

# **The effect of training Early Childhood Development Practitioners on the principles of UDL to adapt lesson plans for children with communication impairments in the Communication ELDA of the National Curriculum Framework**

by

**Nomaswazi Zandile Hlatshwayo**  
Student no: 11359758

**A mini-dissertation submitted in partial fulfilment of the requirements for the degree**

**Master's in Augmentative and Alternative Communication**

**in the Centre for Augmentative and Alternative Communication**

**UNIVERSITY OF PRETORIA**

**FACULTY OF HUMANITIES**

**SUPERVISOR: Prof A. Samuels**

**August 2023**  
**UNIVERSITY OF PRETORIA**

## DECLARATION OF ORIGINALITY

This document must be signed and submitted with every essay, report, project, assignment, dissertation and/or thesis.

Full names of student: Nomaswazi Zandile Hlatshwayo

Student number: 11359758

### Declaration

1. I understand what plagiarism is and am aware of the University's policy in this regard.
2. I declare that this dissertation is my own original work. Where other people's work has been used (either from a printed source, Internet, or any other source), this has been properly acknowledged and referenced in accordance with departmental requirements.
3. I have not used work previously produced by another student or any other person to hand in as my own.
4. I have not allowed, and will not allow, anyone to copy my work with the intention of passing it off as his or her own work.

SIGNATURE OF STUDENT: N.Z. Hlatshwayo

SIGNATURE OF SUPERVISOR: 

## ETHICS STATEMENT

The author, whose name appears on the title page of this dissertation, has obtained, for the research described in this work, the applicable research ethics approval.

The author declares that he/she has observed the ethical standards required in terms of the University of Pretoria's Code of ethics for researchers and the Policy guidelines for responsible research.

## ACKNOWLEDGEMENTS

I would like to express my most sincere gratitude to my supervisor (Professor A. Samuels) for her invaluable support and guidance throughout this research project. Her knowledge, expertise, and feedback played a crucial role in helping me complete this project. This journey would have also not been possible without the support, knowledge, and feedback from the Centre for Augmentative and Alternative Communication master's programme coordinator and classmates.

I would also like to thank Anita Bowers from the Early Childhood Development unit in the Northern Cape Department of Education for all the valuable resources and support she provided.

I would also like to give a special thanks to my family and close friends for their love, continuous support, and understanding during this process. Without their encouragement and motivation, I would have not been able to persevere.

Finally, I would like to extend my gratitude to all the participants in my study for their time and willingness to share their knowledge and experiences. This project would not have been possible without their contributions.

## ABSTRACT

**Background:** The understanding that the early years in a child's life are crucial for laying a foundation for development and learning has led to a drive to ensure that all children need to access Early Childhood Development (ECD) services worldwide. In South Africa, the ECD sector is considered important and is responded to by the Department of Education (DoE), the Department of Health, and the Department of Social Development (DSD) through their various policies and services. Access to ECD services, however, remains a challenge for children with disabilities in this country and this can be attributed to the lack of interdepartmental collaborations and the lack of explicit guidelines in policies catering for children with disabilities. Access to Early Childhood Education (ECE) for children with disabilities, especially those with communication impairments, remains one of the biggest challenges within the ECD sector in South Africa. These challenges are in relation to the lack of explicit guidelines to guide ECE practitioners to accommodate children with disabilities within the Early Learning and Development Areas (ELDAs) of the National Curriculum Framework (NCF) policy and the lack of training for ECE practitioners. Universal Design for Learning (UDL) is a suggested framework to address the lack of flexibility in curricula in order to cater for learner diversity. This framework has also been proven to improve inclusivity when educators were trained on the implementation thereof.

This study, therefore aims to evaluate the effectiveness of UDL training on ECE practitioners' adapted lesson planning in the communication ELDA of the NCF policy for children with communication impairments.

**Methods:** A single-case pretest-posttest study was conducted with a group of seven ECE practitioners. Participants were required to write a lesson plan to accommodate children with communication impairments before and after the UDL training. The two lesson plans were then scored and compared to measure the effectiveness of the UDL training.

**Results:** The results of this study indicated that there was a statistical significance between the overall scores of the participants based on their pretest and posttest lesson plans.

**Conclusions:** UDL training can make a substantial difference in enabling ECE practitioners to adapt lesson plans in the communication ELDA of the NCF policy to accommodate children with communication impairments.

**Keywords:** children with communication impairments, children with disabilities, communication ELDA, diversity, Early Childhood Development (ECD), Early Childhood Education (ECE), inclusion, National Curriculum Framework (NCF), Universal Design for Learning (UDL)

## TABLE OF CONTENTS

DECLARATION OF ORIGINALITY .....	i
ETHICS STATEMENT.....	ii
ACKNOWLEDGEMENTS .....	iii
ABSTRACT.....	iv
LIST OF ABBREVIATIONS.....	vii
LIST OF TABLES.....	viii
LIST OF FIGURES .....	viii
LIST OF APPENDICES.....	ix
1. PROBLEM STATEMENT AND LITERATURE REVIEW.....	1
1.1 Problem Statement.....	1
1.2 Literature Review.....	4
1.2.1 Early childhood development.....	4
1.2.2 Early childhood education.....	5
1.2.3 Curriculum .....	5
1.2.4 NCF for children from birth to four-years old .....	6
1.2.5 Children with disabilities and their participation in ECE .....	7
1.2.6 Language development for school readiness .....	10
1.2.7 UDL framework .....	10
2. METHODOLOGY .....	16
2.1 Aims.....	16
2.1.1 Main aim .....	16
2.1.2 Sub-aims.....	16
2.2 Research Design and Phases.....	16
2.2.1 Instrument development.....	18
2.3 Pilot Study.....	23
2.4 Main Study.....	26
2.4.1 Participants .....	26

2.5	Materials and Equipment .....	28
2.6	Procedures.....	29
2.6.1	Data collection.....	29
2.6.2	Data analysis .....	32
2.6.3	Reliability and validity .....	32
2.7	Ethical Issues .....	33
3.	RESULTS.....	34
4.	Discussion.....	36
5.	CONCLUSIONS AND RECOMMENDATIONS.....	38
5.1	Summary of Main Findings .....	38
5.2	Implications for Practice .....	38
5.3	Critical Evaluation of the Study.....	39
5.3.1	Strengths.....	39
5.3.2	Limitations .....	40
5.4	Recommendations for Further Studies.....	40
	REFERENCES .....	41

## LIST OF ABBREVIATIONS

- AAC - Augmentative and Alternative Communication  
DoBE - Department of Basic Education  
DoE - Department of Education  
DSD - Department of Social Development  
ECD - Early Childhood Development  
ECE - Early Childhood Education  
ELDA - Early Learning and Developmental Area  
NCF - South African National Curriculum Framework  
NDP - National Development Plan  
NQF – National Qualification Framework  
SIAS – Screening, Identification, Assessment, and Support  
UDL - Universal Design for Learning

## LIST OF TABLES

Table 1	Scoring rubric	22
Table 2	Pilot study aims, materials, procedures, results, and recommendations	23
Table 3	Participant selection criteria	25
Table 4	Description of participants	27
Table 5	Mean and standard deviations of participants UDL adaptation pre-test and post-test scores for each UDL principle	33

## LIST OF FIGURES

Figure 1	Phases of the study	17
----------	---------------------	----

## LIST OF APPENDICES

Appendix A	Letter of ethical clearance	50
Appendix B	ECD permission letters	52
Appendix C	Practitioner permission letter	59
Appendix D	Biographical questionnaire	63
Appendix E	Pre-test/post-test basic lesson plan template	67
Appendix F	Pre-test case study	71
Appendix G	Post-test case study	73
Appendix H	UDL training manual	75
Appendix I	UDL training PowerPoint presentation	78
Appendix J	Procedural checklist	80
Appendix K	Scoring rubric	85
Appendix L	The South African National Curriculum Framework for children from birth to four years	87
Appendix M	Declaration of language editing	89

## 1. PROBLEM STATEMENT AND LITERATURE REVIEW

### 1.1 Problem Statement

Early Childhood Development (ECD) is recognised as one of the crucial areas of a young child's development. ECD refers to the first phase of human development which occurs from conception to the age of six to seven years, whereby cognitive, language, physical, and socio-emotional development occurs (Naudeu et al., 2010). During this phase, the foundation upon which future development builds, is established (Storbeck & Moodley, 2011). Therefore, it is crucial that all children have equal access to ECD services that promote early development and that each child's needs are acknowledged and met during this period (Storbeck & Moodley, 2011).

In realising and acknowledging the importance of ECD, the South African government assigned the responsibility of service provision for ECD to three national departments, namely the Department of Health, the Department of Education (DoE), and the Department of Social Development (DSD). Of these three departments, the DoE is the primary department that directs Early Childhood Education (ECE) through its various policies (Storbeck & Moodley, 2011), legislature, and curricula. The South African National Curriculum Framework (NCF) (Department of Basic Education [DoBE], 2015) for children from birth to four years is a policy that guides the provision of ECE services.

The South African constitution advocates for the protection of the rights of populations considered to be vulnerable; children and people with disabilities are among those considered vulnerable (Dada et al., 2017). The South African constitution also promotes the inclusion of children with disability in education, and it does so through Education White Paper 6 Special Needs Education which promotes inclusive education (Department of Education [DoE], 2001). The Education White Paper 6 is a policy that was intended to provide a framework on how inclusive education was to be established in the South African education system to support the inclusion of children with disabilities from Grade 0 to 12 (DoE, 2001). Although it originally did not include the ECE system, since 2022 the ECE has moved from the Ministry of Social Development to the DoE. However, despite an inclusive constitution and policies, children with disabilities still experience barriers to educational inclusion in South Africa (Dada et al., 2017).

Policy implementation has been identified as a challenge to the inclusion of children with disabilities in education (Philpott & Muthukrishna, 2019). This is due to a lack of clear

guidelines on how to implement inclusive education (Donohue & Bornman, 2014). This is evident in the NCF; the curriculum lacks clear guidelines on how ECE should be facilitated for children with disabilities and implies that the curriculum is not inclusive from a practical perspective and that learning may not be facilitated appropriately for children with disabilities (Sibiya, 2021), including those with communication impairment.

ECE practitioners are tasked with promoting early development and learning in ECE environments (Han & Degotardi, 2021). One of the critical developmental areas that ECE practitioners are responsible for is language and communication development. According to Han and Degotardi (2021), language development is rapid during the first two years of life. By age three, the competency of language and communication predetermines academic outcomes during the early years of schooling. When children with disabilities, particularly those with communication impairments, get limited stimulation and instruction of their language, they are more at risk of missing an opportunity to develop language skills related to literacy and early reading (Kaderavek et al., 2019). Therefore, the inclusion of children with communication impairments in ECE is necessary to facilitate the development of language and communication skills. This also means that curricula should have practical guidelines that will assist ECE practitioners with the knowledge and skills that will guide them to include learners with communication impairments in the ECE environment.

There is also a lack of training for ECE practitioners on the early identification and intervention of children with disabilities (Smit et al., 2021). In situations where training is given, practitioners struggle to apply their knowledge practically in the classroom (Inclusive Education South Africa [IESA], 2020). Therefore, the NCF and other ECE policies in South Africa should give ECE practitioners guidance on how to practically include children with disabilities. A recent analysis of the NCF undertaken by Sibiya (2021) reveals a significant deficit in this regard. Children with communication impairments will require specific adaptations to the curriculum for ECE practitioners to assist children with disabilities to participate in the preschool environment and the NCF. In addition to the NCF, there appears to be little guidance in any other related policy documents that give ECE practitioners the knowledge and skills to facilitate access to the early childhood curriculum for children with disabilities and more specifically, those with communication impairments.

The Universal Design for Learning (UDL) framework (CAST, 2011) is a model that aims to assist those who plan lessons and curricula to meet the needs of all learners and reduce barriers to learning. The framework promotes flexible instructional methods to accommodate a variety of learning differences.

The principles and guidelines of this framework can potentially be used to support ECE practitioners in practically implementing the NCF with children with disabilities and thus, assist this population to be included in early childhood education settings and participate in a developmentally-enhancing curriculum. There are examples of the UDL framework being implemented successfully in training educators on how to implement UDL in formal education settings (Spooner et al., 2007; Unluol Unal et al., 2022). The focus of these UDL trainings was how educators could adapt their lesson plans in terms of UDL principles. These studies, however, did not focus on the early childhood education environment or the training of ECE practitioners on how to adapt the early childhood curriculum for young children with disabilities.

Furthermore, the literature on UDL to adapt the curriculum is sparse and even more so in South Africa. Recent work undertaken by Sibiya (2021) in a master's dissertation is only one known example where the early childhood curriculum in South Africa was examined in relation to the principles of UDL. The study by Sibiya (2021) analysed the extent to which the UDL framework could be incorporated into the NCF. It did not, however, explore whether ECE practitioners could be taught how to incorporate the principles into their curriculum lesson plans. One of the challenges identified by Visser et al. (2021) concerning the practical implementation of ECE, is the absence of practitioner devised lesson plans with specific activities and the inability to accommodate learners with developmental delays. Another study on professional development needs in ECE, identified the need for ECE practitioners to receive training to develop appropriate lesson plans (Milton et al., 2020).

Therefore, the purpose of this study is to determine the effects of training ECE practitioners on the principles of UDL to enhance their ability to adapt lesson plans for children with communication impairments to participate in the communication Early Learning and Development Area (ELDA) of the NCF.

## 1.2 Literature Review

### 1.2.1 *Early childhood development*

ECD is a term that describes a process through which a child grows physically, mentally, emotionally, spiritually, morally, and socially (DoE, 2001). During this developmental process, skills that are crucial for laying a solid foundation for future development (Storbeck & Moodley, 2011) and school readiness (Groark et al., 2007), emerge. These skills include: sensorimotor; cognitive; language; and socio-emotional functioning (Engle & Black, 2008).

Globally, there has been an emphasis on the importance of the early years in a child's life. This is mainly due to an understanding that the brain is fast-developing and responsive to the environment in the early years (Richter et al., 2019). This understanding is acknowledged in South Africa through the National Development Plan (Republic of South Africa[RSA], 2012). One of the goals that the South African National Planning Commission (NPC) has set out in the National Development Plan is to ensure access to quality ECD services for young children (RSA, 2012). Three South African national departments (health, education, and social development) play essential roles in promoting ECD through their services and various policies (Storbeck & Moodley, 2011).

The role of the Department of Health in ECD is to provide services and interventions that are family-centred to ensure that key family members have a positive impact on a child's health (Storbeck & Moodley, 2011). The role of the DSD in ECD includes the protection of children's rights, administration of child support grants, and psychosocial support services among other services related to child protection (Karisa et al., 2022). Before the year 2019, the DSD also had a responsibility in monitoring ECD centres which primarily focus on ECE. The focus of the DSD with regard to ECD centres, however, only focused on monitoring ECD facilities rather than the implementation of quality ECE services and programmes (Karisa et al., 2022). This function has since migrated to the Department of Basic Education (DoBE), and the role of the DoBE is to ensure access to standardised, improved, and inclusive ECE services for all children through curriculum implementation (Karisa et al., 2022). These three key departments promote ECD through their policies and service provision (Storbeck & Moodley, 2011); however, a lack of inter-sectoral collaboration between these three sectors that are responsible for the development of children with disabilities and special support needs have been identified as a barrier in the provision of services for children with disabilities (Samuels et al., 2020).

ECE services are among those affected by the lack of inter-sectoral collaboration between the DoH and DoBE (Samuels et al., 2020).

### **1.2.2 Early childhood education**

In modern-day society, young children regularly attend early childhood care and education institutions. In these institutions, early childhood educators assume the roles and responsibilities of promoting all children's development and learning (Han & Degotardi, 2021). In addition to promoting development and learning, these educators also have a role in identifying and preventing developmental delays and preparing children for formal schooling. They do this through planned educational programmes (Smit et al., 2021). In South Africa, early childhood educators are referred to as ECD practitioners. An ECD practitioner is referred to as an individual qualified and trained to provide early education services in homes and ECD centres (DoBE, 2015).

