

CONTENTS

ABSTRACT.....	i
DECLARATION	iii
ACKNOWLEDGEMENTS.....	iv
LIST OF FIGURES.....	x
LIST OF TABLES	xii
LIST OF APPENDICES	xiii
ACRONYMS	xiv
CHAPTER 1: ORIENTATION TO THE STUDY	1
1.1 Introduction.....	1
1.2 Justification for the Study	3
1.2.1 Why barriers to learning?.....	3
1.2.2 Why a transdisciplinary collaborative approach?	4
1.3 Theoretical Framework.....	8
1.4 PROBLEM STATEMENT AND Research Questions	13
1.5 Research Aims	14
1.6 Research Method	15
1.6.1 Quantitative research	16
1.6.2 Qualitative research.....	16
1.6.3 Data analysis	17
1.7 Ethics Considerations.....	17
1.8 Contribution of the Study	18
1.9 Definition of Key Terms	18
1.10 Outline of Chapters.....	19
CHAPTER 2: LITERATURE REVIEW: BARRIERS TO LEARNING	20
2.1 Introduction.....	20
2.2 An Ecosystem Perspective on Barriers to Learning.....	20
2.3 External Factors Causing Barriers to Learning	23
2.3.1 Socio-economic climate.....	23
2.3.2 Learners being instructed in their second language	24
2.4 Internal Factors Causing Barriers to Learning	25
2.4.1 Learning difficulties.....	27
2.4.1.1 <i>Historical perspectives on defining learning difficulties</i>	27

2.4.1.2	<i>Historical perspectives on learning difficulties in South Africa</i>	31
2.4.1.3	<i>Classification and identification of learning difficulties</i>	32
2.4.2	Learning disabilities	37
2.4.2.1	<i>Intellectual disability/impairment</i>	38
2.4.2.2	<i>Sensory disabilities</i>	39
2.4.2.3	<i>Physical disabilities</i>	40
2.4.2.4	<i>Autism spectrum disorder</i>	41
2.5	Identification and Support of Learners Experiencing Barriers to Learning ...	42
2.5.1	Professional collaboration in identification and support of learners experiencing barriers to learning.....	43
2.6	Conclusion.....	46
CHAPTER 3: LITERATURE STUDY: TOWARDS AN UNDERSTANDING OF TRANSDISCIPLINARITY		47
3.1	Introduction.....	47
3.2	Interprofessional Collaboration	47
3.2.1	Interprofessional collaboration: an international perspective	48
3.2.2	Interprofessional collaboration in South African health and educational care	49
3.2.3	Defining interprofessional collaboration.....	50
3.2.4	Teaming in interprofessional collaboration	51
3.2.5	Ethics and values in interprofessional collaboration	53
3.2.6	Person-centred approach in interprofessional collaboration	54
3.2.7	Models of interprofessional care.....	55
3.3	Transdisciplinarity.....	59
3.3.1	History of transdisciplinarity	59
3.3.2	Defining transdisciplinarity	61
3.4	Application of Transdisciplinary Service Delivery in Supporting Learners Experiencing Barriers to Learning	64
3.4.1	Arena assessment.....	64
3.4.2	Interaction and cooperation among team members	65
3.4.3	Role release	65
3.5	Benefits of a Transdisciplinary Service Delivery Model	67
3.6	Challenges of the Transdisciplinary Approach.....	68
3.7	Conclusion.....	68
CHAPTER 4: CHAPTER 4: EMPIRICAL RESEARCH DESIGN		70

4.1	Introduction.....	70
4.2	Research Aims	70
4.2.1	Research Question.....	70
4.3	Research Paradigm.....	72
4.3.1	Pragmatism as research paradigm.....	74
4.4	Research Design	75
4.4.1	Mixed methods design.....	75
4.4.2	Sequential mixed methods design.....	76
4.4.3	Quantitative paradigm	79
4.4.4	Qualitative paradigm.....	80
4.5	Stage 1: Quantitative Research Method.....	80
4.5.1	Data collection: Questionnaire.....	81
4.5.2	Participants.....	81
4.5.3	Data analysis and interpretation	82
4.5.4	Validity	83
4.5.5	Advantages and disadvantages of quantitative data	83
4.6	Stage 2: Qualitative Research Method	83
4.6.1	Data collection: Focus group discussions.....	85
4.6.2	Participants.....	86
4.6.2.1	<i>Characteristics of participants</i>	89
4.6.3	Data analysis and interpretation	92
4.6.3.1	<i>Data analysis process</i>	94
4.6.4	Evaluating quality	97
4.6.4.1	<i>Credibility</i>	97
4.6.4.2	<i>Transferability</i>	98
4.6.4.3	<i>Dependability</i>	98
4.6.4.4	<i>Confirmability</i>	99
4.6.5	Advantages and disadvantages of qualitative research.....	99
4.7	Data Integration	100
4.8	Ethics Considerations	100
4.9	Conclusion.....	101
	CHAPTER 5: DATA ANALYSIS AND INTERPRETATION.....	102
5.1	Introduction.....	102
5.2	Analysis and Interpretation of Quantitative Data.....	102
5.2.1	Response rates, validity and reliability.....	103

5.2.2	Professionals providing services to learners experiencing barriers to learning	104
5.2.3	Collaborative service delivery approaches	108
5.2.4	Previous exposure to a transdisciplinary approach	110
5.3	Analysis and Interpretation of Qualitative Data.....	111
5.3.1	Themes and subthemes	113
5.3.1.1	<i>Theme 1: Transdisciplinary service delivery</i>	<i>113</i>
5.3.1.2	<i>Theme 2: Parents and teachers as part of a transdisciplinary team.....</i>	<i>123</i>
5.3.1.3	<i>Theme 3: Advantages of the transdisciplinary approach</i>	<i>127</i>
5.3.1.4	<i>Theme 4: Challenges of the transdisciplinary approach</i>	<i>132</i>
5.4	Conclusion.....	137
CHAPTER 6: DISCUSSION, CONCLUSION AND RECOMMENDATIONS.....		138
6.1	Introduction.....	138
6.2	Theoretical Framework.....	138
6.3	Aim of the Study	140
6.4	Professionals' Perceptions of a Transdisciplinary Service Delivery Approach	141
6.4.1	Professionals' perceptions of the operational features of a transdisciplinary approach.....	141
6.4.1.1	<i>Arena assessment.....</i>	<i>142</i>
6.4.1.2	<i>Multiskilling and role release</i>	<i>142</i>
6.4.2	Professionals' perceptions of the parents and teachers as part of the transdisciplinary team	145
6.4.3	Professionals' perceptions of the advantages of the transdisciplinary approach.....	146
6.4.3.1	<i>Advantages related to quality of care</i>	<i>146</i>
6.4.3.2	<i>Financial advantages</i>	<i>148</i>
6.4.3.3	<i>Advantages of the transdisciplinary versus other collaborative approaches</i>	<i>149</i>
6.4.4	Professionals' perceptions of the challenges of a transdisciplinary approach	150
6.5	Contributions of the Study	152
6.6	Recommendations.....	153
6.6.1	The practice of service delivery	153
6.6.2	Professional training institutes	154
6.6.3	Medical insurance companies	154
6.6.4	Further research	155

6.8	Conclusion.....	158
	LIST OF REFERENCES	160
	APPENDICES.....	174

LIST OF FIGURES

Figure 1.1: Lines of interaction and communication in multidisciplinary collaboration.....	6
Figure 1.2: Lines of interaction and communication in interdisciplinary collaboration.....	7
Figure 1.3: Lines of interaction and communication in transdisciplinary collaboration.....	7
Figure 1.4: Theoretical framework for this study	9
Figure 1.5: Bronfenbrenner's nested systems	12
Figure 2.1: Levels of process related to education	22
Figure 2.2: The negative cycle created by poverty	24
Figure 2.3: The classification of learning disorders	26
Figure 2.4: Timeline: Development of educational support for learners experiencing learning difficulties in North America	27
Figure 2.5: Supporting learners experiencing barriers to learning: A multidisciplinary field.....	44
Figure 3.1: Models of interprofessional care	48
Figure 3.2: Competencies necessary for interprofessional teamwork	52
Figure 3.3: Patient-/client-centred care	55
Figure 3.4: Lines of interaction and communication in multidisciplinary collaboration.....	56
Figure 3.5: Lines of interaction and communication in interdisciplinary collaboration.....	57
Figure 3.6: Lines of interaction and communication in transdisciplinary collaboration.....	58
Figure 3.7: Levels of system related to the education process.....	63
Figure 3.8: The process of role	67
Figure 4.1: The research design	72
Figure 4.2: Sequential mixed methods design	78
Figure 4.3: Process of data analysis as proposed by Miles <i>et al.</i> , 2014A.....	94
Figure 4.4: Levels of abstraction in data analysis.....	96

Figure 5.1: Professionals providing services to learners experiencing barriers to learning	106
Figure 5.2: Professional categories supporting learners experiencing barriers to learning	107
Figure 6.1: Integration of findings	141

LIST OF TABLES

Table 4.1: Random Selection of Occupational Therapists and Physiotherapists	82
Table 4.2: Criteria for selection of participants of focus groups	88
Table 4.3: Characteristics of group 1	89
Table 4.4: Characteristics of group 2	89
Table 4.5: Characteristics of group 3	90
Table 4.6: Characteristics of group 4	90
Table 4.7: Characteristics of group 5	91
Table 4.8: Characteristics of group 6	91
Table 4.9: Characteristics of group 7	92
Table 4.10: Characteristics of group 8	92
Table 5.1: Professionals' Responses to Questionnaire	104
Table 5.2: Professional categories supporting learners experiencing barriers to learning	106
Table 5.3: Categories of barriers to learning supported by health and education professionals	108
Table 5.4: Collaborative approaches used by various professional categories	109
Table 5.5: Work environment and collaborative practices	109
Table 5.6: Previous exposure of professional categories to a transdisciplinary approach	111
Table 5.7: Analysed data: Themes, subthemes and codes	112
Table 5.8: Theme 1: Transdisciplinary service delivery	113
Table 5.9: Theme 2: Parents and teachers as part of a transdisciplinary team	123
Table 5.10: Theme 3: Advantages of the transdisciplinary approach	127
Table 5.11: Theme 4: Challenges of the transdisciplinary approach	132

LIST OF APPENDICES

Appendix A: Ethical clearance certificate	174
Appendix B: Questionnaire.....	175
Appendix C: Workshop content.....	181
Appendix D: Letter of consent: Focus groups	191
Appendix E: Initial codes	198
Appendix F: Examples of coded focus group discussions.....	200
Appendix G: Journal: Focus group discussions	213
Appendix H: A priori questions	216

ACRONYMS

ADHD	Attention deficit hyperactivity disorder
ASD	Autism spectrum disorder
BtL	Barriers to learning
HPCSA	Health Professions Council of South Africa
OT	Occupational therapy
TD	Tourette's disorder
WHO	World Health Organisation

CHAPTER 1:

ORIENTATION TO THE STUDY

1.1 INTRODUCTION

A new era of holism, respect for diversity and collaboration dawned for South African education with the launch of inclusive education legislation (Department of Education, 2001). Discourses on special needs education joined in with the global paradigm shift from a medical or within-child-deficit model of service delivery to a social systems paradigm whereby the integration of services and collaboration among all role players are fundamental (Engelbrecht, 2004; Landsberg, 2011).

This inevitably changed the formerly accepted role of the educational psychologist and other professionals involved in providing services to learners who experience barriers to learning (BtL) (Dreyer, 2008; Engelbrecht, 2004; Struthers, 2005). Engelbrecht (2004:23) contends that the movement towards inclusion:

serves as catalyst for rethinking the roles of educational psychologists in the effectiveness of their practice in educational support services ... they should conduct ecologically and systemically valid assessments and interventions to promote positive learning environments ... new roles include those of organizational facilitators and collaborators.

The guiding principles outlined in the Department of Basic Education's document *Guidelines for Full Service and Inclusive Schools* (Department of Basic Education, 2010) depict the importance of systemic collaboration, contextualisation and role player voice in the assessment and support of learners who experience BtL. The support of learners in South African public schools is guided by government policies that require collaboration among parents, teachers and support teams at schools and institutions (Department of Basic Education, 2010). However, many challenges are faced in the implementation of these policies (Dreyer, 2008). A research study (Dreyer, 2008), evaluating the effectiveness of the Department of Education's model for providing support to learners, concluded that because of various constraints, this model did not sufficiently underpin the needs of all learners experiencing BtL. Limitations to the implementation of inclusive policies for learning support identified in the above-mentioned study include the following:

- Entrenched nature of old values, based on the medical model.

- Overcrowded classrooms.
- Poor capability and self-assurance to teach learners experiencing BtL.
- Lack of human and financial resources.
- Ineffective support teams.
- Low level of collaboration among learning support teachers in main stream schools.
- Protracted process of placement at special needs schools due to long waiting lists. (Dreyer, 2008).

Dreyer's identification of "deep-rooted persistent nature of old values based on the medical model" highlights the problem of outdated servicedelivery models (Dreyer, 2008, p. 226) as one of the many challenges faced in the implementation of new learning support policies. Mittler (2000, as cited by Swart and Pettipher in Landsberg, 2011) contends that the medical model is still part of the general consciousness of almost everyone who works in education. Professionals supporting learners experiencing specific learning difficulties still follow a fragmented and individualised multidisciplinary approach, failing to harmonise with the change to an integrated social systems approach, as advocated by inclusive education policies (Landsberg, 2011). In private practice professionals rendering services to learners who experience BtL are often geographically separated from each other, impeding integrative and collaborative efforts. The lack of communication between various role players leads to eneffectiveness in services provided causing high levels of frustration with among parents, practitioners and teachers. Role players may feel disempowered by this fragmentation which often leads to disengagement in the process of learning support (Engelbrecht & Green, 2007; Landsberg, 2011).

Inspired by the challenge to diverge from the individualised within-child deficit or medical model and concur with an holistic, integrated and collaborative social systems approach, I was motivated to investigate a transdisciplinary model of service delivery to be used by all professionals involved in supporting learners experiencing BtL.

1.2 JUSTIFICATION FOR THE STUDY

1.2.1 Why barriers to learning?

Inclusive education was effectively launched in 1994 in Salamanca, Spain at the World Conference on Special Needs Education. The objective of education as a fundamental human right was established, with a strong focus on fundamental policy shifts to implement the principle that services have to be provided to all learners, including those who experience BtL (Landsberg, 2011). It was during this time that inclusive education found favour in the South African educational context, given the political and human rights discourses of the new democratic dispensation (Biggs, 2005).

Although inclusion per se was not the focus of this study, the inclusive discourse inspired a new focus on learners presenting with a need for special education. Inclusive education is aimed at optimal development for all, which is exactly what is being impeded by BtL (Biggs, 2005). Such barriers can be anything or anyone that prevents the learner from reaching his/her full learning potential by not accommodating learner diversity (Biggs, 2005). Such barriers can result from intrinsic, extrinsic or a combination of intrinsic and extrinsic factors (Biggs, 2005), varying with respect to range and extent. Barriers to learning are also categorised in groups, as will be further elaborated on in Chapter 2.

Biggs (2005) proposes the self-ecosystem framework, originating from Bronfenbrenner's (as cited in Donald *et al.*, 2010) eco-systems framework to engage with the concept of BtL. An individual can be a system in its own right as well as part of a number of other systems, such as the family, school and peers (Donald *et al.*, 2010). The self is a central focus in this framework. Biggs contends that the self and context form part of a dialectic construction of being. The main idea of this framework is that individuals actively participate in their development and they are "in transaction" with their eco-systems (Biggs, 2005:3). He argues that all aspects of the self, including spiritual, physical, cognitive, motivational and behavioural, have to be taken into account in attempting to understand BtL. The self, however, cannot be studied in isolation of its context or, as originating from ecosystem theory, 'ecosystems' (Landsberg, 2011). This contextualisation of the learner elicits the contrast with the previous reductionary, within-child-deficit or medical model that decontextualises the learner.

