TEDI face-to-face short courses and offer a description of each of the four courses, focusing on the content and enrolment.

2.1 Development of TEDI face-to-face short courses

The development of TEDI face-to-face short courses was built on foundational principles derived from a situational analysis – 'Starting Where We Are' – conducted by the project (McKenzie, et al., 2018):

- Understanding disability as an issue of social justice;
- Recognising the importance of the different media of communication (SASL, Braille and AAC) and how these operate with assistive technologies;
- Understanding the nature of specific impairments and the associated pedagogy; and
- Recognising the importance of building relationships and listening to learners in order to understand the difficulties they face in daily life.

All of the TEDI courses adopt a holistic approach toward the child with a disability, drawing upon and developing the voices of people with disabilities within a human rights framework. The courses model ethics of care that empower and build the agency of teachers, and highlights the importance of partnerships with families, community service organisations (CSOs), and communities.

A collaborative process was followed to develop the TEDI courses. The project team worked with representatives from government, universities, special schools and NGOs. This process allowed for input from a variety of stakeholders involved in teacher education, thereby ensuring that the courses meet the needs of teachers (see Appendix A for a full list of collaborators). TEDI also

worked alongside the Centre for Deaf Studies at the University of the Witwatersrand, the Centre for Visual Impairment Studies at the University of Pretoria, and the Centre for Neurodevelopmental Diversity at the University of Johannesburg. We formed a collaborative relationship with these associates, supporting one another and ensuring that the teacher-education programmes we each developed complemented one another.

Development of the TEDI courses followed a consultative process, which was led by the principal investigator of the project and the course conveners, and supported by the TEDI project team members. Course conveners were selected on the basis of their experience and expertise within their fields. In consultation with the TEDI team, the conveners selected individuals to form part of the facilitation team. They contributed to the development of the course content and, in most cases, delivered lectures on this content.

Great care and consideration were taken in selecting conveners and facilitation team members, ensuring that every person was skilled, experienced and knowledgeable in their particular field. We also focused on representivity within the course teams, especially in terms of race and disability. For example, for lectures on D/deaf culture, the provincial director of the Deaf Federation of South Africa (DeafSA) in the Western Cape – himself a member of the Deaf community in Cape Town – was asked to facilitate two of the courses. We also included teacher practitioners to ensure that the courses would address the practical needs of teachers of children with SPD. A former principal and a current teacher at a school for the blind were asked to facilitate lectures on curriculum differentiation for visually impaired learners. Thus, course participants were able to hear from individuals who have first-hand experience in the subjects they lectured. Drawing on the expertise of these individuals also ensured that the course content was accurate and relevant to teachers.

For each course, the convener, the facilitation team and a TEDI project representative were in contact via email, phone and face-to-face meetings for approximately one year before piloting the courses. The first step in the course development process was to convene a brainstorming workshop where the priorities for teacher education were discussed and related to the results of the TEDI situational analysis research project (McKenzie, et al., 2018) to ensure that we included the expressed needs of learners, parents and educators. On this basis we identified learning outcomes for each course and developed a five-day high-level plan to address these outcomes. In doing this we aligned each course with the appropriate National Qualifications Framework (NQF)[1]. The DHH and VI courses were aligned to an NQF level 7 qualification, the DSE course to NQF level 8, and the ID course to NQF level 5. The DHH and VI courses were targeted at educators with an NQF level 6 qualification[2], the DSE course at educators with a NQF level 7 qualification, and the ID course at carers, many of whom have an NQF level 4 qualification.

Once the course outlines had been developed, we sought and gained accreditation for short courses through the Schools Development Unit at UCT. The next step was to flesh out the content and purpose of each course, clearly specifying the different topics to be addressed in seminars of 90 minutes to two hours over a period of five days, and determining the sequence and learning outcomes for each topic. Lecturers were identified for each of these topics based on their expertise. Following this, we applied for the courses to be endorsed by the South African Council of Educators

[1] NQF is a system in South Africa for 'classification, registration, publication and articulation of quality-assured national qualifications' (National Qualifications Framework Act, No. 67 of 2008).

[2] On the DHH course we also accepted D/deaf teaching assistants without a NQF level 6 qualification. The rationale for this was that they play a pivotal role in the education of D/deaf and hard-of-hearing learners, but are often not provided with adequate training.

(SACE) for continuing professional teacher development (CPTD) points. SACE endorsed three of the courses for 15 CPTD points[3].

The next step was briefing facilitators for each lecture on their particular topic(s), including the learning outcomes of their session. They were asked to put together a summary of their lecture, including a description of what they would cover, any activities they would undertake, and additional resources they would make use of. Once these summaries had been approved by the course convener, a course outline document was developed. This formed the basis for developing a Vula[4] site where lessons on each topic, corresponding presentation notes and resources, as well as video recordings of the courses[5] were made available to the course participants.

The courses were advertised to practicing educators through a brochure and application form that was distributed through the DBE, the Specialised Education Support Directorate in the Western Cape Education Department, and at special and full-service schools. We also advertised by word-of-mouth and through relevant NGOs. Potential participants were required to apply for each course by submitting an application form and a brief motivation for why they wanted to participate. Due to funding constraints for travel and accommodation, the Western Cape was targeted for training, but special schools from the Eastern Cape were also included for the VI and DHH courses.

Applications were assessed by the course conveners and the TEDI project team according to pre-established criteria:

- Application submitted on time (mandatory).
- Whether the person falls within the target group (mandatory):
  - *DSE course*: Educators at a school, district and provincial levels involved in supporting the education of learners with severe to profound disabilities including, for example, school principals, learning support advisors, and district officials.
  - *ID course*: Educators involved in the care and education of learners with severe to profound intellectual disabilities (SPID) including, for example, carers, care centre managers, and unit class teachers.
  - *VI course*: Educators involved in the education of learners with visual impairment including, for example, classroom teachers, learning support teachers, and principals.
  - *DHH course:* Educators involved in the education of learners who are D/deaf or hard-of-hearing including, for example, classroom teachers and D/deaf teaching assistants.
- Appropriate NQF qualification and/or five or more years of experience in their field (mandatory).
- Shows an interest in disability inclusion in education (added advantage).

Successful applicants were notified by email of their acceptance onto the courses, and they in turn confirmed their acceptance. Thereafter, they were provided with an electronic copy of the course outline and other supplementary resources.

Each course had an assessment component that was developed by the course conveners. These assessments were designed to give course participants the opportunity to apply what they had learnt in the course to their work environment. A large component of the assessment was practical,

[3] The application to endorse the DHH course has been submitted.
[4] Vula is UCT's online learning system (vula.uct.ac.za).
[5] The exception to this is the ID course where, given logistical limitations, the sessions were not recorded. While the DSE, VI and DHH courses were held at venues where the sessions could be filmed, the ID course was held at a venue where, regrettably, filming could not be arranged.

and participants had to submit a written component that was marked by the course conveners and moderated by external moderators. Rather than assigning a specific mark to the assignments, the conveners and moderators focused on the level of completion. Those who had completed the assignment were awarded a certificate of completion, issued through the Schools Development Unit at UCT. Those who did not complete the assignment, but had attended at least 90% of the course, were awarded a certificate of attendance through the TEDI project. Course participants were required to sign a daily attendance register so that everyone's attendance could be tracked.

Having described the development of the TEDI face-to-face short courses, we now provide specific details for each course, including a course description and enrolment information.

2.2 Disability Studies in Education

2.2.1 Target group

The DSE course is targeted at educators at school, district, and provincial levels who are responsible for supporting the education of learners with severe to profound disabilities. This includes members of school and district-based support teams, provincial and district managers, and school principals.

2.2.2 Course description

The purpose of the DSE course is to:

- Empower educators to reflect critically on how they might support disability-inclusive practices;
- Promote dialogue within a community of inquiry; and
- Explore support systems for educators that promote equity, equal access, and dignity for learners with SPSII.

Learning outcomes:

- Examine how the education system may exclude or include learners with SPSII.
- Examine barriers to education for people with SPSII that arise from the social context in which education occurs.
- Explore changes to educational provision, including curriculum development, which addresses these barriers.
- Identify teaching, learning and curriculum strategies that promote disability inclusion.
- Develop educational strategies that are relevant to their own educational context (see Appendix B for the course programme).

For the assessment component of the course, participants were asked to:

- Identify and describe a barrier that has resulted in the exclusion of learners with severe to profound disabilities in their work context;
- Analyse why that barrier is maintained;
- Identify and describe one change they could make in supporting teachers to address this barrier; and
- Implement this change and evaluate its effect.

Participants were required to submit a written report (±2 000 words) via email for assessment. This could be completed individually or in groups of no more than four people. Two months after the

course, all participants were invited to a presentation day where they were able to reconnect and present their assignment findings, and hear two informative and motivational talks. A focus-group discussion was also held (see section 3.3.1.2 for details).

2.2.3 Enrolment

Thirty-three people applied for the DSE course, 28 of whom were accepted (five applicants did not meet the pre-established criteria). Seven applicants were unable to attend the course. In addition, five participants enrolled in the course through the Postgraduate Diploma in Disability Studies[6]. This gave a total of 26 participants who participated in the course on 16-20 June 2018 (Figure 1).
All of the participants were from the Western Cape. Sixteen received certificates of completion and 10 received certificates of attendance.

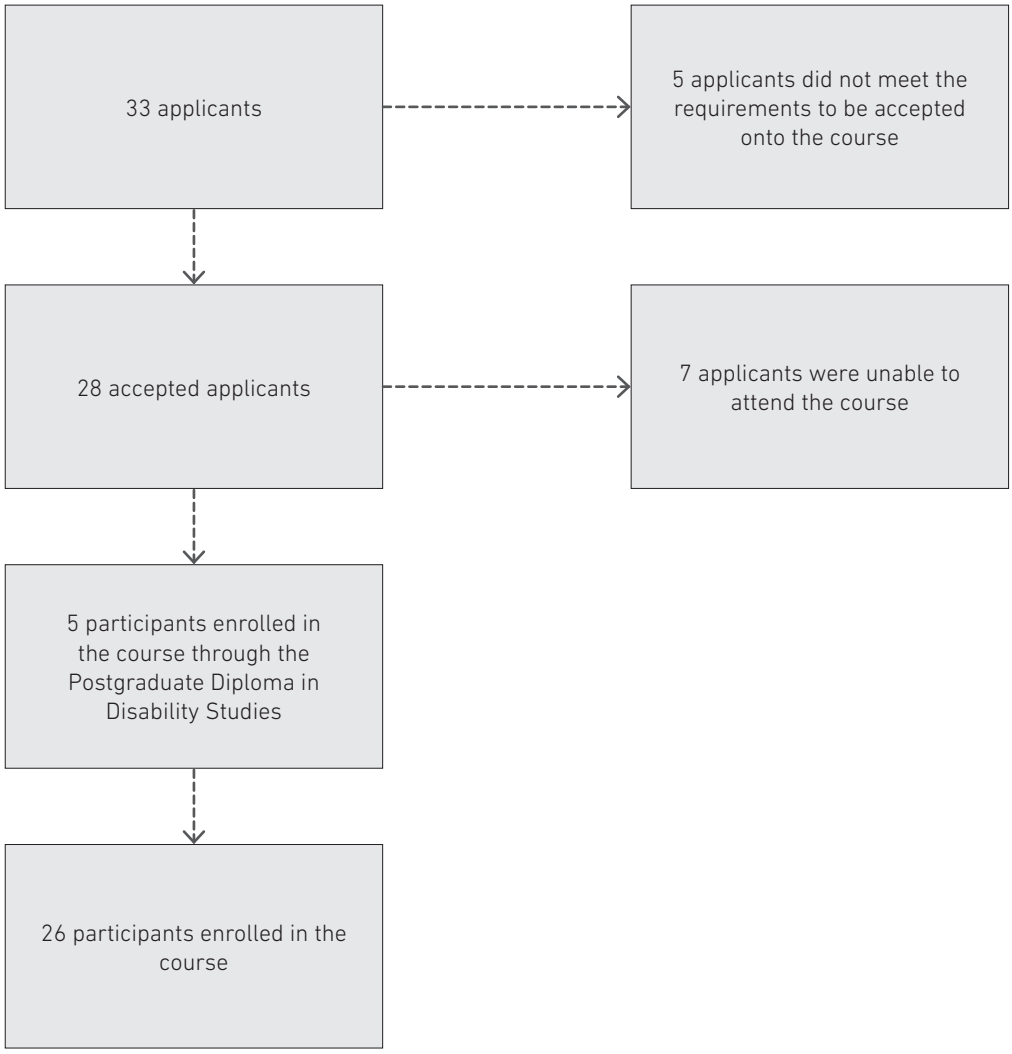

Figure 1: Participant enrolment in the DSE course

[6] The DSE course also forms part of the Postgraduate Diploma in Disability Studies at UCT.

2.3 Education and Care of Learners with SPID

2.3.1 Target group

The ID course is targeted at individuals working with learners with SPID, including carers, community workers, facilitators, classroom assistants, and programme implementers.

2.3.2 Course description

Adopting a practical skills-based approach, the purpose of the course is to:

- Provide participants with the basic foundation of knowledge and skills needed to teach and care for learners within a special care centre setting;
- Teach participants the skills needed for the Department of Basic Education's learning programme on the implementation of the right to education for children with SPID; and
- Provide participants with basic knowledge for disability-inclusive development on both a theoretical and a practical level.

Learning outcomes:

- Describe and discuss development and wellness in learners with SPID within the different life stages.
- Describe and discuss prevalent health conditions in learners with SPID within the International Classification for Functioning, Disability and Health.
- Identify, record, and report support needs.
- Implement the integrated daily programme (addressing individual support needs within a group).
- Facilitate and co-facilitate teaching and learning in groups.
- Understand the purpose of assistive devices and demonstrate their appropriate use.
- Build a professional relationship with carers, learners, families, and the multidisciplinary team.
- Identify risk factors for emotional distress in carers, learners, families, and self.
- Recognise when referral is required. Demonstrate appropriate referral patterns and work in a multidisciplinary team (see Appendix C for the course programme).

For the assessment task on this course, participants were required to complete a portfolio of evidence in which they were given the opportunity to practically apply what they had learnt in the course within their work context. The portfolio comprised:

- Writing up a case study on a learner with SPID in their classroom or special care centre;
- Highlighting the rights of this learner and the policies that support these rights;
- Evaluating the levels of development of the learner (physical, communication, and mental);
- Creating a poster focusing on intellectual disability;
- Developing a play activity;
- Developing a story;
- Describing an interaction with a learner's family, and actions taken from this interaction to support the learner;
- Answering questions related to the support needs of a learner with SPID;
- Writing up a daily programme; and
- Completing a positioning checklist.

Participants were given a hard copy of a portfolio, which they were required to complete and submit for assessment. Two months after course completion, members of the TEDI team visited participants in their communities to go through their portfolios with them in a process of formative assessment. Focus-group discussions were also held (see section 3.3.1.2 for details).

2.3.3 Enrolment

Forty-one people applied for the ID course, 30 of whom were accepted (11 applicants did not meet the pre-established criteria). The course was piloted with 30 participants on 23–27 June 2018, all from the Western Cape (Figure 2). All participants received a certificate of completion.

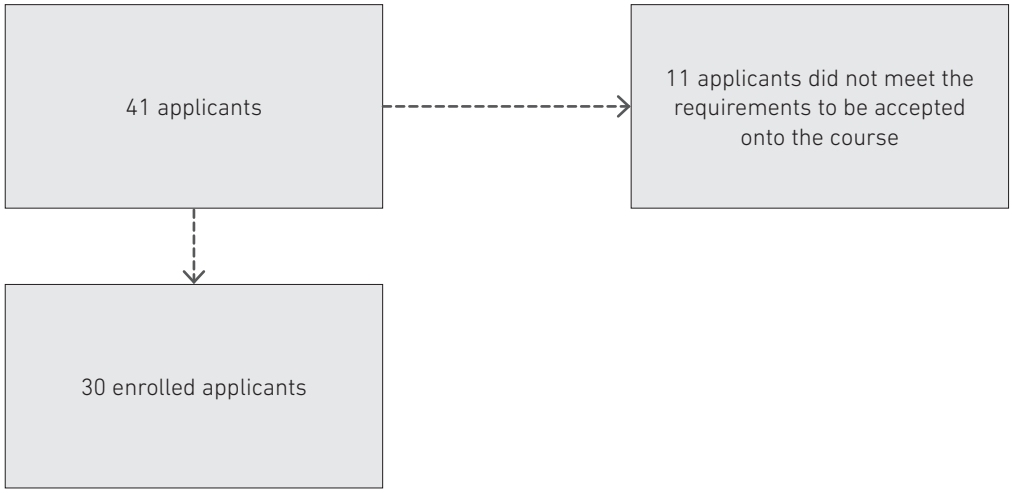

Figure 2: Participant enrolment in the ID course

2.4 Teaching Learners with Visual Impairment

2.4.1 Target group

The VI course is aimed at teachers based at special, full-service, and ordinary schools who have, or may in the future have, learners in their classes who are visually impaired. The course is also relevant to principals, district officials, and members of DBSTs.

2.4.2 Course description

The overall purpose of the course is to provide foundational knowledge and skills on all aspects of basic education for learners with VI, including:

- Classroom accommodations and curriculum differentiation;
- Accessible LTSM;
- The Expanded Core Curriculum (ECC);
- Psychosocial implications; and
- Understanding disability as a human rights and social justice issue.

Learning outcomes:

- Understand disability as an issue of social justice in the context of South African basic education.
- Explore ways of building supportive relationships with learners and families.
- Develop inclusive teaching methods that respond to the educational needs of learners with VI.
- Develop skills in curriculum differentiation to meet the needs of learners with VI.

- Describe the role of Braille in the Foundation Phase for learners with VI.
- Know different types of VI and their impact on access to the curriculum.
- Understand the elements of the ECC for learners with VI and how to integrate the ECC into the core curriculum.
- Identify and use accessible LTSM.
- Identify relevant and appropriate use of assistive technology (AT) to access the curriculum (see Appendix D for the course programme).

In terms of the assessment, participants had to:

- Identify two barriers faced by learners with VI in their school – one relating to access to the curriculum (teaching and learning), and the other to social inclusion (acceptance and belonging among peers and teachers).
- Observe and then write thorough descriptions of how the barriers manifest, who is involved and in what ways, and what they believe are the underlying causes of the barriers.
- Formulate one key intervention for each barrier aimed at reducing its negative effect on access and inclusion. Write a clear description of the intervention and a plan for implementing it.
- Implement both interventions and keep regular notes on what is observed – what is helpful, what is not, what surprising outcomes (positive and negative) are found and, most importantly, what can be learned.

All of the above had to be written up in a report of ±2 000 words and submitted by email for assessment. It could be completed individually or in groups of no more than four people. Participants were invited to a presentation day to reconnect and share their assignment findings with each other, and to participate in focus-group discussions (see section 3.3.1.2 for details).

2.4.3 Enrolment

Thirty-eight people applied for the VI course and all were accepted as they met the selection criteria. Twenty-seven people accepted the offer to attend the course. Of the remaining 11, six did not respond to the offer, three declined the offer, and one had a death in the family which meant they couldn't attend. The course was piloted with 26 participants on 1–5 October 2018 (Figure 3). Five participants were from the Eastern Cape and 21 from the Western Cape. Of the 26 participants, 22 received certificates of completion and four received certificates of attendance.

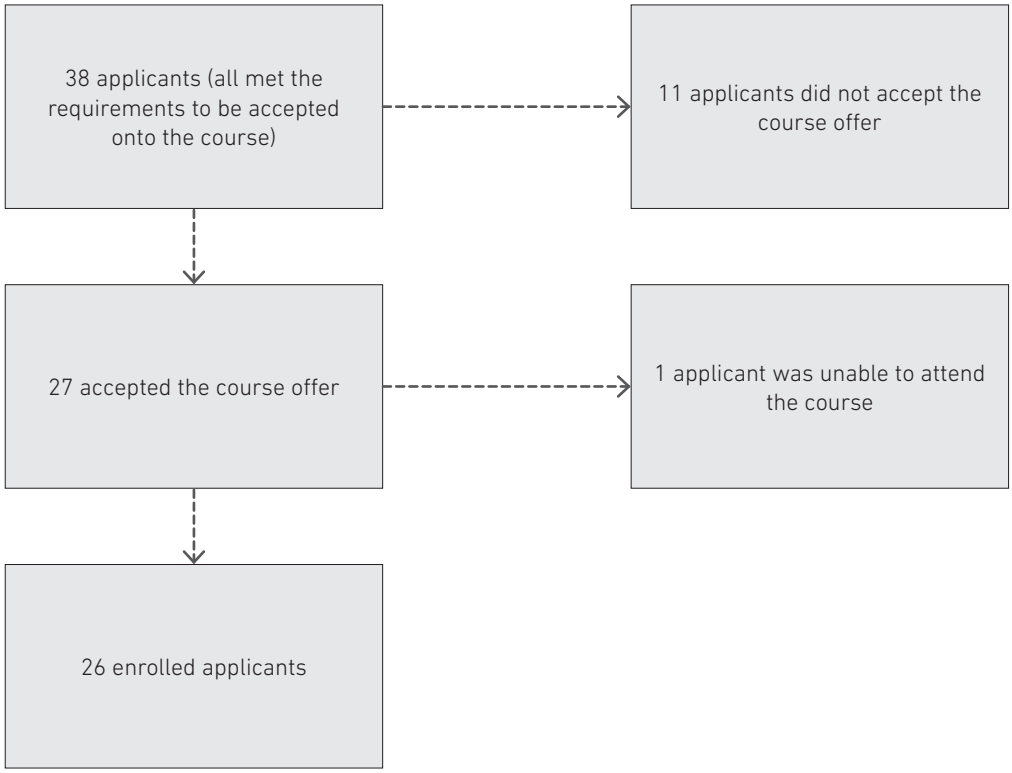

Figure 3: Participant enrolment in the VI course

2.5 Navigating D/deaf and Hard-of-Hearing Education: Empowering Teachers

2.5.1 Target group

This course is aimed at educators and teaching assistants responsible for supporting the education of D/deaf and hard-of-hearing learners. This includes members of school and district-based support teams, and school principals.

2.5.2 Course description

The overarching aim of the course is to empower educators to reflect on how severe to profound hearing loss impacts on teaching and learning in the school system. Participants explore their own perceptions of deafness and hearing loss, and examine the support needs of this group of learners by engaging with experiences of D/deaf and hard-of-hearing people. They reflect on their own roles as educators to provide quality education to these learners within the existing inclusive-education policy framework in South Africa.

Learning outcomes:

- Examine and respond to identified effects of severe to profound hearing loss on the D/deaf and hard-of-hearing learner in the classroom.
- Examine barriers to education for D/deaf and hard-of-hearing people including those arising from the social context in which education occurs.
- Critique models of D/deaf and hard-of-hearing education that require specific, appropriate education interventions.
- Explain how to access resources and choose suitable role models within the D/deaf community.

- Explain how to empower families and caregivers through accessing relevant resources in the broader community.
- Support D/deaf learners and their multicultural, multilingual families and caregivers in the promotion of language and literacy development.
- Implement international best practice for the safety of the D/deaf and hard-of-hearing child.
- Explore changes to education provision which address barriers to learning, including curriculum adaptation, classroom modifications and accommodations, and amplification technology.
- Develop educational strategies that are relevant to their own educational context (see Appendix E for the course programme).

For assessment, participants needed to work in groups of 2-4 people to:

- Brainstorm challenges they experience at work;
- Select two of the challenges that the group feels are a high priority, analyse what they think are the root causes of these challenges, and identify at least four possible solutions;
- Develop and share a plan to address the challenges using resources from the course and other sources they have access to;
- Implement this plan in their work environment, adapting it as necessary to their context and role; and
- Persevere with the course of action for at least 2-3 weeks and observe whether there are any changes in the identified challenges or not.
- The group should then compile a reflective report (±2 000 words), which clearly describes the challenges and the strategy employed by each group member to try to mitigate the perceived problems.

The report needed to be submitted by email for assessment. Two months after completing the course, the participants were invited to a presentation day where they had the opportunity to reconnect and present the findings of their assignments. They also participated in focus-group discussions (see section 3.3.1.2 for details).

2.5.3 Enrolment

Forty people applied for the DHH course, of whom 35 were accepted onto the course. Five applicants did not meet the pre-established criteria. Three applicants were unable to attend the course. This gave a total of 32 applicants who participated in the course on 25-29 March 2019 (Figure 4). Five were from the Eastern Cape and 28 from Western Cape. Nine received certificates of completion and 21 received certificates of attendance.

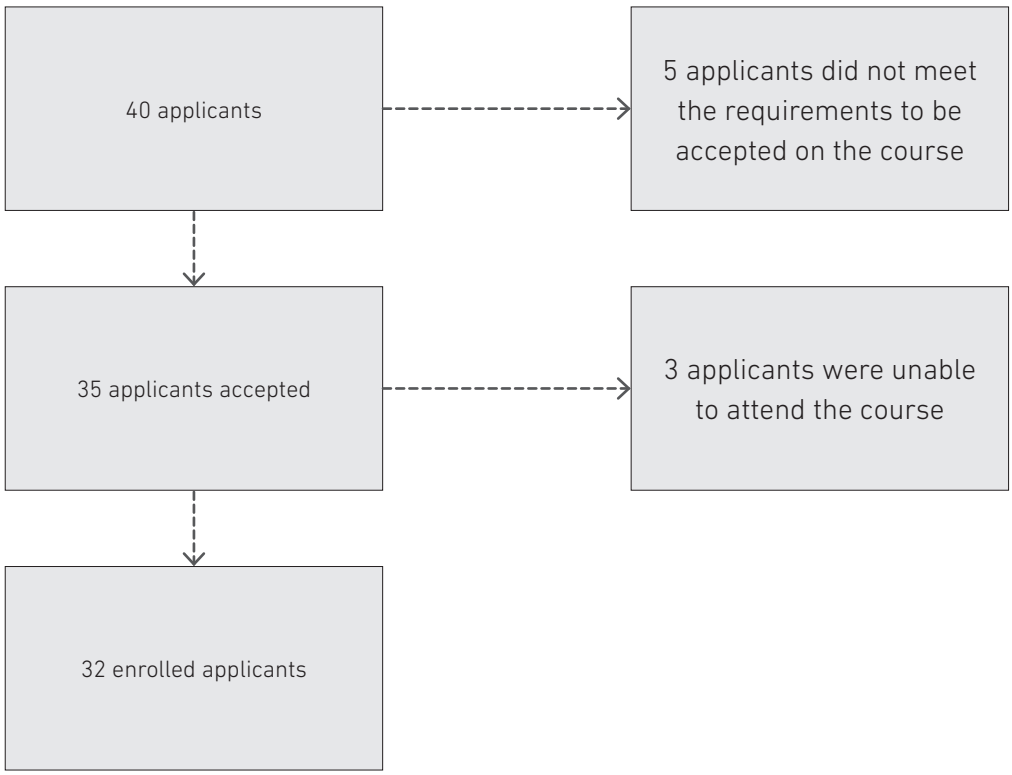

Figure 4: Participant enrolment in the DHH course

Having provided an overview of the development of the TEDI face-to-face short courses, and a description of each course, we now turn to the research design and methods used to evaluate these courses.