ECE takes place in ECD centres in the South African context. Prior to the migration of the ECD functions to the DoBE, ECD centres were the responsibility of the DSD and were subject to registration with the DSD based on the health and safety conditions of the facility (Aina & Bipath, 2022). Since the migration, the DoBE is now responsible for the provision of ECE services to children from birth to four-year old through the NCF policy in these ECD centres (Karisa et al., 2022). The NCF policy guides the implementation of ECE by providing a curriculum framework to be followed by ECD practitioners to implement early learning services to children from birth to four years (DoBE, 2015).

### **1.2.3 Curriculum**

In early childhood literature, the term 'curriculum' generally refers to a planned educational programme that aims to improve a learner's knowledge and skills across different developmental areas through goals, content, and resources (UNESCO, 2004).

The curriculum in ECE also refers to a plan for children's activities and experiences supporting self-initiated learning (Chazan-Cohen et al., 2017). This term emphasises that a child is born ready to explore the environment and that the planned activities and the support provided by ECE practitioners should be driven by this perception (Chazan-Cohen et al., 2017).

The curriculum aims to carry out the 'educational plan' through goals, content, resources, and assessment methods. These goals, content, resources, and assessment methods are broadly categorised into the curriculum's 'what', 'how', and 'why'. The 'what' refers to

the planned activities that intend to support and extend learning, the materials required to participate in the activities, and the environment that is conducive to engagement and exploration (Chazan-Cohen et al., 2017). This is operationalised as a lesson plan. A lesson plan is an educator's guide on what learners need to learn daily. This plan entails the objectives, material, procedures, and assessment methods (Stauffer, 2019) for each activity that is to be implemented by an ECE practitioner (Chalk, 2021). The 'how' refers to the methods used by the ECE practitioners to implement activities and provide support to children to facilitate their engagement in the activities (Chazan-Cohen et al., 2017), such as using props and pictures during the lesson. Furthermore, the 'why' refers to the goals and objectives of the curriculum and is supported by the underlying theories of child development (Chazan-Cohen et al., 2017), such as experiential or play-based learning (UNESCO, 2004). The DoBE in South Africa carries out its role in providing early childhood educational services with guidance from policies and curricula to ensure learning and access to education for all. The NCF for children from birth to four-years old is a curriculum that guides ECE in South Africa (DoBE, 2015).

#### ***1.2.4 NCF for children from birth to four-years old***

The NCF (DoBE, 2015) for children from birth to four-years old is a curriculum developed for early childhood development in South Africa. This curriculum aims to improve the quality of education for children from birth to the age of four and to ensure that these children have access to quality ECE services (DoBE, 2015).

Globally, there has been an acknowledgement of the importance of the first 1000 days and early years of a child's life. This is a sensitive period for the development of children. For this reason, there has been a global trend in supporting early learning and development of children during these years (DoBE, 2015).

In response to this global trend, the South African DoBE developed the NCF policy in the year 2015. The aim of this policy is to guide ECE practitioners to facilitate the development of children's knowledge, skills, attitudes, and behaviours for learning. In addition to guiding ECE practitioners in facilitating and supporting child development, the policy aims to prepare children for formal schooling (Grade R to 12). The NCF also interlinks with the National Curriculum and Assessment Statement Policy which is a policy that guides curriculum programmes for learners from Grade R to 12 (DoBE, 2015).

The NCF is arranged into six ELDAs, namely well-being; identity and belonging; communication; exploring mathematics; creativity; and knowledge and understanding of the

world (DoBE, 2015). Each ELDA is further organised into developmental activities according to four broad age or developmental categories: beginning (which covers activities for children from birth to 18 months); moving on (activities for toddlers from 18 to 36 months); advancing further (activities for young children from three to four years); and towards Grade R (activities for young children from four years onwards advancing to Grade R in the foundation phase of education) (DoBE, 2015). Grade R marks the beginning of formal education in the South African education system.

For children with communication impairments, the communication ELDA has relevance in that the communication ELDA intends to enable children to listen and make meaning of what they hear, communicate with others using various communication methods, develop early literacy skills, and to record their ideas and experiences through language (DoBE, 2015). These are the objectives of the ELDA and are recorded as aims in the NCF. These objectives respond to the ‘why’ of the curriculum. Within each aim of the communication ELDA, examples of activities that can be carried out by ECE practitioners and broad assessment guidelines are outlined. These activities respond to the ‘how’ of the curriculum (DoBE, 2015). The communication ELDA currently lacks details on how each activity is to be planned, the materials required and clear assessment methods required for each objective to be met. In other words, the communication ELDA within the NCF does not outline the ‘how’ of the curriculum. This will have implications in the NCF’s ability to guide ECE practitioners in developing lesson plans. The NCF lacks clear guidelines on how activities are to be carried out or the assessment methods to be used for learners with communication impairments. Sibiya’s (2021) study on the extent to which the NCF accommodated children with disabilities, has also alluded to the NCF’s gaps in detailing how ECE practitioners can successfully accommodate children with disabilities.

The NCF’s limitations in supporting children with disabilities may result in restricted participation in ECE for children with disabilities.

### ***1.2.5 Children with disabilities and their participation in ECE***

The International Classification of Functioning, Disability, and Health–Children and Youth (ICF-CY) (World Health Organization, 2007) is a health and disability framework that considers the effects of social factors as causal factors of disability. According to this framework, how the environment is structured and its functions, may lead to restrictions in participation for children with disabilities.

Some of the environmental factors that may lead to participation restrictions in children include: the attitudes and support of the individuals in that environment and the policies and services in that environment (Chien et al., 2017).

According to the ICF-CY framework, participation refers to an individual's involvement in life situations such as learning activities in education and vocational activities (World Health Organization, 2007). In the context of early childhood education; for a child with a disability to participate in the ECE curriculum, they must be supported to actively explore the environment in ways that are developmentally and contextually appropriate and they must be actively involved and engaged in the classroom activities (Castro et al., 2017). When the environment, such as the preschool or early childhood education environment is not set up to accommodate children with disabilities, a restriction in participation is most likely to be experienced (World Health Organization, 2007).

#### ***1.2.5.1 Children 0-4 years with disabilities in South Africa's participation in ECE***

According to the 2017 statistics, South Africa had nearly 7 million children aged between 0-5 years old (Hall et al., 2019). Furthermore, an estimated total of 2.4 million children accessed early learning programmes, while approximately 3.2 million children did not access any programmes related to early learning in the year 2017 (Ilifa Labantwana, 2022). In their 2012 report, the DSD, the Department of Women, Children, and People with Disabilities and UNICEF reported an estimated 243 000 children with disabilities in the age group 0–4 years. This was the last date on record where estimates for children with disabilities under the age of five years in South Africa were reported. Post 2012, there are no recent records found on children with disabilities. In 2018, more than one million children in South Africa aged three to five years old were not accessing ECD centres. Currently, little is known about access to ECD services for children with disabilities (Karisa et al., 2022).

Barriers to children with disabilities accessing ECD services in SA include, among others; the absence of practical guidelines in educational policies for the implementation of intervention programmes for children with disabilities (Karisa et al., 2022), lack of skills by practitioners to practically implement teaching for children who experience barriers to learning (IESA, 2020), and a lack of practical guidelines on adapting the NCF for children with disabilities (Sibiya, 2021).

This takes place within the context of the DoE that advocates for inclusive education through its legislature, policies, and curricula (Philpott & Muthukrishna, 2019). The objective of the South African NCF for children from birth to four years is to provide quality education

for all children regardless of their ability (DoE, 2015), and children with disabilities are mentioned explicitly in this document as needing to access ECD settings and the NCF. However, there appears to be a lack of clear guidelines on how children with disabilities should be supported to promote their development and early learning and because of this, it can be anticipated that children with disabilities may not experience participation in the NCF curriculum to the same extent as children without disabilities. Inclusive Education South Africa (IESA), a non-governmental organisation that advocates for the educational inclusion of children with disabilities, has reported that many ECE practitioners lack the skills to include young children with disabilities (IESA, 2020). In addition, even if they have received formal training and knowledge of children with disabilities, they still tend to experience a mismatch between their knowledge and practical implementation.

Considering the lack of clear guidelines to facilitate an inclusive ECE environment in the NCF policy and the lack of formal training and knowledge by ECE practitioners, children with communication impairments can also be expected to experience barriers to participation in the NCF curriculum.

#### ***1.2.5.2 Children with communication impairment in ECE***

A communication impairment or disorder refers to the inability to express or comprehend speech and/or language. Communication impairments range in severity and may be developmental or acquired (ASHA, 1993). A communication impairment often restricts participation in daily activities that require communication, such as social engagement, learning, and development (Beukelman & Mirenda, 2020) as well as participation in education. The presence of a communication impairment results in a child having difficulties following instructions, answering questions, sharing ideas, and initiating conversations (Deeg et al., 2020) and may also lead to the risk of developing learning difficulties by the time the child reaches school-going age (Nelson et al., 2006). Children with severe communication difficulties, such as cerebral palsy, Down syndrome, Autism Spectrum Disorder, intellectual disability (Beukelman & Mirenda, 2020) and hearing loss (Storbeck & Moodley, 2011) will experience difficulty accessing the early childhood curriculum, especially in the communication ELDA which requires children to show competence in comprehending language, expressing themselves through communication, and developing pre-literacy skills. Limitations in accessing the communication ELDA of the NCF will presumably affect early language development and later on academic performance.

### ***1.2.6 Language development for school readiness***

Since one of the directives for ECE is school readiness, ECE practitioners need to ensure that the language development of all children is supported accordingly. Skills related to reading and literacy are fundamental to academic achievement and success in education, and these skills stem from early language development (Kaderavek et al., 2019). The development of language skills, such as accumulated vocabulary, perception of sound characteristics, and the knowledge of rules governing the construction of words and sentences are predictors of reading abilities (Boivin & Bierman, 2013). Since early language development forms an essential part of school readiness, the ECD policies and curricula should provide guidelines that will equip ECD providers with practical skills to support language development for all children.

The South African NCF for children from birth to four years aims to provide guidelines for promoting and supporting language development through the communication ELDA. The communication ELDA aims to promote the learning and development of the following skills: listening skills; expressive communication; and pre-literacy skills. Children with communication disabilities and special needs have the right to be supported (DoE, 2015). Adults should pay attention to and promote language in different modalities. The NCF, however, does not have practical guidelines and activities within the communication ELDA that are suitable for children with communication disabilities. For example, Sibiya (2021) found that the NCF acknowledges the importance of children with disabilities being able to participate in the curriculum, however, does not provide practitioners with sufficient practical guidelines on how this should be undertaken. This, therefore, means that ECE practitioners that follow the NCF will most likely not be able to support children with communication impairments and they are at risk of not participating in this language and literacy enhancing component of the NCF. However, children with communication impairments could be given the opportunity to access and participate in the communication ELDA through various adaptations to facilitate their participation. The UDL framework can be used for this purpose.

### ***1.2.7 UDL framework***

The UDL is a framework that guides the design and development of flexible curricula and caters to students with and without disabilities. It aims to address the diversity of learners

by suggesting goals, methods, material, and flexible assessments. Three primary principles guide the UDL: the provision of multiple means of representation; provision of multiple means of action and expression; and provision of multiple means of engagement (CAST, 2011).

According to Mavrou & Symeonidou (2014), an inclusive curriculum should respond to learner diversity in terms of the goals, methods, materials, and assessment and should not leave educators with unclear guidelines on the practicality of responding to learner diversity in a real-life classroom situation. The three principles of the UDL framework guide the curriculum's design of the 'what', 'how', and 'why' (i.e., the goals, methods, material, and assessment) to create an inclusive curriculum. The provision of multiple means of presentation addresses the 'what' of the curriculum. Information should be presented through multiple methods to support the different abilities of the learners and their comprehension of the content. The provision of multiple means of action and expressions directs the 'how' of the curriculum. Learners with disabilities may require different methods of navigating and responding to the curriculum; therefore, provision must be made to ensure that they navigate and give feedback on the curriculum. The principle of the provision of multiple means of engagement addresses the 'why' of the curriculum. Learners may not necessarily engage in the same way; provisions on the different methods of engagement that may be suitable for different learners must be made to motivate learning (CAST, 2011).

The Education White Paper 6: Special Needs Education: Building an Inclusive Education and Training System policy gives guidance on establishing an inclusive education system in South Africa's formal education from Grade R through to Grade 12 (DoE, 2001). This policy highlights two important factors that must be considered in order to establish an inclusive education system; first is the early identification of barriers to learning and planning support programmes to address barriers by following the Screening, Identification, Assessment, and Support (SIAS) (DoBE, 2008). The second factor relates to the differentiation of the curriculum to address learner diversity in classrooms (McKenzie & Dalton, 2020). In addition to outlining the early identification of barriers and planning support programmes, the SIAS policy further states that learners should be supported in their current education contexts (DoBE, 2008). The policy on guidelines to responding to learner diversity through curriculum and assessment policy statements in the classroom further states that education environments should ensure that all learners access the same curriculum and that the curriculum is carried out through a variety of methods to ensure that all learners are catered for and accommodated (DoBE, 2011). With the movement of ECE to the DoE in

2019, the SIAS policy has not been updated or adapted for a younger population, which is young children with barriers to learning in ECE. In order to ensure that the NCF caters for a diverse group of learners, it would have to be designed to support all the different learning needs of young children (0–4 years), especially those with disabilities and the UDL framework is said to be effective in designing such curricula (McKenzie & Dalton, 2020).

Although other approaches and frameworks such as the embedded instruction have been recommended to promote the participation of children with disabilities in early childhood education contexts through the provision of learning opportunities within the child's routine and activities (Gulboy, 2023); the UDL framework not only provides guidelines to provide learning opportunities for all learners, but also assists in identifying barriers in existing curricula (CAST, 2011), and this has already been done for the NCF by Sibiya (2021). The UDL framework also entails detailed practical guidelines that are in line with Augmentative and Alternative Communication (AAC) intervention which is suitable for children with communication impairments.

### ***1.2.7.1 Augmentative and Alternative Communication***

Augmentative and Alternative Communications (AAC) refers to strategies and technologies that attempt to augment or provide an alternative model for a temporary or permanent loss of speech and language (Beukelman & Mirenda, 2020). There is a need for AAC strategies to be incorporated into ECD practice to make provision and support children with communication impairments language development. The incorporation of AAC into the educational environment has been found to enable the participation of children with communication barriers and provide an alternative way for children to express themselves (Deliberato & Nunes, 2015).

AAC can be used to target all the UDL principles I and II, which is the provision of multiple means of representation and the provision of multiple means of action and expression. According to CAST (2011), there must be multiple means of representation of information to cater to the different ways learners perceive information. Examples include visual symbols for text; AAC strategies may be suitable for this. The provision of multiple means of expression means that learners with language barriers should be able to express themselves using multiple modalities (CAST, 2011).

AAC can be used to address the principle of multiple modalities since it aims to supplement or provide alternative modes of communication for individuals with communication impairments (Beukelman & Mirenda, 2020). Since the UDL framework

promotes a flexible curriculum and learning material that enables learners with and without disabilities to access and engage in learning (Gauvreau et al., 2019) and also supports the use of AAC, it is suitable for use to adapt lesson plans in a way that will enable individuals with communication impairments to participate through various systems and strategies (Beukelman & Mirenda, 2020). ECD practitioners should therefore be trained on how to use, amongst others, strategies such as AAC within the framework of UDL to learn how to adapt their lesson plans for children with communication impairments. ECD practitioners will then know how to assist young children with communication impairments to participate in the communication ELDA. It may also promote the development of these children's communication abilities through participation in the communication ELDA and assist them with their readiness to transition to the next phase of their education, Grade R.