The primary focus of educational psychology is the child or, in the context of education (Eloff & Ebersohn, 2001), the learner. As previously mentioned, although inclusive education was not the focus of the study, the inclusive discourses served as an impetus to engage in a study to further explore the learner who experienced BtL within the new holistic and systems-orientated paradigm of education.

1.2.2 Why a transdisciplinary collaborative approach?

People are born into and continue to develop in a social context in which relationships or “social connections” are formed (Eloff & Ebersohn, 2001). Social scientists describe the most significant relationships as family, friends and formal or informal work groups. Engelbrecht (in Eloff & Ebersohn, 2001, p. 248) contends that our thinking, feeling, behaviour and development as persons are closely connected to “social structures, forces and relationships with groups and individuals that make up this social context”. The importance of social connection within professional service delivery is well established. The impact of the nature and extent of such social relationships is referred to as “social capital” by Szreter and Woodcock (as cited in Scott & Hofmeyer, 2007). The subject of social capital is often raised in the discourse on public service design (Farmer, Lauder, Richards & Sharkey, 2003; Forbes & McCartney, 2010). As previously mentioned, throughout the world integration of services and professional collaboration are advocated as critical to the success of professional service delivery (Eloff & Ebersohn, 2001), as opposed to the segregative and disconnected nature of the medical model. Social capital is based on interaction between individuals and groups and not on individuals per se, as found within the medical model (D’Amour, Ferrada-Videla, Rodriguez, & Beaulieu, 2005). The social capital theory therefore sides itself with the socio-ecological model and is found to be helpful in understanding the value of professional collaborative practice, as reflected within a transdisciplinary model (D’Amour *et al.*, 2005). The theory of social capital was therefore chosen to understand collaborative practices and, in particular, transdisciplinary collaboration.

At the heart of the term “collaboration” is working together towards a common goal. Learners who experience BtL require assessment and intervention from multiple professionals. The mutual goal for all professionals involved is to support the learner’s educational needs or, as described by Biggs (2010), to provide bridges to learning. Given this mutual goal, working together or collaboration among these professionals can be envisaged as an integral part of their service delivery.

Mounting research and literature highlight the importance and effectiveness of a collaborative service delivery approach (Eloff & Ebersohn, 2001; King *et al.*, 2009; World Health Organization [WHO], 2010). Internationally, the need for health care services is found to exceed the capacity of available health care professionals. Hence, the WHO advocates collaborative interprofessional education and practices to bolster the global health workforce (WHO, 2010).

In South Africa, this global promotion of collaborative service delivery practice is reflected in government policies where child care is concerned. As previously mentioned, the Department of Education makes integrated and collaborative practices a priority (Department of Basic Education, 2010). The Department of Social Development also advocates an holistic approach, positioning children at the centre of protective environments. The document *Guidelines for Early Childhood Development Services* (Department of Social Development, 2006:20) accentuates the South African government's commitment to a collaborative approach:

Inter-sectoral collaboration and integrated service delivery requires commitment from all departments, non-governmental organisations and other key services providers to achieve the best possible service for the young child and his/her family. It is important that this collaboration is achieved at national, provincial, district and local levels.

Investigating a transdisciplinary collaborative approach to service delivery within an educational context is therefore important as it is in line with the global and national voice of holistic and integrated service delivery.

Although a number of collaborative models exist, among others, pluridisciplinary (different disciplines work together in an uncoordinated way) and cross-disciplinary (different disciplines work together in a coordinated way but are controlled by a lead discipline) models, the three *main* types of collaboration among professionals from different disciplines are *multidisciplinary*, *interdisciplinary* and *transdisciplinary* collaboration, each varying in its degree of collaborative practice, as illustrated in Figures 1.1, 1.2 and 1.3 (Eloff & Ebersohn, 2001).

A *multidisciplinary service model* involves professionals from multiple disciplines addressing a problem. Although the importance of each professional's involvement is acknowledged, services remain independent. Families meet with each team member separately, and separate intervention plans are developed according to the relevant

discipline. This, however, results in fragmented views of the problem and, consequently, incoherent therapeutic intervention.

Interdisciplinary collaboration involves a more collaborative approach. Members of different disciplines work together to find a solution for a problem. Regular team meetings are held during which each member reports according to his/her profession. The team works towards a single service plan and a mutual goal. Fragmentation, however, occurs in the implementation of this plan as members implement parts of the plan according to their various disciplines, resulting in isolated therapeutic intervention. In both of the above-mentioned approaches, deficits are treated by therapists in isolation from where the skills are used. Parents and teachers are placed in a recipient and often subordinate role as decisions are made by professional team members. They become dependent on the professionals' expert knowledge, failing to empower the people with whom the child spends the most time and leading to a "learned helplessness" that contributes to the already overwhelming need for professional services (Downing & Bailey, 1990).

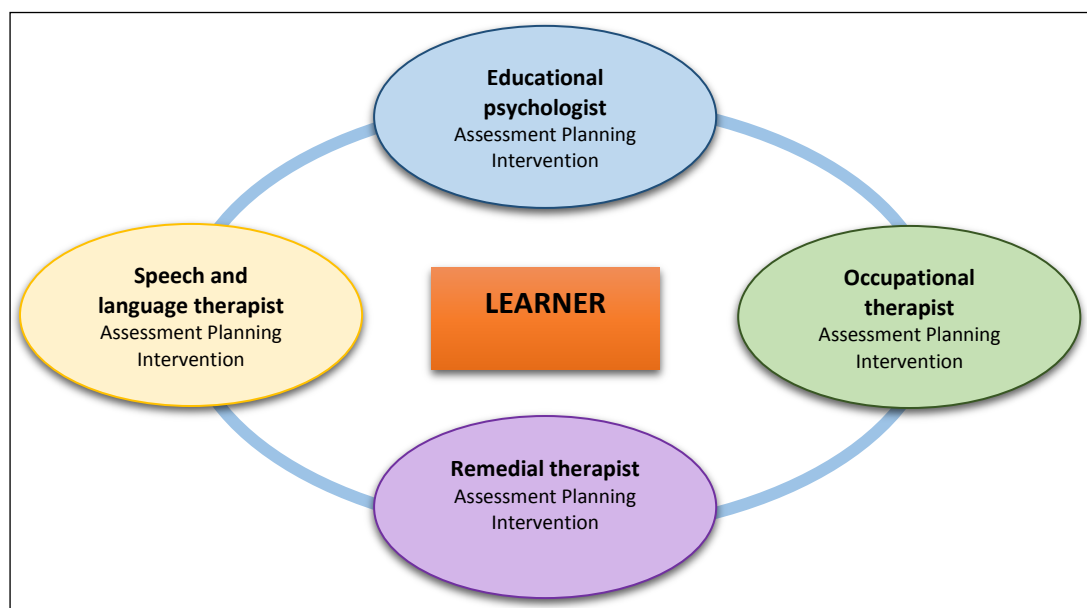


Figure 1.1: Lines of interaction and communication in multidisciplinary collaboration

(Adapted from Engelbrecht, 2004)

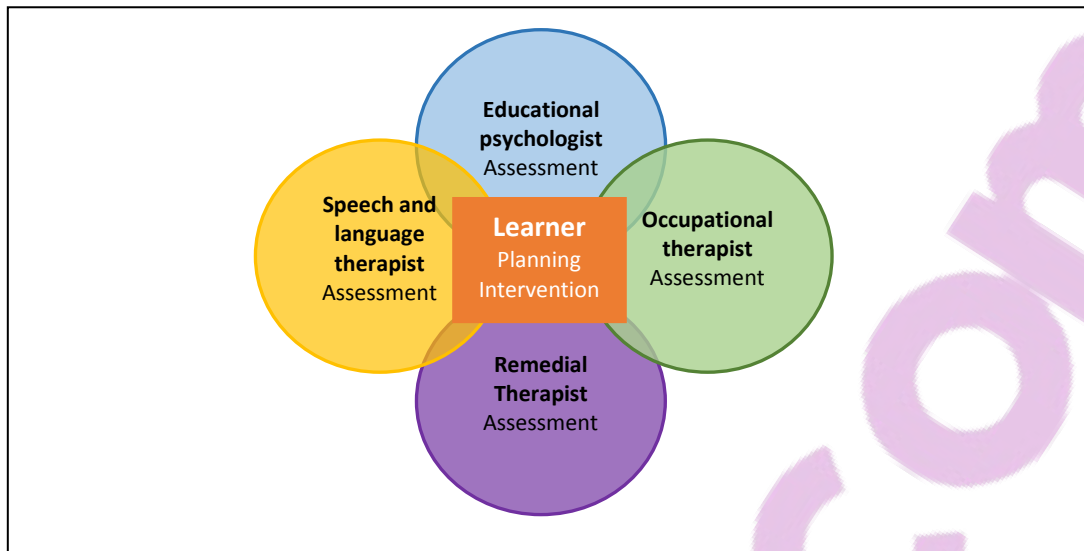


Figure 1.2: Lines of interaction and communication in interdisciplinary collaboration

(Adapted from Engelbrecht, 2004)

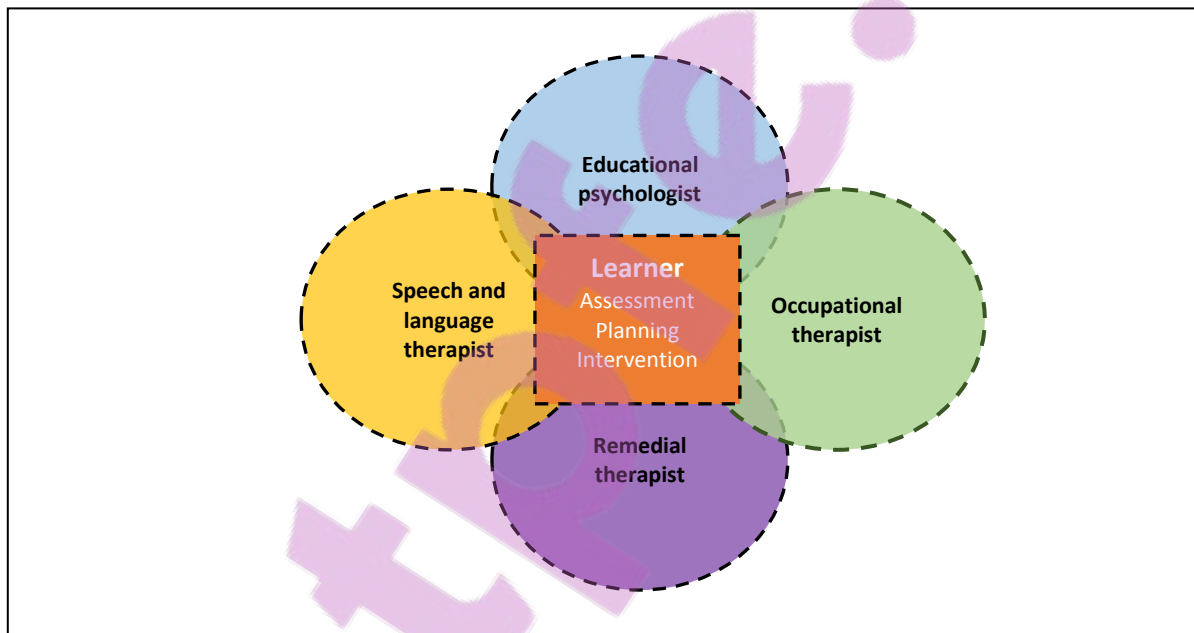


Figure 1.3: Lines of interaction and communication in transdisciplinary collaboration

(Adapted from Engelbrecht, 2004)

Although the abovementioned approaches have a collaborative component, they fall short in harmonising with the international trend of integrated holistic service delivery (Downing & Bailey, 1990; WHO, 2010).

The TD model has been advocated as the most collaborative in nature. In accordance with this model, a team of professionals from various disciplines shares roles across professional boundaries to maximise integration. A single coherent

assessment with all team members present is conducted from which mutual goals and intervention plans emerge. The transdisciplinary model further harmonises with the leading international spirit of collaboration as it is systemic in nature. Communication with and involvement of parents, teachers and other role players in the client's environment are encouraged and play a critical role. Another attractive dimension of transdisciplinary service delivery is that it fosters an asset-based approach as opposed to the needs assessment found in the medical model. Although needs are identified, the skills and capacities within the client's social system are accentuated and utilised (Eloff & Ebersöhn, 2001).

A transdisciplinary collaborative service delivery approach has been found highly effective for early childhood (birth to six years) development services (King et al., 2009). However, there is very little literature on a transdisciplinary collaborative service delivery approach used by professionals supporting school-aged learners who experience BtL within the South African context. It was therefore the intention of this study to investigate professional's perceptions of a transdisciplinary collaborative service delivery approach within the South African context for learners who experience BtL.

1.3 THEORETICAL FRAMEWORK

Theory plays a substantive role in research practice. Anfara and Mertz (2006) assert that the theoretical framework is a construction of theories and experiences that the researcher uses to draw upon in the conceptualisation of the study. The theoretical framework includes any general set of ideas that guides the researcher's actions and provides a simple explanation of the observed relations relevant to a particular problem. It supports entry into the field of study and research design (McMillan & Shumacher, 2009). The term "theory" denotes a viewing or beholding and acts as lens through which the research is mapped and data are interpreted.

A number of theories were drawn from to construct the theoretical framework for this study, as illustrated in Figure 1.4.

Changes in society are often paralleled by new paradigms or ways of thinking about human behaviour. This has been the case specifically in the field of education for learners with special needs. According to Skrtic (1995, p. 4), a paradigm or worldview is a:

shaped pattern of basic beliefs and assumptions about the nature of the world and how it works. These assumptions tell us what is real and what is not; they shape our cultural identity and guide and justify our institutional practices.

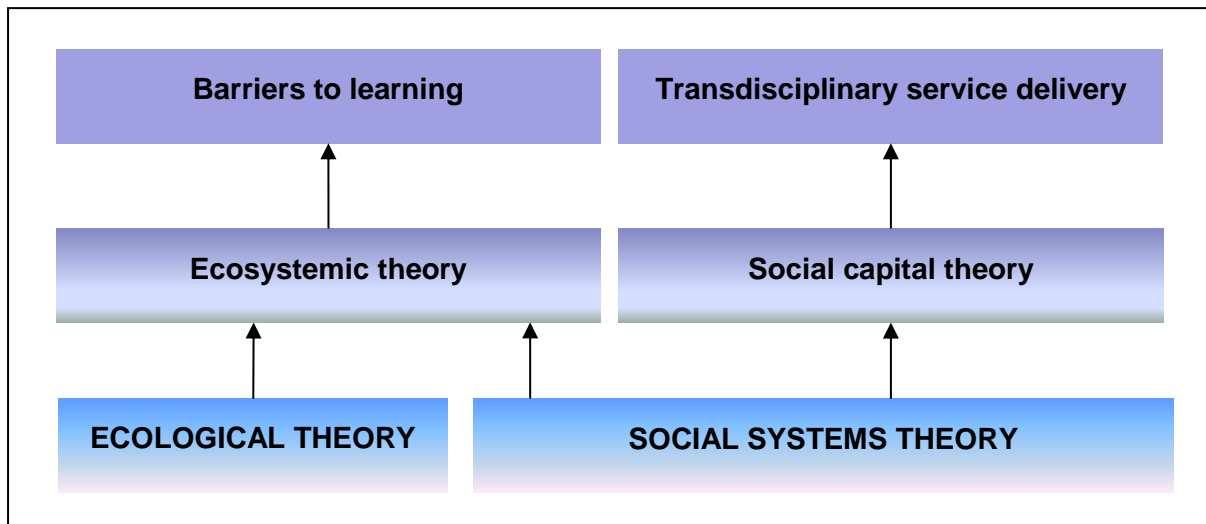


Figure 1.4: Theoretical framework for this study

The revolutionary paradigm shift from the within-child-deficit or medical model to the social model in special needs education initiated a proceeding in viewing the education of the individuals who experience BtL from an ecosystemic perspective (Dreyer, 2008; Engelbrecht & Green 2007; Landsberg & Kruger, 2011).