CHAPTER 3:
RESEARCH DESIGN AND METHODS

In this chapter we present the research design and methods used for this course evaluation. We begin by discussing the design, followed by a description of the participants and recruitment methods, the data collection and analysis methods, validity and reliability, ethical considerations, and finally the limitations of the methods used.

3.1 Research design

This course evaluation used a convergent mixed-methods research design, where qualitative and quantitative data are collected and analysed in a similar timeframe (Fetters, et al., 2013). A mixed-methods design allows for a richer and more complete description of the phenomenon under study (Creswell, et al., 2011). Qualitative research is concerned with people's subjective experiences of the world (Willig, 2008), while quantitative research examines relationships among variables, statistically analysing the numeric data that the measurement of these variables produces (Creswell, et al., 2011).

The specific qualitative design used as part of this mixed-methods design was the qualitative description method, which focuses on providing a comprehensive summary of the topic. This is done by ensuring both descriptive and interpretive validity. Descriptive validity refers to an accurate account of events that most people who observe the event would agree is accurate, while interpretive validity refers to an accurate account of the subjective meanings that participants attribute to those events (Sandelowski, 2000).

With respect to the quantitative data, we used a pre-experimental design (or AB design) where typically a group of participants are selected and complete a pre-test (the A phase or baseline phase), then are exposed to some kind of intervention (the B-phase – in this case, the intervention is the TEDI face-to-face short courses), and then post-tested (Byiers, et al., 2012; Marsden and Torgerson, 2012). The purpose of the baseline (A) phase is to establish the existing level of the construct under measure (for example, behaviour or attitude), against which future predictions can be made. The pre-experimental design is used to measure correlation - but not necessarily causation - between the independent and dependent variables (Byiers, et al., 2012).

3.2 Participants and recruitment

The primary participants for the course evaluation were those who participated in the TEDI face-to-face short courses. These participants were educators and other professionals involved in the education of learners with SPD. This included, for example, classroom teachers, learning support advisors, principals, carers, and therapists. For a more detailed discussion of the demographics of the course participants see section 4.1. The secondary participants were those who facilitated the TEDI short courses. In the DSE course there were 26 participants, in the ID course 30 participants, the VI course 26 participants, and the DHH course 32 participants. This gives a total of 114 course participants across the four short courses. In the DSE course there were nine facilitators, the ID course five facilitators, the VI course 13 facilitators, and the DHH course 12 facilitators who participated in the evaluation study. Thus, in total across the four short courses there were 39 facilitators who participated in the study (Table 1).

This is how the course participants (primary participants) were recruited:

- Once course participants had been enrolled on the short courses (see Chapter 2 for a detailed discussion on this), they were contacted by email one week before the courses began. Along with the course information, they were sent an information letter and consent form outlining the details of the evaluation study and what would be required of them should they wish to participate.
- On the first day of each course, before the programme officially began, course participants were given a hard copy of the information letter and consent form, which the research officer explained to them. They were given an opportunity to read through the form and ask questions. All course participants agreed to participate and signed the consent form.

In terms of the recruitment of course facilitators (secondary participants), one week after course completion they were sent an information letter and consent form requesting their participation in a focus-group discussion. Those who were unable to participate in the discussion were asked to complete a set of interview questions via email.

3.3 Data collection

In this section we describe the data collection methods and procedures used for this evaluation study, beginning with data collection from course participants and then moving to data collection from course facilitators.

3.3.1 Data collection from course participants

Data collection from the course participants had two components: surveys which had a qualitative and quantitative component, and focus-group discussions. Those who were unable to attend the

focus-group discussions were asked via email to answer a set of questions drawn from the focus-group discussion questions. In total, across all the courses, 109 people completed the pre-course surveys, 108 the post-course surveys, and 91 the final surveys. Some 73 people participated in focus-group discussions, and 15 completed the interview questions (Table 1).

Table 1: Data collected from course participants

Course	Pre-course survey	Post-course survey	Final survey	Focus group	Focus-group questions completed via email
DSE	26	25	17	6	11
ID	30	29	27	Five groups of 3, 5, 9, 7 and 4 participants	
VI	26	24	22	Two groups of 9 participants each	3
DHH	27	30	25	Three groups of 6, 7 and 8 participants	1
Total	109	108	91	73	15

3.3.1.1 Surveys

Course participants completed surveys before the courses began (pre-course survey), immediately after the courses finished (post-course survey), and two months after course completion (final survey). In terms of procedure: After signing the consent form and before the course programme officially began, participants completed a hard copy of the pre-course survey, which was submitted to the research team. Once the course programme had finished on the fifth and final day, participants completed a hard copy of the post-course survey, which was also submitted to the research team. There were two blind participants on the VI course who completed and submitted their surveys (and consent forms) electronically. Participants on the ID course were given the option of completing an Afrikaans version of the surveys (29 of the 30 participants were first-language Afrikaans speakers). Their responses were captured in Afrikaans and translated into English, and the English translations are presented in the findings. The final surveys and focus-group discussions were carried out at a post-course presentation day, two months after course completion. For those participants who were unable to attend the post-course reflection sessions, the surveys were emailed to them along with a set of questions drawn from the focus-group discussion questions.

The qualitative component of the surveys comprised the following:

- In the pre-course survey, participants were asked to discuss their expectations of the course and the challenge(s) they face educating learners with SPD. In the final survey, participants were asked to discuss whether they felt their expectations had been met and whether they felt better able to manage the challenges after having completed the course.[1]
- In the post-course survey, participants were asked open-ended questions about their experiences of the course, including what they enjoyed most, how they feel the course benefited them, and where the course needs improvement.

[1] These questions were adapted for each course according to the target group.

The quantitative component of the surveys comprised the following:

- In the pre-course survey, participants were asked demographic questions: age, gender, occupation, etc.
- In the post-course survey, participants were asked to rate their experiences of the structure, content, and delivery of the course on a scale of 1 (strongly agree) to 4 (strongly disagree). For example, one of the questions related to the preparedness of the lecturers and another related to the organisation of the course.
- In the pre-course and final surveys, participants were asked to complete an adapted version of the Indicators of Successful Inclusion Scale (ISIS)[2], and a scale developed specifically for each course according to its learning outcomes.

The ISIS was developed to measure teachers' beliefs on educating learners with disabilities in general education classrooms (Brandes, et al., 2012). In the survey, which was administered before the courses began and two months after course completion, participants were asked to rate on a scale of 1 to 5 the extent to which they agree or disagree with statements about disability inclusion. The survey deals with disabilities generally. Given that the TEDI project focuses on severe to profound disabilities, the scale was adapted to reflect this.

Evidence suggests that two dimensions of teachers' beliefs about inclusion can be identified using the ISIS: beliefs concerning the value of inclusion for everyone (Benefits for All subscale), and beliefs about the support teachers receive in enacting inclusion (Perceived Support subscale). Internal consistency reliability estimates have been found for the Benefits for All subscale (Cronbach's α =.73) and the Perceived Support subscale (Cronbach's α =.82). In addition, test-retest data indicates that the ISIS subscales exhibit reasonable rank-order stability over brief periods of time (Brandes, et al., 2012).

For each course the research team, in consultation with the course conveners, developed a specific survey according to the learning outcomes of the course. In these surveys, participants had to rate their level of confidence on a scale of 1 (strongly agree/very confident) to 4 (strongly disagree/not at all confident).[3] These surveys were administered in the pre-course survey and final survey:

- A key focus of the DSE course was managing barriers related to including learners with SPD, therefore questions in the course survey were designed to focus on this. Participants were asked to rate how confident they felt managing various barriers (for example, related to curriculum adaptation and differentiation, assessment, and the use of assistive devices).
- The ID course survey focused on various aspects of educating and caring for learners with SPID (for example, the support needs of learners with SPID, positioning, and implementing activities). Participants were asked to rate how confident they felt about these aspects.
- In the VI course, survey participants were asked questions about teaching and supporting learners with VI (for example, on providing emotional support to learners and their families, using the expanded core curriculum, and assessment). For each question, participants rated their level of confidence on a scale.
- The DHH course survey focused on participants' confidence related to teaching and supporting learners who are D/deaf and hard-of-hearing (for example, providing accessible teaching and learning support materials, making classroom accommodations, and providing access to resources for learners and their families).

[2] Note that this scale was not completed by participants on the ID course.
[3] The wording of the response options was adapted according to the way in which the questions were phrased in each course survey.

Having discussed the surveys administered to the course participants, we now turn to the focus-group discussions.

3.3.1.2 Focus-group discussions

With the focus-group method of data collection, participants focus collectively as a group on the topic under study. The aim is to gain insight into the experiences, beliefs, and attitudes of group participants. Because focus groups are characterised by collective discussion, they offer the opportunity to explore how participants collectively make sense of their experiences (Wilkinson, 1999).

In the current study, focus groups were held with course participants across all four courses. These focus groups were semi-structured. Participants were asked broad and open-ended questions about their experiences of participating in the courses (for example, 'How might the course have changed you as an educator?' and 'What and how have you applied what you learnt at the course in your work?'). Follow-up and probe questions were asked where necessary. Each focus group was facilitated by a TEDI research team member and there were no more than nine participants per group. With the consent of the participants, the discussions were audio recorded and were 45 minutes to one hour in length. The focus groups were held in private venues at the presentation day sessions. One of the focus groups with D/deaf participants from the DHH course was facilitated by the course convener, who is fluent in sign language. A sign language interpreter translated what the participants signed for recording purposes. The focus groups on the ID course included some Afrikaans responses, which were translated into English after transcription. The English translations are presented in this report.

The interview questions completed by participants who could not attend the focus group included the same questions that were asked at the focus-group discussions. Participants returned their completed interview questions by email.

3.3.2 Data collection from course facilitators

Data was collected from the course facilitators using focus-group discussions. Those who were unable to attend the focus group were asked to complete a set of interview questions via email. Across the courses, 31 people participated in focus groups and 14 people answered interview questions (Table 2).

Table 2: Data collected from course facilitators

Course	Focus group	Interview questions by email
DSE	9	8
ID	6	0[4]
VI	4	0
	5	
DHH	7	6
Total	31	14

[4] All facilitators attended the focus-group discussions for the ID and VI courses, making it unnecessary for them to respond to interview questions.

Questions were broad and open-ended, and focused on the facilitators experiences of facilitating the courses (for example, 'What do you think worked well on the course?' and 'What did you learn about teacher education through facilitating this course?') Follow-up and probe questions were asked where necessary. The focus groups were held in private venues in Old Main Building, Groote Schuur, Cape Town. They were facilitated by external parties sourced by TEDI to ensure openness. The discussions had a maximum of nine participants per group, were audio recorded with the consent of the participants, and were 45 minutes to one hour in length.

The interview questions completed by facilitators who could not attend the focus group included the same questions asked at the focus-group discussions. Facilitators returned their completed interview questions by email.

3.4 Data analysis

Given that this study employs a mixed-methods research design, both qualitative and quantitative data-analysis methods were used.

3.4.1 Qualitative data analysis

The data from the open-ended survey questions and from the focus-group discussions was analysed using thematic analysis – a process of methodically classifying, putting together, and giving an understanding of the themes (patterns) in a dataset (Braun and Clarke, 2006). The procedure followed in thematically analysing the data for this study was as follows:

- The audio recordings of the focus-group discussions were transcribed in Microsoft Word and rendered anonymous. The qualitative data from the open-ended survey questions was also captured and rendered anonymous.
- The transcriptions and survey data were uploaded to NVivo (a qualitative data analysis software).
- The core research team met to establish a deductive coding frame that could be used to analyse the qualitative data in NVivo. This coding frame had two broad inter-related components: teacher empowerment and disability inclusion. Analytical categories (or codes) were established for these components. For example, confidence was one code in the teacher-empowerment component and understanding disability was a code within the disability-inclusion component. The framework was shared with the broader team whose comments and input were incorporated.
- The coding framework was uploaded to NVivo and the data from each course was coded according to this framework. Single coding was employed, meaning that an excerpt or quotation from the data could not be assigned to more than one code.
- While coding, the team met several times to discuss the process and amend the framework where necessary according to what was appearing in the data. For example, some codes were discarded and others were merged. The process was mainly deductive, in that a coding frame was established before analysis began, but we also introduced elements of an inductive approach by allowing for the emergence of other possible codes and adaptations to existing codes.
- Once all the data across the courses had been coded, the core research team met to discuss how the codes could be merged into possible themes that were common to all four courses. These themes were refined and finalised by the team.

3.4.2 Quantitative data analysis

The quantitative data was captured and analysed using SPSS statistical software. The demographic data and the data from the closed questions in the post-course survey (where participants were asked to rate their experiences of various aspects of the course) were analysed using descriptive statistics, reporting on the frequency, mean (where applicable), and range. The data from the ISIS and learning outcomes surveys was analysed descriptively using a non-parametric statistical test: the Wilcoxon signed-rank test.[5]

When analysing the ISIS and learning outcomes survey data, the first step was to look at the internal consistency (reliability) and validity of the data. This was done by running a reliability analysis using Cronbach's alpha, and factor analysis using varimax rotation on SPSS. Next, we ran frequencies and tables to describe the data. Finally, we used the Wilcoxon signed-rank test for each item and for items combined according to the factor analysis. The Wilcoxon signed-rank test is a non-parametric test designed for use with repeated measures (when participants are measured on two occasions). The Wilcoxon signed-rank test converts scores from survey data into ranks and compares these ranks at Time 1 and Time 2 (Pallant, 2007).

In this evaluation study, course participants completed the same surveys (ISIS and learning outcomes) on two occasions – once before the course began (pre-course survey) and once two-months after course completion (final survey). We wanted to compare the results from the pre-course survey with the final survey to see whether there was a statistically significant difference from pre- to post-course. Our chosen level of significance was .05. With regards to the ISIS, our hypothesis was that participants would demonstrate more positive attitudes about inclusion after participating in the TEDI courses. With respect to the learning outcomes surveys, our hypothesis was that participants would feel more confident about the various learning outcomes after participating in the courses. In terms of the design of both scales, a lower post-course score indicates more belief in inclusion/more confidence (1= strongly agree/very confident and 4= strongly disagree/not at all confident).

3.5 Validity and reliability

Given that we are collecting quantitative data, it is important that we pay attention to its validity and reliability. Validity refers to the accuracy or the trustworthiness of the scores produced from the instrument(s) used, while reliability refers to the instruments' internal consistency (Barry, et al., 2014). As noted in the previous section, we measured the construct validity of the survey data using factor analysis, and the internal consistency (reliability) using Cronbach's alpha. The results are presented in Chapter 4.

In qualitative research, the traditional notions of validity and reliability used for quantitative data do not apply. Rather, the quality criteria of credibility, transferability, dependability, and confirmability should be adhered to – all of which fall under the umbrella term of trustworthiness (Korstjens and Moser, 2018). In this study, credibility was ensured through the use of triangulation. Data was collected from multiple sources, including pre- and post-course surveys, and focus-group discussions with course participants and facilitators. Transferability was facilitated by providing 'thick descriptions' of the participants and the research process (Korstjens and Moser, 2018:122). Dependability and confirmability was ensured by transparently describing the research process from start to finish, and keeping a thorough record of all steps followed and actions taken (Korstjens and Moser, 2018).

[5] Non-parametric tests are used when working with data that is measured using nominal (categorical) or ordinal (ranked) scales (Pallant, 2007). This study uses ordinal scales.

3.6 Ethical considerations

This study was given ethical approval by the Human Research Ethics Committee (HREC) within the Faculty of Humanities at UCT.[6] It abided by the ethical principles of informed consent, voluntary participation, confidentiality, and beneficence (benefits must outweigh risks) (Willig, 2008).

With informed consent, the purpose of the study, the main characteristics of the design (including confidentiality), and any risks and benefits they may incur need to be explained to the participants (Brinkman and Kvale, 2008). This was done using the consent forms. The research officer went through the consent form with the participants, who were given the opportunity to raise questions. Participants were informed that participation in the evaluation was voluntary, and that they could withdraw from the evaluation without enduring any negative consequences. It was also explained to them that the information generated from the evaluation would remain confidential, that their names would be kept separate from the evaluation information, and that when their responses were transcribed and reported on, a code would be used instead of their name to ensure complete anonymity (Table 3).

Table 3: Participant codes

Code	Description
DSEP1-26	Participant on the DSE course
IDP1-30	Participant on the ID course
VI1-26	Participant on the VI course
DHH1-32	Participant on the DHH course
DSEF1-17	Facilitator on the DSE course
IDF1-6	Facilitator on the ID course
VIF1-9	Facilitator on the VI course
DHHF1-13	Facilitator on the DHH course

There was minimal risk to the participants in taking part in this evaluation as the questions were generally not of a personal nature. Participants were also made aware that they did not have to answer any questions they did not want to. There were no direct benefits to the participants from the evaluation. However, the information gained by the study will make a contribution to strengthening teacher education that focuses on meeting the educational needs of learners with SPD, which will ultimately help to ensure that these learners receive a better education.

3.7 Limitations

As with all research studies, this evaluation is not without its limitations. Firstly, because there is no control group, we cannot rule out extraneous factors that may have had an impact on changes observed in participants pre- and post-course. In other words, we cannot know for certain that it was the courses that caused changes in participants. However, including control groups in this study was logistically impossible.

Secondly, this study is limited by its small sample size, which decreases the statistical power of

[6] DSE course HREC REF: 396/2018; ID course HREC REF: 398/2018; VI course HREC REF: 627/2018; DHH course HREC REF: 112/2019.

the study. When comparing pre- and post-course participation, fewer participants completed the pre-course and final surveys (see Table 1 in section 3.3.1), which means the Wilcoxon signed-rank test was run with a small group of participants. However, it is important to note that the Wilcoxon signed-rank test, as a non-parametric test, is ideal for very small sample sizes (Pallant, 2013).

A third limitation is to do with the validity of the ISIS and learning outcomes surveys. Ideally, the surveys should have been sent to a panel of experts before being administered to the participants, in order for them to check the question wording for clarity, ambiguity, etc., and to check that the questions are a good reflection of the content. Time constraints meant that this was not possible for this study. However, as noted above, we did assess the construct validity of the surveys using factor analysis.

CHAPTER 4:
COURSE DATA

In this chapter we look at the data from the TEDI courses, including participant demographics, how the course participants and facilitators experienced and rated the courses, their suggestions for improving the courses, and the results from the quantitative scales. These scales included the ISIS and specific scales designed for each course according to its learning outcomes.

4.1 Participant demographics

In this section we discuss the demographics of the course participants, focusing on age, gender, disability, and employment. We also highlight the training the participants had before coming to the TEDI courses.

4.1.1 Age

Across all the courses, the average age was 42.9 years. Almost a third (31.6%) of participants fell within the 51–60 years age group, and 3.5% in the 61–70 years age group. Thus, many of the course participants fell within an older age demographic. The details for each course are presented in Table 4.

Table 4: Age range of participants

	DSE	ID	VI	DHH	Across all courses
20–30 years	5 (19.2%)	7 (23.3%)	2 (7.7%)	4 (12.5%)	18 (15.8%)
31-40 years	6 (23.1%)	11 (36.7%)	6 (23.1%)	11 (34.4%)	34 (29.8%)
41-50 years	4 (15.4%)	5 (16.7%)	7 (26.9%)	6 (18.8%)	22 (19.3%)
51-60 years	10 (38.5%)	7 (23.3%)	11 (42.3%)	8 (25.0%)	36 (31.6%)
61-70 years	1 (3.8%)			3 (9.4%)	4 (3.5%)
Total	26	30	26	32	114

4.1.2 Gender

Across all the courses, the majority of participants were female (92.1%) (Table 5).

Table 5: Gender of participants

	DSE	ID	VI	DHH	Across all courses
Male	1 (3.8%)	0	2 (7.7%)	6 (18.7%)	9 (7.9%)
Female	25 (96.2%)	30 (100%)	24 (92.3%)	26 (81.3%)	105 (92.1%)
Total	26	30	26	32	114

4.1.3 Disability

Across all the courses, 14% of participants reported having a disability (Table 6).

Table 6: Reported disability

	DSE	ID	VI	DHH	Across all courses
Yes	3 (11.5%)	0 (0%)	3 (11.5%)	10 (31.3%)	16 (14.0%)
No	23 (88.5%)	30 (100%)	23 (88.5%)	22 (68.7%)	98 (86.0%)
Total	26	30	26	32	114

4.1.4 Employment

Across all the courses, one-third (33.3%) of participants were educators based in a special school, and 23.7% (all from the ID course) were educators in a care-centre. Some 17.5% were educators in regular or full-service schools, and 17.5% were district-based educators (Table 7).

Table 7: Employment of participants

	DSE	ID	VI	DHH	Across all courses
Special school educator	1		18	18	38 (33.3%)
Regular/full-service school educator	8	3	6	3	20 (17.5%)
District-based educator	11		2	7	20 (17.5%)
Educator in a care centre		27			27 (23.7%)
Disability Studies student	6[1]				6 (5.3%)
Student teacher				1	1 (0.9%)
NGO				2	2 (1.8%)

The average length of employment was 9.1 years. As seen in Table 8, the majority of participants had been in their current employment for over five years: 29.7% had been in their current position for 5–10 years and 29.7% for over 10 years.

[1] These were Postgraduate Diploma in Disability Studies students taking the course as part of an elective.

Table 8: Length of current employment

	DSE	ID	VI	DHH	Across all courses
Under 5 years	10 (40.0%)	14 (46.7%)	5 (26.4%)	12 (44.4%)	41 (40.6%)
5-10 years	8 (32.0%)	10 (33.3%)	7 (36.8%)	5 (18.5%)	30 (29.7%)
Over 10 years	7 (28.0%)	6 (20.0%)	7 (36.8%)	10 (37.0%)	30 (29.7%)
Total	25	30	19	27	101

4.1.5 Previous training

Across all the courses, 43.0% reported participating in prior training related to learners with SPID (Table 9).

Table 9: Previous disability-related training

	DSE	ID	VI	DHH	Across all courses
Yes	10 (38.5%)	11 (36.7%)	13 (50.0%)	13 (48.0%)	47 (43.0%)
No	16 (61.5%)	19 (63.3%)	13 (50.0%)	14 (52.0%)	62 (57.0%)
Total	26	30	26	27	109

When looking specifically at educators working in special-school settings (38 educators in total), 40.6% had not received any prior training.

In the DSE course, several of the participants who had attended previous training (38.5%) noted that it had been offered by the Western Cape Education Department. For example, one participant said she had attended training focused on curriculum differentiation for the CAPS curriculum. Some participants also discussed completing disability-related training through online courses and NGOs, including, for example, the Western Cape Forum for Intellectual Disability (WCFID). One participant noted that she had an honours degree in inclusive education.

Some 36.7% of ID course participants reported attending prior training related to SPID. Of those who completed the training, nine participants completed more than one course. Four participants noted that they completed training through the WCFID, six through Uhambo, three through the Western Cape Association for People with Disabilities, and one through the Family and Marriage Society of South Africa (FAMSA). Responses from three participants intimated that the courses they completed dealt with disability at a superficial level. For example, one participant noted that the courses touched on disability 'very superficially. No detail on disability like TEDI.' (IDP23).

Half the participants in the VI course noted that they had attended VI-related training before coming to the TEDI course. Some noted that the training focused on Braille (8 people) and curriculum differentiation (5 people). Three received training on orientation and mobility, and one had a postgraduate diploma in specialised education that had VI as a module.

Almost half of the participants on the DHH course reported that they had previous training related to teaching D/deaf and hard-of-hearing learners. Of those, several noted that the training had focused on sign language. For example, one participant said that she had attended training on teaching D/deaf children the CAPS curriculum using SASL. For others, their training had focused on

multilingual education, inclusive education, and adult literacy. Some of this training was provided by universities (for example, the University of the Witwatersrand), and others by NGOs or schools.

4.2 Course experiences

In this section we discuss the experiences of participants and facilitators, including content and delivery, and the participants' ratings of the courses.

In general, DSE course participants rated their experiences of the course highly. In particular, the majority felt that facilitators were well prepared and knowledgeable, and that the course was well run and organised, with 66.7% selecting 'strongly agree' and 29.2% selecting 'agree' for these questions (Tables 11 and 12). One facilitator noted:

> *I think this course was very well managed in terms of admin, meetings, deadlines, etc. I am yet to work with a team so well organised and supportive (DSEF7).*

All participants felt that the course provided the opportunity to share thoughts and ideas (Table 16). Indeed, participants and facilitators alike reported enjoying the 'interactive nature' (DSEF5) of the course, which allowed them to connect with one another. For example, one facilitator said: 'I really enjoyed the candid and honest atmosphere' (DSEF6).

It is also noteworthy that, while 82.6% of the DSE participants agreed that the workload was manageable, only 17.4% strongly agreed with this statement (Table 15). In all the other questions, the rate at which participants strongly agreed was higher. Thus, it appears that not all participants felt confident managing the course workload. Indeed, the DSE course covers a range of topics in a short space of time. As this participant noted: 'A very long 5 days. In some cases, it was info-overload' (DSEP18). Despite this, participants were generally very positive about the course:

> *It was a fantastic, comprehensive course, thank you! I enjoyed learning about the history and background of special education and inclusive education. The case studies and group work were great. Learning from experts in their field was also great (DSEP11).*

Many participants rated the ID course highly. For example, all participants felt that the facilitators were well prepared and knowledgeable, with 75.9% of participants selecting 'strongly agree' and 24.1% 'agree' (Table 11). One participant noted that the facilitators 'made the lessons interesting for us' (IDP21), while another commented that they were 'well equipped with everything they did' (IDP13). Some participants (14.8%) felt that the course was not pitched at the correct level of difficulty[2] (Table 10), and a number commented that they found the course 'quite clear, and if you did not understand something, you could ask' (IDP10). Another method of delivery that seemed to facilitate better understanding was the use of 'activities or examples' that 'made it easy to understand the topic' (IDP15). The vast majority of participants (96.5%) felt that the course provided them with the opportunity to share their thoughts and ideas (Table 16). When talking about the participants, a facilitator said 'they were quite comfortable with everyone in the group and with us as facilitators' (IDF3).

The VI course was generally rated highly, with 95.8% feeling that the facilitators were well prepared, the course well run and supported, the learning materials useful and coherent, and the course

2 Because of the way in which the survey question was phrased, we are unable to determine whether the participants who felt that the courses were not pitched at the correct level of difficulty meant that it was too low or too high.

properly resourced and supported (Tables 11, 13, 14). VIP9 said: 'Overall it was an excellent course … It has definitely broadened my knowledge, skills and expertise', and VIP2 noted that 'It was well prepared'. However, some felt that the course was not pitched at the correct level of difficulty (13%) (Table 10) and that the course did not provide enough opportunity to share thoughts and ideas (21.7%) (Table 16).

Participants also commented on the practical nature of the VI course:

> *I loved the practicality of some of the sessions, with visual aids and sites I could visit to aid me in making my own resources, and creating an interactive lesson was explained (VIP9).*

Other participants and facilitators commented on the 'conversation that was open, free and honest' (VIP3). As one facilitator observed:

> *I think there was a lot of sort of humility in the room about people really opening themselves up to thinking about what they don't know and that they need to, you know, opening themselves to new possibilities (VIF2).*

In general, the DHH course participants rated their experiences of the course very highly. For example:

> *This is a course of outstanding quality. It gave me a close-up glimpse into the world of deaf and hard-of-hearing people and the challenges that they face. I enjoyed the lectures and knowledge/expertise shared by experts in the field, but also the feedback from the deaf and hard-of-hearing attendants – including their frustrations and irritations! Thank you for going to great lengths to bring in experts from across the country (DHHP8).*

The majority of DHH course participants felt that the course was well run and organised, with 80% selecting 'strongly agree' and 20% selecting 'agree' for these questions (Table 12). Further, 73.3% strongly agreed that the facilitators were well prepared and knowledgeable, and 23.3% agreed with this (Table 11). It is noteworthy that, while the majority of participants (93.3%) felt that the course offered an opportunity to share thoughts and ideas, there were two participants (6.7%) who disagreed with this statement (Table 15), similar to the VI course.