#### ***1.2.7.2 Educator training on UDL***

Since its establishment, the UDL framework has been globally recognised, and most of the research has been rooted in measuring the effectiveness of implementing UDL following teacher and teacher candidates training (Courey et al., 2012; Spooner et al., 2007; Unluol Unal et al., 2022).

In an attempt to evaluate the effectiveness of the UDL in addressing learner diversity, some studies focused on the design of lesson plans that accommodate diverse learners following UDL training for teachers and teacher candidates (Courey et al., 2012; Spooner et al., 2007; Unluol Unal et al., 2022). These studies have found UDL training to be effective in enabling teachers and/or teacher candidates to develop lesson plans that address learner diversity. The study by Spooner et al. (2007) examined the effects of UDL training on lesson plan designs of 72 special and general educators. This study implemented a true experimental design where the experimental group received a one-hour UDL training session which focused on the principles of UDL and how these principles could be included in lesson planning to cater for students with mild and severe disabilities. Both the experimental and control groups were required to develop a lesson plan using the components of the UDL to include a learner with a disability in a general classroom for their pre-test and post-test (i.e., following the one-hour UDL training session for the experimental group). These lesson plans were scored using a rubric, then compared to determine the effect of the one-hour UDL training. Results suggested that an introduction to UDL assisted educators in developing lesson plans that are accessible to all students (Spooner et al., 2007). In another study conducted by Courey et al. (2012), the effects of UDL on lesson plan development was

examined using 45 teacher candidates. Although this study was based on the study by Spooner et al. (2007), the objectives of this study were for participants to develop lesson plans that not only cater for students with mild to moderate disabilities, but cater for all students in a general classroom setting, including those with mild to moderate disabilities using UDL principles (Courey et al., 2012). In the study by Courey et al. (2012) a three-hour UDL training session, which introduced UDL principles was conducted as well as a module on barriers to learning in a traditional general classroom. The study also modelled the implementation of UDL principles and participants in this study were required to develop three lesson plans which were later scored using the Spooner et al. (2007) scoring rubric, and were compared to determine the effectiveness of the UDL training. Courey et al. (2012) found the three-hour UDL training to be effective in teaching participants to develop lesson plans that are accessible to all learners in a general classroom setting. However, it was noted that teachers still need experience in implementing UDL principles in their classrooms. Unluol Unal et al. (2022) replicated the studies of Spooner et al. (2007) and Courey et al. (2012) using a single-group pre-test post-test design to evaluate the effectiveness of UDL training on improved lesson plans which are responsive to learner diversity. Once again, a three-hour UDL training session was conducted with a group of 97 teacher candidates where UDL principles were introduced and how these can be incorporated in lesson plans to address learner diversity, was modelled. Following the UDL training, participants were each required to write up a pre-test lesson plan for a case scenario of a student with a disability, thereafter a post-test lesson plan for a different but equivalent case scenario. The pre-test and post-test lesson plans were then scored using the Spooner et al. (2007) scoring rubric and compared. The results of this study found that a three-hour UDL training session influenced teacher candidates' abilities to develop lesson plans that are responsive to learner diversity and learning environments (Unluol Unal et al., 2022).

Although the UDL is recommended for use in ECE environments (Gauvreau et al., 2019; Stone, 2013), not much research has been conducted on the effectiveness of UDL training on early childhood educators' ability to adapt lesson plans to accommodate learner diversity in ECE environments, nor on the implementation of UDL in ECE classrooms.

This is echoed in the South African context, where not much research has been conducted on the UDL and lesson plan designs for teachers, teacher candidates, and ECE practitioners (McKenzie & Dalton, 2020). This results in a gap in literature and a need for research in this area, especially since the UDL framework has been suggested to improve

curriculum access for all learners and promote an inclusive education system in South Africa (McKenzie & Dalton, 2020).

## 2. METHODOLOGY

### 2.1 Aims

#### 2.1.1 *Main aim*

The main aim of the present study is to determine the effects of training ECE practitioners on the principles of UDL and their ability to adapt lesson plans for children with communication impairments to participate in the communication ELDA of the NCF.

#### 2.1.2 *Sub-aims*

The sub-aims of the study are:

- To develop and conduct an in-service training on using UDL within the communication ELDA of the NCF with ECD practitioners.
- To evaluate the effect of this training on ECD practitioners' ability to adapt lesson plans of the communication ELDA of the NCF for children with communication impairments.

### 2.2 Research Design and Phases

A single-group pre-test post-test design was conducted to achieve the main aim of the study. This research design aims to evaluate the effect of a treatment or intervention that is applied to a single-group of participants (McMillan & Schumacher, 2014). The effects of the applied treatment (UDL training) are then measured by evaluating and comparing the results of the dependent variable (adapted lesson plans) pre- and post-intervention (McMillan & Schumacher, 2014). According to Marlow (2010), this research design is suitable when evaluating the effects of a programme where a comparison group is not feasible. The absence of a control group will result in low costs as compared to true experimental designs which utilise a control group. Another advantage is that the outcome or dependent variable is measured after the intervention. This can ascertain that the changes in the dependent variable are due to the intervention which is important for inferring a causal relationship between the independent variable (UDL training) and the dependent variable (lesson plan adaptation) (Marsden & Torgerson, 2012).

The limitations of a single-group pre-test post-test design includes the use of the outcomes of the pre-test to judge what might have happened had the intervention not been implemented and that the difference between the outcomes of the pre-test and post-test might be due to extraneous variables, such as maturation (Marsden & Torgerson, 2012).

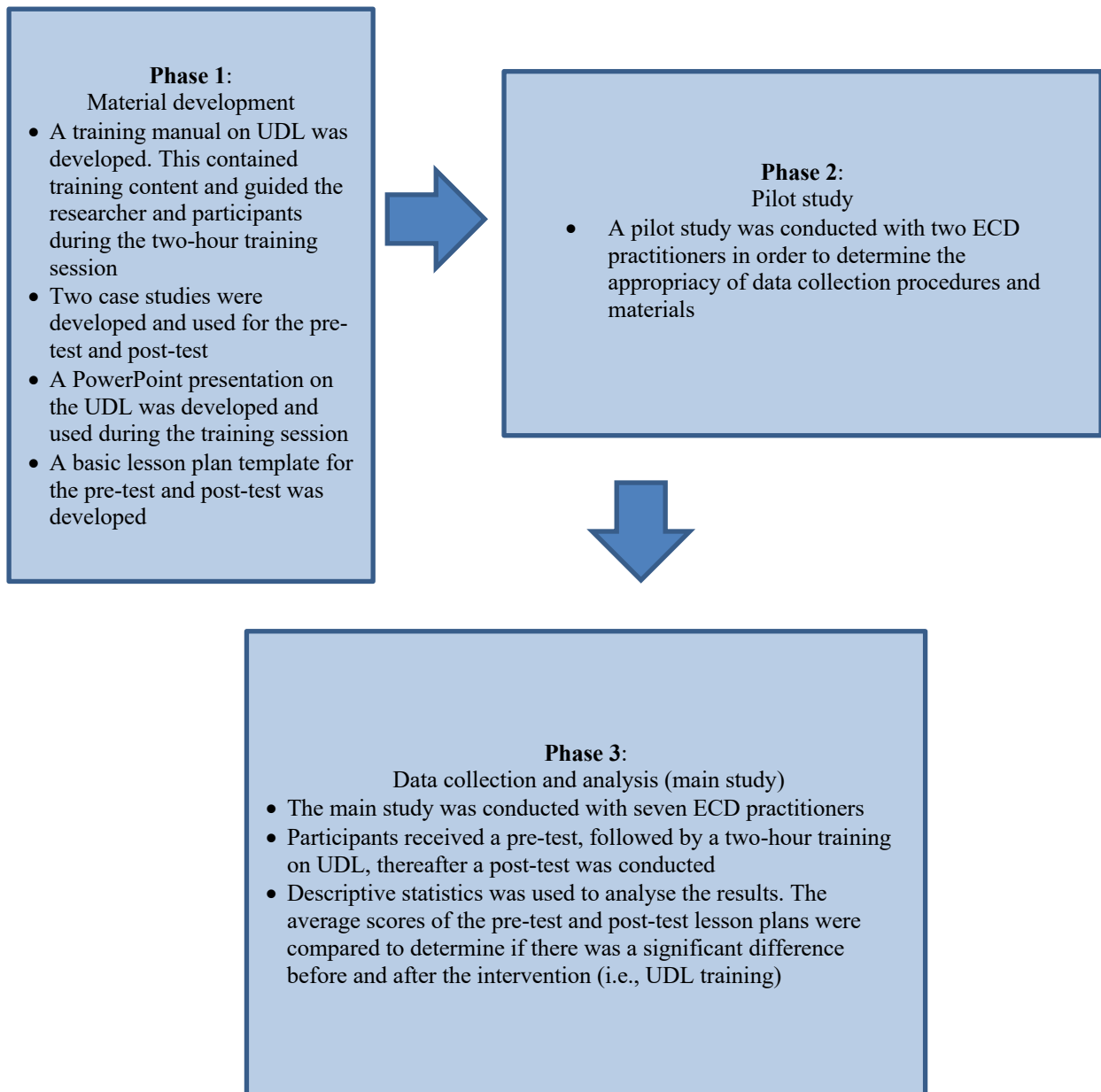
The present research study is based on the original work of Spooner et al. (2007) which was updated by Courey et al. (2012) and follows a similar approach used by Unluol Unal et al. (2022). In their study, Unluol Unal et al. (2022) evaluated the effect of UDL training on general education and teacher candidates' ability to develop accessible lesson plans after undertaking a three-hour training session on UDL. In the current study, the effect of UDL training was evaluated by comparing ECD practitioners' lesson plans before and after a two-hour UDL training session. Unlike similar previous studies, the current study conducted the pre-test and post-test on the same day. Meaning that extraneous variables, such as maturation has already been controlled for.

The pre-test and post-test lesson plans were scored using the rubric of Spooner et al. (2007) (Appendix K). This rubric is a three-point rating scale which entails the three UDL principles, namely representation, action, and expression and engagement. Each UDL principle was scored separately. A score of zero was allocated where no clear modifications were discussed in the materials and UDL sections of the lesson plan, a score of one was given where one modification was discussed and a score of two was given for two or three modifications discussed. The overall scores for the three UDL principles were then calculated for the pre-test and post-test lesson plans. The participants' overall pre-test and post-test scores were then calculated and compared to determine if there was a significant change in the ECD practitioners' ability to adapt lesson plans that accommodate children with communication impairments, following the UDL training.

As shown in Figure 1 below, the research study took place in three phases. Phase 1 entailed the development of materials that were required for data collection which included; a training manual on UDL, a PowerPoint presentation on the UDL, pre-test and posts-test case studies, and a basic lesson plan template that was used for both the pre-test and the post-test. Phase 2 included a pilot study that was conducted to determine the appropriacy of data collection procedures and the content of data collection material. The last phase, Phase 3 was the main study.

**Figure 1**

*Phases of the study*



## **2.2.1 Instrument development**

### **2.2.1.1 Training manual and training PowerPoint**

A training manual (Appendix H) was issued to the ECE practitioners as a guiding document for the UDL training. It was developed based on the understanding that most ECE practitioners in South Africa do not have formal training on implementing ECE (Milton et al., 2020) and that generally, ECE programmes in South Africa do not cater for children with disability (Visser et al., 2021). Therefore, in addition to introducing UDL principles, the

information entailed in the training manual also focused on giving ECE practitioners background on the NCF, curriculum implementation through lesson plan development, language and communication development, and communication impairments.

The training manual was situated in the introduction section, four topic sections, and a practical section. The introduction section gave a background to South African policies regarding access to education for children with disabilities, the gaps regarding the implementation inclusive education in the ECE context, and the UDL framework as a suggested framework to improve the implementation of inclusive education in ECE. Following the introduction section were topic sections. Each topic section entails learning objectives, a list of required material and equipment for the section, outline of key concepts, learning content where the topic is discussed and a list of activities to be completed to facilitate the understanding of concepts and training content. Following a discussion of the four topic sections, namely Topic 1-language development and communication entail the definitions of communication and language, followed by a background of language development and the importance thereof in relation to ECE. Major language components (expressive and receptive language) and communication impairments were also defined and the characteristics of communication impairments were described in terms of receptive and expressive language difficulties. This was followed by the activity section which entailed a two-minute video on language development and its importance as well as a case scenario discussion where participants had to describe the language skills required to achieve the communication ELDA goals in the NCF.

Topic 2 – the South African NCF for children from birth to four years defined the key concepts of the NCF that were important for this study (i.e., ELDA, communication ELDA towards children in the grade R age category [four turning five years old]). Further discussions on what the NCF is, its aims, how it is organised and the six organising ELDAs were also entailed in this section. The communication ELDA, its aims, goals and activities, and gaps with regards to accessibility to children with disabilities were discussed in detail since this ELDA was the focus of the study. Activities in this section also included questions on the language skills required to achieve the communication ELDA competencies for discussion.

Topic 3 was on UDL. The concepts of learner diversity and learning barriers were first introduced in this section, followed by a two-minute video on UDL and how it addresses barriers to learning. The UDL framework and its objectives were also defined. The three UDL principles were then introduced. Each principle was defined and examples of how each

principle can be implemented using the NCF communication ELDA activity was described and modelled the participants.

Topic 4 – Adapting lesson plans for UDL. In this section, a lesson plan was first defined, thereafter, the key components of a standard lesson plan were discussed. This was followed by a description of how a lesson plan can be adapted with the UDL principles for the activities of the communication ELDA of the NCF using the step-by-step planner: UDL design (Posey, 2019). The activity in this section entailed a case scenario where participants had to discuss how a lesson plan could be adapted for the case scenario using the UDL principles.

The last section of the training manual is the practical section. For the practical section, the pre-test case study (Appendix F) and the communication ELDA competencies and activities were presented to the participants. This was followed by a discussion of the communication and language difficulties that were most likely experienced by the subject in the case study in achieving competencies and participating in the activities of the communication ELDA. A lesson plan was then completed together with the participants using the steps discussed in the previous section (adapting lesson plans for UDL) and the pre-test lesson plan template (Appendix E).

Another version of the training manual (available on request of the researcher) was developed to guide the study regarding the UDL training content. This version of the manual is similar to the ECE practitioner training manual, however, there were guiding answers for the activities entailed in the topic sections. These questions aimed to guide the researcher to facilitate discussions to answer the activity questions.

A training PowerPoint presentation was also used in this study. This was projected on a screen for all the participants during the training. The PowerPoint presentation first outlined the objectives of the UDL training and provided guidelines on how the training manual was going to be used. These were followed by the same topics/sections and information contained in the training manual (i.e., introduction, language development and communication, the South African National Curriculum for children from birth to four years, UDL, and adapting lesson plans for UDL and practical). The information in the PowerPoint presentation was, however, summarised and presented in bullet form. Activity videos, links of which were provided in the training manual, were embedded in the training PowerPoint presentation and were played and projected to the participants during the training session.

### **2.2.1.2 Case studies**

Two case studies were developed for the pre-test (Appendix F) and post-test (Appendix G). The case studies entailed general descriptions of the communication impairments of two hypothetical subjects. In these descriptions; the communication and language impairments were described and how these impairments affected participation in classroom activities. Both case studies described the subject's capabilities in terms of communication. In addition to the description of the communication impairments, the affected communication ELDA competencies for each case study were also described. Although the case studies were different in terms of the subject's diagnoses and degree of impairment, the researcher ensured that the case studies were comparative by describing both case studies in similar ways (i.e., describing the communication and language impairments, how these impairments affected participation, and described the affected communication ELDA competencies). The pre-test case study (Appendix F) was based on a subject with a mild communication impairment characterised by a speech deficit which impacts on expressive language. The case study also consisted of a description of the communication ELDA competencies affected by the subject's communication impairment. The post-test case study (Appendix G) described a subject diagnosed with cerebral palsy resulting in a mild communication impairment characterised by deficits in both expressive and receptive language skills. The affected communication ELDA competencies were also described.