Bronfenbrenner's (as cited in Donald *et al.*, 2010) ecosystemic framework combines ecological concepts and systems theory, purporting child development as being influenced by several environmental systems. Ecological theory describes the holistic interrelationship between various organisms and their physical surroundings. In systems theory, the same concepts are applied to human relations. The elements or entities within a system cannot be studied in isolation as the pattern of organisation among them (systems) is more than simply the aggregation of their parts (Donald, Lazarus and Lolwana, 2010). An individual or situation can at the same time be both a separate entity (or system) and part of various systems, for example a social system, education system and a peer system. Although each system functions in anticipated ways supportive of its continuity, existence depends on change; therefore, systems hold the possibility of flexibility and adaptability. Society can be thought of as an interrelated and interdependent system actively and continuously interacting. A shift at one level has an inevitable effect on other levels (Engelbrecht & Green, 2007).

Donald *et al.* (2010) compare these systems to a spider's web; whatever happens in one part of the web affects the other parts. A basic assumption of the present study was that these systems would influence the child experiencing BtL and that BtL experienced by the learner would influence the interrelated systems.

Bronfenbrenner (as cited in Donald *et al.*, 2010) further brings to light various levels of systems in the context of society and its interactions in the developmental processes of children. He describes four interacting aspects to this process:

- *Person factors* include all aspects of a learner, such as physical, emotional, cognitive and spiritual aspects. Biggs (2005) describes this as the “self” in his self-ecosystemic understanding of the learner.
- *Process factors*, for example types of interaction among family members or between learner and teacher.
- *Contexts*, including families, schools, local communities, and so forth.
- *Time*, creating changes in the child and his/her environment (Donald *et al.*, 2010).

All four factors are of significant importance when supporting a learner experiencing BtL. Investigation of a learner's cognitive, physical and mental health (person factors) and understanding of his/her school and home context (context factor), the pattern of interaction with school personnel, parents and friends (process factors), and his/her developmental level (time factor) are central aspects in supporting the learner experiencing BtL.

Five nested systems in which child development happens are described by Bronfenbrenner, (cited in Donald *et al.* (2010:40) as illustrated in Figure 1.5:

- *Microsystems*: These systems involve the learner's roles, relationships and patterns of daily activities, shaping his/her cognitive, social, emotional, moral and spiritual development.
- *Mesosystems*: These systems consist of a set of microsystems continuously interacting with one another. Relevant for this study, the frustrations experienced in class by a learner due to BtL were found to have an influence on his/her relationships at home or with friends.
- *Exosystems*: These systems concern other systems not directly related to the child but in which changes can impact relationships in the learner's microsystem. For example, events at the workplace of a learner's father can

influence interaction in the learner's family, which can have a negative or positive impact on his/her ability to concentrate in class.

- **Macrosystems:** These systems involve the wider community in which the learner finds him-/herself. Social, economic and political aspects are involved. Changes in government's educational policies influence all other social systems. Inclusive education policies significantly influence a learner's socio-ecological systems.
- **Chronosystems:** All systems are influenced by transitions and changes taking place over time within the different systems. Transition to a subsequent educational level, for example high school or university, can create new challenges in the micro- and mesosystems as the learner will be confronted by a new learning environment and will have to relate to new teachers and peers.

Supporting a learner experiencing BtL requires that the professional involved examine and take into account the complexity of the learner's world and be conscious of the complexity and heterogeneity of individuals (Newmark, 2002).

As the aim of this research was to investigate a transdisciplinary service delivery model for professionals supporting learners who experience BtL, the interrelationships within the model had to be understood within a theoretical framework.

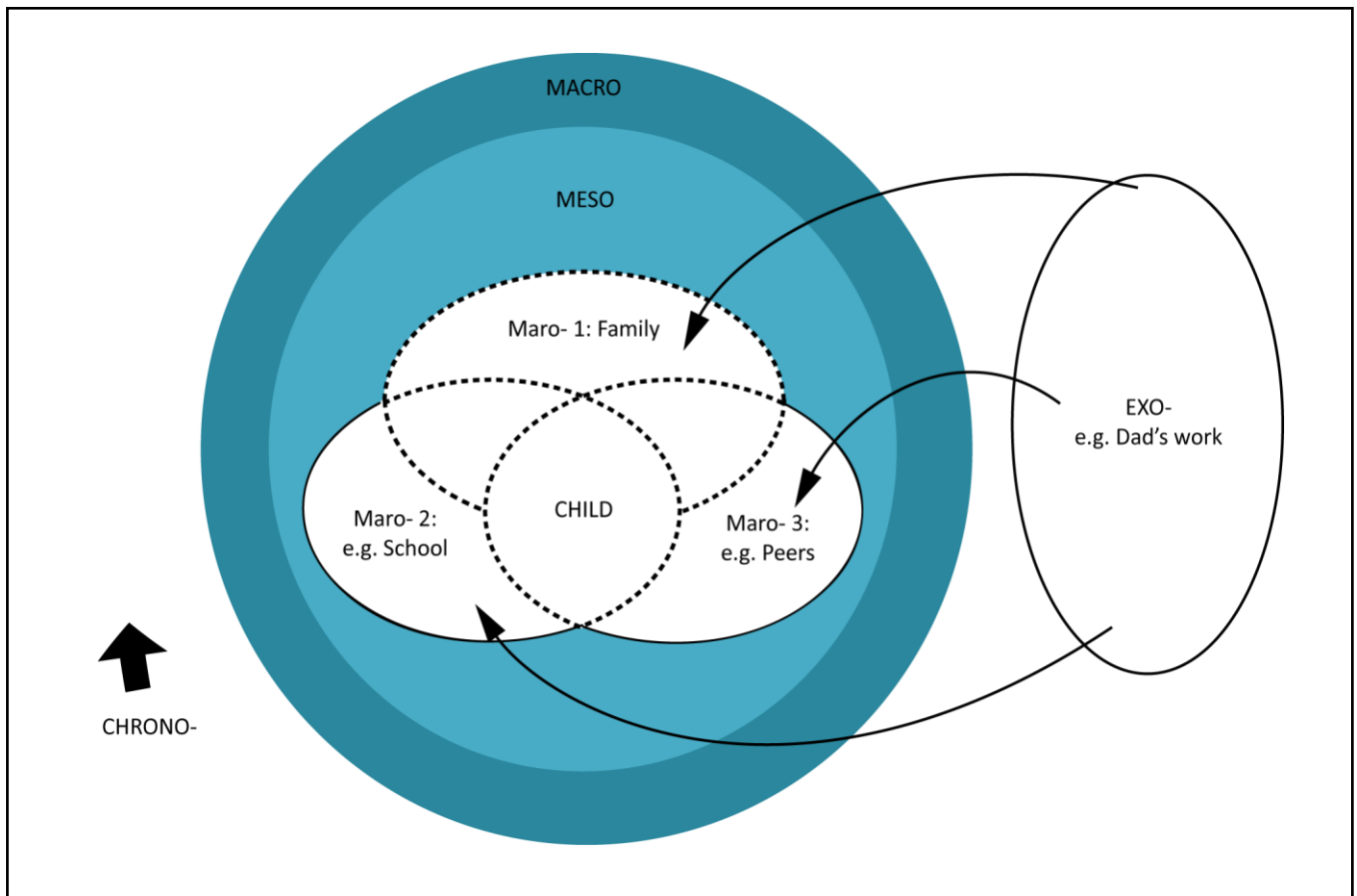


Figure 1.5: Bronfenbrenner's nested systems

(Source: Donald et al., 2010)

The subject of social capital is often raised in the postmodern discourse on service delivery (Forbes & McCartney, 2010; Farmer *et al.*, 2003). As previously mentioned, throughout the world integration of services and professional collaboration are advocated as critical to the success of professional service delivery (Eloff & Ebersohn, 2001; Engelbrecht & Green, 2007), as opposed to the segregative and exclusive nature of the medical model of the old dispensation. Social capital is concerned with relations between individuals and groups and not on individuals only (as found within the positivistic model) (Claridge, 2004). Social capital theory sides itself with the social ecological model (Marína, Rodríguez & Niemeyer, 2012) and is found to be helpful in understanding the value of professional collaborative practice, as reflected within a transdisciplinary model. In South Africa, government policies advocate the integration of services delivered by professionals (Department of Education, 2010; Department of Social Development, 2006) to serve the best interest of the child. In the context of integrative services, policies are driven by questions about optimization of economic capital and the employment of sparse

resources in public services for children (Forbes & Watson, 2009), a prominent focus of the theory of social capital (Scott & Hofmeyer, 2007).

A remarkable increase in awareness of social capital theory has been seen in recent years. This is noticed by its application to different fields of study. Due to the context-specific nature of the theory of social capital, a concurring definition of social capital does not exist. Definitions employed depend on the field of study and level of inquiry (Robison et al., 2002, as cited in D'Amour et al., 2005). Social relations with productive advances are at the heart of most definitions of social capital. It refers to an ongoing interaction between people, involving the creation of meaning through intuitive, creative and conventional knowledge. These varying perspectives improve and contribute to innovative and original answers to human problems (Engelbrecht & Green, 2007). The underlying epistemological assumption of this study was that professionals would collaborate within a transdisciplinary model to produce the benefit of more effective delivery of support services to learners who experienced BtL. The relevance of applying social capital theory to this study was supported by Halpern's (as cited in Forbes & McCartney, 2010, p. 7) definition of social capital as "being concerned with the ways in which people are connected with one another through particular social structures and networks, including professional association".

According to Adler and Kwang (as cited in Johnson *et al.*, 2011), definitions depend on whether the focus is on internal or external relationships, also described as bridging or communal (external) and bonding or linking (internal) relationships. Relationships whereby an actor maintains relations with other actors are internal. External relationships are characterised by the structure of relations among actors collectively. Transprofessional relations involve both internal and external characteristics as professionals collaborate according to particular informal shared values or customs (internal relation) within an externally defined and organised structure, namely the transdisciplinary team and the learner's educational environment.

1.4 PROBLEM STATEMENT AND RESEARCH QUESTIONS

The main aim of this study was to investigate the perceptions of health and education professionals in the Western Cape of a transdisciplinary collaborative service delivery approach in addressing BtL.

Research Question

What are the perceptions of a transdisciplinary collaborative service delivery approach among health and education professionals providing support services to learners experiencing barriers to learning in the Western Cape?

The following research sub-questions were formulated to provide supplementary information to answer the main research question:

Research sub-question 1

Which of the health and education professionals in the Western Cape identified for this study provide services to learners experiencing barriers to learning?

Research sub-question 2

What are the collaborative approaches followed by health and education professionals in the Western Cape identified for this study?

Research sub-question 3

What is the level of exposure to a transdisciplinary approach in addressing barriers to learning among identified health and education professionals in the Western Cape?

1.5 RESEARCH AIMS

The main purpose of this study was to investigate the perceptions of health and education professionals in the Western Cape of a transdisciplinary collaborative service delivery approach in addressing barriers to learning. Specific steps needed to be put in place and executed to successfully reach this objective. Therefore, the following aims were set:

- To compile a literature study on BtL (internationally and nationally).
- To compile a literature study that examined a transdisciplinary collaborative service delivery approach in addressing BtL (internationally and nationally).
- To conduct an empirical investigation by means of a mixed method of qualitative and quantitative research to accomplish the following:
 - Determine the various health and education professionals providing services to learners experiencing BtL in the Western Cape Province and the various approaches used by these professionals.
 - Inform professionals of a transdisciplinary collaborative service delivery approach in addressing BtL through workshops.

- Establish health and education professionals in the Western Cape's perceptions of a transdisciplinary collaborative service delivery approach in supporting learners who experience BtL.
- Compile and interpret the findings of the empirical investigation to answer the research questions as formulated in Section 1.4 above.
- Make recommendations regarding the use of a transdisciplinary collaborative service delivery approach to health and education professionals providing services to learners experiencing BtL in private practice, public schools as well as independent private schools. Recommendations are also made to training institutions and medical insurance companies.

1.6 RESEARCH METHOD

The empirical research used a sequential mixed methods research design. Mixed methods research is often used to increase the scope and understanding of the study phenomenon (Creswell & Plano Clark, 2011). According to Mertens (2005), in a sequential mixed methods design one type of data serves as basis for the collecting of another type of data. It answers one type of question by collecting and analysing both quantitative and qualitative data. Following a mixed methods sequential design, the empirical research was conducted in the following two stages:

- The first stage focused on the present. A descriptive research approach was followed. Descriptive research attempts to describe systematically. It is concerned with the question "what is?" (Ranjit, 2011). The "what is" of this study was to determine which health and education professionals in the Western Cape provided services to learners experiencing BtL, the current approaches followed by these professionals, and the level of exposure to a transdisciplinary collaborative service delivery approach by these professionals. A questionnaire providing quantitative data was employed as a data collection method. Descriptive statistical methods were used to analyse the data. The analysed data were used to inform the second stage of the empirical study.
- The second stage focused on the future. Based on the preliminary literature study and my experience in practice, the assumption was made that some health and education professionals in the Western Cape who provide services to learners experiencing BtL had not been previously exposed to a

transdisciplinary collaborative approach. To determine the perceptions of professionals in the Western Cape of a transdisciplinary collaborative service delivery approach, these professionals first had to be exposed to a transdisciplinary collaborative service delivery approach. In fulfilling this aim, four groups of professionals who had not had previous exposure to a transdisciplinary approach took part in informative workshops, introducing them to a transdisciplinary approach in dealing with learners experiencing BtL. The workshops were followed by focus group discussions to gain insight into these professionals' understanding and perceptions of a transdisciplinary approach. A further four groups of professionals who indicated on the questionnaire during the first research stage that they had had previous exposure to a transdisciplinary approach were selected for focus group discussions to gain insight into their perceptions of a transdisciplinary service delivery approach in dealing with learners experiencing BtL. Focus group interviews were used to collect in-depth qualitative data for answering the main research question, as formulated in Section 1.4.

1.6.1 Quantitative research

In quantitative research a social phenomena is systematically investigated. Mathematical, statistical or computational techniques are used in this type of investigation (Given, 2008). The aim of quantitative research is to develop theories and/or hypotheses regarding a certain phenomena. Specific, narrow questions are asked from participants in quantitative research. The data are analysed using statistics to provide unbiased results that can be generalised to larger populations (Given, 2008). A questionnaire was employed in this study to gather data for answering the three research sub-questions formulated in Section 1.4.

1.6.2 Qualitative research

Qualitative research focuses on phenomena that occur in natural settings. In qualitative research, numerous forms of data are collected and examined to collect rich and meaningful data. Peshkin (as cited in Leedy & Omrod, 2010, p. 137) states that researchers engage in qualitative research studies to serve various purposes, such as to describe, interpret, verify or evaluate. In this study, the qualitative research method was used to explore and describe. In qualitative research comprehensive questions are asked and verbal data is collected from participants. The researcher looks for themes and describes the information in themes and

patterns exclusive to that particular set of participants (Given, 2008). Focus group discussions were employed to provide qualitative data for answering the main research question, as formulated in Section 1.4.