Across all the courses, the most highly rated aspects of the courses were their organisation, with 98.2% rating that the courses were well run and organised (Table 9); the usefulness of the learning materials, with 98.1% rating that the learning materials were useful and coherent (Table 10); and the resourcing of the courses, with 98.1% rating that the courses were properly supported and resourced (Table 14). It is worth noting that 9.6% of the participants felt that the courses were not pitched at the correct level of difficulty (Table 10) and that 7.5% felt that the courses did not afford an opportunity to share thoughts and ideas (Table 16). A facilitator on the VI course said: 'I also felt that they could have had more time to actually share their experiences, as well as just talk and engage to what has been lectured on' (VIF5). Affording everyone an opportunity to share their experiences needs to be properly facilitated so that it is of benefit to all:

> I felt sometimes many questions were simply a platform to vent frustrations. That being said, it can be helpful to hear frustrations, but it often became a distraction to me (DHHP12).

Table 10: Courses pitched at the correct level of difficulty

	DSE	ID	VI	DHH	Across all courses
N	24	27	23	30	104
Strongly agree	9 (37.5%)	13 (48.1%)	9 (39.1%)	13 (43.3%)	44 (42.3%)
Agree	14 (58.3%)	10 (37.0%)	11 (47.8%)	15 (50.0%)	50 (48.1%)
Disagree		4 (14.8%)	1 (4.3%)	1 (3.3%)	6 (5.8%)
Strongly disagree	1 (4.2%)		2 (8.7%)	1 (3.3%)	4 (3.8%)

Table 11: Facilitators well prepared and knowledgeable

	DSE	ID	VI	DHH	Across all courses
N	24	29	24	30	107
Strongly agree	16 (66.7%)	22 (75.9%)	15 (62.5%)	22 (73.3%)	75 (70.1%)
Agree	7 (29.2%)	7 (24.1%)	8 (33.3%)	7 (23.3%)	29 (27.1%)
Disagree				1 (3.3%)	1 (0.9%)
Strongly disagree	1 (4.2%)		1 (4.2%)		2 (1.8%)

Table 12: Courses well run and organised

	DSE	ID	VI	DHH	Across all courses
N	24	29	23	30	106
Strongly agree	16 (66.7%)	20 (69%)	15 (65.2%)	24 (80%)	75 (70.8%)
Agree	7 (29.2%)	9 (31.0%)	7 (30.4%)	6 (20.0%)	29 (27.4%)
Disagree					
Strongly disagree	1 (4.2%)		1 (4.3%)		2 (1.9%)

Table 13: Learning materials (including lecture notes and online resources) useful and coherent

	DSE	ID	VI	DHH	Across all courses
N	24	29	24	30	107
Strongly agree	12 (50.0%)	16 (55.2%)	15 (62.5%	16 (53.3%)	59 (55.1%)
Agree	11 (45.8%)	13 (44.8%)	8 (33.3%)	14 (46.7%)	46 (43.0%)
Disagree					
Strongly disagree	1 (4.2%)		1 (4.2%)		2 (1.9%)

Table 14: Course properly resourced and supported, including venue and technical support

	DSE	ID	VI	DHH	Across all courses
N	24	29	24	30	107
Strongly agree	14 (58.3%)	21 (72.4%)	11 (45.8%)	18 (60.0%)	64 (59.8%)
Agree	9 (37.5%)	8 (27.6%)	12 (50.0%)	12 (40.0%)	41 (38.3%)
Disagree					
Strongly disagree	1 (4.2%)		1 (4.2%)		2 (1.9%)

Table 15: Course workload manageable

	DSE	ID	VI	DHH	Across all courses
N	23	29	23	30	105
Strongly agree	4 (17.4%)	19 (65.5%)	9 (39.1%)	15 (50.0%)	47 (44.8%)
Agree	19 (82.6%)	10 (34.5%)	11 (47.8%)	15 (50.0%)	55 (52.4%)
Disagree			2 (8.7%)		2 (1.9%)
Strongly disagree			1 (4.3%)		1 (1.0%)

Table 16: Courses provided opportunity to share thoughts and ideas

	DSE	ID	VI	DHH	Across all courses
N	24	29	23	30	106
Strongly Agree	14 (58.3%)	23 (79.3%)	16 (69.6%)	20 (66.7%)	73 (68.9%)
Agree	10 (41.7%)	5 (17.2%)	2 (8.7%)	8 (26.7%)	25 (23.6%)
Disagree		1 (3.4%)	4 (17.4%)	2 (6.7%)	7 (6.6%)
Strongly Disagree			1 (4.3%)		1 (0.9%)

4.3 Suggestions for improvement

In this section we highlight suggestions from participants and facilitators for improving the content and delivery of the courses.

4.3.1 Content

On the DSE course, a participant and a facilitator felt that the 'content in the specific impairments focus[ed] on educators' (DSEP18) and that this should be broadened to include, for example, 'social workers, occupational therapists and psychologists' (DSEF15). While the target of the DSE course was educators, including district-based officials, we are cognisant that an array of professionals support teachers in their work with learners with SPD, and we recognise the need to ensure that this course is relevant to all these professionals. One way to address this could be to 'have a survey before the [course]' (DSEF4) to determine the participants' backgrounds and experience, and use this information to customise the course.

On the ID course, several participants expressed a need for more 'in-depth' (IDP1) training on specific disabilities, including autism, Down syndrome and cerebral palsy. There was also a call for more 'activities' (IDP20) they could use when working with learners with these disabilities.

On the VI course there was a strong emphasis on the psychosocial aspects of VI. While this was commended by many participants, some facilitators and participants felt that the course should have spent more time focused on the pedagogical aspects of teaching learners with VI – in particular *'curriculum differentiation'* (VIP15), *'Braille'* and the *'expanded core curriculum'* (VIP24).

On the DHH course, one participant felt that 'more detailed information [is] needed on how literacy must be developed on Foundation Phase level, and why school leavers are not capable of reading and writing' (DHHP18). Another felt that the role a D/deaf teaching assistant plays in the education of D/deaf and hard-of-hearing learners should be emphasised more.

4.3.2 Delivery

Across the courses, participants made several useful suggestions for how course delivery could be improved. For example, a participant on the DHH course suggested that the course 'extend to offer enough time where upon participants are encouraged to think beyond the known, step up to innovative design of the teaching models' (DHHP19). Similarly, on the DSE course, one participant suggested that we could show a video of 'a poor or under resourced school or institution where after being provided with the necessary tools use it as proof that inclusion can work anywhere' (DSEP20). Some participants on the ID course also asked for more videos, in particular ones that show 'learners with disabilities' and '[what] teachers do in the classroom' (IDP24). Other participants in the ID and VI courses asked for more practical activities to 'learn by doing' (IDP28). One participant on the VI course asked for 'something hands-on that we can take home' (VIP20).

While a concerted effort was made to adapt all activities to benefit all participants, this is an on-going process and there is some room for improvement. For example, a D/deaf person on the DHH course asked for the use of more 'visual' (DHHP10) materials in the presentations. Similarly, when discussing one of the presentations in the VI course, a visually impaired participant noted:

> I felt it was brilliant, but it's like there were these blurred-out spots or parts in the presentation for me. Mentally I was trying to visualise. And also because I have a visual background, I could fill in certain things and make sense of it, but here and there I couldn't because I just couldn't see up there (VIP26).

Some participants felt that 'the course days were too long' (VIP23). Some suggested condensing the content into a shorter space of time, while others suggested holding the course over two weeks. There were suggestions to include more interactive activities, particularly near the end of the day, to break up the sessions that are more content- or theory-driven.

Several participants on the ID course commented on struggling with the fact that the course was predominantly offered in English. This is not surprising as Afrikaans was the first language for 29 out of the 30 participants.

> English was okay, but I also would have preferred more Afrikaans. There were some things here and there that I did not quite understand (IDP12).

Suggestions to accommodate everyone with regards to language were to have a translator present and/or to provide the learning materials in more than one language.

Having discussed the suggestions for improvement made by participants, we now turn to the results of the inclusion beliefs survey and the learning outcomes surveys.

4.4 Inclusion beliefs

In this section we highlight the significant results of the ISIS (Brandes, et al., 2012), which was completed by DSE, VI and DHH course participants before the courses began and two months after course completion. The ISIS is made up of two subscales: the Benefits for All subscale (items 1-4) and the Perceived Support subscale (items 5-8). We administered this survey in an effort to understand possible changes in the participants' beliefs about inclusion and disability from before and after the course. The results were not significant, except for one course which will be discussed below. The full results are presented in Appendix F, and the non-significant results are expanded on in the Chapter 6.

The Wilcoxon signed-rank test reveals for the Benefits for All subscale that there is a statistically significant difference following participation in the DHH course (z=-2.278, p=.023), with a medium effect size (r=.39). The median score increased from pre-course (Md=8) to post-course (Md=9.5). This indicates that participants believed less in the benefits of inclusion for all in the context of the general education classroom, possibly indicating that they are more aware of and critical of their particular work environments, where inclusion (in the context of general education) may not be supported and promoted. This will be explored in more detail in Chapter 6.

If we look at the results for the individual items, we see that items 3 and 4 (self-esteem and social skills of all learners improve if learners with SPD are educated in the same classroom) are both approaching significance. For 'self-esteem improves' z= -1.897 and p=.058, and the median score increased from pre-course (Md=2) to post-course (Md=3). For 'social skills improve' z= -1.964 and p= .050, and the median score stayed the same.

4.5 Learning outcomes

In this section we look at the results of the surveys designed according to the learning outcomes for each course. These were completed by participants before the courses began and two months after course completion. In some instances the post-course surveys were not completed by participants as they did not attend the follow-up presentation day or complete the survey electronically. The statistical tests have taken this into account and only compare cases where participants have completed the pre- and the post-course surveys.

4.5.1 DSE course

The learning outcomes survey on the DSE course has high reliability (α=.914). All of the item-total correlations are high except for item 3: 'managing barriers related to communication' (r=.216; Table 37 in Appendix G). Factor analysis of the learning outcomes survey suggest a two-factor solution (Table 38 in Appendix G). The first factor is to do with managing barriers related to inclusive strategies of support (for example, adapting the curriculum), while the second factor is to do with managing more impairment-specific barriers (for example, the use of Braille).

Factor 1: Managing barriers related to inclusive strategies of support

- Accessing the education system (item 1)
- Curriculum adaptation (item 2)
- Educational strategies (item 5)
- Assessment (item 6)
- Classroom management (item 7)
- Teacher support and development (item 9)
- Screening, identification, assessment and support (item 10)

Factor 2: Managing impairment-specific barriers

- Communication (for example, SASL and Braille) (item 3)
- Assistive technology (item 4)
- Social and psychological support (item 8)

For the Factor 1, the Wilcoxon signed-rank test reveals that there is no statistically significant difference following participation in the DSE course (z=-.701, p=.483). The median score increases

from pre-course (Md=20) to post-course (Md=21). For Factor 2, the Wilcoxon signed-rank test also reveals no statistically significant difference following participation in the DSE course (z=-1.769, p=.077). The median score decreased from pre-course (Md=10) to post-course (Md=9).

When running the Wilcoxon signed-rank test on individual survey items, two items (communication, and teacher support and development) produced a significant result and one was approaching significance (screening, identification, assessment and support) (Tables 39 and 40 in Appendix G). With respect to managing barriers related to communication (for example, the use of sign language and Braille), there is a statistically significant difference following participation in the DSE course (z=-2.392, p=.017), with a medium to large effect size (r=.38). The median score decreased from pre-course (Md=4) to post-course (Md=3). This indicates that participants felt more confident managing barriers related to communication after the course (Figure 5).

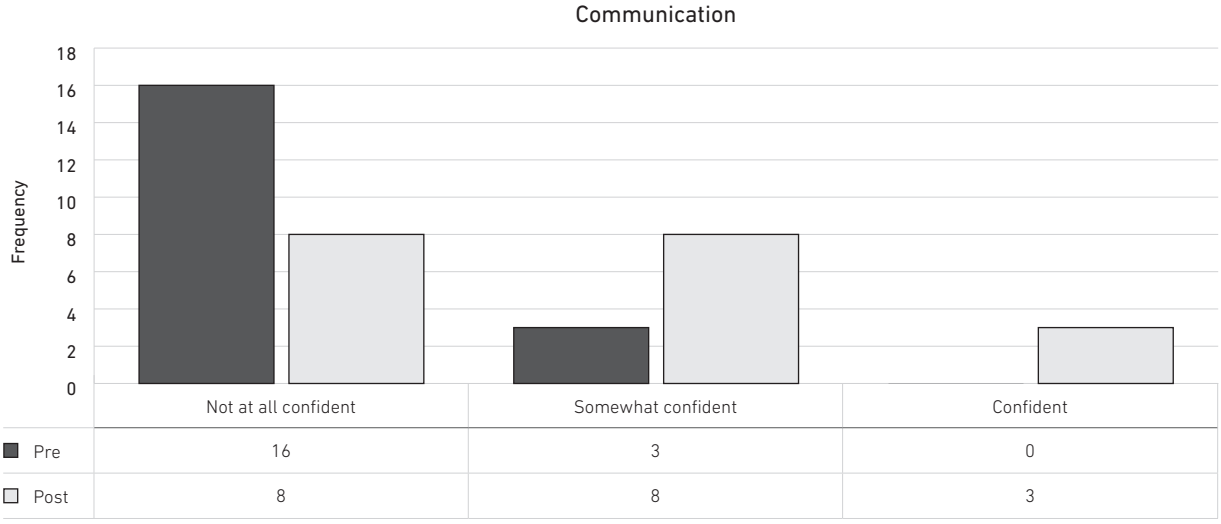

Figure 5: Pre and post results for confidence levels in managing barriers related to communication

In terms of teacher support and development, there is a statistically significant difference following participation in the DSE course (z=-2.673, p=.008), with a medium to large effect size (r=.45). The median score decreased from pre-course (Md=3) to post-course (Md=2). This indicates that participants felt more confident managing barriers related to teacher support and development after the course (Figure 6). While there is no statistically significant difference regarding screening, identification, assessment and support, the result is approaching significance following participation in the DSE course (z=-1.941, p=.052), and has a medium effect size (r=.32). The median score decreased from pre-course (Md=3) to post-course (Md=2).

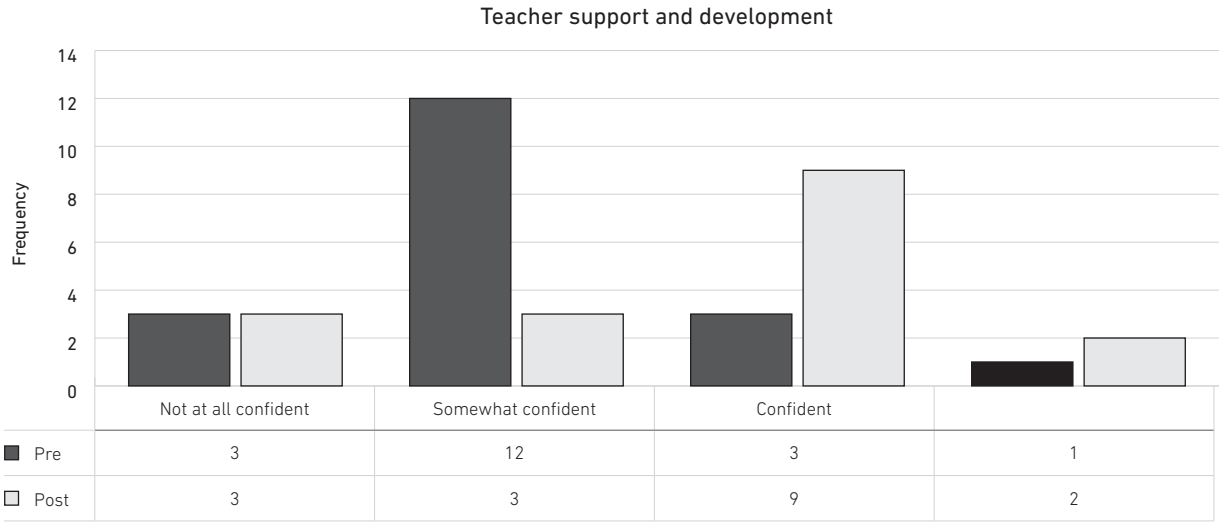

Figure 6: Pre and post results for confidence levels in managing barriers related to teacher support and development

4.5.2 ID course

The reliability for the ID learning outcomes survey is high (α =.823). In addition, none of the item-total correlations are particularly low and Cronbach's alpha does not increase if any of the items are deleted (Table 41 in Appendix G). Factor analysis suggests that a three-factor solution may be feasible for the ID survey questions, with implementing activity, activities related to a theme, reporting abuse, and discuss with parents loading on factor 1, stages of development and support needs loading on factor 2 and laws/legislation, positioning and manage stress loading on factor 3 (Table 42 in Appendix G). However, analysing the data using this factor solution would not be useful. In addition, the reliability of these items is high and Cronbach's alpha does not decrease if any of the items are removed. We thus choose to analyse the data using a 1-factor solution with all the items.

With respect to the ID learning outcomes survey, the Wilcoxon signed-rank test reveals that there is a statistically significant difference following participation in the ID course (z=-2.942, p=.003), with a medium to large effect size (r=.4). The median score decreased from pre-course (Md=18) to post-course (Md=14). This indicates that participants felt more confident teaching and caring for learners with SPID after the course. With respect to individual items, the Wilcoxon signed-rank test shows a significant result for all the items discussed below (Table 43 in Appendix G).

Understanding stages of development (z=-2.977, p=.003). The median score stayed the same, and the result has a medium to large effect size (r=.4). This indicates that the participants felt more confident in understanding stages of development after the course (Figure 7).

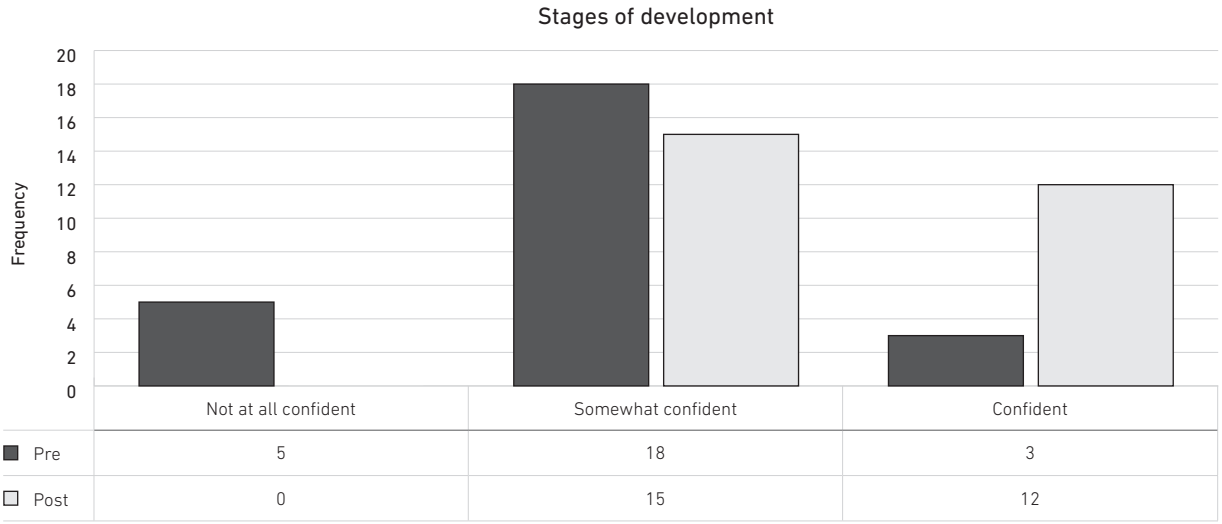

Figure 7: Pre and post results for understanding stages of development

Understanding support needs (z=-2.862, p=.004). The median score stayed the same and the result has a medium to large effect size (r=.4). This indicates that the participants felt more confident in understanding support needs after the course (Figure 8).

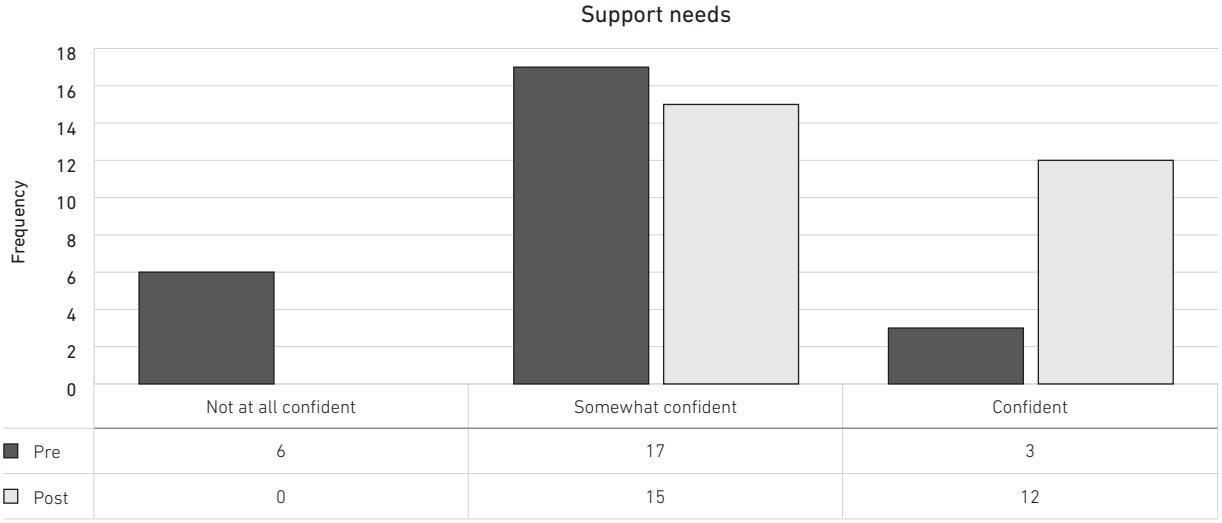

Figure 8: Pre and post results for understanding support needs

Understanding laws/legislation (z=-2.357, p=.018). The median score stayed the same and the result has a medium effect size (r=.3). This indicates that the participants felt more confident in understanding laws and legislation after the course (Figure 9).

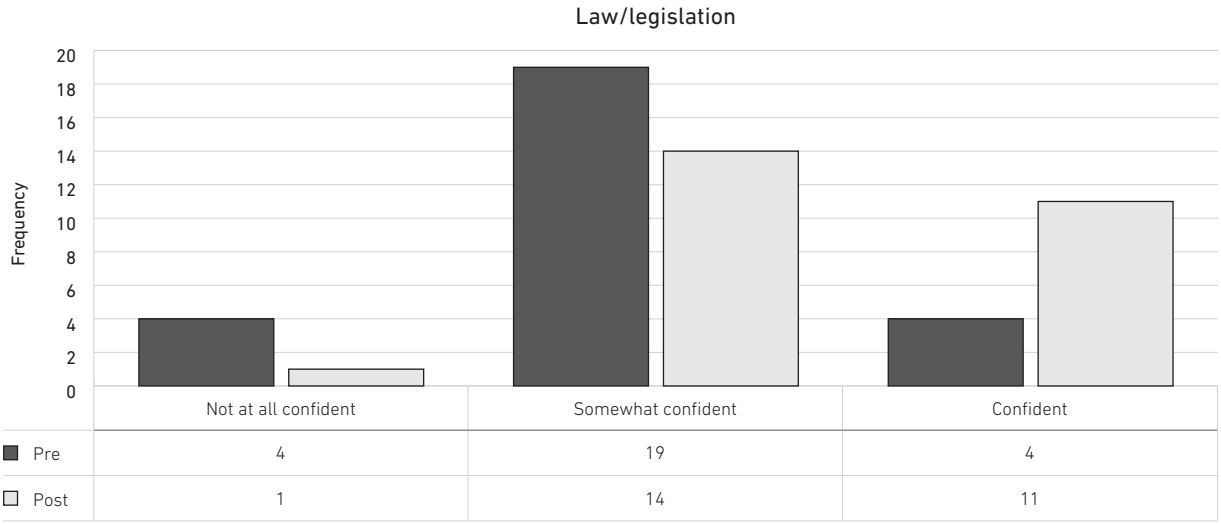

Figure 9: Pre and post results for understanding laws/legislation

Knowing the process for reporting abuse (z=-.2.840, p=.005). The median score decreased from pre-course (Md=2) to post-course (Md=1), and the result has a medium to large effect size (r=.4). This indicates that the participants felt more confident about knowing the process for reporting abuse after the course (Figure 10).

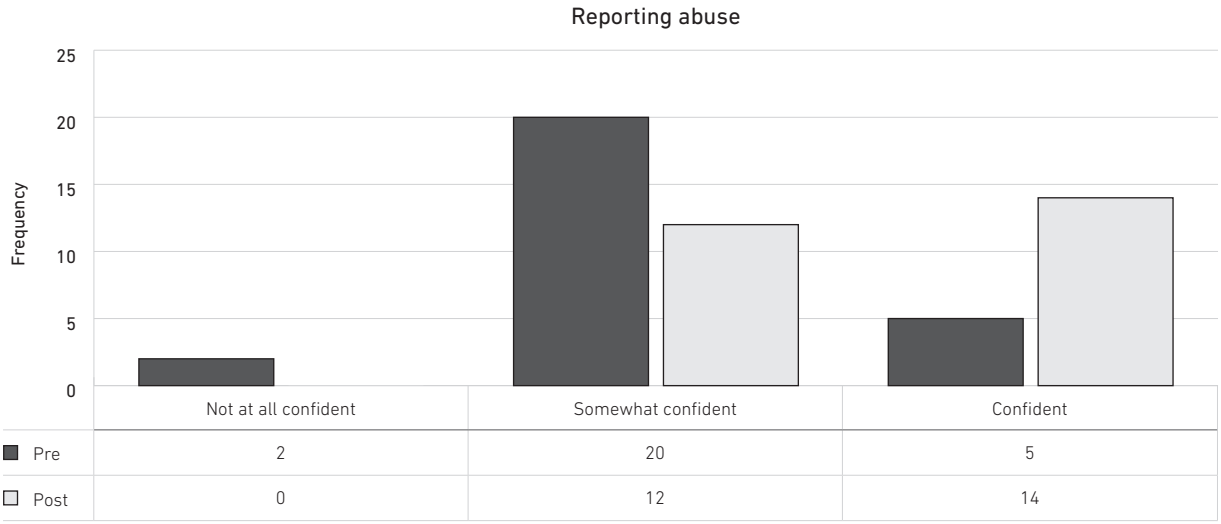

Figure 10: Pre and post results for knowing the process for reporting abuse

Knowing what to check for in terms of positioning (z=-2.673, p=.008). The median score stayed the same, and the result has a medium effect size (r=.37). This indicates that participants felt more confident about positioning after the course (Figure 11).