### **2.2.1.3 Procedural checklist**

A procedural checklist (Appendix J) was used during the training to ensure that all the information, topics, and activities of the UDL training were addressed. The procedural checklist included the following activities: introduction to the training session; instructions on using the training manual; introduction to the UDL training; training topics; activities for each topic; introduction; and instruction to the practical activity. Each of the activities were ticked off as they were completed during the training session.

### **2.2.1.4 Lesson plan template**

A basic lesson plan template that was used for the pre-test and post-test (Appendix E), was used in the current study. This lesson plan was adapted from an activity plan form by Horn et al. (2015). Horn et al. (2015) focus on adapting curricula that will cater for children with and without disabilities in ECE contexts using the UDL framework. The activity plan

form was selected based on the fact that it entails all the components that are required in a basic lesson plan as discussed by Chalk (2021) and that it includes a UDL section where ECE practitioners can describe how they will use UDL principles to address learner diversity. The lesson plan template was adapted to include the theme and name of the activity section; details regarding what was supposed to be completed for this section were provided to the participants. In the NCF objectives or aims section, participants were required to write lesson objectives based on the communication ELDA of the NCF. The lesson plan template also entailed the activity and learning outcomes and materials sections, where participants had to detail the activity as well as the goals of the activity. These sections were followed by the key vocabulary section and the activity outline and assessment sections where the participants had to document the targeted vocabulary for the lesson based on the theme and activity as well as detail how to assess learners' knowledge following the lesson activity. The last section focussed on addressing UDL. In this section, participants were required to provide examples of how they would accommodate all the learners in the classroom (i.e., including those with communication impairments) in the lesson activity using the UDL principles.

#### **2.2.1.5 Rubric**

The measurement rubric of Spooner et al. (2007) (Appendix K) was used for the purposes of this study to score the pre-test and post-test lesson plans on the UDL adaptations recommended in relation to the pre-test and post-test case studies for the communication ELDA of the NCF. The rubric includes a three-point scoring method for the three UDL principles (representation, action and expression, and engagement). Scores ranging from 0–2 were allocated for each UDL principle based on the examples and the depth of the discussion of each UDL principle mentioned in the pre-test and post-test lesson plans. A score of 0 was allocated where there was no clear description of the UDL principle and were used to adapt learning materials, as well as providing options for expressive communication and means of engagement. One point was allocated if a participant discussed one or two modifications of UDL principles to adapt learning materials and provide options for expressive communication and engagement. Two points were allocated where three or more modifications on adapting learning material and providing options for expressive communication and engagement were discussed (Spooner et al., 2007).

Table 1

*Scoring rubric*

Objective	0 Point	1 Point	2 Points
Representation	No clear description of modifying materials to provide access to learners with communication impairments	Discusses one or two modifications of materials to provide equal access, however, needs to be explained in more depth	Discusses three or more modifications of materials to provide equal access to learners with communication impairments
Expression	No clear description of providing alternative communication methods	Discusses at least one alternative communication method, but need to be explained in more depth	Discusses two or more alternative communication methods, gives clear and precise explanations
Engagement	No clear description of strategies to involve or engage learners with communication impairments	Discusses one or two strategies to involve learners with communications impairments, but needs to be explained in more depth	Discusses three or more strategies to involve learners with communication impairments, gives clear and precise explanations

### 2.3 Pilot Study

A pilot study was conducted to ensure that the procedures and materials were suitable for the main study (Salkind, 2010). The pilot study was conducted with two participants who met the inclusion criteria for the main study. The pilot study aimed to determine whether the training content and data collection procedures were clear and understandable and whether the amount of time required for the pre-test, post-test, and training session was sufficient.

The two participants recruited for the pilot study were ECD practitioners providing ECE services to young children in ECD centres. They were sourced from the two selected ECD centres which are situated in Kimberley, in the Northern Cape Province of South Africa. The participants met the selection criteria presented in Table 2, below. These participants did not take part in the main study.

Table 2 shows the results of the pilot study with recommended changes that were incorporated into the main study. Participants generally understood the data collection procedure, instructions for the pre-test and post-test, and the UDL training content. However, setting up the projector at the beginning of the data collection session took some time, it was therefore recommended that this be done prior to the data collection session begins when conducting the main study.

Table 2

*Pilot study aims, materials, procedures, results, and recommendations*

Aim	Materials	Procedures	Results	Recommendations
To determine whether the content of the training is understandable.	<ul style="list-style-type: none"> <li>• Training Manual</li> <li>• Training PowerPoint</li> <li>• Case studies</li> <li>• Basic lesson plan templates (pre-test and post-test)</li> <li>• Recorder</li> </ul>	<ul style="list-style-type: none"> <li>• Participants will be welcomed to the data collection session</li> <li>• The data collection procedure will be explained to the participants</li> <li>• A pre-test will be conducted with the participants</li> <li>• A training session will then be conducted</li> <li>• A post-test will be conducted after the training session</li> <li>• Participants will be requested to provide feedback on how they experienced the training content was and where it</li> </ul>	<ul style="list-style-type: none"> <li>• Setting up the projector and projection screen took up too much time at the beginning of the data collection session</li> <li>• Participants understood the data collection procedure</li> <li>• Participants understood the pre-test case study and lesson plan development instructions</li> <li>• Participants understood the training content and were able to complete the activities in the training manual during the training session</li> <li>• Participants understood the post-test case study and lesson plan development instructions</li> <li>• Participants reported that they learned a lot from the training session. Participants reported they do not recommend any</li> </ul>	<ul style="list-style-type: none"> <li>• Projector to be set up on the morning of the day of data collection.</li> </ul>

Aim	Materials	Procedures	Results	Recommendations
To determine the amount of time required for the pre-test, post-test, and the training session	<ul style="list-style-type: none"> <li>• Stopwatch</li> </ul>	<p>can be improved (feedback will be recorded)</p> <ul style="list-style-type: none"> <li>• Time will be recorded from the start of the welcome session until the end of the post-test session using a stopwatch</li> </ul>	<p>changes for the training session and content</p> <ul style="list-style-type: none"> <li>• The data collection session was three hours and thirteen minutes. There were delays in setting up the projector at the beginning of the session</li> </ul>	<ul style="list-style-type: none"> <li>• Projector to be set up on the morning of the day of data collection</li> </ul>

## 2.4 Main Study

### 2.4.1 Participants

For the main study, participants were recruited using purposive sampling. In purposive sampling, participants are selected based on the characteristics that are representative of the subject of interest (McMillan & Schumacher, 2014). Table 3 below, outlines the participant selection criteria for this study. ECD practitioners with a minimum National Qualification Framework (NQF) level 4 were recruited. NQF level 4 is a matric (Grade 12) qualification or a qualification that is equivalent to matric, however, obtained through an accredited Further Education and Training programme (Sauls, 2022). The participants also had to have been trained on the NCF and should be implementing the NCF in their classrooms.

Table 3

*Participant selection criteria*

<b>Criterion</b>	<b>Justification</b>	<b>Measure Used to Obtain Information</b>
ECE practitioner with minimum of NQF level 4	Many practitioners (78% in South Africa) currently do not have formal qualifications to teach preschool learners (Visser et al., 2021). Therefore, only practitioners who met these criteria were selected	Biographical Questionnaire
Working at a registered ECD centre	Practicing at an ECD centre that is recognised by the Department of Social Development and Education	Biographical Questionnaire
Be able to read and write in English.	The in-service training will be conducted in English, and the biographical questionnaires will be written in English	Biographical Questionnaire
Have the knowledge of, and able to implement the NCF for children from birth to four years (DOE, 2015)	Should be following the NCF in order to be able to identify and understand the limitations the curriculum has with regards to enabling the participation of children with communication impairments	Biographical Questionnaire

The sampling process began with approaching the ECD unit at the provincial office of the Northern Cape Department of Education. One of the functions of the ECD unit is to train ECD practitioners providing ECE services to young children on the NCF and to support ECE practitioners in implementing the NCF. The ECD unit shared a list of ECD centres whose practitioners had been trained on NCF and who are implementing the NCF.

The two ECD centres with the highest number of ECD practitioners were identified from the list. The managers/principals of the centres were approached, and the purpose and

information of the research study were explained to them. Both ECD centre managers/principals gave informed consent for their centres to participate in the study (Appendix B). A total of eight ECE practitioners who were interested in the study and who met the selection criteria were approached to participate. The research purpose, information and procedure were explained to them, and each practitioner was requested to give consent (Appendix C) and complete a biographical questionnaire (Appendix D).

From the total of eight participants that were approached, only seven gave consent. From Table 4, it is evident that all seven participants were females whose ages ranged from 25 years to 55 years. The average number of years of teaching experience of the participants was 6, 7 years, with the lowest years of teaching experience being three years and the highest being nine years.

As per Table 4 below, five participants had a level 4 qualification which is equivalent to a national senior certificate (Grade 12) or a level 4 national vocational certificate. Two participants had a level 5 education training qualifications in ECD. A level 5 qualification is equivalent to a higher certificate or advance national vocational certificate. Five participants indicated that they had experience teaching children with communication impairments. According to these participants, some of the children struggled understanding and following instructions, while others struggled to articulate words clearly and had difficulties expressing themselves. Two participants indicated that they had no experience teaching children with communication impairments.

Table 4

*Description of participants*

Participant number	Age (years)	Gender	Qualifications	Teaching experience (years)	Experience Teaching Children with Communication Impairments
1	52	Female	Level 4	8	No
2	36	Female	Level 5 (ECD qualification)	8	Yes
3	25	Female	Level 4	5	Yes
4	52	Female	Level 4	9	Yes
5	55	Female	Level 4	7	Yes
6	35	Female	Level 4	7	Yes
7	34	Female	Level 5 (ECD qualification)	3	No

## 2.5 Materials and Equipment

The equipment used to collect data for this study included a laptop, data projector, whiteboard, Wi-Fi router, an Internet connection to play YouTube UDL videos, audio recorder, timer, pens, pencils, erasers, stickers, and notepads. In addition to the data collection equipment, the following data collection materials were used, namely seven copies of the South African NCF document (English version), and the pre-test and post-test basic lesson plan templates (Appendix E). The pre-test and post-test utilised the same lesson plan template that was adapted from an activity plan form created by Horn et al. (2015).

Two case studies were used; one for the pre-test (Appendix F) and the other for the post-test (Appendix G). These case studies were described earlier.

For the intervention, the UDL training manual (Appendix H) and training PowerPoint presentation (Appendix I) were used. The training manual (Appendix H) and a copy of the NCF document (Appendix L) were handed to each participant to use and refer to during the training session and entailed the background and rationale for the training, four training topics as described previously, and activities within each topic. The PowerPoint presentation (Appendix I) included the same content included in the training manual and the content was presented on a whiteboard using a data projector.

A procedural checklist (Appendix J) was used by the researcher to ensure that all the topics and activities were addressed and discussed during the training. The procedural checklist included a list of activities to be completed by the researcher during the training session.

The rubric created by Spooner et al. (2007) (Appendix K) was used to score the pre-test and post-test lesson plans. The rubric included a three-point scoring method for the three

UDL principles (representation, action and expression, and engagement). A Score ranging from 0–3 was allocated for each UDL principle based on the examples and the depth of the discussion of each UDL principle mentioned by the participants in the pre-test and post-test lesson plans.

## **2.6 Procedures**

### **2.6.1 Data collection**

The participants were welcomed and introduced to the researcher. Each participant was allocated a participant number based on the number written at the top of the biographical questionnaire (Appendix D) they completed. A participant name tag corresponding to their participant number was then given to each participant. The data collection process was then explained to the participants.

The pre-test case study (Appendix F) was handed to each participant. The case study was read out loud to the participants. The pre-test case study was based on a child named Anelisa, (pseudonym), who had difficulty with expressive communication, comprehension problems, and difficulty participating in classroom activities that required her to express herself verbally. After going through the case study, copies of the basic lesson plan templates (Appendix E) were handed out to participants. The participants were instructed to develop an adapted lesson plan in twenty minutes for the child in the case study in relation to a reading activity around the theme of ‘my family’. No instruction on UDL was given at this point.

To complete the lesson plan for the pre-test case study, the participants had to complete the name and theme of the activity as given to them. Participants had to complete the following sections independently by referring to both the communication ELDA competencies in the NCF document and the pre-test case study. The participants then had to complete the following sections of the lesson plan:

- NCF objectives or aims required for the activity,
- lesson objectives,
- activity and learning outcomes,
- materials,
- key vocabulary,
- activity outline and assessment, and
- addressing UDL for children with and without communication impairments.

Once the pre-test lesson plans were completed, they were collected and labelled with a corresponding participant number.

After the pre-test session, the UDL intervention training commenced. A training manual (Appendix H) was handed to each participant. The content of the training manual included the following:

- background and rationale for the training and
- four training topics.

The four training topics are:

- language development and communication,
- the South African National Curriculum Framework for children from birth to four years,
- UDL
- adapting lesson plans.

The UDL section in the training manual included practical examples of each UDL principle and a description of how these principles could be used in the communication ELDA competencies of the NCF. To further assist participants in understanding the application of UDL principles to curricula, videos and discussion questions were included as activities in this section. A PowerPoint presentation (Appendix I) was presented, which included the same topics and information as the training manual, however, in an abbreviated format. The participants were asked to follow the presentation and refer to the corresponding sections of the training manual in order to make notes for themselves.

For the last section of the UDL training (practical section), the pre-test case study was read through with the participants. Participants then had to describe the communication impairment by referring to the expressive and/or receptive difficulties the subject in the pre-test case study had. Participants were instructed to refer to the training manual for assistance. The affected communication ELDA competencies as described in the case study as well as the kind of learning activities that are most likely to be affected based on the competencies were also discussed. Once completed, the participants were assisted in following and applying the steps described in the UDL step-by-step lesson guide, designed by Posey (2019) for the case study to predict how children without disabilities and the subject in the case study would vary in how they receive information, express, or demonstrate information and knowledge, and engage in learning. The UDL section was then referred to in order to review the examples of materials and strategies that can be used to address the three UDL principles for the subject in the case study. The researcher then facilitated the process of completing the

lesson plan template sections (Appendix E) for the pre-test case study using the information from the discussions. The lesson plan sections that were the main focus, were the activity layout and assessment section as well as the material and UDL sections, since these required UDL knowledge to be completed.

A procedural checklist (Appendix J) was used during the training to ensure that all the information, topics, and activities of the UDL training were addressed. The procedural checklist included an introduction to the training session, instructions on how to use the training manual, introduction to the UDL training, training topics, activities for each topic, introduction, and instruction to the practical activity. Each of the activities were ticked off as they were completed during the training session.

The post-test followed the UDL training session. Copies of the post-test case study (Appendix G), a different case study to the pre-test case study, were handed to each participant. This case study gave a general description of the child's communication impairment, barriers to participation in the communication ELDA as well as strengths and interests. The case study discussed a subject who had difficulties with language comprehension and expressing I verbally. The subject relies on pointing with the left hand. The description of the affected areas of communication related to the three curriculum goals of the communication ELDA for the pre-grade R group (i.e., towards Grade R) in the NCF were also included (NCF page 42–49). These are:

- children speak using different styles of communication relationships,
- children make meaning by reading what they see, hear, feel, taste, and touch, and
- children record their experiences and ideas through language, sounds, art, drama and play, and later on writing.