1.6.3 Data analysis

The quantitative data collected in Stage 1 were analysed using descriptive statistics, including percentages and frequencies. The quantitative data collected in Stage 1 were used to inform the qualitative research of Stage 2. The qualitative data from the focus group interviews collected in Stage 2 were analysed by way of a coding system. The transcribed focus group interviews were organised into categories from which themes and subthemes were constructed.

1.7 ETHICS CONSIDERATIONS

According to Mertens (2009) ethics form an integral part of the planning and conducting of research. The following considerations were of particular significance in this study:

- Permission for conducting this research study was obtained from the Ethics Committee from the University of South Africa (see Appendix A).
- The privacy of the research participants and the confidentiality of the information supplied by them were ensured. Questionnaires, personal documents and recorded material from the workshops and focus group discussions were handled in strict confidentiality, in adherence to the Health Professions Council of South Africa's (HPCSA) ethical guidelines (Health Professions Act No. 56 of 1974).
- Informed consent was obtained from all participants. Guarantee of anonymity and confidentiality, guarantee of voluntary participation and termination without penalty, method of selection of participants and numbers involved, name of the institution guiding the ethical approval and contact details of the researcher were included.
- The following aspects of the research were explained to all participants: purpose of the study, procedures, participants' privacy and confidentiality of personal information, direct benefits of participation and freedom to withdraw at any time.
- In the case of unfavourable events or if participants are injured as a result of their participation in the study, debriefing and support would be provided.

- Participants were asked to sign an indemnity form exempting the researcher from liability for injuries and harm unrelated to the research procedures.
- Participants of focus groups would be informed of the findings or results through letters. Should there be potential or actual benefits of the research findings to participants and/or others, this would be communicated to them by letter.
- Should participants receive any gifts, compensation or reimbursements, this would be communicated to all participants.

1.8 CONTRIBUTION OF THE STUDY

The research outcomes can provide an opportunity for further research into a transdisciplinary collaborative service delivery approach to be used by professionals in addressing BtL. Recommendations have been made to professionals, schools, medical insurance companies and relevant training institutions on the usefulness of a transdisciplinary service delivery model to address BtL. The theoretical framework of holistic and integrated service delivery in addressing BtL is strengthened and extended.

1.9 DEFINITION OF KEY TERMS

Definition of key terms assisted in determining the perimeters of the study. Defining each term provided clear demarcations as to the focus of this study. It further minimised confusion and misinterpretation of the key elements of the study. Below follow the definitions of the key terms in the context of this study.

- **Transdisciplinary:** ‘Transdisciplinary’ is defined as the transcendence of disciplinary boundaries resulting in the sharing of roles to maximise interaction, integration and collaboration among team members (King *et al.*, 2009). In the context of this study, transdisciplinary refers to the crossing of professional boundaries when providing services to learners experiencing BtL.
- **Collaborate:** ‘Collaboration’ means to work together (Engelbrecht, 2004). In the context of this study, collaboration describes the relationship among various health and education professionals and all relevant role players as they work towards the common goal of supporting learners who experience BtL.
- **Barriers to learning:** ‘Barriers to learning’ refers to difficulties within the learner’s education system as a whole, or within the learner him-/herself that

prevent the needs of both the system and the learner from being accommodated (Department of Basic Education, 2010).

- **Perception:** For the purpose of this study, perception refers to the way in which health and education professionals understand, regard and interpret a transdisciplinary collaborative service delivery approach in addressing BtL.
- **Service delivery:** 'Service' is defined as the action of helping someone (Oxforddictionaries.com, n.d.). 'Deliver' is defined as "to offer or provide something" (Oxforddictionaries.com, n.d.). In the context of this study, the term 'service delivery' refers to the action of providing support to learners experiencing BtL.

1.10 OUTLINE OF CHAPTERS

Chapter 1 provides an introduction to the study against the backdrop of the changes brought about in education since the launch of inclusive education.

A literature review of BtL within a self-ecosystemic theoretical framework follows in Chapter 2.

Chapter 3 provides a literature review of transdisciplinary collaboration within the theoretical framework of social systems theory and social capital theory.

Chapter 4 presents the research method and design.

A synthesis and discussion of the findings are presented in Chapter 5.

Chapter 6 presents conclusions, the limitations of the study and recommendations.

CHAPTER 2:

LITERATURE REVIEW: BARRIERS TO LEARNING

2.1 INTRODUCTION

The main objective of education is to provide quality teaching for all learners to grow towards independence and contribute towards society. However, learners differ in the degree of their educational needs. The majority of learners can be described as learners with ordinary needs. A minority of learners, however, experience barriers preventing them from learning. These are learners who require specialized educational support to engage in the process of learning (Loopoo & Singh, 2010). Drawing on a systemic theoretical perspective, discussed in Chapter 1, the ecosystemic theory will be applied to explore the phenomenon of BtL within the context of holistic, ecosystemic service delivery as opposed to fragmented services within the medical model. Bearing in mind that South Africa is a developing country, the influence of poverty and of learners being instructed in their second language as contextual factors causing BtL will be briefly discussed, followed by an extensive exploration of factors arising from within the learner that impede the learning process within the educational environment. The chapter will be concluded with a discussion of the importance of a collaborative approach in the process to identify and support of learners experiencing BtL.

2.2 AN ECOSYSTEM PERSPECTIVE ON BARRIERS TO LEARNING

As previously stated, the medical model assumes that BtL reside mainly within the learner. The focus of learning support within this model is to make a diagnosis in order to treat the learner to enable him/her to fit in with the system (Mahlo, 2011). Diverging from this narrow and fragmented view, ecological theory advocates holistic interaction between various organisms and their physical surroundings. Systems theory apply the same concept to human relations. Elements or entities within a system cannot be studied in isolation as the pattern of organisation among them (systems) is more than simply the sum of their parts (Donald *et al.*, 2010). Bronfenbrenner's (as cited in Donald *et al.*, 2010) description of the four nested systems, namely micro-, meso-, exo-, macro- and chronosystems (as extensively discussed in Chapter 1 – see Figure 1.5), will be taken into consideration to understand BtL. Donald *et al.* (2010) compare the interrelatedness of these systems

to a spider's web; whatever happens in one part of the web affects the other parts. Bronfenbrenner (as cited in Donald *et al.*, 2010) describes four interacting dimensions to this process, illustrated in Figure 2.1:

- *Person factors* include all aspects of a learner, such as physical, emotional, cognitive and spiritual aspects. Biggs (2005) describes this as the “self” in his self-ecosystemic understanding of the learner.
- *Process factors*, for example types of interaction among family members or between learner and teacher.
- *Contexts*, including families, schools, local communities, and so forth.
- *Time*, creating changes in the child and his/her environment (Donald *et al.*, 2010).

From an ecosystemic perspective, all four factors need to be considered in understanding and supporting a learner experiencing BtL. Studying BtL demands that we take into account the complexity of the learner's world and be conscious of the complexity and heterogeneity of individuals (Newmark, 2002).

With this theoretical frame in mind, the causes of BtL will be considered as factors within the learner (person factors) and factors outside the learner (process, context and time factors) and the complex interplay of internal and external factors presenting itself in the majority of learners experiencing special learning needs.

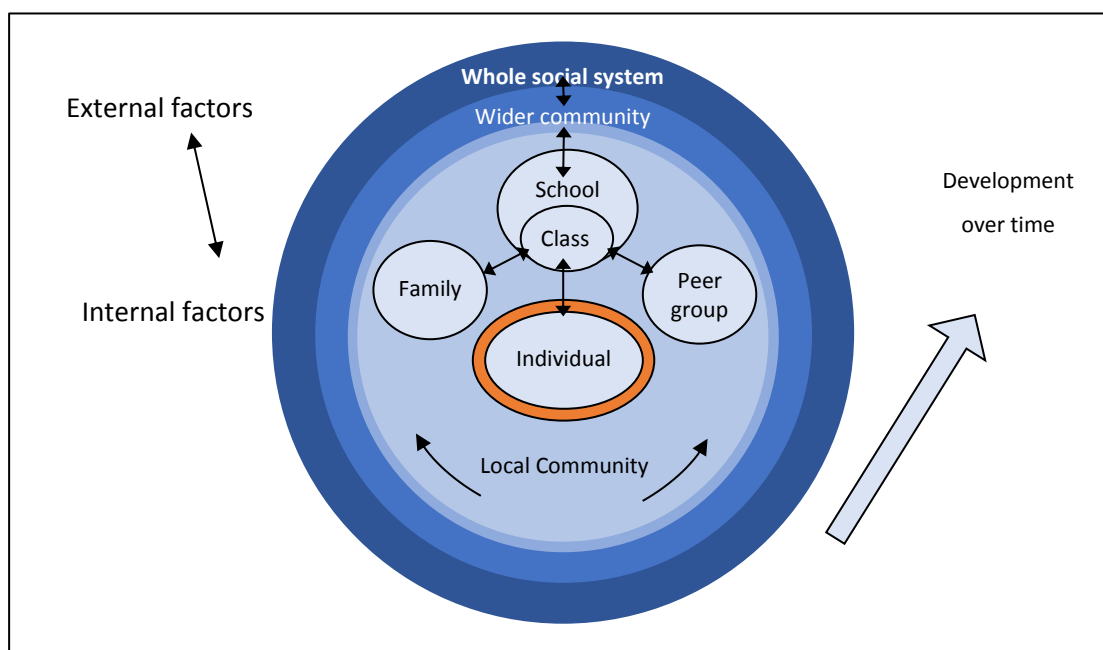


Figure 2.1: Levels of process related to education

(Source: Donald et al., 2010)

Intrinsic factors causing a breakdown in the process of learning can be classified in the following groups: physical disability, sensory disability, neurological disability, chronic illness, psychosocial disturbances and differing intellectual ability. External factors can be classified as socio-economic barriers, teacher's harmful stance towards diversity, an inflexible curriculum, medium of teaching not the learner's home language, out-of-reach and dangerous school buildings and environments, unsuitable and insufficient provision of support services, lack of empowering and protective policies, and ineffective teaching and parenting (Dednam, 2011; Donald *et al.*, 2010; Loopoo & Singh, 2010).

Although it is known that both internal and external factors causing BtL occur in many learners with special learning needs, Donald *et al.* (2010) argue a distinction between the prevalence of internal and external factors causing these barriers in developed and developing countries. The authors assert that developed countries refer to learners with special educational needs as those who experience physical, sensory, cognitive or emotional needs, making up a relatively small proportion of approximately 10% of the school-going population while the prevalence of external factors in developing countries such as South Africa is much higher, significantly raising the number of learners experiencing BtL. In this study, I focused on learners

experiencing BtL caused by internal factors and the learning support needed to overcome such barriers. However, bearing in mind the South African context with its high degree of socio-economic challenges and the need to maintain an holistic ecosystemic perspective, it is important to explore the role of external factors in creating internal barriers.

2.3 EXTERNAL FACTORS CAUSING BARRIERS TO LEARNING

A brief exposition of South Africa's socio-economic climate as well as the problem of learners being instructed in their second language as external factors causing BtL will now be provided, followed by a comprehensive literature overview of internal factors causing such barriers.

2.3.1 Socio-economic climate

The destructive effects of poverty on a child's development and ability to learn have been well established. The majority of the South African population live in what Prinsloo (2011) describes as a culture of poverty, causing escalating health risks, malnutrition and environments where cognitive development are not supported. High unemployment rates cause demoralisation, leading to degradation in values such as self-respect, responsibility, honesty and work ethic (Donald *et al.*, 2010). Prinsloo (2011) discusses the negative influence of unplanned urbanisation, the HIV/AIDS pandemic, the disintegration of family life, the abuse of children, and language and cultural differences as factors contributing to BtL. Overcrowded housing, poor water supply, poor sanitation, poor hygiene facilities and lack of food resources are the everyday reality of the majority of South African learners. Donald *et al.* (2010) stress the negative cycle of poverty combined with ineffective and inadequate provision of education and other social services in creating and maintaining BtL (see Figure 2.2).

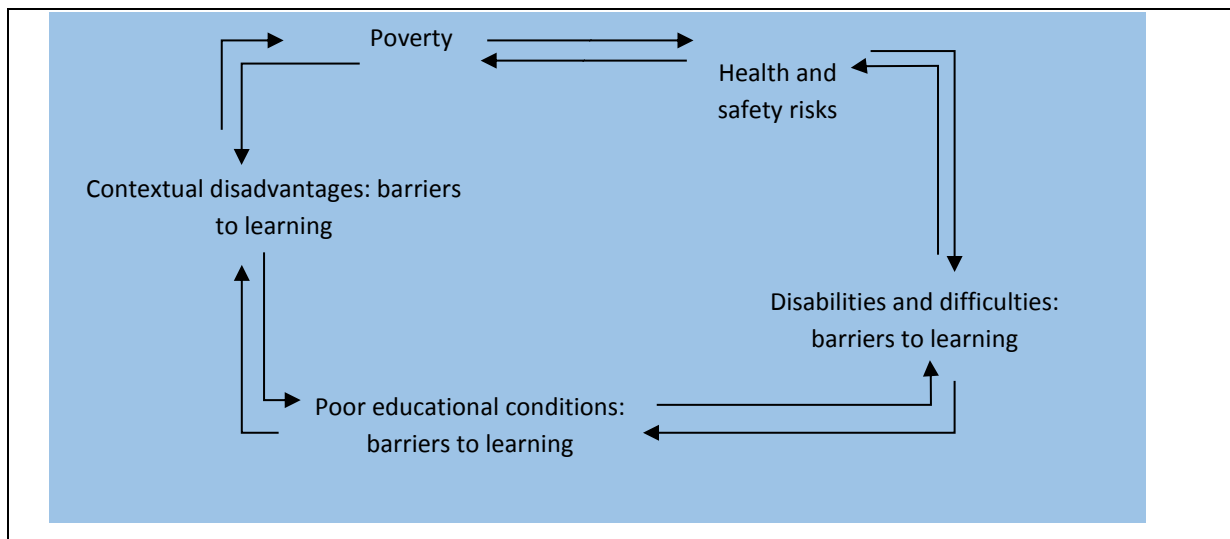


Figure 2.2: The negative cycle created by poverty

(Source Donald et al., 2010)

2.3.2 Learners being instructed in their second language

Not all of the above contextual factors contributing towards BtL in the South African context can be discussed in detail in this thesis; however, the aspect of learners being instructed in their second language needs some attention as Donald *et al.* (2010) argue that the language practice in South African education has constituted one of the most widespread and devastating contextual BtL. Prior to 1994, English and Afrikaans were the only two official languages under the apartheid regime. Education policies forced all non-Afrikaans or non-English speaking learners to be instructed in one of these two languages. Consequently, the majority of South African learners had to learn in a second language from Grade 5 onwards (Prinsloo, 2011). Although there has been a change in policy since the establishment of democracy in South Africa in 1994, many non-English-speaking parents see English as a prestigious language, enhancing their children's opportunities for success (Nel, 2011). They choose to have their children instructed in English. In many cases, learners are abruptly taken out of schools providing home-language teaching and placed in English-medium schools. A term used to describe secondary language instruction for formal learning in this context is "subtractive bilingualism". It is subtractive in the sense that it decontextualises formal learning and denies the place and value of the home language. Learners have to learn in a language stemming from a foreign culture, unfamiliar to their home, culture and social interaction (Donald *et al.*, 2010; Nel, 2011). Donald *et al.* (2010) describe four negative effects of subtractive bilingualism on education:

- Language, thinking and learning are interrelated. Abrupt interruption of formal learning in the home language has a negative effect on cognitive development, resulting in failure to master the skills necessary for academic success.
- Being forced to learn in a language in which the learner feels inadequate causes daily feelings of failure and undermines the development of healthy social and emotional growth. Learners do not develop a sense of competence and confidence, hampering cognitive development.
- Devaluation of the home language and the learner's cultural context has a negative effect on identity formation, leading to emotional and social BtL.
- The quality of teaching and learning is compromised by teachers not feeling competent and comfortable in using a second language as the medium of instruction. Teachers' and learners' ability to freely communicate, explore and experiment with new ideas is obstructed by limited language ability of both teacher and learner.