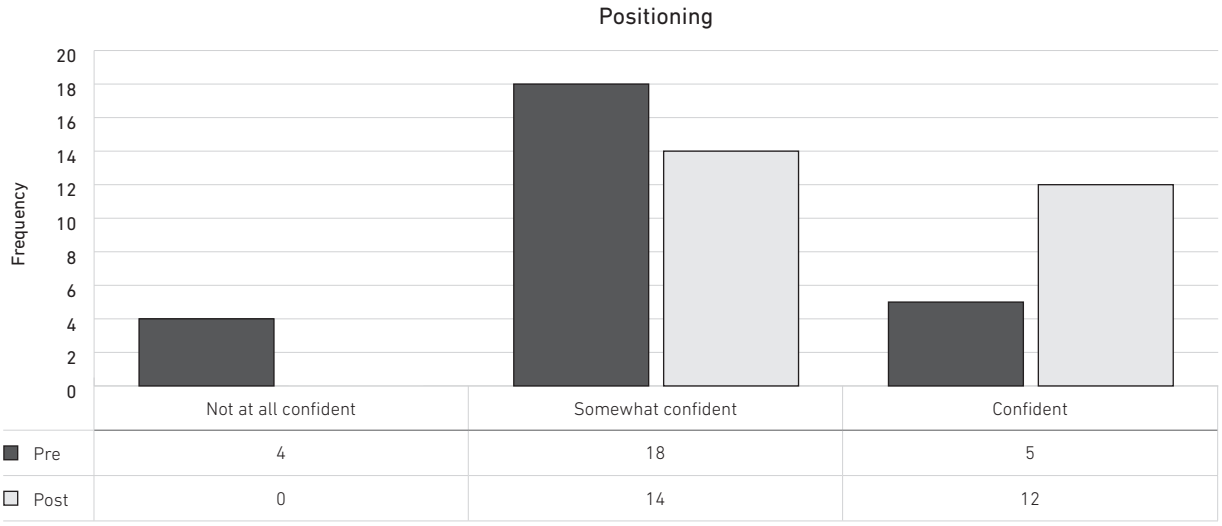

Figure 11: Pre and post results for understanding positioning

Knowing what is appropriate to discuss with parents (z=-3.00, p=.003). The median score decreased from pre-course (Md=2) to post-course (Md=1), and the result has a medium to large effect size (r=.4). This indicates that the participants felt more confident about knowing what to discuss with parents after the course (Figure 12).

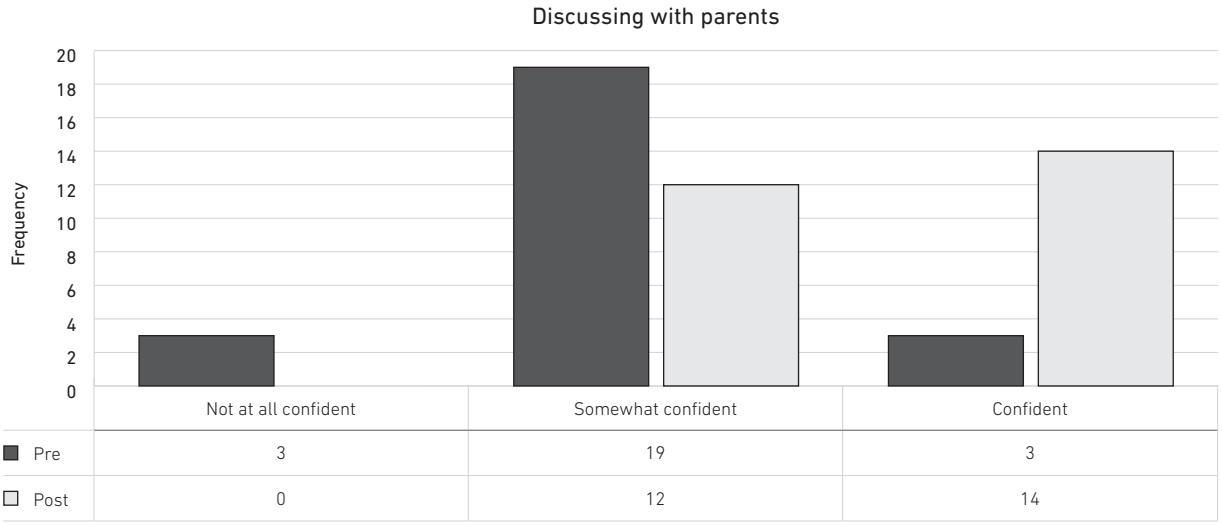

Figure 12: Pre and post results for knowing what to discuss with parents

Managing stress (z=-2.179, p=.029). The median score decreased from pre-course (Md=2) to post-course (Md=1.5), and the result has a medium effect size (r=.3). This indicates that the participants felt more confident about managing stress after the course (Figure 13).

Figure 13: Pre and post results for managing stress

4.5.3 VI course

The reliability for the VI learning outcomes survey is high (α =.913). The item-total correlation for item 7, teaching learners using Braille, is on the low side (r=.392). In addition, α increases to .916 if this item is deleted (Table 44 in Appendix G). The factor analysis suggests a three-factor solution (Table 45 in Appendix G).

Factor 1: Pedagogical elements of teaching learners with VI

- Understanding the nature of VI
- Understanding how VI impacts on learning
- Classroom accommodations
- Providing LTSM
- Teaching using ECC
- Curriculum differentiation and adaptation
- Assessment

Factor 2: Psychosocial support of learners with VI

- Providing emotional support
- Thinking about career pathways
- Accessible sport and leisure opportunities

Factor 3: Impairment-specific teaching strategies for learners with VI

- Teaching learners using Braille
- Teaching using AT

Intuitively this factor solution makes sense, and we analysed the data accordingly.

4.5.3.1 Pedagogical elements of teaching learners with VI

The Wilcoxon signed-rank test for the pedagogical elements of teaching learners with VI (Factor 1) reveals that there is a statistically significant difference following participation in the VI course (z=-2.611, p=.009), with a medium to large effect size (r=.41). The median score decreased from pre-

course (Md=20) to post-course (Md=14.5). This indicates that participants felt more confident about pedagogical elements of teaching learners with VI after the course (Table 46 in Appendix G). For the individual items within this factor, the Wilcoxon signed-rank test shows a significant result for the items discussed below.

Understanding the nature of VI (z=-2.392, p=.017). The median score decreased from pre-course (Md=3) to post-course (Md=2), and the result has a medium effect size (r=.38). This indicates that participants felt more confident in understanding the nature of different types of VI after the course (Figure 14).

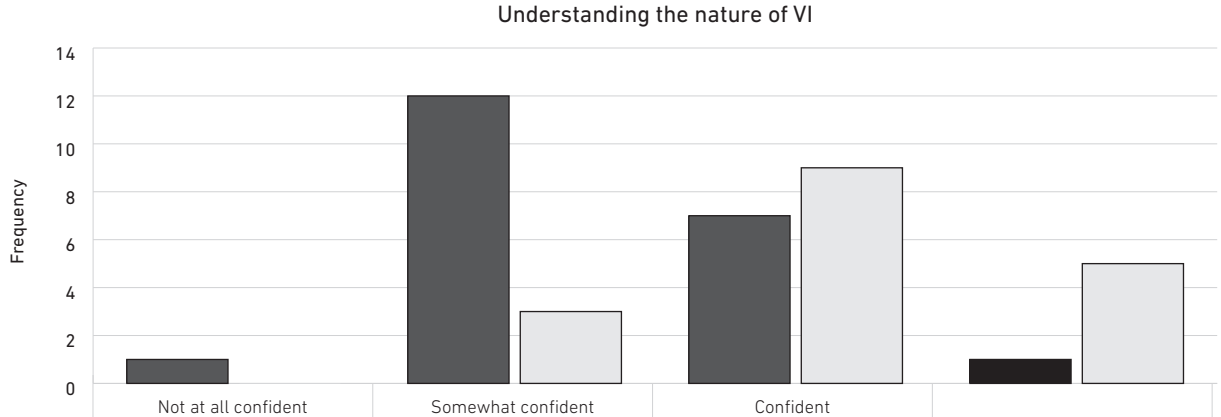

Figure 14: Pre and post results for confidence levels in understanding the nature of VI

Understanding the impact of VI on learning (z=-3.017, p=.002). The median score decreased from pre-course (Md=3) to post-course (Md=2), and the result has a medium to large effect size (r=.48). This indicates that participants felt more confident in understanding how VI impacts on a learner's ability to learn after the course (Figure 15).

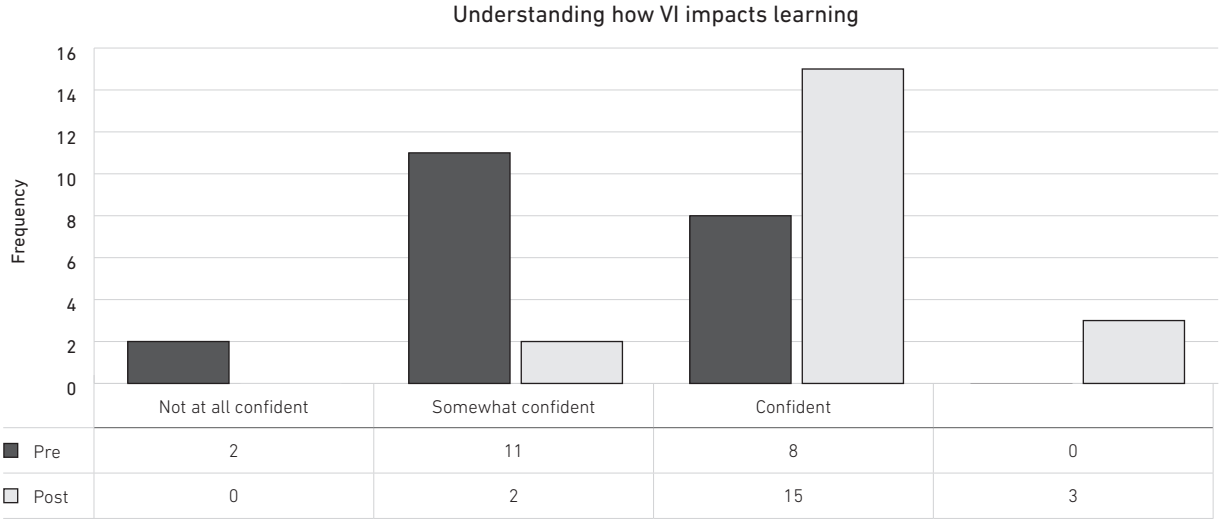

Figure 15: Pre and post results for confidence levels in understanding how VI impacts learning

Making classroom accommodations (z=-3.087, p=.002). The median score decreased from pre-course (Md=3) to post-course (Md=2), and the result has a medium to large effect size (r=.49). This indicates that participants felt more confident in making classroom accommodations for VI learners after the course (Figure 16).

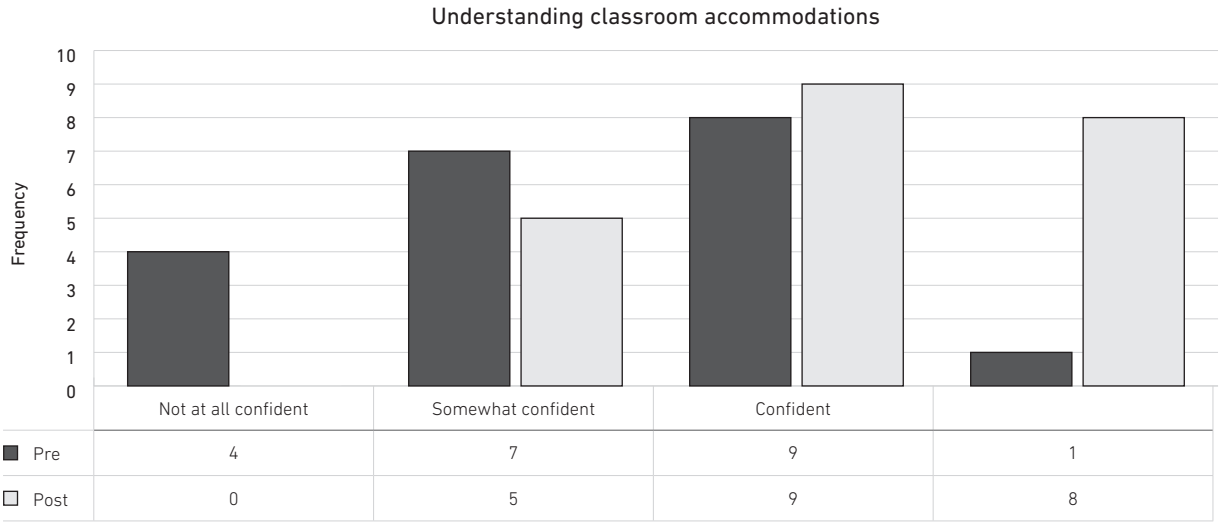

Figure 16: Pre and post results for confidence levels in understanding classroom accommodations

Providing LTSM (z=-2.101, p=.036). The median score decreased from pre-course (Md=3) to post-course (Md=2), and the result has a medium effect size (r=.33). This indicates that participants felt more confident in providing accessible LTSM for VI learners after the course (Figure 17).

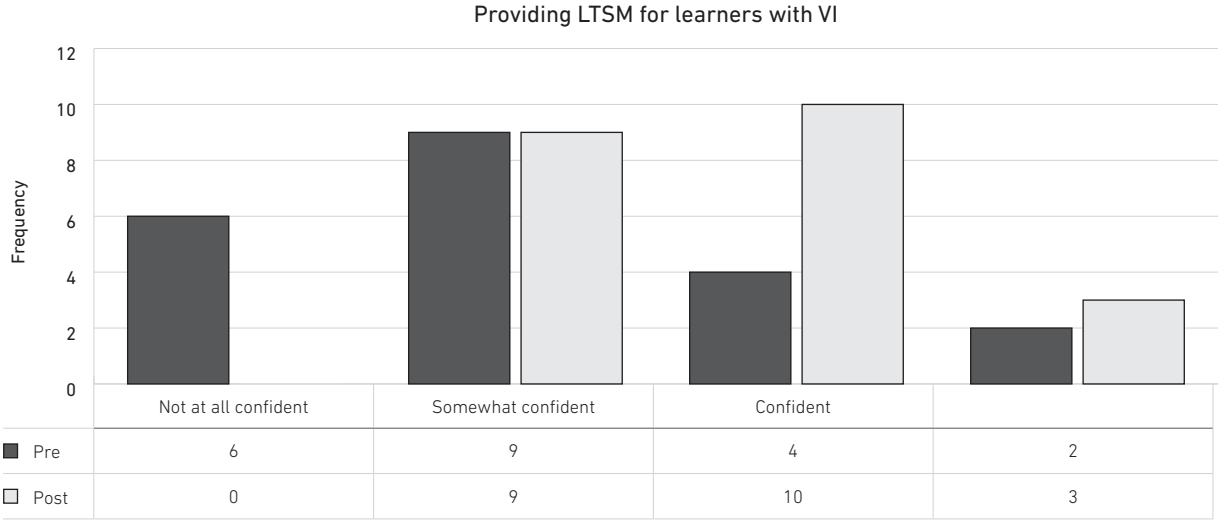

Figure 17: Pre and post results for confidence levels in providing LTSM for learners with VI

Teaching using the ECC (z=-2.534, p=.011). The median score decreased from pre-course (Md=4) to post-course (Md=2.5), and the result has a medium to large effect size (r=.39). This indicates that participants felt more confident about teaching VI learners using the ECC after the course (Figure 18).

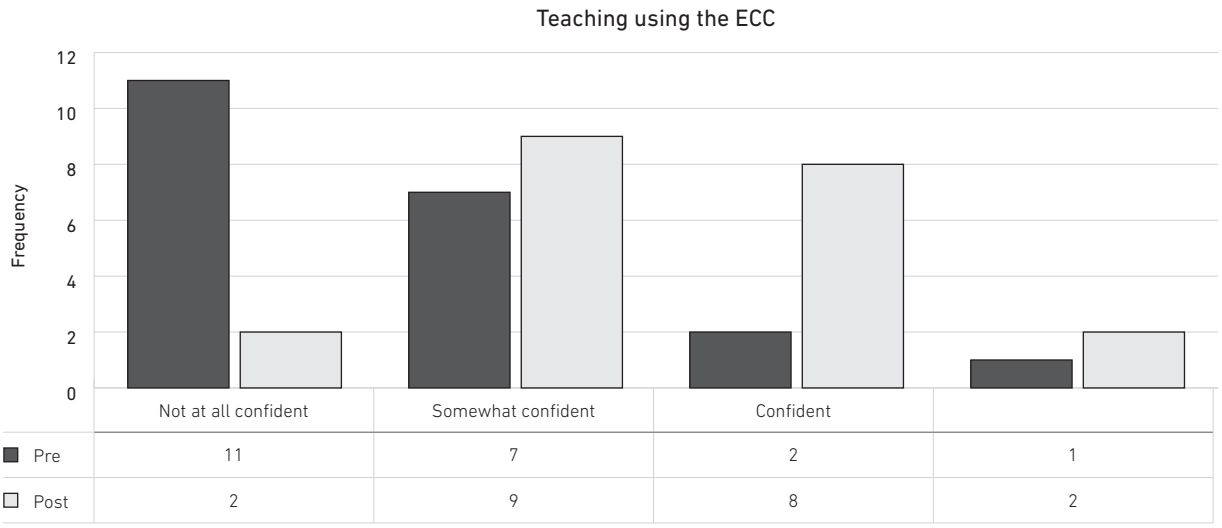

Figure 18: Pre and post results for confidence levels in teaching using the ECC

4.5.3.2 Psychosocial support of learners with VI

The Wilcoxon signed-rank test for psychosocial support for learners with VI (Factor 2) reveals a statistically significant difference following participation in the VI course (z=-2.688, p=.007), with a medium to large effect size (r=.42). The median score decreased from pre-course (Md=8) to post-course (Md=16). This indicates that participants felt more confident about providing psychosocial support for learners with VI after the course (Table 47 in Appendix G). For the individual items within this factor, the Wilcoxon signed-rank test shows a significant result for the items discussed below.

Thinking about career pathways for VI learners (z=-2.658, p=.008). The median score decreased from pre-course (Md=3) to post-course (Md=2), and the result has a medium to large effect size (r=.41). This indicates that participants felt more confident thinking about career pathways for VI learners after the course (Figure 19).

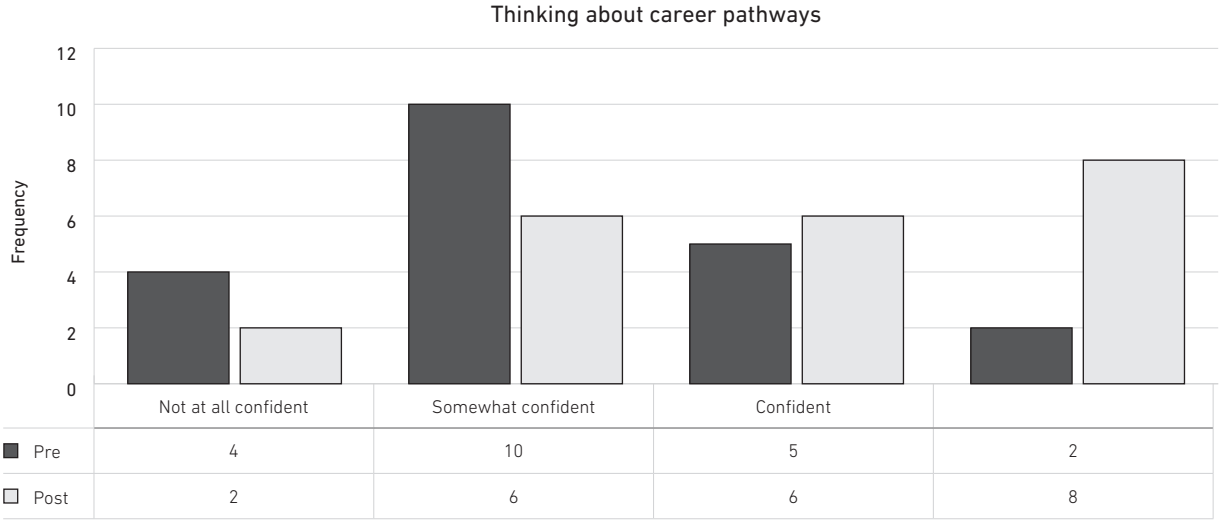

Figure 19: Pre and post results for confidence levels in thinking about career pathways

Providing accessible sport and leisure activities for VI learners (z=-1.998, p=.046). The median score decreased from pre-course (Md=3) to post-course (Md=2), and the result has a medium effect size (r=.3). This indicates that participants felt more confident in providing accessible sport and leisure activities for VI learners after the course (Figure 20).

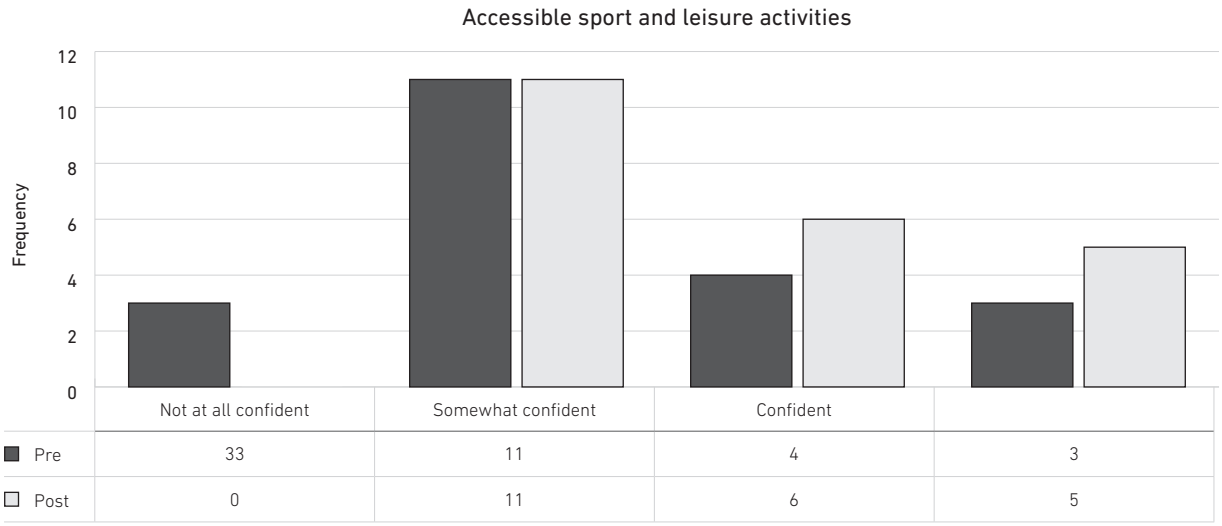

Figure 20: Pre and post results for confidence levels in providing accessible sport and leisure activities for VI learners

4.5.3.3 Impairment-specific teaching strategies for learners with VI

The Wilcoxon signed-rank test for impairment-specific teaching of learners with VI (Factor 3) reveals that there is not a statistically significant difference following participation in the VI course (z=-1.628, p=.103). The median score stayed the same (Table 48 in Appendix G).

4.5.4 DHH course

The reliability for the DHH learning outcomes survey is high (α =.947). A factor analysis suggests a two-factor solution with items 1–10 loading on one factor and items 11 and 12 loading on a second factor (Table 50 in Appendix G). However, given that the item-total correlation for item 11 is a bit low (r=.558), and that Cronbach's alpha goes up from .947 to .948 if the item is deleted (Table 49 in Appendix G), it would be better to remove it from the final analysis. We therefore ran the analysis using a one-factor solution, excluding item 11.

The Wilcoxon signed-rank test across all the learning outcome items, except item 11, reveals a statistically significant difference following participation in the DHH course (z=-2.892, p=.004), with a medium to large effect size (r=.48). The median score decreased from pre-course (Md=32) to post-course (Md=25). This indicates that participants felt more confident about teaching learners with DHH after the course (Table 51 in Appendix G). For individual items, the Wilcoxon signed-rank test shows a significant result for the items discussed below.

How being D/deaf or hard-of-hearing impacts on learning (z=-1.965, p=.049). The median score decreased from pre-course (Md=3) to post-course (Md=2), and the result gives a medium effect size (r=.32). This indicates that participants felt more confident in their understanding of how being D/deaf or hard-of-hearing impacts on learning after the course (Figure 21).

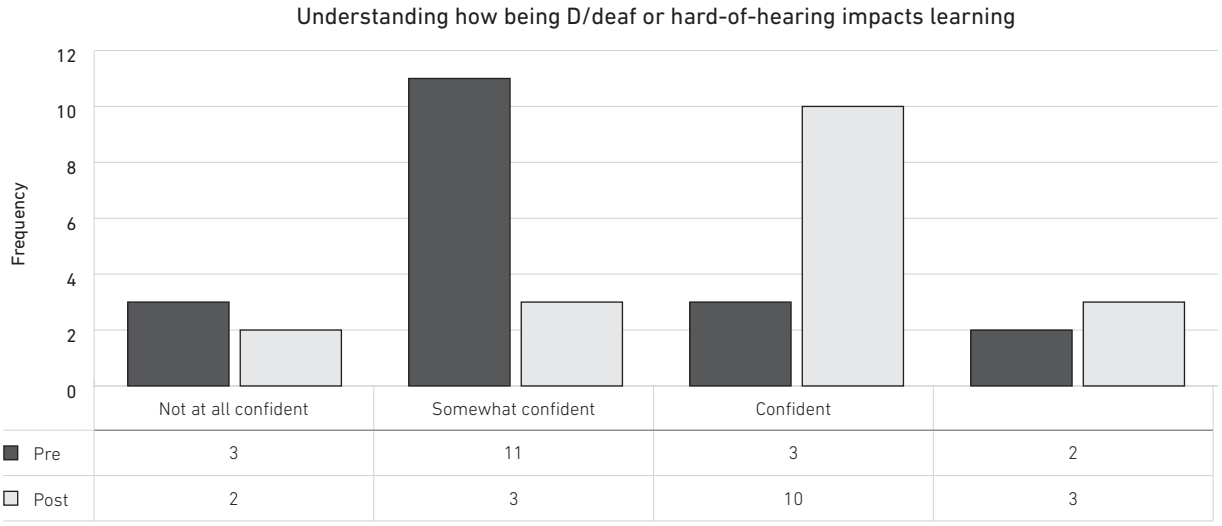

Figure 21: Pre and post results for confidence levels in understanding how being D/deaf or hard-of-hearing impacts on learning

Understanding models of D/deaf and hard-of-hearing education (z= -3.368, p=.001). The median score decreased from pre-course (Md=3) to post-course (Md=2), and the result has a large effect size (r=.55).This indicates that participants felt more confident in their understanding of models of DHH education after the course (Figure 22).