The post-test case study (Appendix G) was also read aloud to the participants. The participants were then instructed to refer to the case study and develop an adapted lesson plan study in twenty minutes using the UDL principles for a reading activity in the 'my family theme' to accommodate the child in the post-test case study. They were instructed to focus on the following components; activity layout and assessment, and materials and UDL for children with and without communication impairments. Upon completion, the lesson plans were collected and labelled with the corresponding participant numbers. Participants were thanked for their participation and given tokens of appreciation. They were allowed to keep the training materials which they had been given.

### **2.6.2 Data analysis**

The research design used in this study was based on previous studies (Courey et al., 2012; Spooner et al., 2007; Unluol Unal et al., 2020) and used a single-group pre-test and post-test design to evaluate the effect of UDL training on ECE practitioners' ability to develop adapted lesson plans for children with communication impairments in the communication ELDA of the NCF.

A quantitative data analysis approach was implemented to analyse the results. In quantitative data analysis, the collected data is processed into statistics which are then used to organise the data and to draw conclusions from the data (McMillan & Schumacher, 2014). The pre-test and post-test lesson plans were scored using the scoring rubric by Spooner et al. (2007) (Table 1).

To obtain the scores presented in Table 5 in Chapter 3, the pre-test and post-test lesson plans were scored individually using the scoring rubric. The following two sections of the adapted lesson plans were focused on for scoring (i.e., the materials and UDL sections). Scores were then allocated for the number of UDL adaptations recommended by participants for the case study on the prescribed theme for the child of the case study in relation to the communication ELDA goals. Each of the pre-test lesson plans were scored for each UDL principle using the Spooner et al. (2007) scoring rubric. An average score and the standard deviation score the participants obtained for each UDL principle were entered and worked out using an excel sheet. The same procedure was followed to obtain total scores for the post-test lesson plans. Once scoring was completed, the total scores obtained by all the participants for each UDL principle were then used to determine if there was a statistically significant difference between the participants' pre-test and post-test lesson plan scores as well as the effect size using the SPSS software.

Each individual post-test lesson plan was examined qualitatively for rich data, that is, the actual modifications suggested by the ECD practitioners which could demonstrate how they utilised materials, instructional methods, and assessments within the UDL framework to address the learning objectives of the communication ELDA for learners with communication impairments.

### **2.6.3 Reliability and validity**

A procedural checklist (Appendix J) was used during training to ensure procedural integrity and that all training topics were addressed. This was done to ensure that the pre-test and post-test procedures as well as all the training content and topics were adhered to. The

scoring of the lesson plans was conducted by the researcher which poses a threat to the reliability and validity of the scoring, since scoring was not reviewed and verified and an inter-rater agreement was not conducted.

## **2.7 Ethical Issues**

The study involved human participants, and ethical principles were considered and applied; full disclosure was given to the participants. This entailed the process whereby complete information regarding the research and the purpose was given to the participants (McMillan & Schumacher, 2014).

Two ECD centres were approached which met the following criteria; the ECD centre had to be registered with the DSD, provide ECE services to young children from the age of 0 to 4 years, implement the NCF and have ECE practitioners with a minimum of level 4 qualification.

Permission to conduct the research study with the ECD centres was requested from the ECD centre managers/principals. The ECD managers/principals gave consent (see Appendix B) for the centres to participate in this study. The signed permission letters entailed information regarding the purpose of the study, description of the data collection procedure, benefits of the study, participant confidentiality, and participant rights. The signed permission letters were submitted together with a research proposal to the Faculty of Humanities Research Ethics Committee at the University of Pretoria for approval to conduct the research study. Approval to commence with data collection was granted by the Research Ethics Committee on 16 September 2022 (see Appendix A).

Once ethical approval was received, the managers/principals of the ECD centres were requested to invite ECD practitioners who met the inclusion criteria (see main study) and were willing to participate in the study. Participants who met the inclusion criteria had to give informed consent. The participants were informed that their participation would be voluntary and that no one would be compelled to participate in the research study. Informed consent was obtained from the participants through a consent form (see Appendix C) containing information regarding the purpose of the study, a description of the data collection procedures, benefits of the study, participant confidentiality, and information regarding their rights with regards to participating in the study.

### 3. RESULTS

In this study, the question whether UDL training influences ECD practitioners' development of adapted lesson plans for children with communication impairments for the communication ELDA of the NCF, was investigated.

A single group pre-test and post-test study was therefore conducted to determine if there was a statistically significant difference between the participants' scores on the writing of lesson plans for learners with communication impairments in the communication ELDA before and after UDL training. Participants' pre-test and post-test lesson plans were scored based on how they described strategies and material to accommodate learners with communication impairments for the activities of the communication ELDA in the NCF (see Table 5). The means and standard deviations of the pre-test and post-test scores of the three UDL principles as well as total scores are presented in Table 5, below.

**Table 5**

*Mean and standard deviations of participants UDL adaptation pre-test and post-test scores for each UDL principle*

UDL principle	Pre-test		Post-test	
	M	SD	M	SD
Representation	0,14	0,38	1.14	0,38
Action and expression	0,00	0,00	0,29	0,49
Engagement	0,00	0,00	0,14	0,38
<b>Total</b>	0,14	0,38	1.57	1.25

As the data was not normally distributed and the sample size was small, the non-parametric Wilcoxon Signed-Rank test was used to determine statistical differences between pre-test and post-test scores for the total as well as for each of the UDL principles. The Wilcoxon Signed-Rank test is used when paired data do not meet the assumptions for parametric tests (Pallant, 2020).

This test revealed that total UDL lesson plan scores were significantly greater after the 2.5-hour UDL training session ( $Mdn = 1.00, n = 7$ ) compared to prior to the training ( $Mdn = 0.00, n = 7$ ),  $z = -2.23, p = .026$  with a large effect size,  $r = .59$  (Cohen, 1998).

The Wilcoxon Signed-Rank test for each UDL principle showed a significant difference between the pre-test and post-test lesson plan scores only for the Representation UDL principle. Lesson plan scores for Representation were therefore significantly greater post training ( $Mdn = 1.00, n = 7$ ) compared to prior to the training ( $Mdn = 0.00, n = 7$ ),  $z = -2.33, p = .020$  with a large effect size,  $r = .69$  (Cohen, 1998). The 2.5-hour UDL training

session therefore did not elicit a statistically significant change in lesson plan adaptation for the Expression principle ( $z = -1.41, p = .157$ ) or the Engagement principle ( $z = -1.00, p = 0.32$ ).

The large effect size specifically for the Representation principle suggests that a 2.5-hour training session was reasonably effective at teaching ECD practitioners how to adapt lesson plans for learners with communication impairments on the communication ELDA of the NCF.

Lesson plan modifications for learners with communication impairments within the Representation principle that were suggested by ECD practitioners included the use of pictures, objects, and modelling to support the understanding of information. Participant 4, for example, explained that pictures and symbols that represent the key vocabulary and demonstrate the main events of a story could be used for the story. As mentioned previously, each lesson plan was scored based on how the participants described how they would implement the lesson materials, instruction, and assessment to address the learning objectives using UDL principles.

#### 4. Discussion

This study examined the effectiveness of a two-hour UDL training session on ECE practitioners' abilities to adapt lesson plans for children with communication impairments in the communication ELDA of the NCF. The UDL training placed an emphasis on how the UDL framework can be used to adapt materials and methods of assessments that are required to achieve lesson goals in the NCF. Each of the participants' lesson plans was scored based on how they described the materials, assessment methods, and UDL modifications to accommodate case study children with communication impairments.

This study revealed that a two-hour training session influenced the ECE practitioners' abilities to adapt lesson plans for children with communication impairments. Although the significant difference between the pre-test and post-test scores was mainly due to only one UDL principle (i.e., multiple means of representation), the UDL training generally resulted in improved lesson planning adaptation skills by ECE practitioners.

Because ECE practitioners must cater for a variety of learners, including those with disabilities in their classrooms, it is important that the practitioners be prepared to accommodate learner diversity when implementing the curriculum. However, the lack of formal training of ECE practitioners in pre-service ECD programmes in general in South Africa (Milton et al., 2020), and the lack of ECD practitioner knowledge and skills in accommodating children with disabilities, pose challenges to the inclusion of learners with disability in early education (IESA, 2020). It has been suggested that UDL training is a feasible solution to the design of curricula and lesson plans that are flexible and address learner diversity (Courey et al., 2012; Spooner et al., 2007; Unluol Unal et al., 2022).

Previous studies (Courey et al., 2012; Spooner et al., 2007; Unluol Unal et al., 2022) investigated the effect of UDL training on improving lesson plan writing to address learner diversity with teachers. These studies found that UDL training was effective in teaching education students and educators to incorporate the UDL principles into lesson planning to create learning environments that are responsive to learner diversity.

In previous research studies (Courey et al., 2012; Unluol Unal et al., 2022) it was found that their participants incorporated all three UDL principles in their post-test lesson plans. In the current study, however, when comparing the pre-test and post-test scores for each UDL principle; only principle I (multiple means of representation) showed a statistically significant difference in scores between the pre-test and post-test. The reasons for this finding

could possibly be due to practitioners being familiar with the examples of materials that were provided for multiple means of representation (i.e., the use of pictures, objects, and modelling). These may have been familiar to the participants since they are suggested in the activity sections of the communication ELDA in the NCF document.

There were no significant differences in pre-test and post-test scores for UDL principle II (multiple means of action and expression) and III (multiple means of engagement). This may have occurred due to various reasons. Firstly, the UDL training was the first training the participants had received which introduced strategies that can be implemented to address learner diversity. Secondly, participants reported anecdotally that this was their first opportunity where they received training on communication impairments, AAC, and the use of alternative communication modes of expression. Some practitioners, for example, mentioned that they felt AAC is more of a specialised field and may require a qualified professional to implement it.

Kelly et al. (2022) came across similar assumptions in their study, where teachers had concerns with regards to the inclusion of learners with disabilities in mainstream schools and classes, and felt that these learners required specialised services.

Another reason may be that the examples that were given as strategies for principle III (multiple means of engagement) may have been unfamiliar to practitioners since they were based on the use of AAC systems which they have very little exposure to in their training. They may therefore, have felt that these adaptation strategies required services from professionals trained in AAC. In South Africa in general, there is a lack of educator training on the inclusion of learners in need of AAC (i.e., learners with little or no functional speech) and this has an impact on the inclusion of learners in classrooms (Donohue & Bornman, 2015). With the lack of formal training for most ECE practitioners in South Africa (Visser et al., 2021), it is likely that ECE practitioners also lack the knowledge and skills required for individuals with communication impairments.

Lastly, the pre-test was conducted straight after the training session. Practitioners may have needed more time to engage with the training material and test the UDL principles in their classrooms before a post-test was conducted. Studies that investigated the effect of educator professional development and in-service training programmes (Ko et al., 2006; Yoshikawa et al., 2015), suggest that it is necessary for educators to be mentored and for them to integrate newly learned knowledge and skills in their classroom contexts before any improvement in curriculum implementation is reflected.

## **5. CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Summary of Main Findings**

The results in this study showed that a 2.5-hour UDL training session improved ECE practitioners' ability to adapt lesson plans to accommodate children with communication impairments. Although the significant difference is mainly attributed to one UDL principle (i.e., multiple means of representation), the findings suggest UDL training can be useful in enabling practitioners to plan lessons for the inclusion of children with communication impairments in the communication ELDA of the NCF. However, the results of the study must be interpreted with caution as the sample size was relatively small. The UDL intervention was developed and applied to ECE practitioners from two sampled ECD centres in the area of Kimberley in the Northern Cape Province of South Africa and cannot be generalised beyond this. The study also did not have a control group and thus, extraneous variables may potentially have influenced the results. More research in additional ECD centres across South Africa, with more ECD practitioners and with a control group, still needs to be conducted in order to prove the benefits of UDL training on lesson planning to accommodate children with communication impairments in the communication ELDA of the NCF. The results further suggest that ECE practitioners should be given more time to engage more deeply with the training content and practise implementing their knowledge in situations in their classrooms.

### **5.2 Implications for Practice**

ECE practitioners are key stakeholders in delivering ECE and promoting early development in children before their formal schooling years. It is critical that these practitioners are well prepared to include learners with disability in the classroom and that they provide and enhance these children's learning opportunities. The current study has implications for the professional development of ECE practitioners to respond to learner diversity and promote inclusive education in the early childhood environment. In a survey conducted by DSD in 2014, it was discovered that ECE centres in South Africa do not implement early identification and intervention models (such as the SIAS policy), and this suggests that ECE practitioners who do not receive UDL training may lack the knowledge, skills, and resources to assess and support children with disabilities. However, with the migration of ECE from DSD to the DoBE comes a mandate to ensure that all children, including those with disabilities, receive quality ECE services and that children with

disabilities receive equal learning opportunities as their peers without disabilities. The DoBE aims to establish an inclusive education system through early identification and intervention models such as those suggested by the SIAS policy and through the provision of training programmes that will capacitate ECE educators to support learners with disabilities in their classrooms (Karisa et al., 2022). UDL training can therefore offer ECE practitioners or educators an opportunity to address issues related to the inclusion of children with disabilities in ECE environments.

The practitioners who participated in this study were able to effectively gain some knowledge on the UDL framework even in a short 2.5-hour session and showed that they could develop adapted lesson plans to accommodate learners with communication impairments. Furthermore, creating professional development programmes such as the UDL training for ECD practitioners may improve the views of practitioners regarding the inclusion of children with disability in classrooms and may improve the quality of the ECE services that children with disabilities receive.

### **5.3 Critical Evaluation of the Study**

#### **5.3.1 Strengths**

This research study was based on previous research studies (Courey et al., 2012; Spooner et al., 2007; Unluol Unal et al., 2022) that investigated the effect of UDL training on improved lesson plan development to address learner diversity. The replication of previous research studies is important in the field of special education. It assists in drawing out conclusions regarding a specific intervention and supports the generalisations of interventions (Unluol Unal et al., 2022).

To control internal variables, a pilot study was conducted prior to the main study. This was to ensure that the procedures and material would be suitable for the main study (Salkind, 2010). Based on the results of the pilot study, data collection procedures and materials that were found not to be suitable were revised. A procedural checklist was also used to ensure that a reliable intervention was delivered.

Extraneous variables, such as maturity and test effects were accounted for in this study. Maturity occurs when participants' abilities change due to greater time differences between the pre-test and post-test (Marsden & Torgerson, 2012). In this study, the post-test was conducted directly after the training session. To control for test effects, two case studies that were different, however, equivalent, were used for the pre-test and post-test. Therefore,

improvement in the post-tests was most likely not due to participants developing lesson plans based on the same case study they received for the pre-test.

### **5.3.2 Limitations**

This study has various limitations which should be considered when interpreting the results. First, the study involved a small sample of only seven participants. This has implications on the generalisation of results to larger populations. Second, the study conducted a single-group pre-test, post-test design which poses a potential threat to validity since there is no control over potential confounding variables (Leedy & Ormrod, 2021). Future research should therefore include control groups in their experimental studies. Third, the UDL training manual and PowerPoint presentation were developed by the researcher and were not quality assured by a UDL expert.

Last, this study only investigated the effect of UDL training on lesson planning. The results therefore, do not indicate potential improvement in the practical implementation of the UDL principles in ECD classrooms.

### **5.4 Recommendations for Further Studies**

The results of this study seem to suggest that training ECE practitioners on the principles of UDL may influence their development of adapted lesson plans for children with communication impairments. It is likely that practical implementation of the UDL principles in ECE classrooms may improve the accessibility of the communication ELDA of the NCF to children with communication impairments which may improve their opportunities to develop early language and the inclusion of these children in ECE environments. Future research should include the application of UDL principles to the other ELDAs of the NCF. Replications with bigger sample sizes using true experimental methodologies with a control group as well as follow-up on practitioners' ability to implement the UDL strategies in their own classrooms, should also be considered for future research.