Although contextual factors contributing to the development of BtL have only been briefly discussed, the context of South African education will be kept in mind in the exploration of the concept of BtL.

2.4 INTERNAL FACTORS CAUSING BARRIERS TO LEARNING

Internal factors interfering with the learning process involve a wide range of disabilities, from mild to severe impairment. Classification and definition of this range of barriers vary from country to country, depending on each country's specific national legislation and socio-political climate. Classification and definition also vary across sectors, depending on the purpose of classification. In medicine, for example, the identification of disorders such as learning difficulties is necessary to enhance clinical actions. A diagnosis is made to plan intervention, communicate with other clinicians and further the development of scientific research programmes for clinical use. In education, however, the purpose of classification and identification is to determine eligibility for special needs education and support services. Categories are based on educational needs and is not used for clinical diagnosis per se (Tannock, 2012). Professionals included in this study stemmed from both the medical field (physiotherapists, occupational therapists, and speech and language therapists) and the educational field (educational psychologists and learning support teachers). As the focus of this study was on investigating a service delivery model to

address learners within their scholastic environment, I was led by an educational perspective, intending classification and identification to be used to support learners within their educational environment.

Terminology describing learning disorders can be confusing as terms are often used interchangeably in the literature and the acronym LD is used for various terms such as “learning disability”, “learning disorder” and “learning difficulty”, which can each have its own definition and criteria (Pratt & Greydanus, 2012). In this study, the term “learning disorders” was used as an umbrella term referring to learners who experienced a breakdown in learning due to a variety of factors stemming from within the learner. Factors of relevance to this study were sub-classified as learning difficulties, including developmental and academic difficulties and attention deficit hyperactive disorder (ADHD), and learning disabilities, including intellectual disability, sensory disability, physical disability and pervasive developmental disorder (see Figure 2.3).

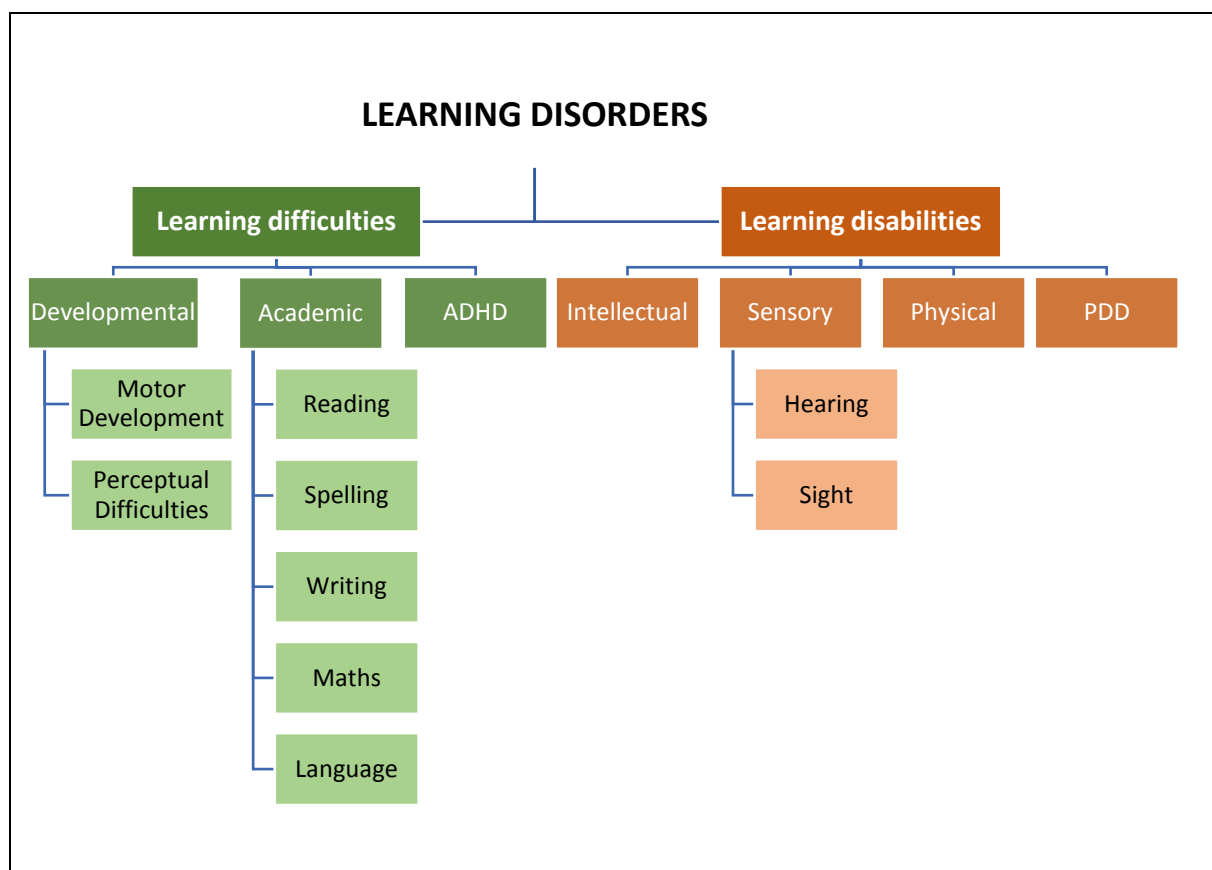


Figure 2.3: The classification of learning disorders

2.4.1 Learning difficulties

The classification and definition of learning difficulties, referred to as “learning disabilities” in the United States of America (USA), have been a topic of ongoing international controversy among professionals, parents and government institutions since the inception thereof in 1962. Numerous efforts have since been made to reach consensus. Lerner (2003), however, argues that although children with learning difficulties share the same characteristics for which a common term is useful, finding a single definition acceptable to all may not be feasible as each child is unique and presents with different characteristics. Lerner contends that as learning disabilities are a group of related and overlapping conditions, a need rather exists for several definitions to serve various purposes such as identification, assessment, instruction and research (Lerner, 2003). However, defining learning difficulties remains necessary as identification warrants a clear understanding of what a learning difficulty is. An historical perspective on the process leading to current definitions of learning difficulties is useful in understanding the nature of learning difficulties for the purpose of identifying and supporting learners experiencing learning difficulties.

2.4.1.1 Historical perspectives on defining learning difficulties

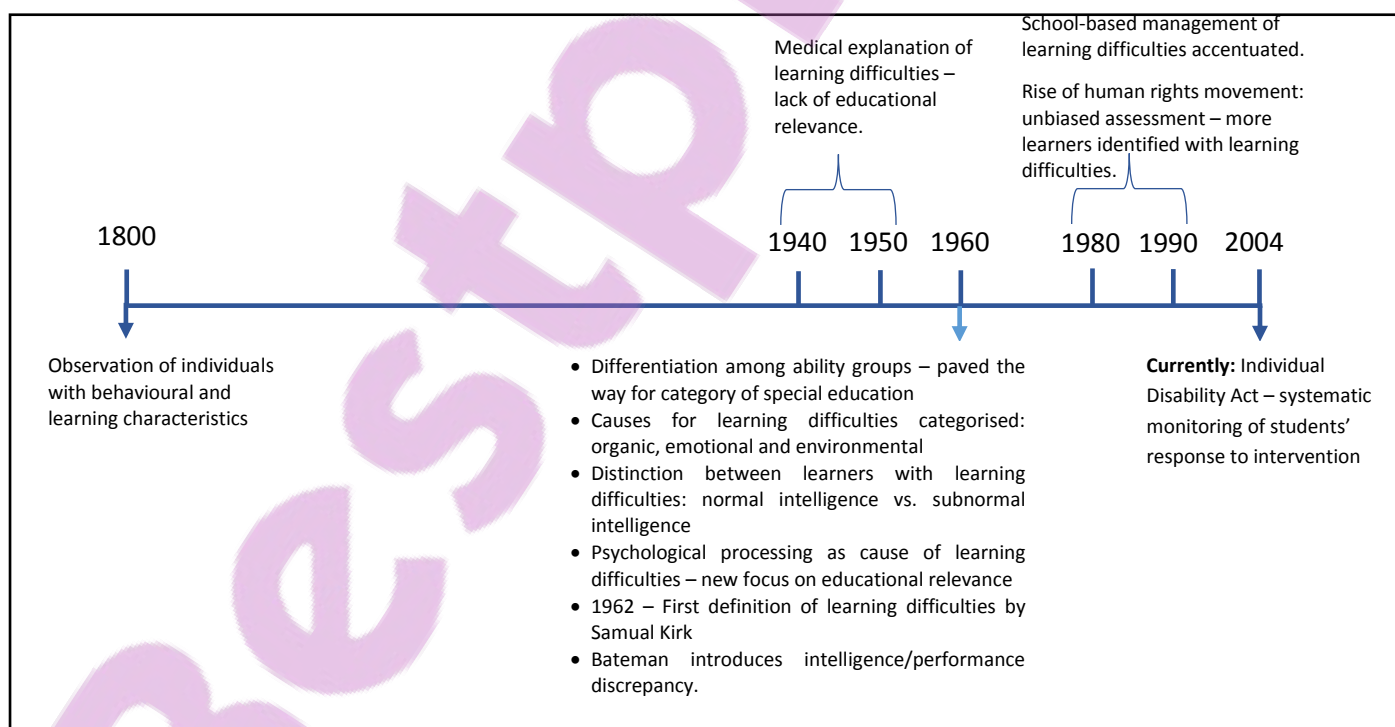


Figure 2.4: Timeline: Development of educational support for learners experiencing learning difficulties in North America

Endeavours in North America gave impetus to the establishment of clinical and educational support to learners experiencing learning difficulties, spreading to the rest of the world (Selikowitz, 2012). A brief history of these efforts is useful to understand existing definitions of and current revisionary efforts regarding learning difficulties.

Since the 1800s, adults and children displaying various behavioural and learning characteristics hindering their ability to read, write, calculate and reason have been observed and individuals from different disciplines have sought to describe and define what they have seen. During the late 1940s and 1950s, medical explanations for learning difficulties were provided by neuropsychological models. Causes were described as cerebral damage resulting from nongenetic factors such as pre- and post-birth injuries. Disorders of perception, cognition, behaviour and neurology were included in a definition by Straus and Lethinen (as cited in O'Shea, O'Shea, & Algozzine, 1998). This definition was criticised because of its strong medical tone and lack of educational relevance. During the late 1950s and early 1960s, political and social events in America significantly affected developments in the domain of learning difficulties. As American schools focussed on producing greater academic excellence, students were categorised to differentiate among groups with various abilities. According to O'Shea *et al.* (1998), this would allow, "brighter" students better academic opportunities. These events furthermore prepared the way for the development of the category "special education" (O'Shea *et al.*, 1998).

During the 1960s, the causes of learning difficulties were divided into organic, emotional and environmental causes. Learners were identified and described as mentally retarded, slow, psychologically disturbed and learning disabled. Then already there was a distinction between learners with normal intelligence presenting with learning problems and those learners with subnormal intelligence.

Psychological process problems causing learning difficulties were introduced in the 1960s and gave birth to educational assessment instruments and remedial techniques. The focus shifted away from the medical to an educational environment. Definitions of learning difficulties focussed on learners with normal intelligence experiencing psychological process problems that could be identified and remediated. Samuel A. Kirk was the first person to formulate a definition of learning difficulties in 1962 (Kirk, 1962, p. 263, as cited in Hammill, 1990, p. 75):

...a retardation, disorder, or delayed development in one or more of the processes of speech, language, reading, spelling, writing, or arithmetic resulting from a possible cerebral dysfunction and/or emotional or behavioural disturbance and not from mental retardation, sensory deprivation, or cultural or instructional factors.

The above definition describes learning difficulties as process problems manifesting in poor language and academic performance of learners of all ages, caused by either cerebral dysfunction or emotional and behavioral disruption. Of importance here is that learning difficulties are described in *educational terms*, such as language, reading and spelling, rather than in medical terms (Hammill, 1990; O'Shea *et al.*, 1998).

The idea of a significant discrepancy between intelligence and performance for identifying learning difficulties was introduced by Bateman in 1965. This has been a matter of continuing controversy ever since. Although current federal legislation in America declares that the severe discrepancy model does not need to be followed in identifying learners with learning difficulties (O'Shea *et al.*, 1998), most current literature maintains measuring intellectual capacity as a guideline for identification of learning difficulties, stating that a child with specific learning difficulties should have at least average intellectual potential (Department of Education, 2010; Fletcher, 2012; Selikowitz, 2012).

A further advancement in the learning difficulties field in the USA came in 1975 when legislation guaranteed accessible education for all students with disability. Finding a definition became important to identify these learners. The following definition was proposed:

The term specific learning disability means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, speak, read, write, spell, or to do mathematical calculations. The term includes such conditions as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The term does not include learners who have learning disabilities which are primarily the result of visual, hearing, or motor handicaps, or mental retardation, or emotional disturbance, or of environmental, cultural or economic disadvantage (USA Office of Education's

Federal Register 42:250, p. 65083, as cited in O'Shea, O'Shea, & Algozzine, 1998, p. 36).

This definition was operational in the sense that it actively indicated effects within a scholastic context and gave momentum to the restructuring of schools during the 1980s and 1990s in which school-based management of learning difficulties was accentuated. Students with learning difficulties were placed in general educational classrooms. At this stage, a much greater degree of consensus on the definition was reached within the USA, with the 1977 Federal Register definition and the 1988 National Joint Committee on Learning Difficulties definition being the most popular. The 1988 definition reinforced the idea that learning difficulties existed at all ages, and it excluded the concept of basic psychological processes and incorporated the coexistence of other conditions (Hammill, 1990; O'Shea *et al.*, 1998).

The 1990s brought about a significant change with the rising of the human rights movement in the USA. Efforts were made to develop unbiased assessment instruments. The definition of intellectual disability was adjusted by lowering the maximum intellectual quotient (IQ) score to two standard deviations below the mean. This resulted in more learners being labelled as experiencing learning difficulties. Learning difficulty programmes had to be established, and qualified remedial teachers had to be trained to serve this group of learners. The psychological process model was refuted as researchers challenged the reliability of assessment instruments. A behaviouristic model then emerged with the emphasis on students' lack of isolated academic skills. Special instructional techniques were developed to meet students' learning needs rather than to effectuate remediation of psychological processes. However, psychological process deficits with achievement discrepancy as the main identification method remained the primary method of identification (O'Shea *et al.*, 1998).

The Individuals with Disability Education Act of 2004 (as cited in Scanlon, 2012) highlighted the use of a specific process to determine whether a student responded to intervention based on scientific research, also known as response to intervention. In a response to intervention process, students who presenting with signs of learning difficulty receive a series of intensive, instructional or behavioural interventions on an individual level. Interventions are designed and provided by general mainstream educators in collaboration with specialists, such as school psychologists and special

educators. These interventions are founded on scientific research. Student's progress are systematically monitored. Should a student fail to improve (respond) after receiving the above mentioned intervention, the learner is considered to be at risk for learning disabilities and the need for specialized education services will be considered. (Scanlon, 2012).