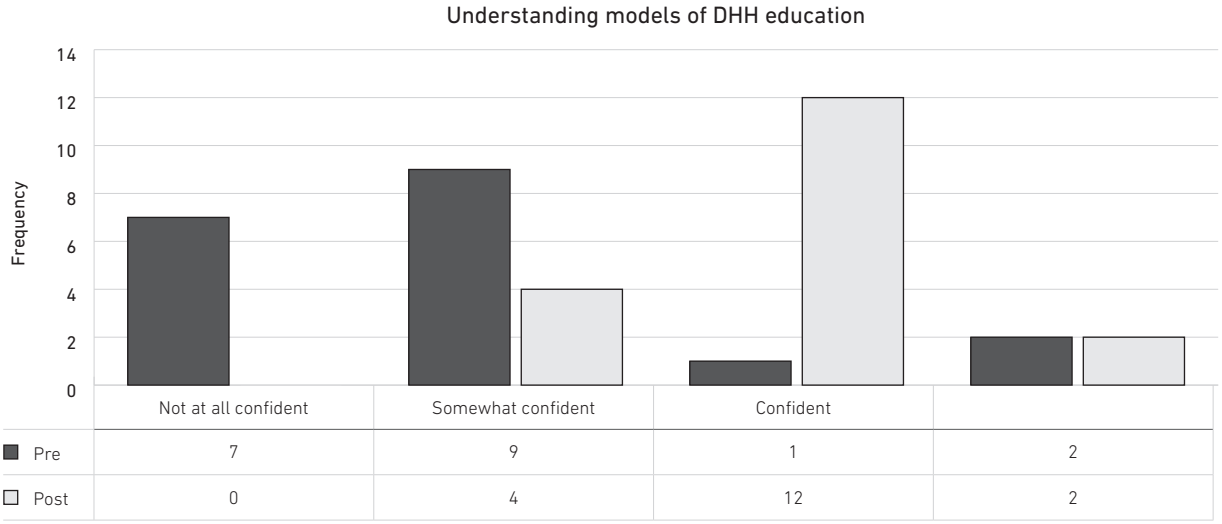

Figure 22: Pre and post results for confidence levels in understanding models of DHH education

Accessing suitable resources and role models in the D/deaf community (z=-2.512, p=.012). The median score decreased from pre-course (Md=3) to post-course (Md=2), and the result has a medium to large effect size (r=.4). This indicates that participants felt more confident about accessing suitable resources and choosing role models in the D/deaf community after the course (Figure 23).

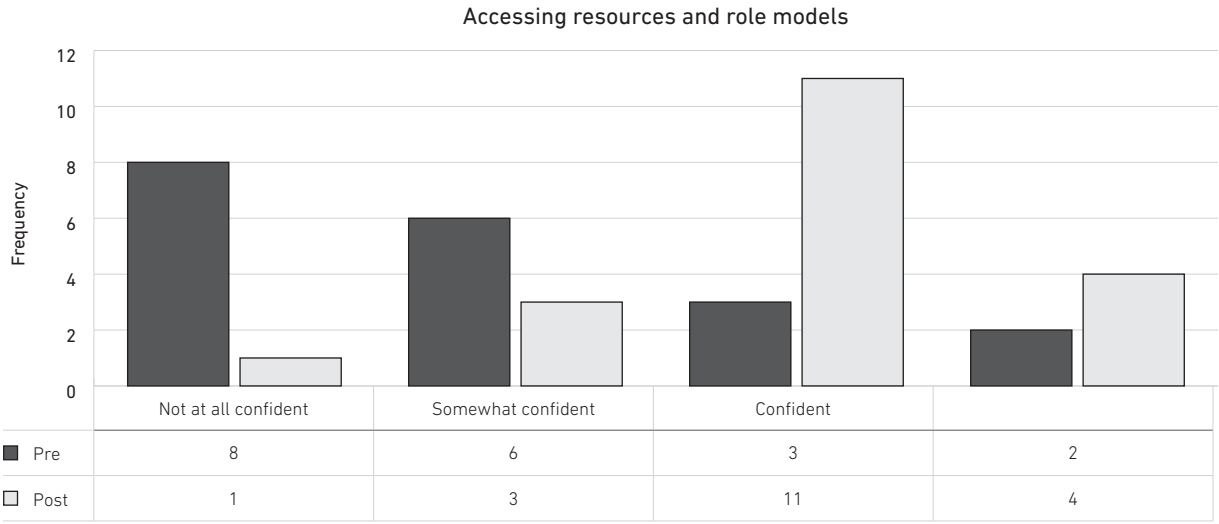

Figure 23: Pre and post results for confidence levels in accessing resources and role models

Supporting learners and their families in promoting language and literacy development (z=-2.655, p=.008). The median score decreased from pre-course (Md=4) to post-course (Md=2), and the result has a medium to large effect size (r=.4). This indicates that participants felt more confident in supporting DHH learners and their families in the promotion of language and literacy development after the course (Figure 24).

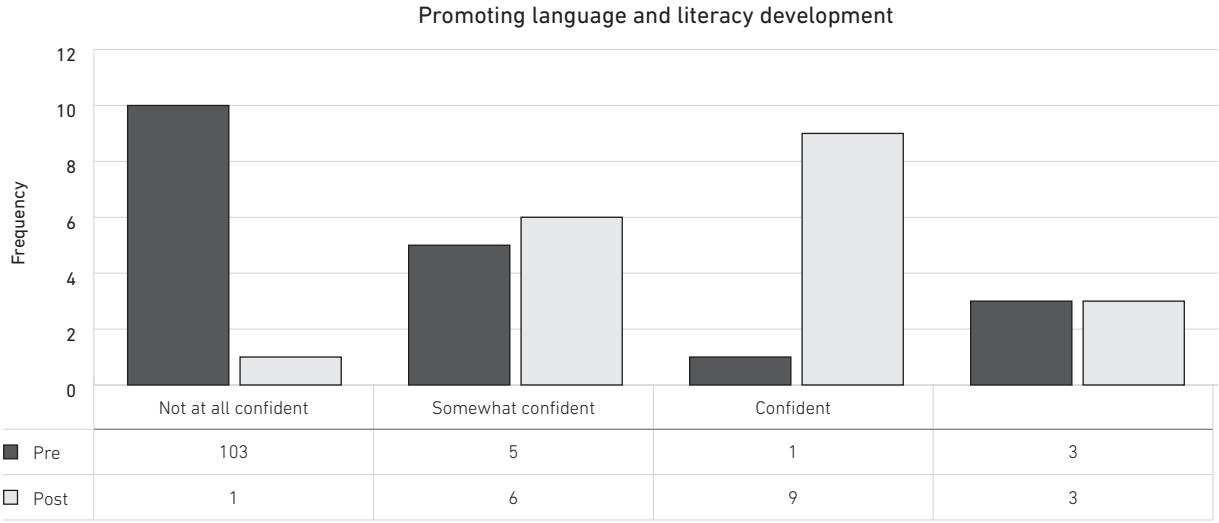

Figure 24: Pre and post results for confidence levels in promoting language and literacy development

Implementing best practices for safety (z=-2.461, p=.014). The median score decreased from pre-course (Md=3) to post-course (Md=2), and the result has a medium to large effect size (r=.39). This indicates that participants felt more confident about implementing best practices for the safety of the DHH child after the course (Figure 25).

Figure 25: Pre and post results for confidence levels in implementing best practices for safety

Making classroom accommodations (z=-2.581, p=.010). The median score decreased from pre-course (Md=3) to post-course (Md=2), and the result has a medium to large effect size (r=.42). This indicates that participants felt more confident about making classroom accommodations for the DHH child after the course (Figure 26).

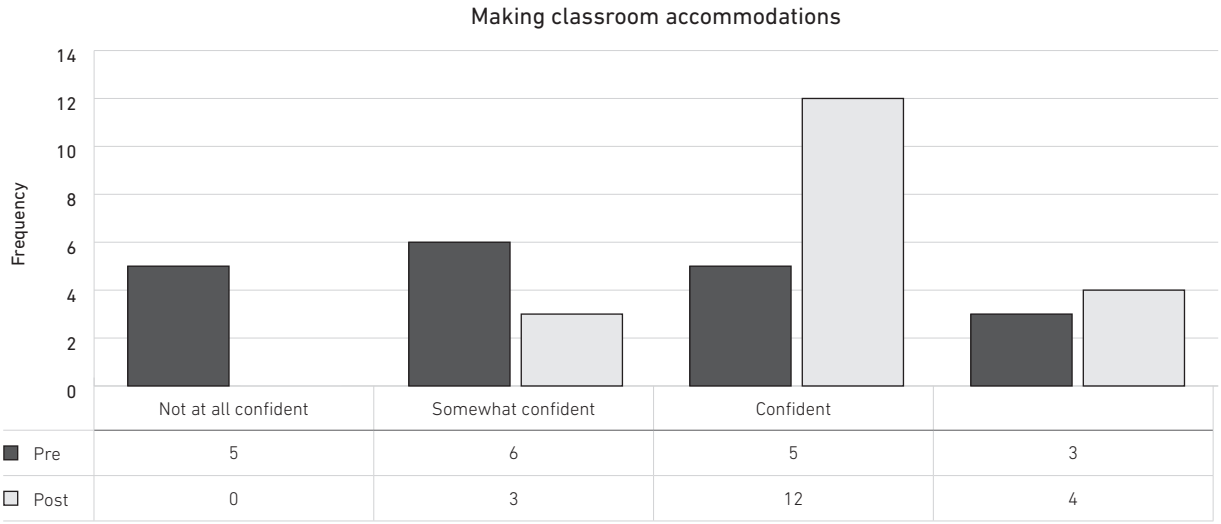

Figure 26: Pre and post results for confidence levels in classroom accommodations

Providing accessible LTSM (z=-2.114, p=.034). The median score decreased from pre-course (Md=3) to post-course (Md=2), and the result has a medium effect size (r=.34). This indicates that participants felt more confident about providing LTSM for DHH learners after the course (Figure 27).

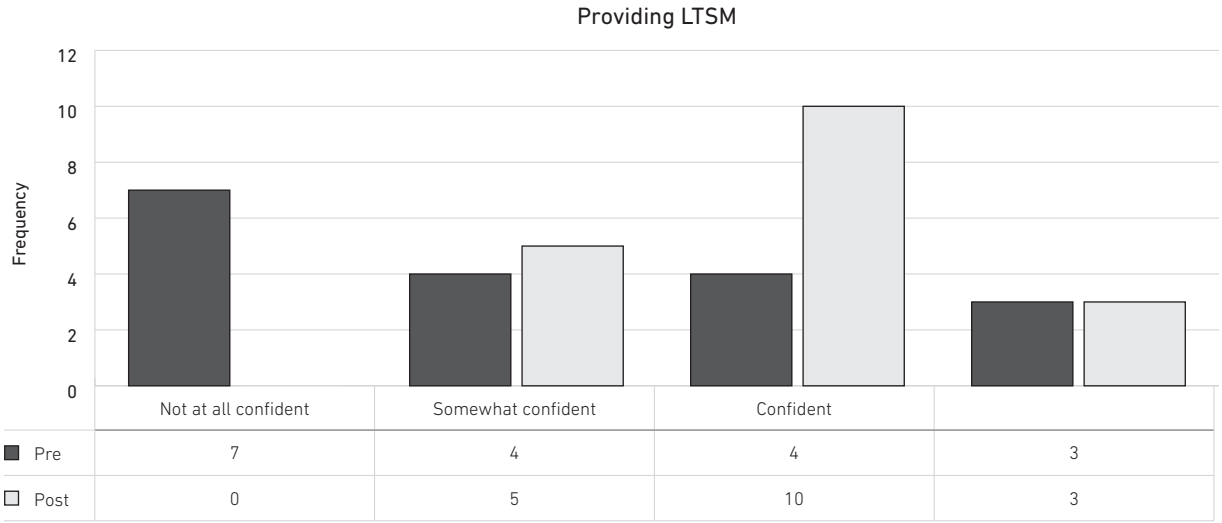

Figure 27: Pre and post results for confidence levels in providing LTSM

Adapting and differentiating the curriculum (z=-2.144, p=.032). The median score decreased from pre-course (Md=3) to post-course (Md=2), and the result has a medium effect size (r=.35). This indicates that participants felt more confident about adapting and differentiating the curriculum for DHH learners after the course (Figure 28).

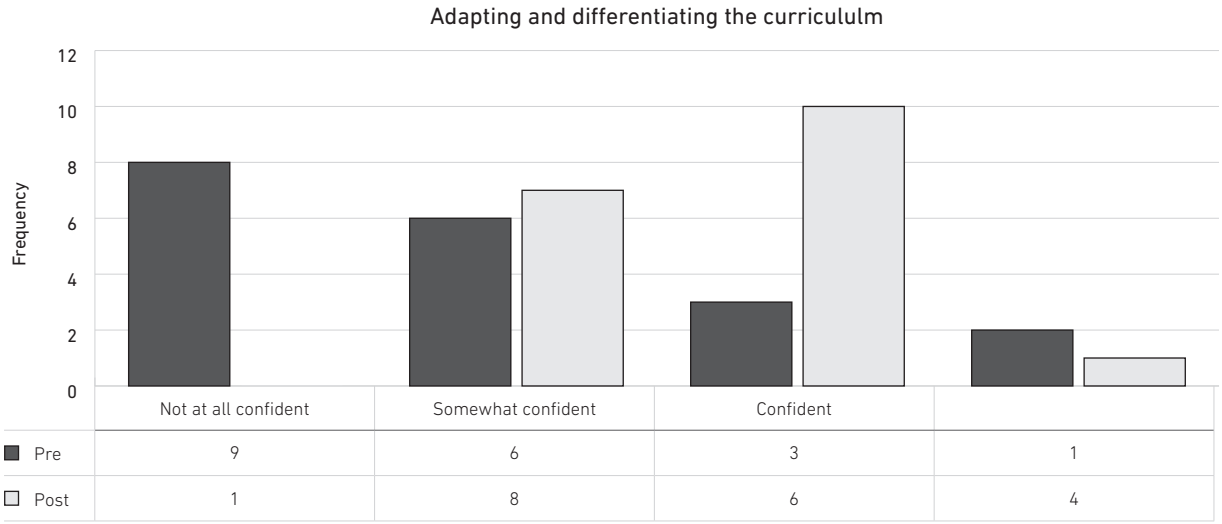

Figure 28: Pre and post results for confidence levels in adapting and differentiating the curriculum

Teaching using assistive devices (z=-2.673, p=.008). The median score stayed the same and the result has a medium to large effect size (r=.43). This indicates that participants felt more confident about teaching DHH learners using assistive devices after the course (Figure 29).

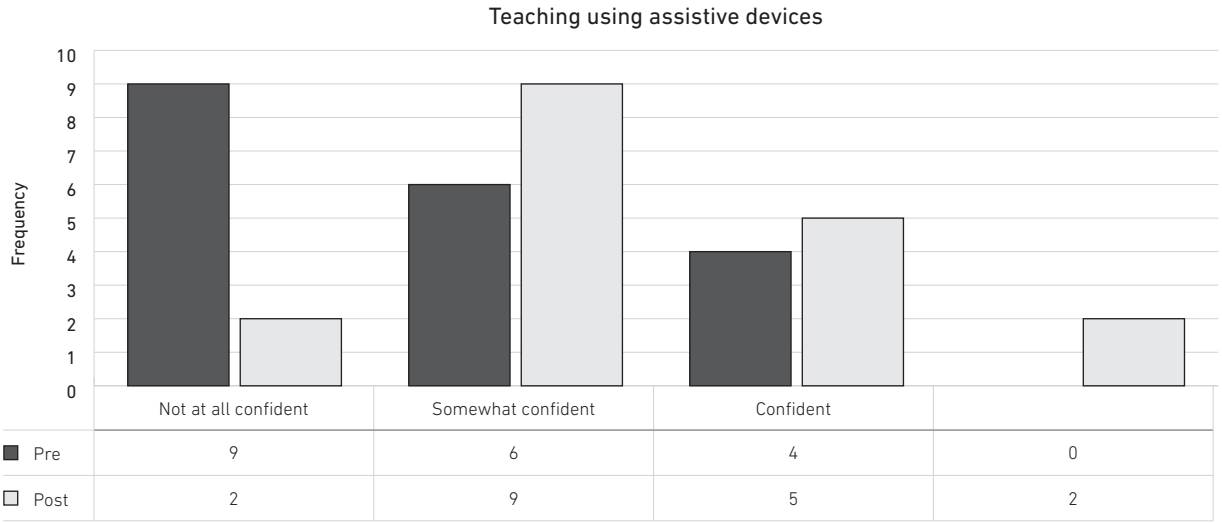

Figure 29: Pre and post results for confidence levels in teaching using assistive devices

Assessment (z=-2.166, p=.030). The median score stayed the same and the result has a medium effect size (r=.36). This indicates that participants felt more confident about assessing DHH learners after the course (Figure 30).

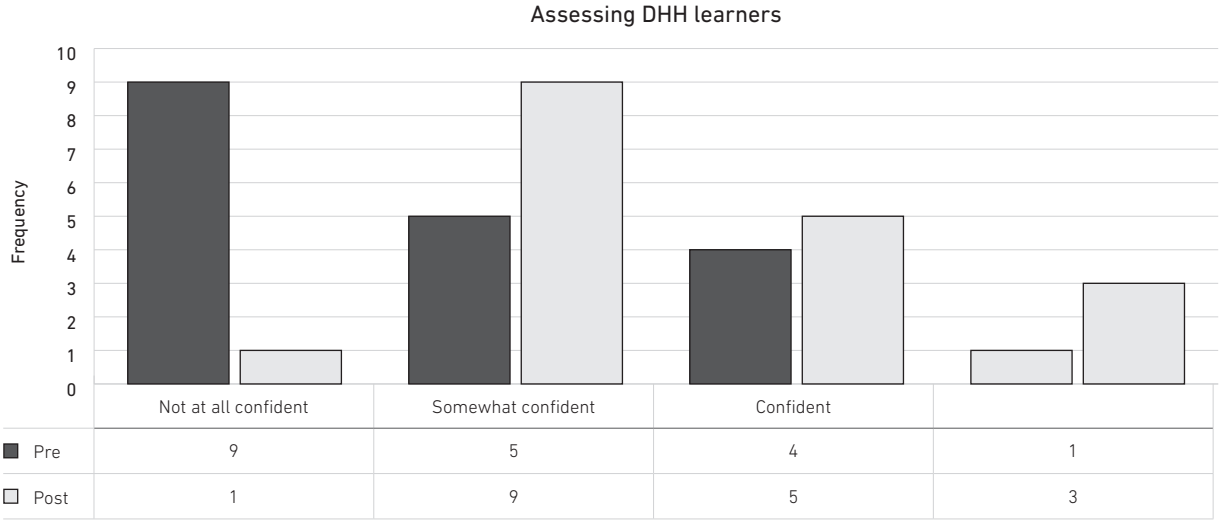

Figure 30: Pre and post results for confidence levels in assessing DHH learners

In summary, while the DSE course learning outcomes survey did not produce a significant result overall, two items were significant: communication, and teacher support and development. This indicates that participants felt better equipped to manage these barriers after the course. The ID course learning outcomes survey produced a significant result, highlighting that participants on this course felt more confident in teaching and caring for learners with SPID. Two of the three factors on the VI course learning outcomes survey (pedagogical elements related to teaching learners with VI, and psychosocial support for learners with VI) had significant results, illustrating that participants felt more confident in these teaching areas. Lastly, the DHH course learning outcomes survey also produced a significant result, indicating that participants felt more confident about teaching DHH learners after the course.

CHAPTER 5:
QUALITATIVE FINDINGS

In this chapter we look at the qualitative data gathered from the face-to face course evaluations. The data is divided into four broad themes: understanding disability and implementing inclusion, collaboration, advocacy, and empowerment. For this analysis we draw predominantly on the data from the course participants as they were the primary participants. The analysis is supplemented with data from the course facilitators (secondary participants) where necessary.

Participants who attended the TEDI face-to-face courses experienced them as transformative. They were enabled to rethink issues around the education of children with SPD, recognising the importance of understanding disability in specific as well as broad terms, the significance of collaborations, the relevance of advocacy, and how all of this promotes empowerment within themselves.

5.1 Understanding disability and implementing inclusion

In this section the focus is on how disability is understood and incorporated into the education system. Course participants developed a better understanding of disability around a number of issues. For example, course participants identified the struggle with parent and family perspectives on disability, and that they need to work closer with these structures. It was highlighted that strategies should be impairment-specific, but that there are also general disability issues. Lastly, they gained a better understanding of how educators are able to more effectively facilitate inclusion in the classroom.

Course participants were made more aware of disability as a human rights and social justice issue:

> The course reinforced my understanding of disability as a social justice issue as well as a human rights issue (DSEP11).

One course facilitator acknowledged that disability should be understood by course participants as a human rights issue:

> … so that they understand that this is a fundamental human right that they are protecting and see ourselves as advocates by making this as understandable as possible for the educator (DHHF2).

Really comprehending what disability is about is a complex issue. Parents are often perceived by educators as not always understanding disability appropriately:

> Most of our parents are in denial about their kids' impairments and disabilities and so on. (VIP5).
>
> What parents have to go through to find out what is wrong with their children. I see it at school myself, how parents are unable to process that their children are disabled (IDP22).

ID course participants felt better equipped to talk to parents, even though they were perceived as being in denial:

> I can now identify the different levels of challenges in my class. I sit down with parents one on one meetings, and help them to understand and know their children (IDP5).
>
> Parents are more willing to hold hands if you listen to them and show respect in regard to their children. It was also important to show them that I value their opinions and we should work together to get positive outcomes. It became easier to model activities so that parents can carry over at home. They also understood why their children should come to school and be stimulated, as well as play and interact with their peers (IDP6).

A better understanding of disability and its different levels was evident in course participants in general. For example, they became aware of the importance of understanding the nature of impairments and developing more relevant intervention strategies:

> I have been given knowledge about specific impairments, and skills about how to go about adapting the environment, curriculum and teaching methods (DSEP11).
>
> I can now work out programmes for the whole class, even if it is a class with different types of children. All children are now made a part of the class (IDP25).

Course participants also became more aware of the 'psychological aspects' (VIP14), the 'various types' (VIP25) and the 'syndromes' (DSEP1) of impairments. As one participant stated:

> I can now identify the different levels of challenges in my class (IDP5).

Not only specific impairment knowledge, but also a broader and more comprehensive, intersectional understanding of disability, was evident. As one participant summarises:

> The course made me realise that it's more complicated than just being deaf, it's so much more interrelated, interconnected with other aspects of life (DHHP11).

This understanding of disability in general translates into a better understanding of their learners:

> I do understand a visually impaired learner more, even in class how to tackle and address him/her in front of others (VIP7).
>
> In the beginning I was a bit afraid of disabled children, or I did not know how to work with them, but now it is like a normal child to me. I no longer see them as strange, or think strangely (IDP24).

Educators now have more 'empathy' (DSEP)[1] and knowledge on 'how to address [learners] in a proper manner' (DHHP). This makes it easier to have strategies for inclusion:

> I understood most of my learners much better. I could identify and help my learners in a much better way. My planning had VI and barriers included (VIP20).
>
> I can now work out programmes for the whole class, even if it is a class with different types of children. All children are now made a part of the class (IDP25).
>
> I am now even more aware of different learning styles and I try my best to incorporate most of them to accommodate all the learners in my class (DSEP21).

Educators' understanding of disability was effectively enhanced through exposure to people with disabilities at the courses:

> From my perspective, I'm always scared to approach people with disabilities, I'm always scared to interact with them. Being in that room, working together in a group, having to communicate with people who can't understand you because they don't lip read the same or they're not seated in a way that they can see you (DHHP16).

This context of including people with disabilities also offered the opportunity to normalise disability:

> I never knew that a blind person is like any other people and could do some of the professional jobs (VIP4).

They seemed to really appreciate the interaction with people with disabilities:

> The step-in example of the hearing-impaired person was a great example (DSEP1).

In summary, course participants' understanding of disability and inclusive education is best highlighted in the following excerpts:

> It has opened up to me the world of DHH people/children and made me aware of the necessity to make room for them in our inclusive education (DHHP8).
>
> I have attained a greater understanding of disabilities and impairments, and all matters related to education and disability (DSEP16).

Understanding disability is important in implementing inclusion in the classroom. The findings indicate that course participants have a more comprehensive understanding of disability after attending the courses. This occurred primarily at four levels: human rights and social justice issues; parents and family networks; understanding specific medical aspects and more general issues of disability; and how to more effectively implement inclusive education.

5.2 Collaboration

This section reflects the course participants' ideas about collaboration in terms of disability inclusion in the classroom and with each other as educators. Generally there was very positive and favourable collaboration potential among educators, both during the courses and when they returned to their work contexts.

> This was a great learning and networking opportunity in a diverse group (IDP6).
>
> A lot of the knowledge and solutions is found communicating with others who are working in the same field as you, and who could have answers (DHHF2).

Networking was strongly enabled during the TEDI courses, where a sense of community and belonging developed among participants:

> I made networks and friends (DHHP10).
>
> I have been inspired and feel like I am part of a network of people making a difference for inclusion (DSEP11).
>
> We cannot work in silos any longer (DSEP9).

Course participants also felt that they could support each other and work constructively with other educators in their working environments:

> I need to support teachers irrespective of their different mind-set. They will buy in if you change the level of support (DSEP3).

Some participants set up WhatsApp groups to stay connected and offer ongoing support after the courses.

> Moving forward I am more confident with my work, and if I face a challenge I can reach out to the other ladies through our WhatsApp group, to get clarity or a different point of view (IDP6).

Collaboration among educators was very much a process that took shape in the courses and will hopefully continue into the classroom and beyond. This has made educators feel less vulnerable or isolated, and highlighted that they are part of a bigger transformative collective force.

5.3 Advocacy

This section highlights that participants not only have a better understanding of advocacy, but also have developed their skills to do advocacy work. Advocacy supports the implementation of inclusive education and needs to happen in the workplace, despite opposition from some sectors. Sensitisation and training in disability advocacy is needed at all levels – community, school, family, and individual. There is awareness among educators that the collaborative context discussed above calls for more advocacy:

> Everyone's children, everyone's schools, not only them and I are now sitting there, this is the responsibility of all (IDP23).

It is about educators advocating within their schools:

> So it's not about knowing, it's about sharing the knowledge, and doing something realistically about it, even if it's just advocacy at school, then we are doing something about it (DHHP20).
>
> I feel that I want to change our teachers' mind-set! This is where it might all change! I want to become an advocate for inclusive education/learners (DSEP21).

Similarly, in the wider family context:

> There is still a lot of advocacy needed to be done among parents (DSEP9).

There is also a need to do advocacy work in the communities, as it is perceived by educators that communities are not well educated about disability in the classroom:

> We can give the community more information about our special kids because our people are very uninformed (ID).

Specifically, there is a belief in the need to advocate more for change and inclusive education:

> To advocate on behalf of learners with disability so that they can enjoy education on the same level as any other learner without a disability (DSEP13).
>
> The knowledge, tools and skills incurred in my capacity as an activist, I will be able to translate it in my advocacy for inclusion and inclusive education. No words can begin to describe how grateful I am (DHHP10).

However, support for educators and collaboration with other stakeholders is not always in place, thus hindering advocacy:

> I learnt that teachers are not empowered with all they may need to practice or teach children with disabilities. I also noted that there are various areas that can be improved in teacher education and continual professional development to enable teachers that are trained now to implement inclusive education (DSE).
>
> I read the curriculum and I shared my work also with the OT [occupational therapist] that I worked with. She wasn't really happy with the changes that were in the curriculum. They wanted also to remain with the old curriculum, they didn't embrace the changes that came with the [new] curriculum (DHHP).

The professional role of educators is also not always respected and valued:

> It's still a struggle at school. No-one is really taking what we've learnt, they are not really taking it as it should, we are not really getting the support that we should be getting (DHHP).