## REFERENCES

- Aina, A. Y., & Bipath, K. (2022). Availability and use of infrastructural resources in promoting quality early childhood care and education in registered early childhood development centres. *South African Journal of Childhood Education*, 12(1).  
<https://doi.org/10.4102/sajce.v12i1.980>
- American Speech-Language-Hearing Association (ASHA). (1993). Definitions of communication disorders and variations. <https://www.asha.org/policy/rp1993-00208/>
- Beukelman, D. R., & Light, J. C. (2020). *Augmentative & alternative communication: supporting children and adults with complex communication needs* (5th ed.). Paul H. Brookes Publishing Co.
- Boivin, M., & Bierman, K. L. (Eds.). (2014). *Promoting school readiness and early learning: implications of developmental research for practice*. Guilford Press.
- Bornman, J., & Donohue, D. (2014). The challenges of realising inclusive education in south africa. *South African Journal of Education*, 34(2), 1–14.  
<https://doi.org/10.10520/EJC153713>
- CAST. (2011). *Universal Design for Learning Guidelines version 2.0*. Wakefield, MA: CAST.
- Castro, S., Granlund, M., & Almqvist, L. (2017). The relationship between classroom quality- related variables and engagement levels in Swedish preschool classrooms : a longitudinal study. *European Early Childhood Education Research Journal*, 25(1), 122–135. <https://doi.org/10.1080/1350293X.2015.1102413>

- Chalk. (2021). *An introductory guide to lesson planning: Start creating impactful lesson plans for your students with this guide*. Chalk.Com Education Inc.  
<https://www.chalk.com/introduction-to-lesson-planning/>
- Chazan-Cohen, R., Zaslow, M., Raikes, H. H., Elicker, J., Paulsell, D., Dean, A., & Kriener-Althen, K. (2017). Working toward a definition of infant/toddler curricula: intentionally furthering the development of individual children within responsive relationships. *Research and Evaluation, Administration for Children and Families*, *15*, 1–31.
- Chien, C.-W., Branjerdporn, G., Rodger, S., & Copley, J. (2017). Exploring environmental restrictions on everyday life participation of children with developmental disability. *Journal of Intellectual and Developmental Disability*, *42*(1), 61–73.  
<http://dx.doi.org/10.3109/13668250.2016.1194969>
- Cohen, J. (1998). *Statistical power analysis for the behavioral sciences* (L. Erlbaum (ed.); 2nd ed.). Lawrence Erlbaum.
- Courey, S. J., Tappe, P., Siker, J., & Leopage, P. (2012). Improved lesson planning with universal design for learning (UDL). *Teacher Education and Special Education: The Journal of the Teacher Education Division of the Council for Exceptional Children*, *36*(1), 7–27. <https://doi.org/10.1177/0888406412446178>
- Dada, S., Kathard, H., Tönsing, K. M., & Harty, M. (2017). Severe communication difficulties in South Africa: challenges and enablers. In S. Halder & L. Czop Assaf (Eds.), *Inclusion, disability and culture* (pp. 169–193). Springer International.

Deeg, M. T., Farrand, K. M., & Oakes, W. P. (2020). Creating space for interactive dialogue during preschool circle time using play-based pedagogies and dramatic inquiry.

*Journal of Early Childhood Research*, 18(4), 387–403.

<https://doi.org/10.1177/1476718X20956256>

Deliberato, D., & Nunes, L. R. D. P. (2015). Use of Graphic Systems in the Routine of Regular Classroom With a Disabled Student. *Education Policy Analysis Archives*, 23,

34. <https://doi.org/10.14507/epaa.v23.1655>

Department of Education (DoE). (2001). *Education white paper 6: special needs education: building an inclusive education and training system*. Pretoria: Department of Education.

Department of Basic Education (DoBE). (2011). *Guidelines for responding to learner diversity in the classroom through curriculum and assessment policy statements*.

[https://www.education.gov.za/Portals/0/Documents/Publications/GUIDELINES%20FOR%20RESPONDING%20TO%20LEARNER%20DIVERSITY%20%20THROUGH%20CAPS%20\(FINAL\).pdf?ver=2016-02-24-110910-340](https://www.education.gov.za/Portals/0/Documents/Publications/GUIDELINES%20FOR%20RESPONDING%20TO%20LEARNER%20DIVERSITY%20%20THROUGH%20CAPS%20(FINAL).pdf?ver=2016-02-24-110910-340)

Department of Basic Education (DoBE). (2014). *National strategy on screening, identification, assessment and support*.

<https://www.education.gov.za/LinkClick.aspx?fileticket=2bB7EaySbcw%3D&tabid=617&portalid=0&mid=2371>

Department of Basic Education (DoBE). (2015). *The South African national curriculum framework for children from birth to four*. Pretoria: Department of Basic Education.

<https://www.unicef.org/southafrica/media/911/file/SAF-national-curriculum->

- Donohue, D. K., & Bornman, J. (2015). South African teachers' attitudes toward the inclusion of learners with different abilities in mainstream classrooms. *International Journal of Disability, Development and Education*, 62(1), 42–59.  
<https://dx.doi.org/10.1080/1034912X.2014.985638>
- Engle, P. L., & Black, M. M. (2008). The effect of poverty on child development and educational outcomes. *Annals of the New York Academy of Sciences*, 1136(1), 243–256. <https://doi.org/10.1196/annals.1425.023>
- Gauvreau, A. N., Lohmann, M. J., & Hovey, K. A. (2019). Using a universal design for learning framework to provide multiple means of representation in the early childhood classroom. *The Journal of Special Education Apprenticeship*, 8(1), 1-13.  
<https://scholarworks.lib.csusb.edu/josea/vol8/iss1/3>
- Groark, C. J., Mehaffie, K. E., McCall, R. B., Greenberg, M. T. (2007). *Evidence-based practices and programs for early childhood care and education* (pp. 4-9). Corwin Press.
- Gulboy, E., Yucesoy-Ozkan, S., & Rakap, S. (2023). Embedded instruction for young children with disabilities: a systematic review and meta-analysis of single-case experimental research studies. *Early Childhood Research Quarterly*, 63, 181–193.  
<https://doi.org/10.1016/j.ecresq.2022.12.014>
- Hall, K., Sambu, W., Almeleh, C., Mabaso, K., Geise, S., & Proudlock, P. (2019). KIDS: Knowledge information & data solutions. *South African Early Childhood Review*.
- Han, F., & Degotardi, S. (2021). Infant educators' reported conceptions of, and approaches to, infant language development: how do they relate to educator qualification level?

*Early Childhood Education Journal*, 49(2), 259–271. <https://doi.org/10.1007/s10643-020-01070-4>

Horn, E. M., Palmer, S. B., Butera, G. D., Lieber, J. A., Classen, A. I., Clay, J., Drang, D., Friesen, A. M., Kang, J., & Mihai, A. (2015). Six steps to inclusive preschool curriculum : a udl-based framework for children's school success. Brookes Publishing.

Ilifa Labantwana. (2022). *Current early learning data*. Ilifa Labantwana.

<https://ilifalabantwana.co.za/>

Inclusive Education South Africa (2020). *Inclusion in education: perspectives on inclusive education in South Africa*. Retrieved from

<http://www.included.org.za/news/inclusion-in-education-perspectives-on-inclusive-education-in-south-africa-volume-3-july-2020/>

Kaderavek, J. N., Dinnebeil, L. A., & Krepps, K. (2019). Upping the ante to support language development. *Young Exceptional Children*, 22(4), 167–176. <https://doi-org.uplib.idm.oclc.org/10.1177/1096250618782165>

Karisa, A., Samuels, C., Watermeyer, B., McKenzie, J., & Vergunst, R. (2022). Priorities for access to early childhood development services for children with disabilities in South Africa. *South African Journal of Childhood Education*, 12(1), 1–7.

<https://doi.org/10.4102/sajce.v12i1.1119>

Kelly, J., Mckenzie, J., Watermeyer, B., Vergunst, R., Karisa, A., & Samuels, C. (2022). ‘We need to go back to our schools, and we need to make that change we wish to see’:

- empowering teachers for disability inclusion. *International Journal of Disability, Development and Education*, 1–17. <https://doi.org/10.1080/1034912X.2022.2141696>
- Ko, B., Wallhead, T., & Ward, P. (2006). Professional development workshops—what do teachers learn and use? *Journal of Teaching in Physical Education*, 25(4), 397–412. <https://dx.doi.org/10.1123/jtpe.25.4.397>
- Leedy, P. D., Ormrod, J. E., & Johnson, L. R. (2021). *Practical research : planning and design* (12th ed.). Pearson.
- Marlow, C. R. (2010). *Research methods for generalist social work*. Belmont. Cengage Learning.
- Marsden, E., & Torgerson, C. J. (2012). Single group, pre- and post-test research designs: Some methodological concerns. *Oxford Review of Education*, 38(5), 583–616. <https://doi.org/10.1080/03054985.2012.731208>
- Mavrou, K., & Symeonidou, S. (2014). Employing the principles of universal design for learning to deconstruct the greek-cypriot new national curriculum. *International Journal of Inclusive Education*, 18(9), 918–933. <https://doi.org/10.1080/13603116.2013.859308>
- McKenzie, J. A., & Dalton, E. M. (2020). Universal design for learning in inclusive education policy in South Africa. *African Journal of Disability*, 9, 1–8. <https://doi.org/10.4102/AJOD.V9I0.776>
- McMillan, J. H., & Schumacher, S. (2014). *Research in education evidence-based inquiry* (7th ed.). Pearson Education.

- Milton, C., Du Plessis, S., & Van der Heever, H. (2020). English as an additional language: Professional development needs of early childhood practitioners in historically disadvantaged contexts. *South African Journal of Childhood Education*, 10(1), 1–10. <https://doi.org/10.4102/sajce.v10i1.804>
- Richter, Tomlinson, Watt, Hunt, & Lindland. (2019). Early means early: understanding popular understandings of early childhood development in south africa. *Early Years*, 39(3), 295–309. <https://doi.org/10.1080/09575146.2019.1613346>
- Pallant, J. (2020). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS* (7th ed.). Allen & Unwin.
- Philpott, S. C., & Muthukrishna, N. (2019). The practice of partnerships: A case study of the disabled children’s action group, South Africa. *South African Journal of Childhood Education*, 9(1), 1–11. <https://doi.org/10.4102/sajce.v9i1.729>
- Posey, A. (2019). *Lesson planning with universal design for learning (UDL)*. Understood for All, Inc. Retrieved from <https://www.understood.org/en/articles/lesson-planning-with-universal-design-for-learning-udl>
- Republic of South Africa (RSA). (2012). *Our future: make it work: national development plan, 2030*. National Planning Commission. [https://www.gov.za/sites/default/files/gcis\\_document/201409/ndp-2030-our-future-make-it-workr.pdf](https://www.gov.za/sites/default/files/gcis_document/201409/ndp-2030-our-future-make-it-workr.pdf)
- Salkind, N. J. (2010). *Encyclopedia of research design* (N. J. Salkind (ed.)). Sage.
- Samuels, A., Stemela, U., & Booie, M. (2020). The intersection between health and education: meeting the intervention needs of children and youth with disabilities. *South African*

*Health Review*, 18(1), 171–181. <https://journals.co.za/doi/pdf/10.10520/ejc-healthrv2020-n1-a21>

Sauls, T. (2022). *NQF levels- what do they mean?* Skills Academy.

<https://www.skillsacademy.co.za/nqf-levels-what-do-they-mean/#:~:text=A NQF level 4 is, FET certificates equivalent to it.>

Sibiya, S. Z. (2021). *Deconstructing the South African National Curriculum Framework: to what extent are UDL principles incorporated into the curriculum to ensure it is differentiated for children with disabilities?* [Master's thesis, University of Pretoria]. <https://repository.up.ac.za/handle/2263/83580>

Smit, N. A. Van der Linde, J., Eccles, R., Swanepoel, D. W., & Graham, M. A. (2021).

Exploring the knowledge and needs of early childhood development practitioners from a low-resource community. *Early Childhood Education Journal*, 49(2), 197–208. <https://dx.doi.org/10.1007/s10643-020-01063-3>

Spooner, F., Baker, J. N., Harris, A. A., Ahlgrim-Delzell, L., & Browder, D. M. (2007).

Effects of training in universal design for learning on lesson plan development. *Remedial and Special Education*, 28(2), 108–116. <https://doi.org/10.1177/07419325070280020101>

Stauffer, B. (2019). What is a lesson plan and how do you make one? Applied Educational Systems, Inc. <https://www.aeseducation.com/blog/what-is-a-lesson-plan>

Stone, J. P. (2013). *Planning for universal design for learning in the early childhood inclusion classroom: a case study approved by supervising committee*. Published dissertation. The University of Texas, San Antonio.

- Storbeck, C., & Moodley, S. (2011). ECD policies in South Africa—What about children with disabilities? *Journal of African Studies and Development*, 3(1), 1–8.
- UNESCO. (2004). *UNESCO Policy Brief on Early Childhood Curriculum in Early Childhood Education and Care*. <https://unesdoc.unesco.org/ark:/48223/pf0000137401>
- Unluol Unal, N., Karal, M. A., & Tan, S. (2022). Developing accessible lesson plans with universal design for learning (UDL). *International Journal of Disability, Development and Education*, 69(4), 1442–1456. <https://doi.org/10.1080/1034912X.2020.1812539>
- Visser, M., Grossmark, J., Krüger, S., Smith, C., Van Zyl, M., Willemse, Z., & Wright, C. (2021). The challenges experienced by practitioners from under-resourced early childhood development centres in South Africa: A single site study. *South African Journal of Occupational Therapy*, 51(3), 14–24. <http://dx.doi.org/10.17159/2310-3833/2021/vol51n3a>
- World Health Organization. (2007). *International classification of functioning, disability and health: children and youth version*.
- Yoshikawa, H., Leyva, D., Snow, C. E., Treviño, E., Barata, M., Weiland, C., & Arbour, M. C. (2015). Experimental impacts of a teacher professional development program in Chile on preschool classroom quality and child outcomes. *Developmental Psychology*, 51(3), 309. <http://dx.doi.org/10.1037/a0038785>

**Appendix A**

**Letter of ethical  
clearance**



## Faculty of Humanities

Fakulteit Geesteswetenskappe  
Lefapha la Bomotho



16 September 2022

Dear Miss NZ Hlatshwayo

**Project Title:** The effect of training Early Childhood Development Practitioners on the principles of UDL to adapt lesson plans for children with communication impairments in the Communication ELDA of the National Curriculum Framework  
**Researcher:** Miss NZ Hlatshwayo  
**Supervisor(s):** Dr AE Samuels  
**Department:** Centre for Augmentative and Alternative Communication  
**Reference number:** 11359758 (HUM018/0422)  
**Degree:** Masters

I have pleasure in informing you that the above application was **approved** by the Research Ethics Committee on 16 September 2022. Please note that before research can commence all other approvals must have been received.

Please note that this approval is based on the assumption that the research will be carried out along the lines laid out in the proposal. Should the actual research depart significantly from the proposed research, it will be necessary to apply for a new research approval and ethical clearance.

We wish you success with the project.