Unlike the USA's term "learning disabilities", the United Kingdom (UK) distinguishes between learning disabilities, which include developmental and intellectual disabilities, and learning difficulties, also referred to as "specific learning difficulties" (British Institute of Learning Disabilities, 2013). The term "learning difficulty" is used in the UK to refer to people with specific learning difficulties without a significant general impairment in intelligence. Thus, a distinction is made between individuals with *learning disabilities*, including intellectual disability, and those with *specific learning difficulties*, excluding intellectual and sensory disability.

2.4.1.2 Historical perspectives on learning difficulties in South Africa

On the South African scene of special needs education there have been radical changes since 1994 with the first democratic government. The South African education system has a history of profound inequity and division based on race and classification. The rise of democracy paved the way for inclusive education to be introduced to the South African education system in which the value of respect for diversity and facilitating participation of all learners in the education system became a priority. *Education White Paper 6* (Department of Education, 2001, p. 20) marks the vision of the new education route: "a determination to establish an inclusive education and training system as our response to the call to action to establish a caring and humane society...."

The new focus on inclusive education brought a shift in viewing learners with special educational needs from the medical model with its focus on deficits within the learner:

The approach advocated in the White Paper is fundamentally different from traditional ones that assume that BtL reside primarily within the learner and accordingly, learner support should take the form of specialist, typically medical intervention (Department of Education, 2001, p. 24).

In 1997 the Integrated National Disability Strategy of South African (as cited in Dednam, 2011) adopted the term “learners with learning impairment” in referring to learners who experienced learning difficulties at school despite extra-intensive support in class. According to this document, the term “learning impairment” differs from terms such as “intellectual” and “learning disabilities” as used in the USA and other countries in the sense that a learner with a learning impairment in South Africa can only be considered disabled if the system fails to accommodate him/her. Dednam (2011) describes a learning impairment as an intrinsic barrier caused by dysfunction in the central nervous system. These learners have at least average intellectual ability. In essence, this description of “learning impairment” correlates with the USA’s definition of “learning disabilities” and the UK’s term “specific learning difficulty”. However, Dednam (2011) stresses that the last-mentioned definitions exclude learners experiencing environmental, cultural and economic disadvantages. These disadvantages are included to a certain extent in defining learning impairment in South Africa as they can be risk factors causing impairment. Donald *et al.* (2010) use the term “specific learning difficulties” and concur with the criteria used in the USA for “learning disability” and the UK’s “specific learning difficulty” in excluding environmental disadvantages as well as sensory and general intellectual or emotional causes. The Department of Education (2010, p. 95) supports Donald *et al.*’s (2010) definition of “learning disability”:

Specific learning disability is not primarily the result of visual, hearing or motor disabilities or intellectual, environmental or cultural factors. Causes may be linked to neurological or genetic factors.

2.4.1.3 Classification and identification of learning difficulties

From the exhaustive discussion above, it is clear that many different terms for and definitions of learners with at least average intelligence experiencing a breakdown in learning are found in government policies, journals and textbooks and on the Internet. Yilpet (2008) cautions those involved with learners experiencing learning difficulties to be discerning when using these definitions as each learner is unique and one definition cannot be applied to every learner. Echoing Yilpet’s warning, I conclude this discussion with Lerner’s (2003) assertion that a need exists not for one exclusive definition but for several definitions to serve various purposes, such as identification, assessment, instruction and research. “Learning difficulties” is a term which encompass a variety of difficulties affecting different areas of learning.

Learning difficulties are a diverse group of symptoms and characteristics rather than a single condition. Numerous research studies have been undertaken to classify and cluster the diverse characteristics into specific subtypes (Ceci, 1986; Learner, 2003). Three broad areas of learning difficulties were used for the purpose of this study: *developmental, academic and attention difficulties*.

Developmental difficulties include deficits in the prerequisite or basic underlying skills, such as motor, perceptual, language and thinking skills, needed to master academic subjects. A delay in development of these skills is often seen with learners experiencing learning difficulties.

Academic learning difficulties include difficulty with specific scholastic skills, such as reading, writing, language and arithmetic.

As 50% of learners experiencing learning difficulties present with an *attention deficit disorder*, this condition will also be discussed as a learning difficulty (Dednam, 2011; Donald *et al.*, 2010; Lerner, 2003).

A. Developmental difficulties

Delays or deficit patterns in motor, perception, memory, thinking and language development are often seen in young learners experiencing learning difficulties. Although this study did not focus on early childhood development, a delay in these areas could hamper the child's academic functioning. As mentioned, many school-aged learners with learning difficulties present with a deficit in some of these areas necessary for learning. Learning to write, for example, requires motor skills, eye-hand coordination, memory sequence and other perceptual skills. Auditory and visual perceptual skills are necessary to discriminate among sounds and letters for reading, writing and making sense of language. Arithmetic also requires visual perceptual skills as well as understanding of language. Sequential memory and concentration play a role in all subjects (Dednam, 2011; Donald *et al.*, 2010; Learner, 2003).

i) Motor development

Learners presenting with learning difficulties often present with a delay in the development of motor skills such as using eating utensils, dressing, catching a ball or riding a bicycle. Delay in motor skills can result in the following difficulties:

- *Balance and rhythm* problems can affect spoken language, counting and handwriting.
- *Spatial orientation and directionality* is the ability of a person to relate to different directions around him/her, such as on top, in front, left and right, affecting a person's sense of direction around the self, such as beneath, above, left and in front. Rotations and reversals in reading and writing occur when a child experiences difficulty in this area of development. Maths is also affected as the learner needs these abilities to start a mathematical problem at the right place.
- *Speed reaction and movement* problems can affect writing speed and possibly cause reading difficulty; a learner pressing too hard with a pencil can experience difficulty in tactual skills, having a negative effect on work speed (Dednam, 2013; Lerner, 2003).

ii) Perceptual difficulties

Perception is the brain's ability to process information gathered by the senses in order to give meaning to incoming stimuli. Visual, auditory and tactual-kinaesthetic perception is essential for scholastic performance (Dednan, 2011).

Visual perception

The ability to interpret and organise visual stimuli is called 'visual perception'. The following areas of visual perception are necessary to master school work: *visual discrimination, form consistency, visual closure, visual analysis and synthesis, visual sequence, spatial orientation, visual figure ground perception* and *visual memory*. Deficits in any of these areas can have a significant negative impact on a child's reading, writing and drawing abilities (Dednan, 2011)..

Auditory perception

The ability to interpret and organise auditory information is called 'auditory perception'. The following areas of auditory perception are essential for adequate scholastic performance: *auditory discrimination, auditory analysis and synthesis, auditory memory and order, auditory figure ground identification* and *auditory closure*. Deficits in any of these skills can have a significant negative impact on a child's language and literacy skills (Dednan, 2011).

Tactual-kinaesthetic perception

The ability to interpret and make sense of different forms, textures and movements made when drawing shapes is called “tactual-kinaesthetic perception”. Learners who experience tactual-kinaesthetic perceptual difficulties can struggle with letter and number formation as they may not be sure whether the letter or number is formed correctly (Dednan, 2011).

B. Academic skills

i) Language disorders

Language exists in many forms that are linked and interrelated in a language system. Forms of language important for scholastic performance are *oral language*, which can be divided into speaking and listening, *written language* and *reading*. *Listening* and *speaking* are referred to as the primary language system as these are the first language skills to develop. *Reading* and *writing* are secondary skills and require identification and integration of symbols and sounds. The language system can also be divided into *receptive* (listening and reading) and *expressive* (speaking and writing) components. A delay or deficiency in one or more of these language forms underlies many learning difficulties (Lerner, 2003). It is important to make a distinction between secondary language delay as a result of intellectual disability, autism or hearing loss and specific language delay, which is classified by the Diagnostic and Statistical Manual (DSM-V) of Mental Disorders (American Psychiatric Association, 2013) and the World Health Organization’s International Classification Manual (ICD-10) as receptive-expressive language disorder and expressive language disorder (Carr, 2006).

ii) Reading disorder

A reading disorder known as dyslexia is classified by the DSM V (American Psychiatric Association, 2013) as one of three subtypes of specific learning difficulty. Reading difficulty occurs among many students as a result of various causes, such as lack of foundational and prereading skills, contextual disadvantages, such as poverty with learners not being exposed to books and reading from an early age, and ineffective teaching methods (Dednan, 2011). However, certain common characteristics occur in learners who experience reading difficulty as a result of a congenital neurological condition that persists into adolescence and adulthood. These difficulties can manifest in perceptual, cognitive and language dimensions

(excluding sensory impairments such as hearing or sight difficulty), resulting in a reading disorder known as dyslexia. People with dyslexia find it extremely difficult to identify letters and words and to interpret visually or auditory presented information. Individuals with dyslexia usually have strongly developed mathematical or creative skills (Lerner, 2003).

iii) Mathematical disorder

“Dyscalculia” is a term used for learners who experience significant difficulty in learning mathematical concepts and computation despite having received adequate teaching. Like dyslexia, dyscalculia is the result of an organic dysfunction and excludes sensory or intellectual disabilities (Lerner, 2003). These learners experience difficulty with abstract and symbolic thinking, understanding numbers as concepts, telling time, counting money, sequencing numbers and place values. A disturbance in spatial relationships, sense of body image, visual-motor abilities, visual-perceptual abilities and memory is also characteristic of dyscalculia (Carr, 2006; Dednan, 2011; Lerner, 2003; Yilpet, 2008).

iv) Writing disorder

Learners who significantly struggle with eye-hand coordination despite adequate early stimulation can be classified as learners with a writing disorder known as dysgraphia. These learners struggle with letter formation, pencil pressure, letter size, spacing and keeping letters and words regular and on a line, all of these resulting in slow writing speed. Difficulties relate to organic causes and exclude other physical or intellectual disabilities (Dednam, 2011; Donald *et al.*, 2010). The nature of writing difficulty varies from child to child. Difficulty in the following learning areas can be involved: motor planning, visual perception, pencil grip, visual memory, spatial planning and slow processing. Although deficits in various subskills may be present, identification of a writing difficulty usually focuses on the written product. Both formal testing and informal analysis of handwriting are used to identify specific areas of difficulty.

v) Spelling disorder

This occurs when a learner experiences significant difficulty in spelling despite adequate teaching and with the exclusion of intellectual or sensory barriers. Spelling is the ability to process phonetic information and the translation of these sounds into a very specific pattern to form words. As spelling requires many skills and subskills,

there can be various causes for a spelling disorder. Difficulties relating to visual and/or auditory perception, short-term memory, sequential memory, motor memory and attention often underlie spelling difficulties (Donald *et al.*, 2010; Lerner, 2003).

C. Attention deficit hyperactive disorder

Greydanus (2012) describes ADHD as a neurodevelopmental and neuropsychiatric disorder involving noradrenergic-dopaminergic dysfunction and absence or lack of connections in various brain regions. It is a common childhood psychological disorder, affecting more than 50% of all learners experiencing learning difficulty (Donald *et al.*, 2010; Wells, 2005). Most learners with this disorder struggle to stay on task. They experience particular difficulty starting and changing between tasks. They experience high levels of internal (their own thoughts) or external (noises or movements usually unnoticed by others) distractibility. Most of these learners present with poor listening skills, hampering their ability to effectively participate in learning activities in the classroom. Learners with hyperactivity are prone to impulsive, restless, hyperactive and erratic behaviour. They often fail in planning ahead and struggle to foresee possible outcomes. Those not hyperactive tend to daydream excessively, lose track of what they are doing and fail to engage in their studies unless they are highly motivated (Dednan, 2011; Learner, 2003;). A careful diagnosis of the presence of ADHD and possible comorbid conditions is important to support learners with this disorder (Wells, 2005). Support effort most useful involve classroom management strategies applied by teachers, training of parents in these same methods, psychopharmacology, particular stimulants and in some cases a combination of behaviour modification and mediation. Input from multiple disciplines are required to provide maximum support.

2.4.2 Learning disabilities

The WHO's *International Classification of Functioning, Disability, and Health* (ICF) (WHO, 2001) refers to "disability" as an umbrella term to describe individuals experiencing limitations in human functioning, meaning all the daily activities in which a person would be expected to engage. Significant restriction in functioning are labelled a "disability". Disability can be caused by difficulty in one or more of three dimensions: body structures and functions, personal activities and participation.

2.4.2.1 Intellectual disability/impairment

Intellectual disability is defined by the American Association of Intellectual and Developmental Disabilities (2010b, as cited in Jooste & Jooste, 2011, p. 419) as follows:

A disability characterized by significant limitations both in intellectual functioning and in adaptive behavior, which includes many everyday social and practical skills. This disability originates before the age of 18 years.

This definition states that there are three main aspects of intellectual disabilities.

1. Intellectual disability affects a person's general mental capacity, applying across most skills such as reasoning, receptive and expressive language, memory, problem-solving, social and motor skills (Donald *et al.*, 2010; Jooste & Jooste, 2011).
2. Limited adaptive behaviour is seen in three types of skill: *conceptual skills*, including aspects such as understanding time, money, self-direction and number concepts; *social skills*, such as interpersonal skills, gullibility, naivety, poor social problem solving and difficulty understanding rules and laws; and *practical daily living skills*, such as personal care, occupational skills, travel and transportation, routines, safety, use of money and technology (Jooste & Jooste, 2013).
3. The onset of limited intellectual function is before 18 years. However, Donald *et al.* (2010) stress the importance of understanding these areas of difficulty in terms of different levels of severity, namely mild, moderate and severe. Classification of intellectual abilities (IQ) is mainly used by health professionals to determine the presence and degree of learning disability: 50–70 constitutes mild learning disability, 35–50 moderate learning disability, 20–35 severe learning disability and below 20 profound learning disability (Lomofski & Skuy, 2003). Holland (as cited in British Institute of Learning Disabilities, 2013, p. 4) warns that IQ measurements can be problematic in that:

measurements can vary during a person's growth and development but more importantly it doesn't capture the person's strengths and abilities very well. IQ is an important measurement, but only if it is carried out alongside other assessment and measurement including social functioning and adaptation.

Individuals with mild intellectual disability usually present with normal physical appearance. They are able to learn basic scholastic skills but at a much slower pace than their peers. Limitations are also seen in social and emotional development. Difficulty with abstract reasoning results in scholastic failure as school work becomes more advanced. A negative sense of self-worth and low frustration tolerance are often seen as society tends to expect more from them than they are capable of. Poor problem-solving skills and frustration usually result in behavioural difficulties, such as negativity, stubbornness and resistance (Donald *et al.*, 2010). Individuals with moderate intellectual disability are more likely to be identified at an early age as these learner's emotional and social functioning is equal to that of learners of a much younger age. They benefit from the curriculum specially adapted to their needs, focussing on learning adaptive behaviour such as communication, dressing, transport skills and routine occupational skills, although the learning of scholarly skills are not excluded. Severe intellectual disability is characterised by severe impairment in all aspects of functioning. These individuals require ongoing full-time physical care such as feeding, toileting and dressing. Learning any scholastic skills is unlikely (Donald *et al.*, 2010). Support needed by individuals with intellectual disabilities depends on the level of severity of the disability.

2.4.2.2 Sensory disabilities

Sensory disabilities affect the way in which a person gathers information from the world around him/her. The most common sensory disabilities involve *hearing* and *sight*.