Advocacy in a culture of silence is made more difficult if educators are not supported by other stakeholders in society. Although the courses have spurred on general advocacy work, this still needs to be translated into broader contexts and not just in education. This requires an understanding of disability and how to implement inclusion.

5.4 Empowerment

This section addresses educator empowerment through disability education. Areas of self-confidence and self-care are explored, and how this translates into personal and professional growth.

The development of participants' self-confidence was highlighted:

> I am able now to teach visually impaired learners with confidence and hoping that would better the results of the school (VIP3).
>
> I feel more confident in my approaches (DSEP6).
>
> I had no confidence, but now I have gained some confidence (DHHP).

This development of self-confidence has major implications for the delivery of education to children with disabilities:

> I feel more confident when interacting with people who have a disability (DHHP11).

Related to self-confidence development is the notion that there was also personal and professional growth in the course participants:

> I have really grown as a person and hopefully as a teacher (DHHP12).

In terms of personal growth:

> It changed a lot of my perceptions. It gave me a platform to evaluate myself as well. I found a better understanding of how and why some of the learners act the way they do (VIP10).
>
> I feel like a new person. Renewed in my thoughts and approaches. More positive. Empowered. Ready to FIGHT for equity (DSEP6).
>
> Apart from the knowledge, it was the new technology and empowering myself (DHHP16).

Educators' personal growth was reflected in changes in their perceptions of disability, and how this renewed and empowered them as individuals. This personal growth also facilitates professional growth, which contributes to the understanding of transformative teaching and social responsiveness:

> This course has transformed me into a new type of teacher and my approach towards my children will be totally different (VIP23).
>
> I learnt new things and my knowledge has been renewed and refreshed. (IDP2).
>
> I have all the theoretical knowledge I was hoping for. I enjoyed every second of the course and feel better equipped and more positive. I can now apply the new knowledge and re-evaluate after a while (DSEP6).
>
> Otherwise even myself I was thinking that I know, until I got this course, because this course has opened up your mind, it's opened up your eyes - even on the issue of curriculum (DHHP).

Participants' professional growth has had an empowering impact, transforming their teaching approaches and interaction with learners. This context can only improve teaching and

transformation in the classroom. Individual growth in and empowerment of educators facilitates more comprehensive, appropriate and inclusive education practices for children with disabilities in the classroom and beyond.

In the ID course the issue of self-care was explored comprehensively. Course participants were very receptive to the idea that they must take care of themselves to have any positive impact on their learners:

> What I have learnt in the self-care section will help with the staff turnover, to help staff not feel overwhelmed and overworked (IDP2).
>
> I have also learnt to look after myself and to care for myself so that I am better able to care for and support the learners (IDP24).

Participant empowerment was a key factor in these findings, both in terms of personal development and professional development. How this translates into the transformative teaching practices is crucial.

> Thank you very much for the opportunity to become even more empowered in regards to inclusive education and in particular deaf and hard-of-hearing (DHHP21)

For some of the participants, empowerment was clearly manifested by their actions in response to the course content (for example, the initiation of a WhatsApp group as discussed earlier). These excerpts highlight other examples:

> I am empowered and leave here with knowledge and confidence to put 'theory' into practise and advocate inclusion as the future (DSEP20).
>
> I will certainly go and put back what I learnt and experienced here; not only in my work place, but also in my personal life (IDP29).
>
> We now just have to take it further. It was very informative and we are going home with new inspiration, to take this whole course to our day care and apply it there (IDP3).
>
> Equipped, empowered, rejuvenated and ready to implement and reflect on my teaching (VIP14).

5.5 Summary

Understanding disability paves the way for better collaboration, which in turn provides for more effective advocacy work and ultimately leads to empowerment so that educators are active participants (not passive recipients) in the transformation of education in South Africa. As some participants summarise:

> I have a deeper understanding to the deaf and hard-of-hearing community. A new world has been opened up to me. I feel empowered to begin being more active in my field, to actively seek out solutions and reflect on barriers (in classroom but on personal levels too) (DHHP12).
>
> At the end of the course I felt really empowered and applied the theory received. Everything did not always work out as planned, but I was a much more confident principal. My passion has simply increased tenfold and my belief strengthened in the application of inclusive education (DSEP20).

CHAPTER 6:
DISCUSSION AND CONCLUSION

This chapter will discuss the main findings of the evaluation. It will then consider limitations related to the findings of the evaluation, and make recommendations for future work and research in this area.

6.1 How were the courses received?

In terms of course content and delivery, participants' responses were generally very favourable and positive. Courses were well organised and delivered by experts in the field. There was very positive reaction where persons with disabilities were drawn in to facilitate learning and awareness. There were requests from some participants, mainly in the ID course, to make more use of video material in the course delivery. This issue could be resolved by making use of the appropriate MOOCs that have been developed.

6.2 Who are teachers of children with SPSII?

In terms of age, the participants tended to be a little older than the average general workforce, and there were many more female participants than male participants. In other words, the older female was the more common demographic profile. There were more persons with disabilities doing the courses than was generally expected, particularly in the DHH course.

6.3 What training are teachers getting?

Teachers have received very little training in the area of specialised support that they should be offering to their learners. Despite the fact that 75% of the course participants (57.5% in special

schools or care centres and 17.5% in the district) were working with children with SPD directly or indirectly, only 43% had any prior training. This training was neither uniform, nor a requirement for teaching children with disabilities. Teachers' lack of confidence in their abilities was evident at the start of the courses, despite the skills they have acquired through in-service courses and school orientation.

6.4 What do we learn from the quantitative findings?

The DSE learning outcomes survey did not produce a significant result overall. Two items were significant – communication, and teacher support and development – indicating that participants felt better equipped to manage these barriers after the course. The ID course learning outcomes survey did produce a significant result, highlighting that participants on this course felt more confident in teaching and caring for learners with SPID. Two of the three factors on the VI course learning outcomes survey – pedagogical elements related to teaching learners with VI, and psychosocial support for learners with VI – had significant results, illustrating that participants felt more confident in these teaching areas. On the DHH course, the learning outcomes survey also produced a significant result, indicating that participants felt more confident teaching DHH learners after the course.

There were largely non-significant results for the ISIS scale, except in the DHH course, where participants believed less in the benefits of inclusion for all students after the course. Since the ISIS scale examines the context in which inclusive education is carried out, this means that the participants left the course not having changed their views about the context in which they work, despite a great deal of qualitative evidence indicating that their own practices and attitudes shifted considerably. We interpret this to indicate that their belief in the practicality of inclusion and its benefits for learners is related to the context of the general education classroom. Participants did not see this in a more positive light after the course and, in some cases such as in the DHH course, the view tended towards the negative. We suggest that participants did not always feel supported by others in implementing and advocating for inclusion. It is therefore significant that training without support, and accompanying changes in the environment of learning and teaching, may be frustrating and of limited value in bringing about systemic changes. This also highlights the need for teachers to be empowered to take charge of their own professional development within their working context.

6.5 What do we learn from the qualitative findings?

In these findings we identify four themes – understanding disability and implementing inclusion, collaboration, advocacy, and empowerment – that show real growth and development in the participants' approach to disability in education. These themes overlap: understanding disability paves the way for better collaboration, which in turn provides for more effective advocacy work, and ultimately leads to empowerment so that educators are active participants (not passive recipients) in the transformation of education in South Africa.

6.6 What do these findings mean for teacher education?

While there has been a dearth of studies looking into the issue of disability-inclusive teacher education in South Africa, this study has highlighted that teacher empowerment is crucial for more effective disability inclusion in the classroom setting. When it comes to previous training on

disability issues, there were many participants who did not have training, and those who did receive some form of training only did short courses with little consistency. This gap in training is where this study can offer some pertinent recommendations.

6.6.1 Understanding of disability

There needs to be an understanding of the importance of inclusion and how disability fits into an inclusive education system. There are four dimensions that need to be addressed:

- human rights and social justice issues
- parents and family networks
- understanding the specific medical knowledge of disability as well as the general issues of disability
- how to ultimately more effectively implement inclusive education through identifying support needs and adapting the curriculum accordingly

6.6.2 Collaborative practice

Improved collaboration among participants was a major positive issue. This happened at the courses and continued into their work contexts. However, this still needs to be developed into collaboration with parents/family and communities in the current context. A recent study by Miller, et al. (2019) supports strong collaborative partnerships among families, schools and communities as being essential to promote successful outcomes. Further, Cameron and Tveit (2019) note that, over the past several decades, there has been an increasing emphasis on multidisciplinary collaboration to support children with disabilities and their families. This lack of collaboration on a wider spectrum needs to be addressed. Another issue that needs to be addressed is how to foster post-course collaboration. One possible avenue to explore is the use of the MOOCs in strengthening collaboration in post-course scenarios. Course participants and stakeholders must become active participants, not passive recipients, of this process. This also relates to the need to build up a sense of empowerment in terms of joint decision-making, collaboration with one another, and encouragement to meet, share and voice their opinions.

6.6.3 The role of advocacy

As participants developed a better understanding of disability, they became more aware of the role of advocacy and how to develop their advocacy skills. Burke, et al. (2019) mention that advocacy positively influences outcomes for children with disabilities in school. There was, however, a realisation that advocacy, like collaboration, still needs to happen at all levels and that other stakeholders need to be part of this process. The role and importance of advocacy in this context is supported by Strassfeld (2018), who states that parents should also be able to develop their advocacy skills. However, it was found by Burke and Goldman (2017) that many parents struggle to advocate for their children with disabilities to obtain services at school. They suggest that some barriers to parent advocacy include lack of knowledge (Turnbull and Turnbull, 2003), feelings of intimidation (Fish, 2008), and difficulty understanding jargon (Park and Turnbull, 2001). Limited parent advocacy is also related to attitudinal barriers such as the power differential between schools and parents (Leiter and Krauss, 2004), and parents feeling that they lack the legitimacy of an expert (Kalyanpur, et al., 2000).

Although the field of inclusive-education advocacy is growing (Goldman, et al, 2019), McKenzie, et al. (2019) summarise that there is need for continued advocacy. Advocacy is not always supported in school contexts, despite the argument for more training at all levels.

6.6.4 Teacher empowerment

The issue of empowerment is central to this evaluation. Educators were able to develop more self-confidence and, in some cases, more self-care in response to the personal and professional growth gained from attending the courses. This highlights that it is not only important to focus on technical and instrumental skills in training, but also on softer skills such as empowerment issues. Empowerment is a lifelong learning process and educators have a role to further empower students to enter this process. Soodak, et al. (2002:91) suggest that 'to move from mediocrity to excellence in providing inclusive early childhood education, professional empowerment must occur at the individual and programme levels'.

Despite the importance of empowering teachers, there is a paucity of studies looking into this issue. As Robertson and Tang (1995) mention, teacher empowerment depends on teachers' commitment to professional learning and growth. Lee and Nie (2014) suggest that teacher empowerment is linked to improved classroom practices and school effectiveness as a result of its impact on various work-related outcomes of teachers (for example, job satisfaction, organisational commitment, and professional commitment). Teacher empowerment within disability education is vital and needs to come to the forefront in addressing the huge gap in this sphere of education.

6.7 Implications of findings for teacher education in South Africa

The dearth of teacher education for children with disabilities needs to be addressed urgently if their right to quality education is to be realised. The findings of this evaluation point to the need for all educators (pre-service and in-service) to be educated on disability issues. However, there is very little training available and that which is available has limited quality control and is often of short duration. This means that teachers need to empower themselves to access training and to develop their disability-inclusion skills over time. While this must be the responsibility of teachers themselves, there should be increased support for teacher development from all relevant stakeholders. The evaluation presented here addressed only one avenue for teacher education: short courses for in-service educators. However, our experience in this domain brings to light recommendations for the overall teacher landscape, of which these short courses are a small part.

6.7.1 What training do teachers in all schools need?

All pre-service and in-service teachers must have education on disability. As has been noted by course participants, it is not enough to understand inclusivity in broad terms. Prejudice, attribution of incompetence, and medical notions of disability, feed into the ongoing segregation of children with disabilities. If education is to become truly disability inclusive, all teachers need to have training in the following elements.

Firstly, teachers need to have the understanding that teaching children with disability is their responsibility and address attitudes built upon ableism. Broderick and Lalvani (2017) identify ableism as an orientation that militates against inclusion through two core elements – the first being that there is an ideal 'normal' learner and, second, that learners who are disabled do not belong in this group and should therefore be catered for separately. The neoliberal notions of multiculturalism and diversity that are cornerstones of inclusive education may not address or challenge these fundamental assumptions. They further propose that addressing ableism is about more than addressing attitudes, but rather requires experiential learning based on personal experience and emotional engagement that '... places the critically self-reflective learner at the very

centre of generating and constructing new and transformative forms of knowledge and therefore of practice in schools' (Broderick and Lalvani, 2017:904).

Secondly, teachers need to understand that there are specific teaching strategies and learning needs arising from different impairments. These strategies need to be applied within special schools and regular schools if an inclusive education and training system is to become a reality. However, the depth of knowledge and the need for specialist support may vary across the different kinds of schools. Teachers in regular schools need to be aware that students may have these additional needs and know where to access support, as well as collaborate with specialist support personnel and classroom assistants.

Thirdly, all teachers need to have an understanding of the SIAS strategy mandated by the DBE. This must be complemented by training in curriculum differentiation, preferably through Universal Design for Learning (UDL) approaches (Dalton, et al., 2012). Such training would include understanding the importance of impairment-specific support needs within a framework of UDL, where teachers learn to plan for diversity from the outset.

A fourth important element of teacher education is building collaboration for inclusion and lifelong learning as an essential aspect of disability inclusion. This entails teachers being active participants who are able to exercise joint decision making, collaborate with one another, meet and share their experiences, and voice their own opinions. It is not only teachers who need to learn collaborative skills, but also professionals such as therapists and specialist teachers who can work with classroom teachers as partners, acknowledging the contribution that each can make. DBST members need to hone their skills in developing collaborative and supportive practice. An attitude of lifelong learning and ongoing professional development on the part of teachers is critical, and needs to be supported by the provision of and access to a range of short courses, mentorships, communities of practice, and other learning opportunities. These opportunities should be incentivised through CPTD points from SACE and linked to the DBE's performance appraisal system.

Finally, the need for advocacy for children with disabilities is evident. Teachers are in an ideal position to adopt this role, but need to be supported by parents and schools to do this. Our participants voiced the need for parents and education officials to learn more about disability inclusion in order to support the advocacy work of teachers.

6.7.2 Training for teachers in special schools

All teachers who are to be employed in special schools should have the training described above. In our situation analysis we found that teachers in special schools are not always included in district training programmes on CAPS implementation, SIAS, and curriculum adaptation (McKenzie, et al., 2019). This has had the effect of teachers not fully understanding inclusion, but rather continuing in the special education mode. Disability-specific considerations overshadow other issues of diverse learning needs and generally good teaching practices to address these needs.

As much as teachers in special schools need training in specialist skills, they also need to be expert in supporting inclusive practice through collaboration with classroom teachers and a multidisciplinary team. Having skills in rehabilitation and special education does not make a specialist teacher ***the*** expert, but rather a skilled member of an educational team that includes regular teachers, parents, therapists, and possibly other stakeholders. This understanding is important for the development of special schools as resource centres, and for working in school-based support teams and DBST structures.

Urgent attention is also needed for specialised training for teachers who will work in special schools. This should consist of full qualifications at a pre-service or in-service level that relate to the special educational needs of children in special schools. The Centres of Excellence at the University of Pretoria, University of Johannesburg and University of the Witwatersrand are in various stages of offering or developing such courses. Such qualifications should be mandatory for teachers to be employed in special schools, and teachers need to be encouraged and motivated to do these courses through the provision of bursaries, study leave, salary increases, and promotion. Teachers with these qualifications will also be valuable members of DBST teams supporting disability inclusion in a wider range of school placements. As indicated in our situation analysis report (McKenzie, et al., 2019), some provinces are starting to develop specialist teams around different impairment types, where specialist teachers could be ideally placed.

6.8 Limitations and suggestions for future research

This study draws from short courses offered by the TEDI project. The courses, being short, had time constraints and this was one limitation. This resulted in the fact that doing justice to the topics that needed to be covered was not always achieved. More in-depth exploration of some topics may have been more beneficial. Further, given the time constraints, the course approach and content had to be selective, which could have resulted in limiting different perspectives in their management and delivery. Not everything could be covered in the courses and this limited scope is another limitation. The courses may have been more beneficial if they were spread out over a longer period, giving participants time to digest and process the content more. They would also have been able to attempt to apply what they learnt on the course in their classes and provide feedback at the next course session.

The courses were selective about who was eligible to attend and this makes generalisations to all teachers in all provinces of South Africa problematic. While it cannot in any way be representative of all teachers in all provinces, we believe that it does give important insights for future policy, practice and research. Although it was a relatively small study, it has the potential to act as a springboard for further studies in this area.

Further research needs to explore the long-term impact of this type of training and compare it with other forms of training to understand better what type of training works best and for what purpose. Future research should be able to help ascertain what will facilitate the training of teachers to be more empowered in offering quality education to children with SPD.

6.9 Recommendations

Significant recommendations arising from this evaluation:

- There needs to be greater provision of teacher-education courses on disability-inclusive practice for all teachers at pre-service and in-service levels.
- There needs to be a focus on ongoing professional development through the provision of multiple learning opportunities that are incentivised.
- All teacher-education courses need to have a significant focus on disability rights and family involvement in the education of children with disabilities.
- Specialist full qualifications need to be supported and teachers need to be incentivised to do these courses.

- Attention should not only be given to specialist skills, but also to collaboration and team work.
- More engagement and collaboration among relevant stakeholders should be encouraged.
- Teachers should be supported to take responsibility for their own learning so that they become empowered to adopt an attitude of lifelong learning and ongoing professional development.
- More research evaluation studies should be conducted on the role of teacher education in building disability-inclusive education in South Africa.

6.10 Concluding remarks

While there has been a paucity of studies looking at disability-inclusive teacher education in South Africa, this evaluation study has made an important initial contribution to this field. Although it only focused on one part of the education landscape (short courses), it was a positive start. The study confirmed that teacher education in South Africa for children with disabilities still has a long way to go to become fully inclusive.

While having to deal with the current dynamics in South Africa, teachers who attended the courses showed a positive approach to tackling these issues in a constructive manner. They indicated a desire to develop more inclusive practice, and were energised to take what they learnt on the courses and apply it in their classroom contexts. As teachers managing the challenging circumstances in their classrooms, they have shown a willingness to adapt and incorporate what they learnt on the courses. They are willing to embrace a new approach to inclusive education.

However, it is imperative that the energy and enthusiasm that was evident at the courses is not lost. They need appropriate and ongoing training, development and support. This should become a priority as it will enable them to continue to teach with focus and dedication so that their learners can have a better education and flourish further. The fact that teachers were overwhelmingly positive about the courses is a sign of hope for disability inclusion in South Africa. This study has addressed a gap in inclusive education in South Africa and we hope that it will act as a catalyst for further important work in this area. We hope that this report can make at least a small positive contribution toward stimulating, embracing and providing quality disability-inclusive education both now and in the future.

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Appendix A: TEDI short-course collaborators

Disability Studies in Education

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Navigating D/deaf and Hard-of-Hearing Education: Empowering Teachers

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Appendix B: Programme for the disability studies in education course

Monday, 16 July 2018

Time	Learning outcome	Lecture content
08.30–10.30	Reflecting on beliefs surrounding disability in education (DSE1)	Introduction and welcome Pre-course evaluation Vula website Analyse a case study of a learner with a disability who is excluded from local mainstream education. Write a recommendation for how the school may meet this learner's educational needs, including advantages of and barriers to inclusion.
11.00–13.00	Understanding experiences of disability exclusion from education (DSE2)	How are children with disabilities excluded from an education equal to that of their peers? What are the implications of exclusion? What does the right to education mean for children with disabilities? Responsibilities of schools and education systems in meeting this right.
14.00–15.30	Conceptualising disability as a social justice issue within a human rights framework (DSE3)	Disability inequality International human rights conventions Crisis in education for learners with disabilities Human rights: culture and critique
16.00–17.30	Exploring equal access to the curriculum through assistive technologies (DSE4)	Fear/reluctance of using assistive technology (AT) Access to AT and the full curriculum Support for use of AT Where to find AT

Activities	Resources and readings	Lecturers
Case study Group work	Education White Paper 6 Guidelines for responding to learner diversity through CAPS Mariga, et al. (2014). *Inclusive Education in Low-Income Countries:* https://www.eenet.org.uk/resources/docs/Inclusive_Education_in_Low_Income_Countries.pdf	Judith McKenzie Jane Kelly Brian Watermeyer
Videos Group work	Afrika Tikkun video: https://www.youtube.com/watch?v=qVh6sTQdMKs&feature=youtu.be Human Rights Watch video: https://www.youtube.com/watch?v=l7LdwV1gaVg SABC video: https://www.youtube.com/watch?v=LAkkjny5QwM	Judith McKenzie
Lecture and discussion	Wood, et al. (in press). ***Access to education for children*** *with severe to profound intellectual disability* Human Rights Watch (2015). *'Complicit in Exclusion': South Africa's failure to guarantee an inclusive education for children with disabilities.*	Brian Watermeyer
Lecture and discussion Reflection	Hestelle. *Effective management and use of assistive devices within the inclusive classroom.* *Bothma. Resource Centre Package.*	Ikechukwu Nwanze Patricia Arendse

Tuesday, 17 July 2018

Time	Learning outcome	Lecture content
08.30–10.30	Critical examination of special and inclusive education (DSE5)	Ecosystemic perspective: Barriers to learning within systems. How does special and inclusive education address these barriers? Is special education the same thing as inclusive education? How are they the same, and how are they different? How does disability fit into an inclusive education system?
11.00–13.00	Exploring policies enabling inclusive education (DSE6)	Historical background to inclusive education Principles of Salamanca Statement Responsibilities of government Key messages of EWP6
14.00–15.30	Connecting communities and schools (DSE7)	How partnerships between community organisations, caregivers and educators can promote meaningful inclusion
16.00–17.30	Connecting families and schools (DSE 8)	Parents' perspectives on their children being excluded from education, and how educators and the schooling system can respond to this

	Activities	Resources and readings	Lecturers
	Lecture and discussion	Special Schools as Resource Centres Factsheet	Judith McKenzie
	Lecture and discussion Group work	EWP6 Salamanca Statement: https://sustainabledevelopment.un.org/?menu=1300	Sindiswa Stofile
	Lecture and discussion	Grace and Lebo: a mothers love: https://afrikatikkun.org/2017/11/07/grace-and-lebo-a-mothers-love/ Thembinkhosi gets ready for school: https://afrikatikkun.org/2017/11/07/thembinkhosi-gets-ready-for-school/	Rachel Maisha Jean Elphick
	Case study Group work		Brian Watermeyer

Wednesday, 18 July 2018

Time	Learning outcome	Lecture content
08.30-10.30	Understanding barriers to inclusive education (DSE9)	Educators' perspective on barriers to implementation of inclusive education, using assessment as an example
11.00-13.00	Understanding the nature of low vision and blindness, and its implications for learning and participation (DSE10)	What is visual impairment? How do we identify visual impairment in a learner? How does visual impairment impact on education? Screening, identification and support Experience of special schooling from the perspective of blind and visually impaired learners Assistive devices
14.00-15.30	Understanding the nature of severe to profound intellectual disability, and its implications for learning and participation (DSE11)	What is intellectual disability? Most common conditions linked to intellectual disability Co-occurring conditions Support needs What does education mean for this group?
16.00-17.30	Understanding the nature of being D/deaf or hard of hearing, and its implications for learning and participation (DSE12)	Basics of hearing loss Hearing loss and learning Classroom accommodations Positive and negative schooling experiences from the perspective of D/deaf adults Why do D/deaf children lack access to knowledge? Challenges experienced in the D/deaf community

Activities	Resources and readings	Lecturers
Lecture and discussion Group work	The Story of Pinelands North: https://www.youtube.com/watch?v=m92tLcVU6u8 EWP6 Assessment in inclusive settings	Rose-Anne Reynolds
Lecture and discussion Group work Reflection	Eye conditions: https://in.optelec.com/eyeconditions?pageNumber=1 http://www.tsbvi.edu/eye-conditions	Hestelle Viljoen Benedict Leteane
Lecture and discussion Group work	WCFID. Understanding Intellectual Disability: A handbook for families, students and professionals	Santie Terreblanche
Lecture and discussion Simulation exercise	D/deafness factsheet: http://www.who.int/features/factfiles/deafness/en/ Ear care factsheet: http://www.who.int/features/qa/81/en/ Navigating D/deafness in a hearing world: https://www.youtube.com/watch?v=uKKpjvPd6Xo	Vera Hlayisi Jabaar Mohamed

Thursday 19 July 2018

Time	Learning outcome	Lecture content
08.30-10.30	Understanding the SIAS process within a multi-disciplinary practise (DSE13)	The place of screening, identification, assessment and support in an inclusive education system The multidisciplinary team approach of SIAS: How barriers can be removed to ensure learners receive reasonable accommodation and individualised support within the classroom, school and at home
11.00-13.00	Processes that support teachers within the education system to meet the needs of learners with disabilities (DSE14)	How to support teachers to adapt the curriculum and meet the learning needs of children with disabilities: policies, processes and structures
14.00-15.30	Developing an ISP (DSE 15)	What is the ISP process? What is the purpose of an ISP? ISP planning team Qualities of a good ISP How to use the ISP to develop integrated programmes
16.00-17.30	Education for learners with severe to profound intellectual disability (DSE16)	How daily experiences can be used to enhance learning How to create a learning environment that is conducive to learning How to develop integrated programmes in the Daily Programme

Activities	Resources and readings	Lecturers
Lecture and discussion Group work Case studies	Department of Basic Education (2014). Policy on Screening, Identification, Assessment and Support	Marie Schoeman Berenice Daniels
Lecture and discussion Group work Case studies	Department of Basic Education (2011). Guidelines for Responding to Learner Diversity through the CAPS: https://www.mietafrica.com/guidelines-establishment-professional-learning-communities-south-african-schools/	Marie Schoeman
Lecture and discussion		Heidi Myburgh
Lecture and discussion		Heidi Myburgh

Friday 20 July 2018

Time	Learning outcome	Lecture content
08.30-10.30	Curriculum adaptation specific to learners who are blind or have low vision (DS17)	Issues in education for learners who are blind or have low vision Curriculum differentiation Expanded core curriculum Adaptation of LTSM and assessment Assistive technology: use and maintenance
11.00-13.00	Curriculum adaptation specific to learners who are D/deaf or hard-of-hearing (DSE18)	Common misconceptions about D/deaf and hard-of-hearing learners Curriculum adaptation, including LTSM Classroom discipline Amplification and assistive technology
14.00-15.30	Applying educational strategies to the work context (DSE19)	Wrap up Action research cycle Action research assignment: Identify a barrier that has resulted in the exclusion of learners with disabilities in your work context. Analyse why that barrier is maintained. Identify and describe one change that you could make in supporting teachers to address this barrier. Implement this change and evaluate its effect. Course evaluation

Activities	Resources and readings	Lecturers
Lecture and discussion Group work	Making life science accessible: https://www.youtube.com/watch?v=tpAejot1-Ec Making the learning environment accessible: https://iris.peabody.vanderbilt.edu/module/v02-successsight/	Hestelle Viljoen
Lecture and discussion Case study		Odette Swift
Lecture and discussion Reflection	O'Byrne (2016). Four steps to conducting action research in the classroom. https://wiobyrne.com/action-research/	Judith McKenzie Jane Kelly

Appendix C: Programme for the education and care of learners with severe to profound intellectual disability course

DAY 1: 23 July 2018

Development and wellness in learners with severe to profound intellectual disabilities

Time	Topic	Presenter
09.00–09.30	Welcome and ice-breaker	Sumaya Gabriels
09.30–10.00	Basic introduction to course and context of course	Sumaya Gabriels
10.00–11.00	Diversity and disability	Sumaya Gabriels
11.30–13.00	Introduction to disability Different types of disability Multi-disabilities	Sumaya Gabriels
13.45–15.00	Social inclusion Legislation and policy	Sumaya Gabriels
15.00–15.15	Body break Accessibility activity	Jane Kelly Ncediwe Mdlulwa
15.15-16.00	Legislation in action reflection activity Wheel of opportunity	Sumaya Gabriels

DAY 2: 24 July 2018

Understanding intellectual disability and understanding development

Time	Topic	Presenter
09.00–10.00	Basic introduction to the human body and typical development	Aimee Isaacs
10.30–12.00	Typical development and play Introduction to David Werner development checklist	Aimee Isaacs
12.45–14.00	Understanding intellectual disability: › Myths about intellectual disability › Conditions associated with intellectual disability › Levels of intellectual disability and support needs per area	Aimee Isaacs
14.15–15.00	Case studies using David Werner development checklist	Aimee Isaacs
15.15–16.00	Reporting abuse	Aimee Isaacs

DAY 3: 25 July 2018

Identifying and reporting support needs of learners with severe to profound intellectual disabilities

Time	Topic	Presenter
09.00–11.00	Identify support needs: Educational principles	Karlien Spangenburg
11.30–13.00	Record support needs	Karlien Spangenburg
13.45–15.00	Refer/report support needs	Karlien Spangenburg
15.15–16.00	Reflective activity: referral, relationship building, family/parent	Thandi Henkeman Karlien Spangenburg

DAY 4: 26 July 2018

Addressing individual learner's support needs within a group

Time	Topic	Presenter
09.00–11.00	Integrated daily programme including the three subject areas – Communication and Language; Life Skills; Visual, Perceptual and Cognitive Skills – and topics	Aimee Isaacs
11.30–13.00	Integrated daily programme including the three subject areas (continued)	Aimee Isaacs
13.45–15.00	Handling children Adapting activities Grading activities	Karlien Spangenburg
15.15–16.00	What are red flags? Case studies: Recognising signs and reporting, including abuse and report	Karlien Spangenburg

DAY 5: 27 July 2018

Caring for those with intellectual impairment

Time	Topic	Presenter
09.00–09.30	Recap activity: group work case study	
09.30–11.00	Posture management checklist Using assistive devices during activities	Karlien Spangenburg
11.30–13.00	Let's talk to mom Recap of learning and how to communicate with parents	Jacqui Couper
13.45–15.00	Caring for the carer	Jacqui Couper
15.15–16.00	Course reflection and evaluation	Jane Kelly

Appendix D: Programme for the teaching learners with visual impairment course

Monday, 1 October 2018

Time	Learning outcomes	Lecture content
08.30–10.30		Welcome Completing pre-evaluation forms Introduction and course overview
11.00–13.00	ILO1	**Session 1** History of inclusive education: internationally and nationally Current situation of education for learners with disabilities in South Africa
14.00–15.30	ILO3	**Session 2** How inclusive is your school? Creating an inclusive educational environment
16.00–17.30	ILO5	**Session 3** Introduction to visual impairment How does the visually impaired learner present in class?