Sincerely,

**Prof Karen Harris**  
**Chair: Research Ethics Committee**  
**Faculty of Humanities**  
**UNIVERSITY OF PRETORIA**  
**e-mail: tracey.andrew@up.ac.za**

Research Ethics Committee Members: Prof KL Harris (Chair); Mr A Blou; Dr A-M de Beer; Dr A dos Santos; Dr P Gutura; Ms KT Govinder Andrew; Dr E Johnson; Dr D Krige; Prof D Maree; Mr A Mohamed; Dr I Noomé; Dr J Okeke; Dr C Puttergill; Prof D Reyburn; Prof M Soer; Prof E Taljard; Ms D Mokalapa

Room 7-27, Humanities Building, University of Pretoria, Private Bag X20, Hatfield 0028, South Africa  
Tel +27 (0)12 420 4853 | Fax +27 (0)12 420 4501 | Email pghumanities@up.ac.za | www.up.ac.za/faculty-of-humanities

# **Appendix B**

## **ECD permission letters**



## Faculty of Humanities

Fakulteit Geesteswetenskappe  
Lefapha la Bomotha



### Centre for Augmentative and Alternative Communication

Date: 25 August

Kids-4-Success  
58 Weaver Street  
Roodepan  
Kimberley, 8301

Dear [REDACTED]

Re: Permission to conduct a research study at your Early Childhood Development Centre

My name is Nomaswazi Hlatshwayo. I am currently enrolled for a Master's degree in Augmentative and Alternative Communication (AAC) at the University of Pretoria. The title of my study is *"The effect of training Early Childhood practitioners on the principles of UDL to adapt lesson plans for children with communication impairments in the Communication ELDA of the National Curriculum Framework."*

I would be much obliged if you would permit me to include your school, in my research study.

#### **Rationale for the study**

Children in South Africa who cannot rely on natural speech for their communication are sometimes excluded from participating in classroom activities. And this is mainly due to a lack of practical guidelines provided by educational policies and/ or curricula. This often results in early education practitioners/ facilitators struggling to develop lesson plans that make provisions to include children with communication impairments in classroom activities. With the knowledge of inclusive curriculum design principles, practitioners will have guidance on curriculum adaptation. This will enable them to develop lesson plans that entail activities, resources, and assessment methods to address learner diversity. Currently, no guidance directs and assists the practitioners in enabling the participation of children with communication impairments in the South African National Curriculum Framework for children from birth to four years. This study is the first step to introducing and measuring the effects UDL training will have on developing lesson plans that address learner diversity and cater to children with communication impairment.

#### **What will be expected of the ECD Centre?**

I will require the help of the ECD centre principal/ manager to identify practitioners who will participate in the study. And to use the centre after working hours as a venue for accommodating practitioners (this may include practitioners from another participating ECD centre), collecting research data, and conducting training. Please be aware that it will be my responsibility (the researcher) to arrange data collection and training material, presentation tools (laptop and projector), refreshments, and cutlery.

#### **What will be expected of the practitioners participating in the study?**

- The interested practitioners will be expected to give consent to participate in the study by completing the participant information letter and consent form.
- Once consent is obtained, each participant will be required to complete a Biographical Questionnaire to get background information.
- A single group pre-test post-test study will be conducted with a group of eight participants, and the following will be expected from the participants with regard to data collection:

Centre for Augmentative and Alternative Communication  
Communication Pathology Building  
Lynwood Road, Hatfield  
University of Pretoria, Private Bag X20  
Hatfield 0028, South Africa  
Tel +27 (0)12 420 2001 | Fax +27 086 510 0841  
Email: saak@up.ac.za | Web address: www.caac.up.ac.za



## Faculty of Humanities

Fakulteit Geesteswetenskappe  
Lefapha la Bomotho



### Centre for Augmentative and Alternative Communication

- All the participants participating in the study will be grouped into a single group
- Participants will be orientated to two hypothetical case studies on learners with communication difficulties
- Participants will be expected to write up a pre-test and a post-test lesson plan (a basic lesson plan will be provided) for an activity of the Communication ELDA of the NCF, taking the subjects in the case studies into consideration
- Participants will be expected to attend a 2-hour training on the UDL principles. This training will be conducted immediately after the pre-test session

#### The following ethical principles will be upheld within this study:

- Permission will be obtained from ECD principal/manager (see attached)
- Written consent from all practitioners will be obtained before conducting the study
- All practitioners will be made aware of their right to withdraw from the study at any point in time without any negative consequences implicated.
- All information will be kept confidential from those external to the study. Any identifying information will be removed from the forms (e.g., names of people). No individual or school names will be mentioned in any published data.

#### Who will have access to the results of the study?

The research will be stored in both hard copy and electronic format at the University of Pretoria in the Centre for Augmentative and Alternative Communication for 15 years. The data obtained from the research will be used to write a Master's dissertation, write scientific papers, and for presentations at professional conferences and seminars. A summary of the results will be made available for any interested staff or practitioners.

#### What are the risks and the benefits?

During the research participation, the practitioners will not be at risk of any harm. The practitioners will not miss out on their daily programs by participating in this research. Potential benefits of this study may include extending research within the field of AAC and providing empirical evidence to help guide practitioners when designing and adapting curriculum activities for children with communication impairments who need AAC as their means of communication for participation in educational activities.

Please feel free to contact my supervisors or me if you have any questions about this study. I look forward to receiving your response.

Kind regards,

[Redacted signature]

Nomaswazi Hlatswayo  
Swazie517@gmail.com  
064 684 0540

[Redacted signature]

Dr Aecia Samuels (Supervisor)  
Centre for Augmentative and Alternative Communication  
[aecia.samuels@up.ac.za](mailto:aecia.samuels@up.ac.za)  
012 420 2001

25 August 2022  
Date

29 August 2022  
Date

Centre for Augmentative and Alternative Communication  
Communication Pathology Building  
Lynwood Road, Hatfield  
University of Pretoria, Private Bag X20  
Hatfield 0028, South Africa  
Tel +27 (0)12 420 2001 | Fax +27 086 510 0841  
Email: [seek@up.ac.za](mailto:seek@up.ac.za) | Web address: [www.caac.up.ac.za](http://www.caac.up.ac.za)

Principal/Manager permission reply slip

August 2022

ECD Principal/manager [redacted]  
Kids-4-Success  
58 Weaver Street, Roodepan  
Kimberley, 8301

**Project title:** The effect of training Early Childhood practitioners on the principles of UDL to adapt lesson plans for children with communication impairments in the Communication ELDA of the National Curriculum Framework.

**Researcher:** Nomaswazi Hlatshwayo  
(MA AAC Student University of Pretoria)

**Supervisor:** Dr. Alecia Samuels  
(Centre for Augmentative and Alternative Communication: University of Pretoria)

**Project Title:** *The effect of training Early Childhood practitioners on the principles of UDL to adapt lesson plans for children with communication impairments in the Communication ELDA of the National Curriculum Framework*

I, [redacted] (Name and Surname), in my capacity as the  
PRINCIPAL (designation) of Kids-4-Success

Please tick box that applies

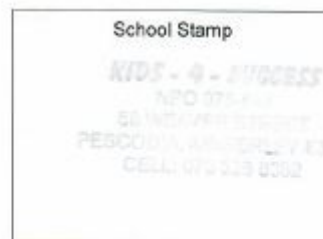
Give permission to Nomaswazi Hlatshwayo to recruit ECD practitioners from the school named above for possible participation in the study entitled: *"The effect of training Early Childhood practitioners on the principles of UDL to adapt lesson plans for children with communication impairments in the Communication ELDA of the National Curriculum Framework"*, conducted by (your name), under the supervision of (supervisor's name). This permission is voluntary, and I understand that I may have it at any time. I understand that participating learners will be audio-recorded. I understand that the data will be stored for 15 years at the CAAC and that all data will be treated confidentially. I understand that the data may be re-used for analysis. I understand that the data may be used for scientific articles and conference presentations. I understand that all information used and obtained in this study will be treated as confidential.

OR

Do not give permission to Nomaswazi Hlatshwayo to recruit ECD practitioners from the school name above for possible participation in the study entitled: *"The effect of training Early Childhood practitioners on the principles of UDL to adapt lesson plans for children with communication impairments in the Communication ELDA of the National Curriculum Framework"*.

[redacted]  
Signature

Date: 08-09-22





## Faculty of Humanities

Fakulteit Geesteswetenskappe  
Lefapha la Bomotho



### Centre for Augmentative and Alternative Communication

Date: 25 August

Principal/manager  
Galeshewe Day Care  
47 Tyson Street, Galeshewe  
Kimberley, 8301

Dear [REDACTED]

Re: Permission to conduct a research study at your Early Childhood Development Centre

My name is Nomaswazi Hlatshwayo. I am currently enrolled for a Master's degree in Augmentative and Alternative Communication (AAC) at the University of Pretoria. The title of my study is "The effect of training Early Childhood practitioners on the principles of UDL to adapt lesson plans for children with communication impairments in the Communication ELDA of the National Curriculum Framework."

I would be much obliged if you would permit me to include your school, Galeshewe Day Care in my research study.

#### **Rationale for the study**

Children in South Africa who cannot rely on natural speech for their communication are sometimes excluded from participating in classroom activities. And this is mainly due to a lack of practical guidelines provided by educational policies and/ or curricula. This often results in early education practitioners/ facilitators struggling to develop lesson plans that make provisions to include children with communication impairments in classroom activities. With the knowledge of inclusive curriculum design principles, practitioners will have guidance on curriculum adaptation. This will enable them to develop lesson plans that entail activities, resources, and assessment methods to address learner diversity. Currently, no guidance directs and assists the practitioners in enabling the participation of children with communication impairments in the South African National Curriculum Framework for children from birth to four years. This study is the first step to introducing and measuring the effects UDL training will have on developing lesson plans that address learner diversity and cater to children with communication impairment.

#### **What will be expected of the ECD Centre?**

I will require the help of the ECD centre principal/ manager to identify practitioners who will participate in the study. And to use the centre after working hours as a venue for accommodating practitioners (this may include practitioners from another participating ECD centre), collecting research data, and conducting training. Please be aware that it will be my responsibility (the researcher) to arrange data collection and training material, presentation tools (laptop and projector), refreshments, and cutlery.

#### **What will be expected of the practitioners participating in the study?**

- The interested practitioners will be expected to give consent to participate in the study by completing the participant information letter and consent form.
- Once consent is obtained, each participant will be required to complete a Biographical Questionnaire to get background information.
- A single group pre-test post-test study will be conducted with a group of eight participants, and the following will be expected from the participants with regard to data collection:

Centre for Augmentative and Alternative Communication  
Communication Pathology Building  
Lynwood Road, Hatfield  
University of Pretoria, Private Bag X20  
Hatfield 0028, South Africa  
Tel +27 (0)12 420 2001 | Fax +27 086 510 0841  
Email: saak@up.ac.za | Web address: www.caac.up.ac.za



## Faculty of Humanities

Fakulteit Geesteswetenskappe  
Lefapha la Bomotho



### Centre for Augmentative and Alternative Communication

- All the participants participating in the study will be grouped into a single group
- Participants will be orientated to two hypothetical case studies on learners with communication difficulties
- Participants will be expected to write up a pre-test and a post-test lesson plan (a basic lesson plan will be provided) for an activity of the Communication ELDA of the NCF, taking the subjects in the case studies into consideration
- Participants will be expected to attend a 2-hour training on the UDL principles. This training will be conducted immediately after the pre-test session

#### The following ethical principles will be upheld within this study:

- Permission will be obtained from ECD principal/manager (see attached)
- Written consent from all practitioners will be obtained before conducting the study
- All practitioners will be made aware of their right to withdraw from the study at any point in time without any negative consequences implicated.
- All information will be kept confidential from those external to the study. Any identifying information will be removed from the forms (e.g., names of people). No individual or school names will be mentioned in any published data.

#### Who will have access to the results of the study?

The research will be stored in both hard copy and electronic format at the University of Pretoria in the Centre for Augmentative and Alternative Communication for 15 years. The data obtained from the research will be used to write a Master's dissertation, write scientific papers, and for presentations at professional conferences and seminars. A summary of the results will be made available for any interested staff or practitioners.

#### What are the risks and the benefits?

During the research participation, the practitioners will not be at risk of any harm. The practitioners will not miss out on their daily programs by participating in this research. Potential benefits of this study may include extending research within the field of AAC and providing empirical evidence to help guide practitioners when designing and adapting curriculum activities for children with communication impairments who need AAC as their means of communication for participation in educational activities.

Please feel free to contact my supervisors or me if you have any questions about this study. I look forward to receiving your response.

Kind regards,



Nomaswazi Hlatswayo  
Swazie517@gmail.com  
064 684 0540

25 August 2022  
Date



Dr Alecia Samuels (Supervisor)  
Centre for Augmentative and Alternative Communication  
[alecia.samuels@up.ac.za](mailto:alecia.samuels@up.ac.za)  
012 420 2001

29 August 2022  
Date

Centre for Augmentative and Alternative Communication  
Communication Pathology Building  
Lynwood Road, Hatfield  
University of Pretoria, Private Bag X20  
Hatfield 0028, South Africa  
Tel +27 (0)12 420 2001 | Fax +27 086 510 0841  
Email: [seek@up.ac.za](mailto:seek@up.ac.za) | Web address: [www.caac.up.ac.za](http://www.caac.up.ac.za)

Principal/Manager permission reply slip

August 2022

Principal/manager: [REDACTED]  
Galeshewe Day Care  
47 Tyson Street, Galeshewe  
Kimberley, 8301

**Project title:** The effect of training Early Childhood practitioners on the principles of UDL to adapt lesson plans for children with communication impairments in the Communication ELDA of the National Curriculum Framework.

**Researcher:** Nomaswazi Hlatshwayo  
(MA AAC Student University of Pretoria)

**Supervisor:** Dr. Alecia Samuels  
(Centre for Augmentative and Alternative Communication: University of Pretoria)

**Project Title:** *The effect of training Early Childhood practitioners on the principles of UDL to adapt lesson plans for children with communication impairments in the Communication ELDA of the National Curriculum Framework*

I, [REDACTED] (Name and Surname), in my capacity as the  
Principal (designation) of Galeshewe Day Care

Please tick box that applies

Give permission to Nomaswazi Hlatshwayo to recruit ECD practitioners from the school named above for possible participation in the study entitled; *"The effect of training Early Childhood practitioners on the principles of UDL to adapt lesson plans for children with communication impairments in the Communication ELDA of the National Curriculum Framework."*, conducted by (your name), under the supervision of (supervisor's name). This permission is voluntary, and I understand that I may have it at any time. I understand that participating learners will be audio-recorded. I understand that the data will be stored for 15years at the CAAC and that all data will be treated confidentially. I understand that the data may be re-used for analysis. I understand that the data may be used for scientific articles and conference presentations. I understand that all information used and obtained in this study will be treated as confidential

OR

Do not give permission to Nomaswazi Hlatshwayo to recruit ECD practitioners from the school name dabove for possible participation in the study entitled; *"The effect of training Early Childhood practitioners on the principles of UDL to adapt lesson plans for children with communication impairments in the Communication ELDA of the National Curriculum Framework"*.

Signature [REDACTED]

Date: 05/09/2022

School Stamp



GALESHEWE EDUCARE CENTRE  
47 TYSON ROAD, GALESHEWE  
PO BOX 1144  
KIMBERLEY 8300  
TEL/FAX: 063 871 3220  
sinolhardo@vodanet.co.za

# **Appendix C**

## **Practitioner permission letter**

22 August 2022

**Letter of informed consent**

Dear ECD practitioner

Re: Permission to conduct a research study at you Early Childhood Development (ECD) Centre

My name is **Nomaswazi Hlatshwayo**. I am currently enrolled for a Master's degree in Augmentative and Alternative Communication (AAC) at the University of Pretoria. The title of my study is: ***"The effect of training Early Childhood practitioners on the principles of UDL to adapt lesson plans for children with communication impairments in the Communication ELDA of the National Curriculum Framework"***.

I would be much obliged if you would permit me to include you to participate in my research project.

**The rationale for the study:**

Children in South Africa who cannot rely on natural speech for their communication are sometimes excluded from participating in classroom activities. And this is mainly due to a lack of practical guidelines provided by educational policies and/ or curricula. This often results in early education practitioners/ facilitators struggling to develop lesson plans that make provisions to include children with communication impairments in classroom activities. With the knowledge of inclusive curriculum design principles, practitioners will have guidance on curriculum adaptation.