A. Hearing disability

Hearing disabilities can range from total deafness to varying degrees of hearing loss, affecting a child's language development and, consequently, his/her scholastic performance. Social interaction and emotional development are also affected by a hearing disability (Donald *et al.*, 2010). Storbeck (2011) describes two general types of hearing loss: *Conductive hearing loss* refers to a problem occurring in the process of organizing the sound waves in the outer or middle ear. Blockages, fluid build-up, perforated eardrums or damaged ossicles can cause conductive hearing loss. *Sensorineural hearing loss* is caused by problems in the inner ear or auditory nerve. The inner ear is unable to translate the sound sensations into the electrical signals required by the auditory nerve, making it impossible for the brain to interpret them.

Educational support to learner and parent

B. Visual disability

As with hearing disability, visual disabilities range from total blindness to different degrees of vision loss. Various eye conditions such as cataracts, strabismus (squint), nystagmus, albinism, conjunctivitis, trachoma, glaucoma, macular degeneration, retinitis pigmentosa and retinal detachment can cause vision difficulty. As vision is the most dominant sense in humans, visual impairment will have a significant impact on a child's development. Landsberg (2011) points out *refraction errors* as one of the most common eye conditions. Three main refraction errors occur: *Near-sightedness* or *myopia* results in learners not being able to see objects clearly at a distance. Although high-grade myopia is difficult to correct, in the early stages this condition can be corrected through spectacles, lenses or a medical procedure. *Farsightedness* or *hyperopia* is a condition restricting vision at a close distance. Concave lenses or spectacles are used to correct this difficulty. *Astigmatism* is caused by an uneven cornea, making it difficult for learners to distinguish between roundings in letter forms such as B and D or G and D, and so forth.

Educational support to learner and parent

2.4.2.3 Physical disabilities

According to Kruger (2001, as cited in Kruger & Smith, 2011), physical disabilities can be the result of either neurological conditions, such as epilepsy, cerebral palsy, spina bifida and muscular dystrophy, or skeletal and muscular impairment, for example amputations, osteogenesis imperfecta and burn lesions. Physical impairments occur in various degrees of severity. Learners experiencing physical disabilities typically experience challenges in mobility and physical vitality. They also experience social and emotional challenges as a result of being different from others. Challenges related to mobility include access to buildings and other physical areas where there are no special access adjustments. Orthopaedic aids and wheelchairs restrict these individuals' mobility. Some learners experience a loss of sensation causing them to be vulnerable to injuries and pressure sores. Incontinence is also a great challenge for learners with physical impairments, causing social and emotional challenges. Writing problems and fatigue as a result of postural problems are common areas of scholastic difficulty for these learners (Kruger & Smith, 2011). Physical disability is usually first diagnosed by a medical professional. As with all

disabilities, support needed varies according to the specific nature and degree of the disability. Kruger and Smith (2011) postulate the following areas where support is needed for learners experiencing physical barriers.

- *Psychosocial support*: Learners experiencing physical barriers are vulnerable to developing a low self-concept and lack of social confidence. It is of the utmost importance to help these learners to develop a positive realistic self-image and body concept and identify and develop their abilities.
- *Improvement of mobility*: The ability to move around independently is vital for learners with physical disabilities. Aids such as wheelchairs and callipers, accommodation within the school building and classroom in terms of positioning, frames and ramps as well as toilet accommodations are necessary.
- *Prevention of pressure sores and injuries*: Learners using a wheelchair and orthopaedic aids often develop pressure sores. These learners must be encouraged to regularly lift themselves or change their position. Those learners who cannot lift themselves should be assisted.
- *Care of learners with incontinence*: Learners experiencing incontinence need to be guided to remain as dry as possible. Various methods can be used to empty the bladder, such as external pressure applied to the bladder or catheterisation. Input from the medical profession, such as nurses and urologists, is necessary to teach learners in this regard. Social implications such as being mindful of other learners' nonverbal communication of offensive body odours and personal hygiene need to be addressed (Kruger & Smith, 2011).
- *Classroom support*: Although there are general guidelines to support learners with physical disability in a scholastic environment, it is important to remember that each learner has unique needs, depending on the physical disability, therefore requiring support suitable to the specific needs.

2.4.2.4 Autism spectrum disorder

Autism spectrum disorder (ASD) is a DSM V (American Psychiatric Association, 2013) classification of a neurodevelopmental disorder. Learners with ASD experience persistent deficits in social communication and social interaction, display stereotyped or repetitive behaviour and interests, and, in some individuals, experience cognitive delays (American Psychiatric Association, 2013). Social behaviour can vary between being aloof and indifferent, passive, or active but socially inappropriate. Learners with ASD tend to have have limited imagination.

They are socially isolated. Some may seek attention from others, but their response to others is inappropriate and prevents them from forming relationships. Thought processes are ritualistic and routine bound. Severe anxiety is triggered by unexpected changes, resulting in ritualistic stereotyped behaviour. Their ability to integrate or process information in relation to the whole, called *central coherence* ability, is affected. Commonly associated features are sensorimotor development difficulty. Learners with ASD have difficulty integrating and processing sensory, motor and perceptual experiences. They can be hyper- or hyposensitive to stimuli, resulting in their closing their ears or eyes, and sometimes they will move away from the noise or visual stimuli. Strong emotional reaction is often seen when a learner is overwhelmed by a specific sensory input. Poor motor coordination, poor muscle tone and odd movements such as walking on tiptoe, flapping of arms or hands and rocking can occur. Disturbed eating and sleeping patterns, mood swings and anxiety are common in learners with ASD. Learners with ASD tend to over focus on specific objects. Challenging socially inappropriate behaviour, temper tantrums, spells of aggression and destructive actions are typically associated with ASD. Some learners with ASD present with exceptionally well-developed skills in a specific area such as music, art and spatial skills (Koudstaal, 2011). The complex and pervasive character of the difficulties experienced by learners with ASD requires assessment specifically developed for identifying learning needs. Educational needs depend on the level of specific areas of impairment.

2.5 IDENTIFICATION AND SUPPORT OF LEARNERS EXPERIENCING BARRIERS TO LEARNING

Early recognition and intervention can have a significant impact on long-term positive outcomes for learners experiencing BtL (Pratt & Greydanus, 2012). To be able to provide appropriate support, it is important to identify the specific nature of the learning barrier, requiring assessment by various professionals to review all aspects of the child's functioning and to encapsulate the total implications of specific identified deficits for each individual. The influence of BtL on a learner's academic functioning can be limited through assessment, description and documentation of a learner's functioning in terms of specific neurocognitive areas. This will equip professionals supporting these learners to focus on accommodations or intervention that will most effectively limit the impact of barriers on the learner's academic performance (Larsen, Berglund, Joseph, & Pratt, 2012). The assessment process is based on presenting areas of delay from the referral source, usually the school

teacher, the parent/care provider or a therapist. Pratt and Greydanus (2012) describe multiple goals of an assessment:

- Assessments can determine the learner's current developmental functioning.
- A comprehensive assessment can answer existing questions regarding overall functioning.
- Data required to identify and support services required to accommodate, ameliorate or reduce obstacles in various life situations, specifically the learner's educational setting, can be obtained from assessments.
- Appropriate school placements are guided by assessment results.

Larsen *et al.* (2012 p. 31), echoed by many other voices in the literature, emphasise the importance of a strength-based focus for assessment and intervention planning as opposed to the outdated medical or in-child-deficit focus:

A functional model is the current approach to viewing disability. Terminology used to describe individuals with impairments has shifted from reification (i.e., the disabled person or the person with disabilities) to a description of ability versus inability. Assessment is used to identify the relative extent or magnitude of strengths and weaknesses, thereby identifying areas of impairment.

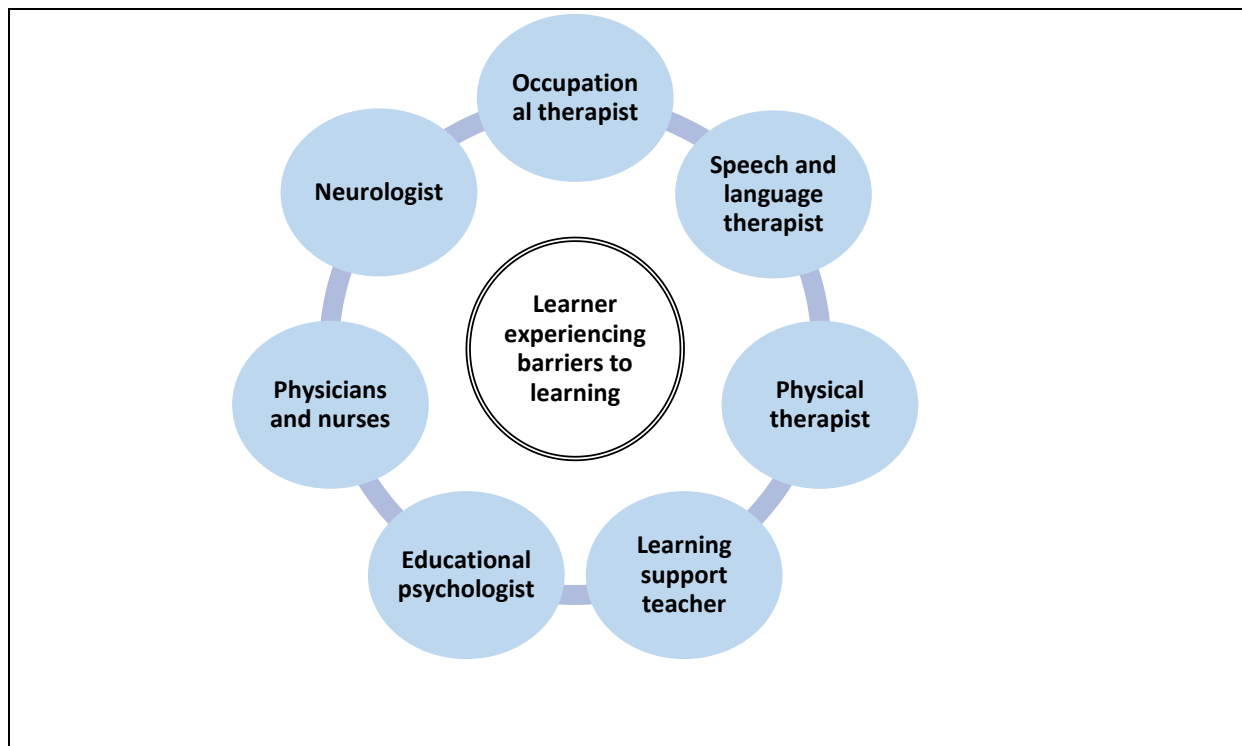
The value of strength-based assessments is further described by Kruger and Smith (2011 p. 301):

When assessment focuses exclusively on deficits, these remain the main focus...children define themselves through their self-knowledge and if all they know about themselves is their weaknesses then poor self-concept and lack of self-efficacy are likely outcomes.

2.5.1 Professional collaboration in identification and support of learners experiencing barriers to learning

Most learners experiencing BtL present with a number of skills affected, requiring various disciplines to be involved. Besides a learner's parents and teachers, professionals such as an educational psychologist, a speech and language therapist, an audiologist and a learning support teacher are involved, although other professionals can also be involved (see Figure 2.5). One example of multiple professionals required for support is learners with ASD. Speech and language therapists are required to assist everyone involved in addressing communication and language needs, physiotherapists are needed to support the development of motor skills, occupational therapists assist in sensory integration difficulties as well as

overall functioning within the educational environment, educational psychologists are needed to assess cognitive strengths and needs as well as emotional and behavioural aspects, and medical professionals such as neurologists, child psychiatrists and paediatricians and school or clinic nurses are needed to manage medical aspects (Cumine, Leach, & Stevenson, 2000).



**Figure 2.5: Supporting learners experiencing barriers to learning:
A multidisciplinary field**

Mitchell (2010, p. 171) points out the prominence of multidisciplinary collaboration in the field of supporting learners experiencing BtL:

This is particularly true in inclusive education where, ideally, general classroom teachers may work with various combinations of specialist teachers; special needs advisers; educational psychologists; therapists and other specialists; community agencies such as welfare services, police and advocacy groups; paraprofessionals; technology consultants; and, of course, parents.

Collaboration in the identification of and support provided to learners experiencing BtL is stated as a key factor in successful inclusive education (Department of Education, 2010; Mitchell, 2010). Although inclusive education was not the focus of this study, it is vital for all professionals, both those serving in the Department of Education and those in private practice, involved in supporting learners experiencing

BtL to understand their new roles in the context of inclusive education, as inclusive education is the common practice for schools, both universally and, for the interest of this study, in South Africa (Donald *et al.*, 2010; Engelbrecht, 2003). In this context, Dreyer (2008, p. 56) emphasises the fundamental shift from the medical or within-child-deficit model to an holistic socio-ecological model of support (as extensively discussed in Chapter 1 and in Section 3.2): “Therapists are required to support educational rather than medical goals.” Integration of support services within the educational system has been advocated in education as an approach involving a move away from mainly providing direct support to individual learners to mainly providing indirect support to all learners. Three models of integrative support within the educational system are described: *direct service delivery*, *monitoring* and *consultation* (Dreyer, 2008; Government, Scotland, 2010):

Direct service delivery occurs when an individual is referred to a specialist for specific intervention and is most often associated with professional services in the field of learning support (Government, Scotland, 2010). Although intervention can take place inside or outside the classroom, most often learners are pulled out of the classroom to receive therapeutic intervention. The “pull-out” model has been much criticised for belonging to the medical model in which services are decontextualised and fragmented (Dreyer, 2008; Engelbrecht, 2003).

Monitoring, also sometimes referred to in the literature as *consultation*, is advocated as desirable within an integrated and holistic approach to support learners experiencing BtL (Dreyer, 2008; Engelbrecht, 2003). It involves the therapist’s teaching or training the teacher or any other person supporting a learner/learners experiencing BtL and then monitoring the process (Dreyer, 2008). This model characterises some aspects of transdisciplinary cooperation as professional boundaries are transcended within a team in delivering services.

Consultation enables professionals to benefit all learners in the school system by influencing the school environment or school system. Professionals use their expertise to change teaching and learning strategies to help learners experiencing BtL succeed in school. This model is also highly recommended within an ecosystemic approach (Dreyer, 2008; Engelbrecht, 2003; Government, Scotland, 2010; Mitchell, 2010).

Collaboration and the promotion of indirect services in education are by now well established in international legislation and continue to be an area of development (Dreyer, 2008; Government, Scotland, 2010; Mitchell, 2010).

2.6 CONCLUSION

This chapter provided an exposition of BtL from an ecosystemic perspective. The role of external factors in contributing to learners' developing BtL was briefly discussed. The remainder of the chapter focussed on the classification, definition and educational impact of BtL caused by factors within the learner. The chapter concluded with a discussion of the importance of identification and support provided to learners, arguing the need for a collaborative approach among the various professionals involved, setting the stage for Chapter 3 in which a transdisciplinary service delivery approach to supporting learners experiencing BtL will be explored.

CHAPTER 3:

LITERATURE STUDY: TOWARDS AN UNDERSTANDING OF TRANSDISCIPLINARITY

“It is no longer enough for health workers to be professional. In the current global climate, health workers also need to be inter-professional” (WHO Report, 2010, p. 36, as cited in Interprofessional Education Collaborative, 2011, p. 13).

3.1 INTRODUCTION

This chapter provides a literature study on transdisciplinarity. It commences with an overview of interprofessional care as the backdrop against which transdisciplinarity will be explored. A global and local perspective on interprofessional care is followed by an exposition of transdisciplinarity, consisting of a brief historic overview, various definitions and operational aspects of transdisciplinarity within health and educational care.