Resources and readings	Lecturers
	Brian Watermeyer Nozwelo Shanda
	Nozwelo Shanda Brian Watermeyer
https://www.youtube.com/watch?v=ZIPsPRaZP6M	Suna Verhoef
www.youtube.com/watch?v=gq5sBb-n_Yw https://in.optelec.com/eyeconditions?pageNumber=1 http://www.tsbvi.edu/eye-conditions www.ridbc.org.au http://www.visen.org.uk/VIpage10.html	Christopher Tinley Hestelle Viljoen

Tuesday, 2 October 2018

Time	Learning outcomes	Lecture content
08.30–9.00		Reflections
09.00–10.30	ILO6	**Session 4** Education of learners with visual impairment: The ECC Part 1
11.00–12.30	ILO6	**Session 5** Education of learners with visual impairment: The ECC Part 2
13.30-15.00	ILO6	**Session 6** Education of learners with visual impairment: The ECC Part 3
15.30–17.00	ILO3	**Session 7** Empowering teachers of visually impaired learners

Resources and readings	Lecturers
	Brian Watermeyer Heidi Lourens Michelle Botha Benedict Leteane
	Suna Verhoef
https://www.youtube.com/watch?v=tJbmuFhbnmQ Play area https://www.youtube.com/watch?v=YntKTaa3ciw Toddler https://www.teachingvisuallyimpaired.com/recreation--leisure.html) http://www.gradesmatch.co.za/ https://www.htxt.co.za/2015/04/09/new-app-set-to-help-students-decide-what-to-study-at-university/ https://www.collinsdictionary.com/dictionary/english/self-determination https://www.youtube.com/watch?v=tJbmuFhbnmQ	Hestelle Viljoen
https://www.youtube.com/watch?v=HzDISkq7ZI4 Father and daughter https://www.teachingvisuallyimpaired.com/recreation--leisure.html http://www.gradesmatch.co.za/ https://www.htxt.co.za/2015/04/09/new-app-set-to-help-students-decide-what-to-study-at-university/ https://www.collinsdictionary.com/dictionary/english/self-determination	Hestelle Viljoen
https://www.youtube.com/watch?v=cXWUSwu0r9Q	Suna Verhoef
https://www.youtube.com/watch?time_continue=354&v=okpg-lVWLbE	Jenny Webster

Wednesday, 3 October 2018

Time	Learning outcomes	Lecture content
08.30–09.00		Reflections
09.00–10.30	ILO3&4	**Session 8** Broadening possibilities for learners with visual impairment: Careers, sport and recreation
11.00–13.00	ILO9	**Session 9** Introduction to braille: Its role in the Foundation Phase and beyond
14.00–15.30	ILO3&4	**Session 10** Curriculum differentiation Part 1: Introduction to curriculum differentiation for visually impaired learners
16.00–17.30	ILO3&4	**Session 11** Curriculum differentiation Part 2: Practical exercises in curriculum differentiation for visually impaired learners

Resources and readings	Lecturers
	Brian Watermeyer Michelle Botha Heidi Lourens Benedict Leteane
https://www.youtube.com/watch?v=TSmKmkZlxl0 http://disabilityinfosa.co.za/	Michelle Botha Suna Verhoef
	Reinette Popplestone
https://www.youtube.com/watch?v=tpAejot1-Ec Making Life Science accessible Instructional Accommodations: Making the Learning Environment Accessible to Students with Visual Disabilities: https://iris.peabody.vanderbilt.edu/module/v02-successsight/	Hestelle Viljoen
	Suna Verhoef

Thursday, 4 October 2018

Time	Learning outcomes	Lecture content
08.30–09.00		Reflections
09.00–10.30	ILO3&4	**Session 12** Curriculum differentiation Part 3: Adaptation of learning and teaching support material (LTSM) and assessment for visually impaired learners
11.00–12.30	ILO2	**Session 13** Disability Studies in Education Care and support for teaching and learning Aims and principles of the SIAS chain of support
13.30–15.30	ILO2	**Session 14** Psychosocial aspects of visual impairment: providing support to learners and families
16.00–17.00	ILO2&8	**Session 15** The role of social media

Friday, 5 October 2018

Time	Learning outcomes	Lecture content
08.30–10.30	ILO8	**Session 16** The use of assistive technology in teaching and learning
11.00–12.30		Concluding reflections
12.30–13.00		Assignment instructions and Vula tutorials
12.30–13.30		Post evaluation, lunch and closure

Resources and readings	Lecturers
	Brian Watermeyer Michelle Botha Heidi Lourens Benedict Leteane
	Hestelle Viljoen
https://www.youtube.com/watch?v=YCSLGPQ-nCY	Judith McKenzie Suna Verhoef
	Brian Watermeyer Nozwelo Shanda Heidi Lourens Michelle Botha
https://learningblindness.wordpress.com https://goingblindwithinsight.wordpress.com	Suna Verhoef

Resources and readings	Lecturers
	Ikechukwu Nwanze Jenny Webster Heidi Lourens Michelle Botha
	Brian Watermeyer Benedict Leteane Michelle Botha Heidi Lourens
	Brian Watermeyer Ikechukwu Nwanze
	Nozwelo Shanda

APPENDIX E: Programme for the navigating D/deaf and hard-of-hearing education course

Monday, 25 March 2019

Time	Learning outcomes	Lecture content	Lecturers
08.30–10.30		Welcome, introductions and pre-course survey Introduction to Vula	Thandi Henkeman Tara Kuhn Odette Swift Jane Kelly Ike Nwanze
11.00–11.45	3	DHH1 What is it to be D/deaf?	Jabaar Mohamed
11.45–13.00	4, 9	DHH2 Models of D/deaf education	Odette Swift
14.00–15.30	1	DHH3 The role of hearing in communication	Vera Hlayisi
16:00–17.30	1	DHH4 Effects of hearing loss on language acquisition	Tara Kuhn

Tuesday, 26 March 2019

Time	Learning outcome	Lecture content	Lecturers
08.30–9.00		Reflections	Thandi Henkeman
09.00–10.30	8	DHH5 Classroom implications for DHH learners	Emma McKinney
11.00–12.30	2	DHH6 Barriers to education for D/deaf and hard-of-hearing learners that arise from the social context in which education occurs	Cindy Rutter
13.30–15.00	2, 5	DHH7 The school as an ecosystem	Judith McKenzie
15.30–17.00	3, 5	DHH8 Barriers to education: addressing language delays	Tara Kuhn

Wednesday, 27 March 2019

Time	Learning outcome	Lecture content	Lecturers
08.30–09.00		Reflections	Tara Kuhn
09.00–10.30	2, 5	DHH9 Barriers to education: teaching reading and writing to D/deaf learners	Lynette Diederichs Ingrid Parkin Maadje Vos Elzane van den Bergh Marika de Villiers Nicola Kleinhans
11.00–13.00	6, 8	DHH10 Classroom management and discipline	Wilma Newhoudt-Druchen Tshepo Maseko
14.00–15.30	8	DHH11 Explore changes to educational provision: curriculum adaptation	Judith McKenzie Ingrid Parkin
16.00–17.30	7, 8	DHH12 Technology and the D/deaf learner	Ikechukwu Nwanze Laila Dalwai

Thursday, 28 March 2019

Time	Learning outcome	Lecture content	Lecturers
08.30–09.00		Reflections	Jane Kelly
09.00–10.30	4, 5	DHH13 Supporting families of babies and young children	Jeanette Hillier
11.00–12.30	4, 5	DHH14 Supporting families of learners at school	Thandi Henkeman Jane Kelly Debra Clelland
13.30–15.30	7	DHH15 Safety and the D/deaf child	Debra Clelland
16.00–17.00	2, 6, 7	DHH16 Hostels	Cindy Rutter Carmen Kuscus Evert Burger Brian Watermeyer

Friday, 29 March 2019

Time	Learning outcome	Lecture content	Lecturers
08.30–09.00		Reflections	Odette Swift
9.00–10.30	3, 8, 9	DHH17 Empowered educators	Odette Swift Judith McKenzie
11.00–12.30	8, 9	DHH18 Next steps and wrap up	Odette Swift Tara Kuhn
12.30–13.30		Post-evaluation and closing remarks	Thandi Henkeman Judith McKenzie Odette Swift Tara Kuhn Jane Kelly

Appendix F: Full results for inclusion beliefs scale

Inclusion beliefs: DSE course

Factor analysis on the ISIS in the DSE course confirms a two-factor solution, with items 1-4 loading on one factor (Benefits for All) and items 5-8 loading on another (Perceived Support) (Table 17 in Appendix G). Both subscales have high reliability: α =.828 for the Benefits for All subscale, and α =.807 for the Perceived Support subscale. However, the item total correlation for items 1 and 5 are on the low side (r=.487 and r=.486 respectively; Table 18 and 20 in Appendix G). In addition, Cronbach's alpha for the scale increases slightly if these items are removed from their respective subscales: for the Benefits for All subscale α increases from .828 to .868 if item 1 is removed, and for the Perceived Benefits subscale α increases from .807 to .818 if item 5 is removed. We therefore ran the analysis of these subscales excluding items 1 and 5.

The Wilcoxon signed-rank test reveals, with respect to the Benefits for All subscale (excluding item 1), there is no statistically significant difference following participation in the DSE course (z=-1.072, p=.284). The median score rank decreased from pre-course (Md=9) to post-course (Md=6). In addition, the Wilcoxon test on each of the individual items in this subscale reveals no statistically significant difference pre- and post-participation in the DSE course (Table 19 in Appendix G).

The Wilcoxon signed-rank test reveals, with respect to the Perceived Support for Inclusion subscale (excluding item 5), there is no statistically significant difference following participation in the DSE course (z=-.108, p=.914). The median score stays the same (Md=10). In addition, the Wilcoxon test on each of the individual items in this subscale reveals no statistically significant difference pre- and post-participation in the DSE course (Table 21 in Appendix G).

Inclusion beliefs: VI course

Factor analysis on the ISIS in the VI course does not confirm a two-factor solution, but rather a three-factor solution. While items 1–4 load on one factor (Benefits for All), items 5 and 7 load on a second factor, and items 6 and 8 load on a third factor (Table 22 in Appendix G). In addition, the Perceived Support subscale has a low reliability (α =.380) and low item-total correlations (Table 25 in Appendix G). For these reasons we do not run a Wilcoxon signed-rank test on this subscale. The Benefits for All subscale, on the other hand, has a high reliability (α =.807). However, item 4 has a low item-total correlation (r=.494; Table 23 in Appendix G) and α increases if this item is excluded (from .807 to .887). We therefore ran the Wilcoxon signed-rank test on the Benefits for All subscale excluding item 4.

The Wilcoxon signed-rank test reveals, with respect to the Benefits for All subscale (excluding item 4), there is not a statistically significant difference following participation in the VI course (z=-.455, p=.649). The median score decreased from pre-course (Md=9) to post-course (Md=8). In addition,

the Wilcoxon test on each of the individual items in this subscale reveals no statistically significant difference pre- and post-participation in the VI course (Table 22 in Appendix G). This is the same for the individual items in the Perceived Support subscale (Table 26 in Appendix G).

Inclusion beliefs: DHH course

Factor analysis on the ISIS in the DHH course data suggests a two-factor solution, but with items 15 loading on one factor, and items 6–8 on another (Table 17 in Appendix G). This does not make sense in light of the way the ISIS scale was designed: for items 1–4 to load on one factor (Benefits for All) and items 5–8 on another (Perceived Support). Therefore, we choose to run the analysis excluding item 5.

The Benefits for All subscale has a high reliability (α =.929) and good item-total correlations (Table 28 in Appendix G). The Perceived Benefits subscale also has high reliability (α =.788). However, in line with the above, if item 5 is deleted, α increases (from .788 to .852; Table 20 in Appendix G), which gives further motivation for excluding it from the analysis.

The Wilcoxon signed-rank test reveals, with respect to the Benefits for All subscale, there is a statistically significant difference following participation in the DHH course (z=-2.278, p=.023), with a medium effect size (r=.39). The median score increased from pre-course (Md=8) to post-course (Md=9.5). This indicates that participants believe ***less*** in the benefits of inclusion for all. If we look at the results for the individual items, we see that items 3 and 4 (self-esteem and social skills of all learners improve if learners with severe to profound disabilities are educated in the same classroom) are both approaching significance. For 'self-esteem improves' z=-1.897 and p=.058, and the median score increased from pre-course (Md=2) to post-course (Md=3). For 'social skills improve' z=-1.964 and p= .050, and the median score stayed the same (Table 29 in Appendix G).

The Wilcoxon signed-rank test reveals, with respect to the Perceived Support for Inclusion subscale (excluding item 5), there is no statistically significant difference following participation in the DHH course (z=-.942, p=.346). The median score stayed the same (Table 31 in Appendix G).

Inclusion beliefs: Combined analysis

Factor analysis on the combined DSE, VI and DHH course data supports a two-factor solution, excluding item 5 from the second factor (Table 32 in Appendix G). In support of this, item 5 has a low item-total correlation (r=.297) and the reliability (α) increases if this item is excluded (from .710 to .770; Table 35 in Appendix G). Thus, items 1–4 load on one factor (Benefits for All subscale) and items 6–8 load on another factor. The Benefits for All subscale has a high reliability (α =.886) and good item-total correlations (Table 33 in Appendix G).

The Wilcoxon signed-rank test reveals, with respect to the Benefits for All subscale, there is no statistically significant difference following participation in the courses (z=-1.583, p=.113). The median score decreased from pre-course (Md=11) to post-course (Md=10) (Table 34 in Appendix G). The Wilcoxon signed-rank test also reveals, with respect to the Perceived Support for Inclusion subscale (excluding item 5), there is no statistically significant difference following participation in the courses (z=-.410, p=.682). The median score stayed the same (Md=10) (Table 36 in Appendix G).

Appendix G: Course data (Chapter 4)

Table 17: Factor analysis of Indicators of Successful Inclusion Scale in the VI course

Rotated Component Matrix[a]

	Component	
	1	2
1. All learners to be educated in general education classroom	.668	.076
2. Self-esteem improves	.940	.084
3. Social skills improve	.792	.154
4. Academic achievement increases	.855	-.078
5. Teacher education programmes prepare all teachers	.032	.630
6. Districts provide support	-.001	.892
7. Adequate planning time provided to educators	.185	.750
8. Districts provide professional development	.022	.801

Extraction method: Principal component analysis
Rotation method: Varimax with Kaiser normalization

[a]Rotation converged in 3 iterations

Table 18: Item-total statistics for Benefits for All subscale in the DSE course

Item-Total Statistics

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
1. All learners to be educated in general education classroom	7.6250	9.375	.487	.868
2. Self-esteem improves	7.6667	7.449	.872	.672
3. Social skills improve	8.1667	9.971	.632	.796
4. Academic achievement increases	7.4167	9.297	.681	.773

Table 19: Analysis of Benefits for All subscale in the DSE course

		All learners to be educated in general education classroom		Self-esteem improves		Social skills improve		Academic achievement increases	
		Pre	Final	Pre	Final	Pre	Final	Pre	Final
N	Valid	19	19	19	18	18	19	19	19
	Missing	0	0	0	1	1	0	0	0
Median		2,0000	2,0000	3,0000	2,0000	2,0000	2,0000	4,0000	2,0000
Range		4,00	4,00	3,00	4,00	3,00	4,00	3,00	4,00
Minimum		1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
Maximum		5,00	5,00	4,00	5,00	4,00	5,00	4,00	5,00
Strongly agree		3 (15.8%)	7 (36.8%)	3 (15.8%)	4 (22.2%)	4 (22.2%)	7 (36.8%)	2 (10.5%)	1 (5.3%)
Agree		8 (42.1%)	6 (31.6%)	5 (26.3%)	7 (38.9%)	9 (50.0%)	7 (36.8%)	4 (21.1%)	11 (57.9%)
Neutral		1 (5.3%)	1 (5.3%)	2 (10.5%)	1 (5.6%)	2 (11.1%)		2 (10.5%)	1 (5.3%)
Disagree		5 (26.3%)	2 (10.5%)	9 (47.4%)	3 (16.7%)	3 (16.7%)	4 (21.1%)	11 (57.9%)	5 (5.3%)
Strongly disagree		2 (10.5%)	3 (15.8%)		3 (16.7%)		1 (5.3%)		
Wilcoxon z value		-1.100		-.575		-.091		-1.422	
Wilcoxon p value		.271		.565		.928		.155	

Table 20: Item-total statistics for Perceived Support subscale in the DSE course

Item-Total Statistics

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
5. Teacher education programmes prepare all teachers	10.0385	9.558	.486	.818
6. Districts provide support	10.8077	7.202	.781	.674
7. Adequate planning time provided to educators	10.1923	8.962	.581	.778
8. Districts provide professional development	10.8462	7.895	.658	.741

Table 21: Analysis of Perceived Support subscale in the DSE course

		Teacher education programmes prepare all teachers		Districts provide support		Adequate planning time provided to educators		Districts provide professional development	
		Pre	Final	Pre	Final	Pre	Final	Pre	Final
N	Valid	19	19	19	19	19	19	19	18
	Missing	0	0	0	0	0	0	0	1
Median		4,0000	4,0000	3,0000	3,0000	4,0000	4,0000	2,0000	2,0000
Range		4,00	3,00	4,00	3,00	4,00	3,00	4,00	4,00
Minimum		1,00	2,00	1,00	1,00	1,00	2,00	1,00	1,00
Maximum		5,00	5,00	5,00	4,00	5,00	5,00	5,00	5,00
Strongly agree		1 (5.3%)		1 (5.3%)	1 (5.3%)	1 (5.3%)	3 (15.8%)	1 (5.3%)	2 (11.1%)
Agree		3 (15.8%)	3 (15.8%)	7 (36.8%)	5 (26.3%)	3 (15.8%)	4 (21.1%)	9 (47.4%)	9 (50.0%)
Neutral		10 (52.6%)	2 (10.5%)	2 (10.5%)	4 (21.1%)	1 (5.3%)		2 (10.5%)	1 (5.6%)
Disagree		5 (26.3%)	9 (47.4%)	8 (42.1%)	9 (47.4%)	12 (63.2%)	10 (52.6%)	5 (26.3%)	4 (22.2%)
Strongly disagree			5 (26.3%)	1 (5.3%)		2 (10.5%)	2 (10.5%)	2 (10.5%)	2 (11.1%)
Wilcoxen z value		-.122		-.289		-.302		-.884	
Wilcoxen p value		.903		.773		.763		.377	

Table 22: Factor analysis of Indicators of Successful Inclusion Scale in the VI course

Rotated Component Matrix[a]

	Component		
	1	2	3
1. All learners to be educated in general education classroom	.804	.442	.014
2. Self-esteem improves	.866	.267	.019
3. Social skills improve	.842	.107	.011
4. Academic achievement increases	.725	-.275	.382
5. Teacher education programmes prepare all teachers	.115	.091	-.822
6. Districts provide support	.125	.878	-.265
7. Adequate planning time provided to educators	.321	.143	.752
8. Districts provide professional development	.192	.817	.355

Extraction method: Principal component analysis
Rotation method: Varimax with Kaiser normalization

[a]Rotation converged in 5 iterations

Table 23: Item-total statistics for Benefits for All subscale in the VI course

Item-Total Statistics

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
1. All learners to be educated in general education classroom	9.6818	6.608	.767	.783
2. Self-esteem improves	9.5455	6.641	.804	.766
3. Social skills improve	9.8182	7.013	.739	.795
4. Academic achievement increases	9.2727	9.160	.494	.887

Table 24: Analysis of Benefits for All subscale in the VI course

		All learners to be educated in general education classroom		Self-esteem improves		Social skills improve		Academic achievement increases	
		Pre	Final	Pre	Final	Pre	Final	Pre	Final
N	Valid	21	22	21	22	20	22	20	22
	Missing	1	0	1	0	2	0	2	0
Median		3	3.5	3	2.5	3	3	4	4
Range		4	4	4	4	4	4	3	4
Minimum		1	1	1	1	1	1	2	1
Maximum		5	5	5	5	5	5	5	5
Strongly agree		1	3	2	2	1	3		2
Agree		7	7	6	9	7	5	1	5
Neutral		4	1	3	2	3	6	7	3
Disagree		7	9	8	8	8	7	10	10
Strongly disagree		2	2	2	1	1	1	2	2
Wilcoxon z value		-.353		-.831		-.363		-1.687	
Wilcoxon p value		.724		.406		.717		.092	

Table 25: Item-total statistics for Perceived Support subscale in the VI course

Item-Total Statistics[a]

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
5. Teacher education programmes prepare all teachers	9.7917	6.520	-.060	.590
6. Districts provide support	10.1250	3.679	.576	-.171a
7. Adequate planning time provided to educators	9.6250	6.332	.041	.467
8. Districts provide professional development	9.8333	4.319	.387	.091

[a]The value is negative due to a negative average covariance among items. This violates reliability model assumptions. You may want to check item codings.