**What will be expected of the practitioner participating in the study?**

- The interested practitioners will be expected to give consent to participate in the study by completing the participant consent form.
- Once consent is obtained, each participant will be required to complete a Biographical Questionnaire to get background information.
- A single group pre-test post-test study will be conducted with a group of eight participants, and the following will be expected from the participants with regards to data collection:
  - All the participants participating in the study will be grouped into a single group
  - Participants will be orientated to two hypothetical case studies on learners with communication difficulties
  - Participants will be expected to write up a pre-test and a post-test lesson plan (a basic lesson plan will be provided) for an activity of the Communication ELDA of the NCF, taking the subjects in the case studies into consideration
  - Participants will be expected to attend and participate in a 2-hour training session on the UDL principles. This training will be conducted immediately after the pre-test session

**The following ethical principles will be upheld within this study:**

- Permission will be obtained from ECD principal/manager (see attached), and each participant
- Written consent from all practitioners will be obtained before conducting the study
- All practitioners will be made aware of their right to withdraw from the study at any point in time without any negative consequences implicated
- All information will be kept confidential from those external to the study. Any identifying information will be removed from the forms (e.g., names of people). No individual or school names will be mentioned in any published data

**Who will have access to the results of the study?**

The research data will be stored in both hard copy and electronic format at the University of Pretoria in the Centre for Augmentative and Alternative Communication for 15 years. The data obtained from the research will be used to write a Master's dissertation thesis, write scientific papers, and for presentations at professional conferences and seminars. A summary of the results will be made available for any interested staff or practitioners.

**What are the risks and the benefits of participating in this study?**

During the research participation, the practitioners will not be at risk of any harm. The practitioners will not miss out on their daily programs by participating in this research. Potential benefits of this study may include extending research within the field of AAC and providing empirical evidence to help guide practitioners when designing and adapting curriculum activities for children with communication difficulties who need AAC as their means of communication for participation in educational activities.

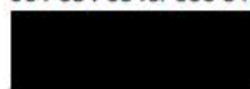
Please feel free to contact me or my supervisor if you have any questions about this study. I look forward to receiving your response.

Kind regards,



Nomaswazi Hlatshwayo  
MA AAC student  
[Swazie517@gmail.com](mailto:Swazie517@gmail.com)  
064 684 0540/ 066 517 6418

Date: 25 August 2022



Dr. Alecia Samuels  
Centre for Augmentative and Alternative Communication  
Research supervisor  
[alecia.samuels@up.ac.za](mailto:alecia.samuels@up.ac.za)  
012 420 4727

Date: 29 August 2022

Centre for Augmentative and Alternative Communication  
Communication Pathology Building  
Lynwood Road, Hatfield  
University of Pretoria, Private Bag X20  
Hatfield 0028, South Africa  
Tel +27 (0)12 420 2001 | Fax +27 086 510 0841  
Email: [saak@up.ac.za](mailto:saak@up.ac.za) | Web address: [www.caac.up.ac.za](http://www.caac.up.ac.za)

**Practitioner consent form**

**Project title:** The effect of training Early Childhood practitioners on the principles of UDL to adapt lesson plans for children with communication impairments in the Communication ELDA of the National Curriculum Framework.

**Researcher:** Nomaswazi Hlatshwayo  
(MA AAC Student University of Pretoria)

**Supervisor:** Dr. Alecia Samuels  
(Centre for Augmentative and Alternative Communication Lecturer)

I, \_\_\_\_\_, (name and surname)

(Please tick the box below that applies)

**Give permission** to (Nomaswazi Hlatshwayo) to participate in the study entitled; *"The effect of training Early Childhood practitioners on the principles of UDL to adapt lesson plans for children with communication impairments in the Communication ELDA of the National Curriculum Framework"*, to be conducted under the supervision of (Dr. Alecia Samuels). This permission is voluntary, and I understand that I may have it at any time. I understand that the data collected will be stored for 15 years at the CAAC and that all the data and information obtained in this study will be treated confidentially. I understand that the data may be re-used for analysis. I understand that the data may be used for scientific articles and conference presentations.

**OR**

**Do not give permission** to (Nomaswazi Hlatshwayo) to participate in the study entitled; *"The effect of training Early Childhood practitioners on the principles of UDL to adapt lesson plans for children with communication impairments in the Communication ELDA of the National Curriculum Framework"*.

\_\_\_\_\_  
Signature

Date: \_\_\_\_\_

# **Appendix D**

## **Biographical questionnaire**



Participant No. \_\_\_\_



#### APPENDIX D: Biographical questionnaire

Participant name and Surname:

Name of ECD Centre:

Age:

Date:

**Instruction: Kindly complete this confidential questionnaire by filling in the blank spaces and ticking the preferred option.**

1. What is your highest level of qualification? \_\_\_\_\_
2. What is your teaching experience (years)? \_\_\_\_\_
3. How many years have you been working in ECD? \_\_\_\_\_
4. What is your position at the ECD centre? \_\_\_\_\_
5. How long have you been working in the current position? \_\_\_\_\_

---

Faculty of Humanities  
Fakulteit Geesteswetenskappe  
Lefapha la Bomotheo

6. Do you intend to study further towards an ECD-related qualification? (If yes, please describe the qualification) \_\_\_\_\_
7. What is the Language of Teaching and Learning in the classroom? \_\_\_\_\_
8. How many learners do you have in the classroom? \_\_\_\_\_
9. How many learners have communication difficulties in your classroom? \_\_\_\_\_
10. What are the kind of communication difficulties of the learners in your classroom?  
\_\_\_\_\_  
\_\_\_\_\_
11. a) Do you have the knowledge or have you been trained on the South African National Curriculum Framework (NCF) for children from birth to four years?
- Yes
- No
- b) If yes, when and what kind of training did you receive?  
\_\_\_\_\_  
\_\_\_\_\_
12. Do you have a copy of the South African National Curriculum Framework (NCF)?
- Yes
- No

13. a). Do you implement the South African National Curriculum Framework (NCF) in your classroom?

Yes   
No

b) If yes, briefly explain how you do this.

---

---

14. Do you use a lesson plan for your classroom activities?

Yes   
No

15. Can you read in English?

Yes   
No

16. Can you write in English?

Yes   
No

17. What is your preferred language?

---

# **Appendix E**

## **Pre-test/post-test basic lesson plan template**

**APPENDIX E: Basic lesson plan template**

Lesson plan adapted from appendix 4A: Activity Plan Form (Horn et al., 2016)

⊕ Theme:

**Name of activity:**

**NCF objectives/ aims**

**Activity learning outcomes**

**Materials**



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

*HumanITIES* 100.  
— 1919 - 2019 —  
*Centre for Augmentative  
& Alternative Communication*

**Key vocabulary**

**Activity outline and assessment**



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA



**Addressing Universal Design for Learning (UDL) for children with and without communication impairments**

**Reflection and evaluation**

**(reflect on what worked during the implementation of the activity and what needs improvement)**

# **Appendix F**

## **Pre-test case study**

#### APPENDIX F: Pretest case study

Anelisa is a four-year-old girl in the pre-grade R class at the ECD centre. She has speech problems; her speech is unclear due to a tongue tie which will be operated on in six months. Although she has unclear speech, she uses two-word sentences, which are unclear, and gestures (e.g., pointing to what she wants) to communicate.

Anelisa follows instructions well and can often complete classroom tasks that do not require oral speech. She has recently become aware of her difficulties expressing herself orally and usually prefers not to answer questions and participate in activities that require her to express herself orally.

The following are the Communication ELDA goals and activities from the National Curriculum Framework (NCF) that will be implemented for the lesson.

#### NCF COMMUNICATION ELDA COMPETENCIES

1. Children speak using different styles of communication relationships
  - Continue to introduce new words and ideas through games, play, and storytelling
2. Children record their experiences and ideas through language, sounds, art, drama and play, and later on, 'writing.'
  - Provide literacy materials as part of make-believe play so that children can pretend to read and write and so show that they understand what print is for.

#### TASK

Using the lesson plan provided, please indicate how you would go about adapting the lesson plan for Anelisa to ensure that she can to ensure that she can meet these competencies.

# **Appendix G**

## **Post-test case study**

#### APPENDIX G: Post-test Case study

Brandon is a four-year-old boy in the pre-grade R class at the ECD centre. He is diagnosed with Cerebral Palsy and language delay. Brandon has motor difficulties. His right hand is stiff and contracted, with the hand held firm and closed into a fist. However, he can actively move his left arm and reaches objects with his left hand. Brandon experiences difficulties with verbal expression. He uses sounds, single words which are not clear, gestures (e.g., points with his left hand), and facial expressions to communicate. Brandon can follow instructions, but his level of understanding is not the same as that of his peers.

Brandon enjoys morning activities and story time. He also listens attentively during story time, shows some understanding through facial expressions, and usually laughs when the reader expresses humour. He, however, struggles to participate in the question-answer session after story time. He only makes sounds in response to any question directed at him.

The following are the Communication ELDA goals and activities from the National Curriculum Framework (NCF) that will be implemented for the lesson.

#### NCF COMMUNICATION ELDA COMPETENCIES

1. Children speak using different styles of communication relationships
  - Continue to introduce new words and ideas through games, play, and storytelling
2. Children make meaning by 'reading' what they see, hear, feel, taste and touch
  - Continue to read stories from picture books
3. Children record their experiences and ideas through language, sounds, art, drama and play, and later on, 'writing.'
  - Provide literacy materials as part of make-believe play so that children can pretend to read and write and so show that they understand what print is for.

#### TASK

Using the lesson plan provided, please indicate how you would go about adapting the lesson plan for Brandon to ensure that he can meet these competencies.

# **Appendix H**

## **UDL training manual**



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA



# UNIVERSAL DESIGN FOR LEARNING

## PRACTITIONER TRAINING MAUAL

<https://drive.google.com/file/d/1xED0MTVf9tpF7MmGrJ009cxbhHAJejI/view?usp=sharing>



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

HumanITIES 100.  
— 1919 - 2019 —  
*Centre for Augmentative  
& Alternative Communication*

# UNIVERSAL DESIGN FOR LEARNING

## INSTRUCTOR TRAINING MAUAL

<https://drive.google.com/file/d/132W4UdgDbhYz12L1QLdA81X5zPbpXMI5/view?usp=sharing>

**Appendix I**

**UDL training**

**PowerPoint presentation**



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

## Faculty of Humanities

Fakulteit Geesteswetenskappe  
Lefapha la Bomotheo

### UNIVERSAL DESIGN FOR LEARNING TRAINING

Nomaswazi Hlatshwayo  
(Masters in Augmentative and Alternative Communication student)



[https://drive.google.com/file/d/1BvIbu\\_AWjCpgpjo2WmGnacreA2Q7rPI7/view?usp=sharing](https://drive.google.com/file/d/1BvIbu_AWjCpgpjo2WmGnacreA2Q7rPI7/view?usp=sharing)

# **Appendix J**

## **Procedural checklist**

**APPENDIX J: Procedural checklist**

**PROCEDURAL CHECKLIST**

Time		Training Session Content	Tick on Completion
	<b>Welcome and Introduction</b>		
	<b>UDL training introduction and rationale</b>		
	<b>How to use the manual</b>		
	<b>Keys/icons meanings</b>		
	<b>TOPIC 1:</b>		
	<b>Learning Objectives</b>		
	<b>Materials and Equipment</b>		
	<b>Key concepts</b>		



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

*Human*ITIES 100.  
— 1919 - 2019 —  
Centre for Augmentative  
& Alternative Communication

	<b>Learning content</b>		
	<b>Video</b>		
	<b>Discussion</b>		
	<b>Activity</b>		
<b>TOPIC 2:</b>			
	<b>Learning Objectives</b>		
	<b>Materials and Equipment</b>		
	<b>Key concepts</b>		
	<b>Learning content</b>		
	<b>Discussion</b>		
	<b>Activity</b>		
<b>TOPIC 3:</b>			
	<b>Learning Objectives</b>		
	<b>Materials and Equipment</b>		
	<b>Key concepts</b>		
	<b>Video</b>		

Faculty of Humanities  
Fakulteit Geesteswetenskappe  
Lefapha la Bomo



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

*HumanITIES* 100.  
— 1919 - 2019 —  
Centre for Augmentative  
& Alternative Communication

	<b>Learning content</b>		
	<b>Discussion</b>		
	<b>Topic 4:</b>		
	<b>Learning Objectives</b>		
	<b>Materials and equipment</b>		
	<b>Key concepts</b>		
	<b>Learning content</b>		
	<b>Activity</b>		
	<b>Practical</b>		
	<b>Learning Objectives</b>		
	<b>Materials and equipment</b>		
	<b>Case study</b>		
	<b>NCF competencies and anticipating variability using UDL</b>		

Faculty of Humanities  
Fakulteit Geesteswetenskappe  
Lefapha la Bomotheo



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

HumanITIES 100.  
— 1919 - 2019 —  
*Centre for Augmentative  
& Alternative Communication*

	<b>Adapting lesson plan</b>		
	<b>Conclusion</b>		

---

Faculty of Humanities  
Fakulteit Geesteswetenskappe  
Lefapha la Bomo

# **Appendix K**

## **Scoring rubric**

**APPENDIX K: Scoring rubric (Spooner et al., 2007)**

Objective (UDL principles)	Score		
	0	1	2
Representation	No clear description of modifying materials to provide equal access to all students	Discusses one or two modifications of materials to provide equal access, but needs to be explained more in depth	Discusses three or more modifications of materials to provide equal access to all students; gives clear and precise explanations
Expression	No clear description of providing alternative communication methods	Discusses at least one alternative communication method, but needs to be explained more in depth	Discusses two or more alternative communication methods; gives clear and precise explanations
Engagement	No clear description of strategies to involve or engage students with disabilities	Discusses one or two strategies to involve students with disabilities, but needs to be explained more in depth	Discusses three or more strategies to involve students with disabilities; gives clear and precise explanations

Spooner, F., Baker, J. N., Harris, A. A., Ahlgrim-Delzell, L., & Browder, D. M. (2007). Effects of training in universal design for learning on lesson plan development. *Remedial and Special Education, 28*(2), 108–116. <https://doi.org/10.1177/07419325070280020101>

**Appendix L**

**The South African National  
Curriculum Framework for  
children from birth to four  
years**

**THE SOUTH AFRICAN NATIONAL  
CURRICULUM FRAMEWORK**  
FOR CHILDREN FROM BIRTH TO FOUR

COMPREHENSIVE VERSION



basic education  
Department:  
Basic Education  
REPUBLIC OF SOUTH AFRICA

unicef   
unite for children

<https://www.unicef.org/southafrica/media/911/file/SAF-national-curriculum->

**Appendix M**

**Declaration of language  
editing**

JANINE ELLIS  
LANGUAGE EDITING / TRANSCRIPTION / TYPING  
[janine.ellis4@gmail.com](mailto:janine.ellis4@gmail.com)  
Cell: 083-6563660

Client

Nomaswazi Zandile Hlatshwayo	P O Box 28164
Student No. 11359758	Sunridge Park
Mini-dissertation	6008
University of Pretoria	
	22 June 2023

DECLARATION

To whom it may concern,

I hereby declare that I language edited the mini-dissertation authored by Nomaswazi Hlatshwayo, titled: *The effect of training early childhood practitioners on the principles of UDL to adapt lesson plans for children with communication impairments in the communication ELDA of the National Curriculum Framework*

All aspects of this mini-dissertation were carefully looked at, corrections made and suggestions given with regards to certain wording and sentence structure, however, the academic content was not influenced in any way. The layout and presentation as well as the referencing of this mini-dissertation were edited as per the referencing and technical/style template/guide provided by the client. Final acceptance of all proposed corrections/changes/comments is at the discretion of the author.

Kind regards

*Janine Ellis*

Janine Ellis