Table 26: Analysis of Perceived Support subscale in the VI course

		Teacher education programmes prepare all teachers		Districts provide support		Adequate planning time provided to educators		Districts provide professional development	
		Pre	Final	Pre	Final	Pre	Final	Pre	Final
N	Valid	20	22	20	22	21	22	21	22
	Missing	2	0	2	0	1	0	1	0
Median		4	4	3	4	4	4	4	4
Range		4	4	4	4	4	4	4	4
Minimum		1	1	1	1	1	1	1	1
Maximum		5	5	5	5	5	5	5	5
Strongly agree		3	3	3	4	1	1	2	1
Agree		4	3	5	5	4	5	5	6
Neutral				5	1	3		2	1
Disagree		11	9	5	9	9	12	9	12
Strongly disagree		2	7	2	3	4	4	3	2
Wilcoxen z value		-.676		-.350		-.035		-.273	
Wilcoxen p value		.499		.726		.972		.785	

Table 27: Factor analysis of Indicators of Successful Inclusion Scale in the DHH course

Rotated Component Matrix[a]

	Component	
	1	2
1. All learners to be educated in general education classroom	.918	.128
2. Self-esteem improves	.902	.094
3. Social skills improve	.830	.396
4. Academic achievement increases	.758	.499
5. Teacher education programmes prepare all teachers	.636	.223
6. Districts provide support	.343	.803
7. Adequate planning time provided to educators	.127	.885
8. Districts provide professional development	.201	.860

Extraction method: Principal component analysis
Rotation method: Varimax with Kaiser normalization

[a]Rotation converged in 3 iterations

Table 28: Item-total statistics for Benefits for All subscale in the DHH course

Item-Total Statistics

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
1. All learners to be educated in general education classroom	7.44	11.173	.826	.910
2. Self-esteem improves	7.12	11.027	.844	.904
3. Social skills improve	7.44	10.757	.894	.887
4. Academic achievement increases	7.28	11.627	.774	.927

Table 29: Analysis of Benefits for All subscale in DHH course

		All learners to be educated in general education classroom		Self-esteem improves		Social skills improve		Academic achievement increases	
		Pre	Final	Pre	Final	Pre	Final	Pre	Final
N	Valid	18	19	19	19	18	17	19	17
	Missing	1	0	0	0	1	2	0	2
Median		2	2	2	3	2	2	2	3
Range		3	3	3	4	3	4	3	4
Minimum		1	1	1	1	1	1	1	1
Maximum		4	4	4	5	4	5	4	5
Strongly agree		5 (27.8%)	5 (26.3%)	5 (26.3%)	1 (5.3%)	6 (33.3%)	2 (11.8%)	4 (21.1%)	1 (5.9%)
Agree		6 (33.3%)	6 (31.6%)	6 (31.6%)	5 (26.3%)	8 (44.4%)	9 (52.9%)	7 (36.8%)	5 (29.4%)
Neutral		3 (16.7%)	5 (26.3%)	3 (15.8%)	9 (47.4%)	1 (5.6%)	3 (17.6%)	4 (21.1%)	7 (41.2%)
Disagree		4 (22.2%)	3 (15.8%)	5 (26.3%)	3 (25.8%)	3 (16.7%)	2 (11.8%)	4 (21.1%)	3 (17.6%)
Strongly disagree					1 (5.3%)		1 (5.9%)		1 (5.3%)
Wilcoxon z value		.061		-1.897		-1.964		-1.812	
Wilcoxon p value		.951		.058		.050		.070	

Table 30: Item-total statistics for Perceived Support subscale in the DHH course

Item-Total Statistics				
	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
5. Teacher education programs prepare all teachers	9.680	9.477	.390	.852
6. Districts provide support	9.800	8.417	.724	.671
7. Adequate planning time provided to educators	9.520	8.260	.717	.672
8. Districts provide professional development	10.000	9.583	.611	.733

Table 31: Analysis of Perceived Support Subscale in DHH course

		Teacher education programmes prepare all teachers		Districts provide support		Adequate planning time provided to educators		Districts provide professional development	
		Pre	Final	Pre	Final	Pre	Final	Pre	Final
N	Valid	19	19	19	19	17	18	19	18
	Missing	0	0	0	0	2	1	0	1
Median		4	4	4	4	4	4	3	3
Range		4	4	4	4	4	4	4	4
Minimum		1	1	1	1	1	1	1	1
Maximum		5	5	5	5	5	5	5	4
Strongly agree		2 (10.5%)	4 (21.1%)	1 (5.3%)	1 (5.3%)	2 (11.8%)	2 (11.1%)	1 (5.3%)	1 (5.6%)
Agree		3 (15.8%)	2 (10.5%)	5 (26.3%)	4 (21.1%)	1 (5.9%)	1 (5.6%)	6 (31.6%)	6 (33.3%)
Neutral		1 (5.3%)	1 (5.3%)	3 (15.8%)	3 (15.8%)	3 (17.6%)	2 (11.1%)	7 (36.8%)	4 (22.2%)
Disagree		9 (47.4%)	9 (47.4%)	9 (47.4%)	8 (42.1%)	8 (47.1%)	8 (44.4%)	3 (15.8%)	7 (38.9%)
Strongly disagree		4 (21.1%)	3 (15.8%)	1 (5.2%)	3 (15.8%)	3 (17.6%)	5 (27.8%)	2 (10.5%)	
Wilcoxen z value		-.773		-.733		-1.134		.000	
Wilcoxen p value		.439		.463		.257		.100	

Table 32: Factor analysis of Indicators of Successful Inclusion Scale in combined analysis

Rotated Component Matrix[a]

	Component	
	1	2
1. All learners to be educated in general education classroom	.792	.222
2. Self-esteem improves	.910	.132
3. Social skills improve	.847	.209
4. Academic achievement increases	.817	.158
5. Teacher education programmes prepare all teachers	.151	.403
6. Districts provide support	.079	.863
7. Adequate planning time provided to educators	.170	.713
8. Districts provide professional development	.167	.803

Extraction method: Principal component analysis
Rotation method: Varimax with Kaiser normalization

[a]Rotation converged in 3 iterations

Table 33: Item-total statistics for Benefits for All subscale in combined analysis

Item-Total Statistics

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
1. All learners to be educated in general education classroom	8.20	9.903	.700	.875
2. Self-esteem improves	8.06	9.282	.843	.817
3. Social skills improve	8.42	10.047	.774	.846
4. Academic achievement increases	7.94	10.597	.697	.874

Table 34: Analysis of Benefits for All subscale in combined analysis

		All learners to be educated in general education classroom		Self-esteem improves		Social skills improve		Academic achievement increases	
		Pre	Final	Pre	Final	Pre	Final	Pre	Final
N	Valid	58	59	59	58	56	57	58	57
	Missing	1	0	0	1	3	2	1	2
Median		2	2	3	3	2	2	3	3
Range		4	4	4	4	4	4	4	4
Minimum		1	1	1	1	1	1	1	1
Maximum		5	5	5	5	5	5	5	5
Strongly agree		9 (15.5%)	15 (25.4%)	10 (16.9%)	7 (12.1%)	11 (19.6%)	12 (21.1%)	6 (10.3%)	4 (7%)
Agree		21 (36.2%)	19 (32.2%)	17 (28.8%)	21 (36.2%)	24 (42.9%)	21 (36.8%)	12 (20.7%)	21 (36.8%)
Neutral		8 (13.8%)	7 (11.9%)	8(13.6%)	12 (20.7%)	6 (10.7%)	9 (15.8%)	13 (22.4%)	11 (19.3%)
Disagree		16 (27.6%)	13 (22%)	22 (37.3%)	13 (22.4%)	14 (25%)	12 (21.1%)	25 (43.1%)	17 (29.8%)
Strongly disagree		4 (6.9%)	5 (8.5%)	2 (3.4%)	5 (8.6%)	1 (1.8%)	3 (5.3%)	2 (3.4%)	4 (7%)
Wilcoxon z value		-.906		-.109		-.854		-1.154	
Wilcoxon p value		.365		.913		.393		.249	

Table 35: Item-total statistics for Perceived Support subscale in combined analysis

Item-Total Statistics

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
5. Teacher education programmes prepare all teachers	9.84	8.352	.297	.770
6. Districts provide support	10.25	6.489	.690	.521
7. Adequate planning time provided to educators	9.79	7.765	.492	.651
8. Districts provide professional development	10.24	7.320	.546	.617

Table 36: Analysis of Perceived Support subscale in the VI course

		Teacher education programs prepare all teachers		Districts provide support		Adequate planning time provided to educators		Districts provide professional development	
		Pre	Final	Pre	Final	Pre	Final	Pre	Final
N	Valid	58	59	58	59	57	58	59	57
	Missing	1	0	1	0	2	1	0	2
Median		4	4	3	4	4	4	3	3
Range		4	4	4	4	4	4	4	4
Minimum		1	1	1	1	1	1	1	1
Maximum		5	5	5	5	5	5	5	5
Strongly agree		6 (10.3%)	7 (11.9%)	5 (8.6%)	6 (10.2%)	4 (7%)	3 (5.2%)	4 (6.8%)	4 (7%)
Agree		10 (17.2%)	8 (13.6%)	17 (29.3%)	14 (23.7%)	8 (14%)	9 (15.5%)	20 (33.9%)	21 (36.8%)
Neutral		1 (1.7%)	3 (5.1%)	10 (17.2%)	8 (13.6%)	7 (12.3%)	6 (10.3%)	11 (18.6%)	6 (10.5%)
Disagree		30 (51.7%)	27 (45.8%)	22 (17.2%)	25 (42.4%)	29 (50.9%)	30 (51.7%)	17 (28.8%)	22 (38.6%)
Strongly disagree		11 (19%)	14 (23.7%)	4 (6.9%)	6 (10.2%)	9 (15.8%)	10 (17.25%)	7 (11.9%)	4 (7%)
Wilcoxen z value		-.028		-.785		-.584		-.269	
Wilcoxen p value		.978		.432		.559		.788	

Table 37: Item-total statistics for the DSE learning outcomes survey

	Item-Total Statistics			
	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
1. Accessing education system	27.62	34.326	.676	.906
2. Curriculum adaptation	27.58	33.134	.696	.905
3. Communicating	26.92	39.434	.216	.926
4. Assistive devices and technology	27.35	34.475	.551	.914
5. Educational strategies	27.77	32.345	.824	.897
6. Assessment	27.54	33.138	.762	.901
7. Classroom management	27.77	32.105	.905	.892
8. Social and psychological support	27.50	33.860	.708	.904
9. Teacher support and development	27.50	33.940	.812	.899
10.SIAS	27.65	32.875	.688	.906

Table 38: Factor analysis of the DSE learning outcomes survey

Rotated Component Matrix[a]

	Component	
	1	2
1. Accessing education system	.759	.172
2. Curriculum adaptation	.862	.016
3. Communicating	-.140	.870
4. Assistive devices and technology	.368	.646
5. Educational strategies	.847	.265
6. Assessment	.800	.227
7. Classroom management	.817	.463
8. Social and psychological support	.468	.765
9. Teacher support and development	.764	.407
10.SIAS	.838	.033

Extraction method: Principal component analysis
Rotation Method: Varimax with Kaiser normalization

[a]Rotation converged in 3 iterations

Table 39: Analysis of Factor 1 in the DSE learning outcomes survey

		Accessing education system		Curriculum adaptation		Educational strategies	
		Pre	Final	Pre	Final	Pre	Final
N	Valid	19	19	19	19	19	18
	Missing	0	0	0	0	0	1
Median		3	3	3	3	3	2
Range		3	3	3	3	3	3
Minimum		1	1	1	1	1	1
Maximum		4	4	4	4	4	4
Very confident		1 (5.3%)	1 (5.3%)	1 (5.3%)	1 (5.3%)	2 (10.5%)	3 (16.7%)
Confident		5 (26.3%)	8 (42.1%)	7 (36.8%)	7 (36.8%)	7 (36.8%)	9 (50.0%)
Somewhat confident		10 (52.6%)	5 (26.3%)	5 (26.3%)	8 (42.1%)	7 (36.8%)	5 (27.8%)
Not at all confident		3 (15.8%)	5 (26.3%)	6 (31.6%)	3 (15.8%)	3 (15.8%)	1 (5.6%)
Wilcoxen z value		-.284		-.546		-1.461	
Wilcoxen p value		.776		.585		.144	

Table 40: Analysis of Factor 2 in the DSE learning outcomes survey

		Communicating		Assistive devices and technology		Social and psychological support	
		Pre	Final	Pre	Final	Pre	Final
N	Valid	19	19	19	19	19	17
	Missing	0	0	0	0	0	2
Median		4	3	3	3	3	2
Range		1	2	3	3	3	3
Minimum		3	2	1	1	1	1
Maximum		4	4	4	4	4	4
Very confident				2 (10.5%)	1 (5.3%)	1 (5.3%)	1 (5.9%)
Confident			3 (15.8%)	2 (10.5%)	5 (26.3%)	3 (15.8%)	9 (52.9%)
Somewhat confident		3 (15.8%)	8 (42.1%)	6 (31.6%)	9 (47.4%)	10 (52.6%)	3 (17.6%)
Not at all confident		16 (84.2%)	8 (42.1%)	9 (47.4%)	4 (21.1%)	5 (26.3%)	4 (23.5%)
Wilcoxen z value		-2.392		-1.103			
Wilcoxen p value		.017		.270			

Assessment		Classroom management		Teacher support and development		SIAS	
Pre	Final	Pre	Final	Pre	Final	Pre	Final
19	18	19	18	19	17	19	17
0	1	0	1	0	2	0	2
3	3	3	3	3	2	3	2
3	3	3	3	3	3	3	3
1	1	1	1	1	1	1	1
4	4	4	4	4	4	4	4
2 (10.5%)	1 (5.6%)	2 (10.5%)	2 (11.1%)	1 (5.3%)	2 (11.8%)	3 (15.8%)	2 (11.8%)
3 (15.8%)	6 (33.3%)	6 (31.6%)	5 (27.8%)	3 (15.8%)	9 (52.9%)	4 (21.1%)	10 (58.8%)
8 (42.1%)	8 (44.4%)	8 (42.1%)	9 (50.0%)	12 (63.2%)	3 (17.6%)	7 (36.8%)	2 (11.8%)
6 (31.6%)	3 (16.7%)	3 (15.8%)	2 (11.1%)	3 (15.8%)	3 (17.6%)	5 (26.3%)	3 (17.6%)
-.933		-.306		-2.673		-1.941	
.351		.760		.008		.052	

Table 41: Item-total statistics for the ID learning outcomes survey

Item-Total Statistics

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Pre SPID 1: Stages of development	14.96	8.758	.577	.799
Pre SPID 2: Support needs	14.92	9.034	.464	.814
Pre SPID 3: Implement activity	15.35	9.195	.519	.806
Pre SPID 4: Activities related to theme	15.23	9.545	.452	.813
Pre SPID 5: Laws/legislation	14.96	8.758	.669	.789
Pre SPID 6: Reporting abuse	15.12	9.626	.414	.818
Pre SPID 7: Positioning	15.08	8.714	.650	.790
Pre SPID 8: Discuss with parents	15.00	9.200	.575	.800
Pre SPID 9: Manage stress	15.08	9.434	.426	.817

Table 42: Factor analysis of the ID learning outcomes survey

Rotated Component Matrix[a]

	Component		
	1	2	3
1. Stages of development	.248	.774	.167
2. Support needs	-.026	.907	.178
3. Implement activity	.764	.106	.179
4. Activities related to theme	.780	-.133	.298
5. Laws/legislation	.353	.376	.611
6. Reporting abuse	.649	.389	-.144
7. Positioning	.383	.343	.603
8. Discuss with parents	.550	.394	.231
9. Manage stress	.021	.050	.966

Extraction method: Principal component analysis
Rotation method: Varimax with Kaiser normalization

[a]Rotation converged in 5 iterations

Table 43: Analysis of the ID learning outcomes survey

		Stages of development		Support needs		Implement activity		Activities related to a theme	
		Pre	Final	Pre	Final	Pre	Final	Pre	Final
N	Valid	26	27	26	27	26	26	25	27
	Missing	1	0	1	0	1	1	2	0
Median		2	2	2	2	2	2	2	2
Range		2	1	2	1	2	2	2	2
Minimum		1	1	1	1	1	1	1	1
Maximum		3	2	3	2	3	3	3	3
Strongly agree		3 (11.5%)	12 (44.4%)	3 (11.5%)	12 (44.4%)	9 (34.6%)	12 (46.2%)	8 (32%)	13 (48.1%)
Agree		18 (69.2%)	15 (55.6%)	17 (65.4%)	15 (55.6%)	16 (61.5%)	13 (48.1%)	16 (64%)	13 (48.1%)
Disagree		5 (19.2%)		6 (23.1%)		1 (3.8%)	1 (3.8%)	1 (4%)	1 (3.7%)
Strongly disagree									
Wilcoxen z value		-2.977		-2.862		-1.00		-1.265	
Wilcoxen p value		.003		.004		.317		.206	

Laws/legislation		Reporting abuse		Positioning		Discuss with parents		Managing stress	
Pre	Final	Pre	Final	Pre	Final	Pre	Final	Pre	Final
27	26	27	26	27	26	25	26	27	26
0	1	0	1	0	1	2	1	0	1
2	2	2	1	2	2	2	1	2	1.5
2	2	2	1	2	1	2	1	2	2
1	1	1	1	1	1	1	1	1	1
3	3	3	2	3	2	3	3	3	3
4 (14.8%)	11 (42.3%)	5 (18.5%)	14 (53.8%)	5 (18.5%)	12 (46.2%)	3 (12%)	14 (53.8%)	6 (22.2%)	13 (50.0%)
19 (70.4%)	14 (53.8%)	20 (74.1%)	12 (46.2%)	18 (66.7%)	14 (53.8%)	19 (76.0%)	12 (46.2%)	18 (66.7%)	12 (46.2%)
4 (14.8%)	1 (3.8%)	2 (7.4%)		4 (14.8%)		3 (12%)		3 (11.1%)	1 (3.8%)
-2.357		-.2840		-2.673		-3.00		-2.179	
.018		.005		.008		.003		.029	

Table 44: Item-total statistics for the VI learning outcomes survey

Item-Total Statistics

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
1. Understanding the nature of VI impairments	30.76	42.023	.633	.907
2. Understanding how VI impacts on learning	30.76	40.773	.795	.901
3. Classroom accommodations	30.80	38.167	.878	.895
4. Providing LTSM for VI learners	30.48	38.010	.824	.897
5. Teaching using the ECC	30.12	40.360	.555	.911
6. Adapting and differentiating the curriculum	30.68	37.893	.816	.897
7. Teaching using braille	30.20	43.333	.392	.916
8. Teaching using assistive technology	30.12	42.860	.460	.913
9. Assessing learning of VI learners	30.60	38.500	.776	.899
10. Providing emotional support to learners and families	31.08	40.743	.686	.904
11. Thinking about career pathways	30.68	41.143	.537	.911
12. Providing accessible sport and leisure activities	30.68	41.393	.512	.912

Table 45: Factor analysis of the VI learning outcomes survey

Rotated Component Matrix[a]

	Component		
	1	2	3
1. Understanding the nature of VI impairments	.848	.238	-.123
2. Understanding how VI impacts on learning	.523	.519	.442
3. Classroom accommodations	.671	.521	.347
4. Providing LTSM for VI learners	.883	.295	.156
5. Teaching using the ECC	.428	.351	.285
6. Adapting and differentiating the curriculum	.885	.185	.298
7. Teaching using braille	.124	.021	.908
8. Teaching using assistive technology	.203	.026	.901
9. Assessing learning of VI learners	.798	.170	.389
10.Providing emotional support to learners and families	.329	.881	.031
11.Thinking about career pathways	.085	.922	.109
12.Providing accessible sport and leisure activities	.299	.715	-.085

Extraction method: Principal component analysis
Rotation method: Varimax with Kaiser normalization

[a]Rotation converged in 5 iterations

Table 46: Analysis of pedagogical elements of teaching learners with VI (Factor 1)

		Nature of VI impairments		Impact of VI on learning		Classroom accommodations	
		Pre	Final	Pre	Final	Pre	Final
N	Valid	21	19	21	19	21	21
	Missing	0	2	0	2	0	0
Median		3	2	3	2	3	2
Range		3	2	2	2	3	2
Minimum		1	1	2	1	1	1
Maximum		4	3	4	3	4	3
Very confident		1 (4.8%)	5 (26.3%)		3 (15.8%)	1 (4.8%)	7 (33.3%)
Confident		7 (33.3%)	9 (47.4%)	8 (38.1%)	14 (73.7%)	9 (42.9%)	9 (42.9%)
Somewhat confident		12 (57.1%)	5 (26.3%)	11 (52.4%)	2 (10.5%)	7 (33.3%)	5 (23.8%)
Not at all confident		1 (4.8%)		2 (9.5%)		4 (19.0%)	
Wilcoxon z value		-2.392		-3.017		-3.087	
Wilcoxon p value		.017		.002		.002	

Table 47: Analysis of psychosocial support for learners with VI (Factor 2)

		Providing emotional support		Career pathways		Accessible sport and leisure activities	
		Pre	Final	Pre	Final	Pre	Final
N	Valid	21	21	21	21	21	21
	Missing	0	0	0	0	0	0
Median		2	2	3	2	3	2
Range		3	3	3	3	3	2
Minimum		1	1	1	1	1	1
Maximum		4	4	4	4	4	3
Very confident		3 (14.3%)	9 (42.9%)	2 (9.5%)	8 (38.1%)	33 (14.3%)	5 (23.8%)
Confident		9 (42.9%)	5 (23.8%)	5 (23.8%)	5 (23.8%)	4 (19.0%)	6 (28.6%)
Somewhat confident		8 (38.1%)	6 (28.6%)	10 (47.6%)	6 (28.6%)	11 (52.4%)	10 (47.6%)
Not at all confident		1 (4.8%)	1 (4.8%)	4 (19%)	2 (9.5%)	3 (14.3%)	
Wilcoxon z value		-1.890		-2.658		-1.998	
Wilcoxon p value		.059		.008		.046	

Providing LTSM		Teaching using the ECC		Curriculum adaptation and differentiation		Assessment	
Pre	Final	Pre	Final	Pre	Final	Pre	Final
21	21	21	20	21	21	21	
0	0	0	1	0	0	0	
3	2	4	2.5	3	2	3	2
3	2	4	3	3	2	3	3
1	1	1	1	1	1	1	1
4	3	4	4	4	3	4	4
2 (9.5%)	3 (14.3%)	1 (4.8%)	2 (10%)	2 (9.5%)	4 (19%)	1 (4.8%)	1 (4.8%)
4 (19%)	9 (42.9%)	2 (9.5%)	8 (40.0%)	7 (33.3%)	11 (52.4%)	8 (38.1%)	11 (52.4%)
9 (42.9%)	9 (42.9%)	7 (33.3%)	8 (40.0%)	7 (33.3%)	6 (28.6%)	6 (28.6%)	7 (33.3%)
6 (28.6%)		11 (52.4%)	2 (10.0%)	5 (23.8%)		6 (28.6%)	2 (9.5%)
-2.101		-2.534		-1.914		-1.698	
.036		.011		.056		.090	

Table 48: Analysis of impairment-specific teaching strategies for VI learners (Factor 3)

		Teaching using braille		Teaching using assistive technology	
		Pre	Final	Pre	Final
N	Valid	21	21	21	21
	Missing	0	0	0	0
Median		3	3	3	3
Range		2	3	2	2
Minimum		2	1	2	2
Maximum		4	4	4	4
Very confident			2 (9.5%)		
Confident		4 (19.0%)	6 (28.6%)	3 (14.3%)	6 (28.6%)
Somewhat confident		9 (42.9%)	5 (23.8%)	9 (42.9%)	10 (47.6%)
Not at all confident		8 (38.1%)	8 (38.1%)	9 (42.9%)	5 (23.8%)
Wilcoxon z value		-1.321		-1.658	
Wilcoxon p value		.186		.097	

Table 49: Item-total statistics for the DHH learning outcomes survey

Item-Total Statistics

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
1. Understanding the nature of being D/deaf or hard-of-hearing	31.56	85.423	.800	.940
2. Understanding how being D/deaf or hard-of-hearing impacts on learning	31.76	90.940	.655	.945
3. Understanding models of DHH education	31.48	84.927	.846	.939
4. Access resources and role models	31.44	84.507	.793	.941
5. Supporting families and caregivers through accessing resources	31.44	86.257	.820	.940
6. Supporting DHH learners in promoting language and literacy development	31.40	86.833	.771	.941
7. Implementing best practices for safety of DHH child	31.28	87.210	.839	.939
8. Making classroom accommodations for DHH learners	31.76	87.690	.740	.942
9. Providing LTSM for DHH learners	31.56	86.673	.764	.942
10. Adapting and differentiating the curriculum for DHH learners	31.48	88.927	.694	.944
11. Using assistive devices	31.36	93.157	.558	.948
12. Assessing DHH learners	31.44	89.423	.711	.943

Table 50: Factor analysis for the DHH learning outcomes survey

Rotated Component Matrix[a]

	Component	
	1	2
1. Understanding the nature of being D/deaf or hard-of-hearing	.770	.346
2. Understanding how being D/deaf or hard-of-hearing impacts on learning	.655	.283
3. Understanding models of DHH education	.651	.618
4. Access resources and role models	.733	.398
5. Supporting families and caregivers through accessing resources	.789	.352
6. Supporting DHH learners in promoting language and literacy development	.772	.308
7. Implementing best practices for safety of DHH child	.734	.469
8. Making classroom accommodations for DHH learners	.686	.386
9. Providing LTSM for DHH learners	.906	.075
10.Adapting and differentiating the curriculum for DHH learners	.776	.155
11.Using assistive devices	.146	.930
12.Assessing DHH learners	.358	.855

Extraction method: Principal component analysis
Rotation method: Varimax with Kaiser normalization

[a]Rotation converged in 3 iterations

Table 51 (continued): Analysis of the DHH learning outcomes survey

		The nature of being DHH		How DHH impacts on learning		Models of DHH education		Access resources and role models		Supporting families and learners	
		Pre	Final	Pre	Final	Pre	Final	Pre	Final	Pre	Final
N	Valid	19	18	19	18	19	18	19	19	19	19
	Missing	0	1	0	1	0	1	0	0	0	0
Median		3	2	3	2	3	2	3	2	3	2
Range		3	3	3	3	3	2	3	3	3	3
Minimum		1	1	1	1	1	1	1	1	1	1
Maximum		4	4	4	4	4	3	4	4	4	4
Very confident		3	3	2	3	2	2	2	4	2	4
		(15.8%)	(16.7%)	(10.5%)	(16.7%)	(10.5%)	(11.1%)	(10.5%)	(21.1%)	(10.5%)	(21.1%)
Confident		3	8	3	10	1	12	3	11	2	6
		(15.8%)	(44.4%)	(15.8%)	(55.6%)	(5.3%)	(66.7%)	(15.8%)	(57.9%)	(10.5%)	(31.6%)
Somewhat confident		5	6	11	3	9	4	6	3	9	8
		(26.3%)	(33.3%)	(57.9%)	(16.7%)	(47.4%)	(22.2%)	(31.6%)	(15.8%)	(47.4%)	(42.1%)
Not at all confident		8	1	3	2	7		8	1	6	1
		(42.1%)	(5.3%)	(15.8%)	(11.1%)	(36.8%)		(42.1%)	(5.3%)	(31.6%)	(5.3%)
Wilcoxon z value		-1.910		-1.965		-3.368		-2.512		-1.813	
Wilcoxon p value		.056		.049		.001		.012		.070	

Promoting language and literacy development		Best practices for safety		Classroom accommodations		Providing LTSM		Adapting and differentiating curriculum		Using assistive devices		Assessment	
Pre	Final	Pre	Final	Pre	Final	Pre	Final	Pre	Final	Pre	Final	Pre	Final
19	19	19	19	19	19	18	18	19	18	19	18	19	18
0	0	0	0	0	0	1	1	0	1	0	1	0	1
4	2	3	2	3	2	3	2	3	2	3	3	3	3
3	3	3	3	3	2	3	2	3	2	2	3	3	3
1	1	1	1	1	1	1	1	1	1	2	1	1	1
4	4	4	4	4	3	4	3	4	3	4	4	4	4
3	3	1	4	3	4	3	3	2	1		2	1	3
(15.8%)	(15.8%)	(5.3%)	(21.1%)	(15.8%)	(21.1%)	(16.7%)	(16.7%)	(10.5%)	(5.6%)		(11.1%)	(5.3%)	(16.7%)
1	9	3	6	5	12	4	10	3	10	4	5	4	5
(5.3%)	(47.4%)	(15.8%)	(31.6%)	(26.3%)	(63.2%)	(22.2%)	(55.6%)	(15.8%)	(55.6%)	(21.1%)	(27.8%)	(21.1%)	(27.8%)
5	6	6	8	6	3	4	5	6	7	6	9	5	9
(26.3%)	(31.6%)	(31.6%)	(42.1%)	(31.6%)	(15.8%)	(22.2%)	(27.8%)	(31.6%)	(38.9%)	(31.6%)	(50.0%)	(26.3%)	(50.0%)
10	1	9	1	5		7		8		9	2	9	1
(52.6%)	(5.3%)	(47.4%)	(5.3%)	(26.3%)		(38.9%)		(42.1%)		(47.4%)	(11.1%)	(47.4%)	(5.6%)
-2.655		-2.461		-2.581		-2.114		-2.144		-2.673		-2.166	
.008		.014		.010		.034		.032		.008		.030	

The Teacher Empowerment for Disability Inclusion (TEDI) project was developed in response to a call to address the exclusion and poor quality education of children with disabilities in South Africa, where the national prevalence rate of disability among school-aged children is between 2.6% and 10.8%. Its overarching aim is to empower teachers to provide quality education for learners with severe to profound disabilities through training that is focused on inclusivity, diversity and addressing learners' impairment-specific needs. In doing this, TEDI developed four short, face-to-face courses, and four accompanying online courses (MOOCs) for educators. This report focuses on the four face-to-face courses: Disability Studies in Education, Education and Care of Learners with Severe to Profound Intellectual Disability, Teaching Learners with Visual Impairment, and Navigating D/deaf and Hard-of-Hearing Education: Empowering Teachers.

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Project co-funded by the European Union