3.2 INTERPROFESSIONAL COLLABORATION

“Interprofessional collaboration” refers to the use of multiple disciplines in solving a particular problem. In the literature it is also described as interdisciplinary collaboration, integrated care, shared care, joined-up services and wrap-around services, all embedded in ideas of synthesis, union and holism, creating a shared epistemology of confluence (Government, Scotland, 2010; Klein, 1990). Interprofessional collaboration forms part of the evolving field of integrated, holistic service delivery in the face of the increasing need for interdependency in health care and education (Engelbrecht, 2004; Forbes, 2011; Forbes & McCartney, 2010; Klein, 2004; Landsberg, 2011; WHO, 2010). Interprofessional collaboration is a concept of wide appeal to professionals from various disciplines as it seeks to “answer complex questions, explore disciplinary and professional relations and solve problems that are beyond the scope of any one discipline” (Klein, 1990, p. 11). Many models of integrative service delivery, such as pluridisciplinary, multidisciplinary, interdisciplinary and transdisciplinary models, exist under the umbrella term “interprofessional collaboration” (see Figure 3.1). Jantasch (as cited in Klein, 1990), however, describes transdisciplinarity as the ultimate degree of integrative action. He describes interdisciplinarity as a vision infusing all sciences.

I begin this journey towards understanding transdisciplinarity with an introductory discussion of interprofessional collaboration, followed by an in-depth exposition of transdisciplinarity.

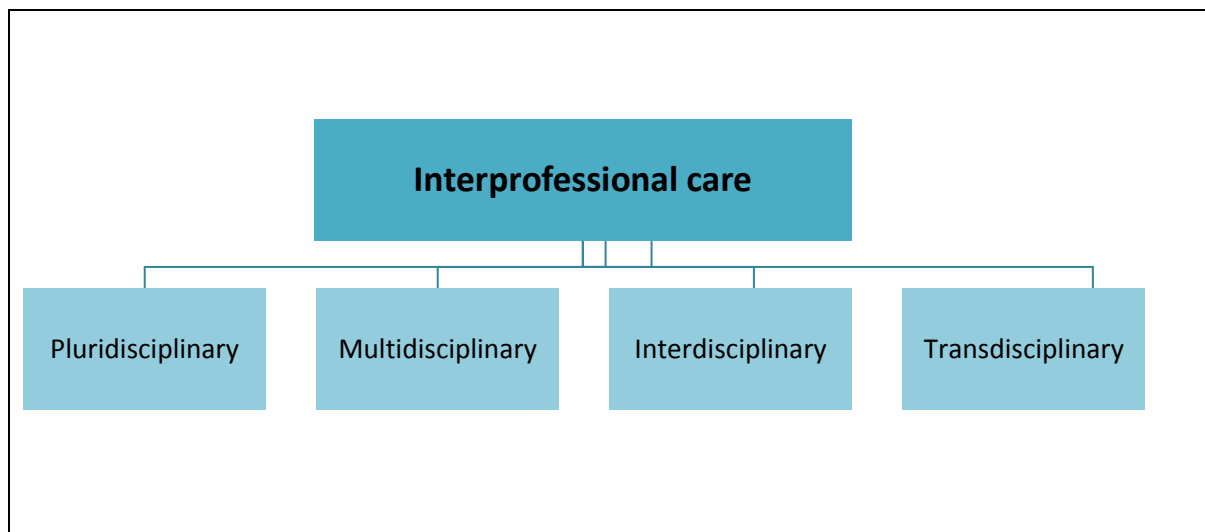


Figure 3.1: Models of interprofessional care

3.2.1 Interprofessional collaboration: an international perspective

Although the roots of interprofessional and collaborative practice can be traced back to the beginning of the modern age (Klein, 1990), the WHO's (1988) release of guidance on the benefits of collaboration among differing disciplines gave international impetus to the development of interprofessional collaboration. It stated the importance of the international trend of teamwork:

Health workers could carry out their numerous tasks more efficiently if they were members of carefully composed teams of people with various types and degrees of skill and knowledge. A team as a whole had an impact greater than the sum of the contributions of its members. (WHO, 1988, p. 7).

Following the above release, the emphasis continued to fall on combining skills to maximise service outcomes. The *World Health Report* of 2008 (WHO, 2008) advocated person-centred integration among various services and agencies. This health report revealed examples of countries, such as the Democratic Republic of the Congo, where team efforts had proven to bring about positive outcomes in health services. Littlechild and Smith (2013) mention other international drivers of interprofessional collaboration, such as Norway, Iceland, Sweden and Finland, countries where the state plays an essential role to protect and promote citizen's socio-economic well being. In these countries, collaborative initiatives, for instance

community-based services, have been a continuous development. The authors further postulate a confluence of influences stimulating change:

...the struggle to respond to rising demand for services and the perceived failure of traditional welfare regimes to respond adequately to “users” needs is due, at least in part, to the failure of the state to work properly “in partnership” with the private and community sectors, and with welfare users (Rummary, 2006, p. 293, as cited in Littlechild & Smith, 2013, p. 27).

Keeping the momentum of promoting interprofessional collaboration as a bolstering strategy against the world-wide workforce crisis in health services, the WHO published the *Framework for Action on Interprofessional Education and Collaborative Practice* in 2010. This document aims to offer strategies and suggestions to assist health policy makers in implementing “elements of interprofessional education and collaborative practice that will be most beneficial in their own jurisdiction” (WHO, 2010, p. 9). It is therefore clear that interprofessional collaboration is an evolving international principle with widespread implications for service delivery, not only in services of social and health care but also, and specifically of importance for this study, in educational support services.

3.2.2 Interprofessional collaboration in South African health and educational care

Literature on interprofessional collaboration in South African health and educational service delivery is limited. Following the international movement towards integrated and collaborative health care service delivery, a number of South African universities have implemented interprofessional education initiatives for example Mashingaidze’s (2012) study on the insights and attitudes of students in interprofessional programmes at the University of the Western Cape. Since the country’s entry into a new democratic era, it has distinguished itself from the previous era known for segregation policies. In the former era, interaction among students from different disciplines was not accommodated within health curricula. Students were trained to provide services only within their own discipline (Mashingaidze, 2012). This disjunction among the various health professional programmes resulted in inefficient, isolated service provision that left both service providers and those receiving services frustrated and with a need for holistic, integrated and collaborative service delivery. Equity, community care and a focus on social responsibility play key roles in South African interprofessional initiatives. Pilot studies are launched in

communities where resources are scarce. Students from different disciplines, including professions such as occupational therapy, speech and language therapy, physiotherapy and nursing, are placed in rural areas in clinics and schools where they work as interprofessional teams, supervised by the university. Interprofessional education prepares students to act as agents of change towards holistic integrative and collaborative service delivery (Mashingaidze, 2012).

Another example of initiatives to promote interprofessional collaboration and education is a joint project between interprofessional health care student of the Stellenbosch University and the Western Cape College of Nursing. These students are participating in a project where interprofessional education and learning is being implemented Ukwanda Rural Clinic School in Worscester (Theunissin, 2014).

Another initiative undertaken by the University of Stellenbosch to promote interprofessional education and collaboration is the Interprofessional Education and Practice (IPEP) pilot project in Hermanus in the Western Cape. Final year occupational therapy students, medical students and human nutrition students lived together in a university house and took part in an interprofessional service-learning early childhood development project (Stellenbosch University, 2013)/

3.2.3 Defining interprofessional collaboration

A broad array of meanings is found in defining the term “interprofessional collaboration”. D’Amour *et al.* (2005) point out a scarcity of knowledge about interprofessional relationships and its intricacies. This need for knowledge is echoed by a myriad of voices in the literature in their plea for more aggressive research in this nascent field (Léagré, F., Stacey, D., Pouliot, S., Gauvin, F., Desroches, S., Kryworuchko, J., Dunn, S., Elwyn, G., Frosch, D., Gagnon, M., Harrison, M. B., Pluye, P & Graham, I.D, 2011; Thistlethwaite, J, 2012; WHO, 2010).

Klein and Newel (as cited in Klein, 2004, p.1) define interdisciplinary study as “a process of answering a question, solving a problem, or addressing a topic that is too broad or complex to be dealt with adequately by a single discipline or profession”. A literature research project undertaken by D’Amour *et al.* (2005) revealed the following fundamental aspects in defining collaboration: *sharing, partnership, power, interdependency* and *process*. *Sharing* can refer to sharing of responsibilities, shared decision making, shared principles, shared information, shared planning and

shared involvement. The notion of *partnership* implies more than one partner joining in a collaborative undertaking with a mutual goal in mind. This collaboration among partners is characterised by a constructive, collegial relationship and personal commitment (D'Amour *et al.*, 2005; Friend & Cook, 2007). The nature of this relationship is that of open communication, honesty, trust and respect. Partners are aware of and value each other's professional contributions and perspectives. *Interdependency* suggests mutual dependency and synergy, leading to collective holistic action. The fourth concept, *power*, is created and shared within the relationship. Each partner's power is recognised by all and is based on his/her contributions rather than title. Partners are valued equally in decision making. Lastly, collaboration is characterised by an evolving *process*. It is a dynamic and interactive transformative process. The collaborative process can be that of negotiation or compromise in decision making or shared planning and intervention. Friend and Cook (2007) underline this element of process in describing collaboration as a sequential process taking the interaction from beginning to end. D'Amour and Oandasan (in D'Amour *et.al.*, 2011 p. 23) mention the transcendence of professional boundaries in this process: "Communication allows team members to transcend their inclination towards their own field and find common interprofessional territory."

However, the transcendence of professional boundaries in collaborative health care is not necessarily shared by all. A regulatory body for nurses in Canada, for example, defines collaboration in terms of working together as a team, within the limitations of each member's scope of practice (World Health Organization, 2008). What all of the above characteristics of interprofessional care have in common is a joining together towards a common goal, defined as "teaming". A thorough understanding of the concept of teaming is therefore imperative in professional collaboration.

3.2.4 Teaming in interprofessional collaboration

A team can be defined as a number of people joint together in action to fulfil a common goal or purpose for which they accept mutual responsibility (Katzenbach & Smith, 1993).

Within the framework of interprofessional collaboration, partners or members of this team can consist of professionals from various disciplines providing health or support services: "Collaborative practice is an inter professional process ... that enables the

separate and shared knowledge and skills of care providers to synergistically influence the patient care provided” (Way, Busing & Jones, 2000, p. 3). It can also be a fusion of professionals and patients allowing for the influence of the patient the process of care.

The common goal of all interprofessional collaborative teams is to enhance the quality of care for patients through integration of services and empowerment of patients as active partners in care (Bornman & Uys, 2005a; Bridges *et al.*, 2011; D’Amour *et al.*, 2005; Way *et al.*, 2000; WHO, 2010). To reach this goal, teamwork skills are essential but are often not included in professionals’ training. Developing teamwork skills is an important prerequisite for interprofessional collaboration. Lack of teaming skills is found to be one of the main challenges in the successful implementation of interprofessional collaboration. Core competencies involve *cooperation* of all professionals in the client-centred provision of care, *synchronising* one’s own competencies with those of other related professionals and *collaborating* in decision making and problem solving (Bornman & Uys, 2005a).

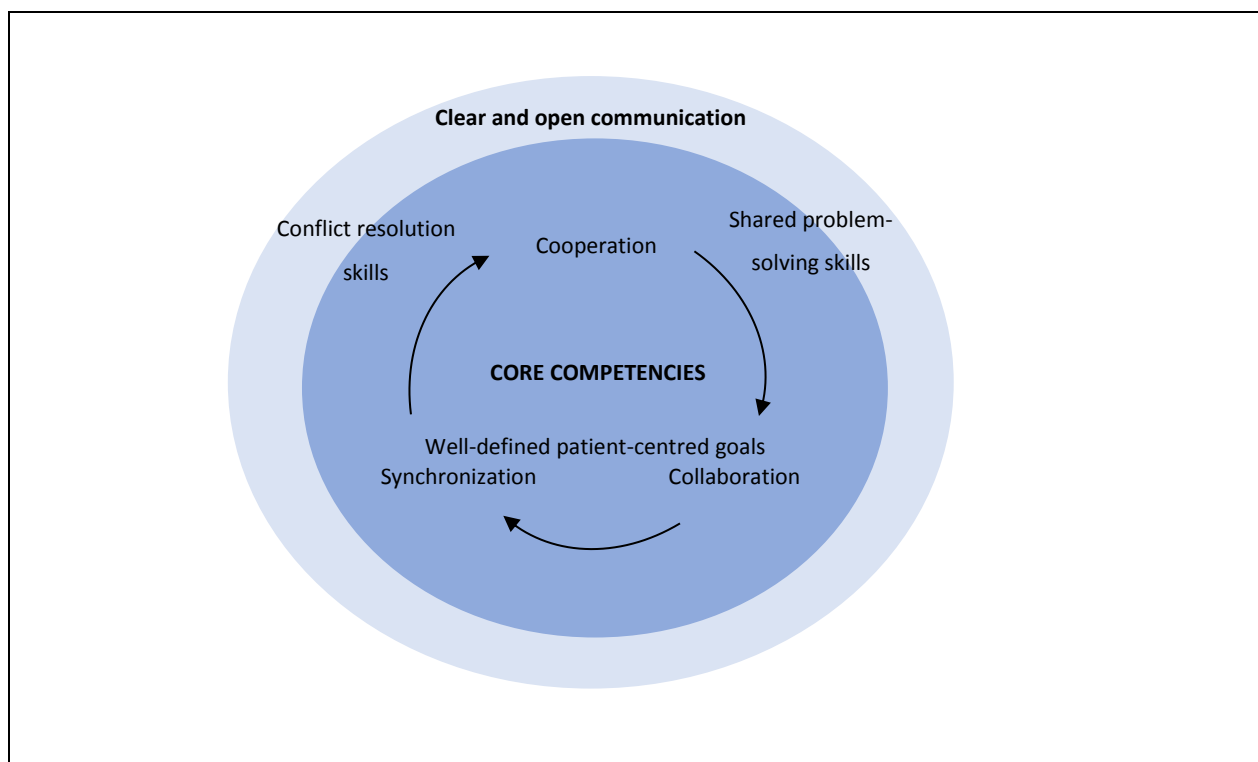


Figure 3.2: Competencies necessary for interprofessional teamwork

The literature presents a number of principles for effective interprofessional teams:

- All members provide care to a mutual patient/client.

- Common goals for treatment outcomes are developed by the team, and all team members work towards these goals.
- Each member is assigned an appropriate role and balance of member participation for tasks. It is important for members to understand each other's roles.
- Members work within a nonpunitive and enabling environment with access to resources.
- Clear specifications regarding authority and accountability exist.
- Reflection on individual and team performance for improvement takes place. Information is shared through specific procedures.
- Mechanisms or processes are in place to oversee execution of plans, assessment of outcomes and, if necessary, adjustment of goals and plans.
- Patient and carer empowerment is ensured.
- There is consensus among team members regarding ethical principles guiding patient care.
- The necessity of research and development is realised.
- Professional education and training are provided (Bridges *et al.*, 2011; Interprofessional Education Collaboration, 2011; McConnellogue, 2011; Riley, 1997).

Successful implementation of the above principles relies on clear and open communication, shared problem-solving strategies, skills in conflict resolution and well-defined patient-centred goals. Skills in conflict resolution are of the utmost importance as the diversity of team members' expertise is a potential source of conflict. Team members must acknowledge conflict in order to process differences in an effective manner (Katzenbach & Smith 1994). Training in communication, conflict resolution and problem solving is found to be part of most interprofessional collaboration education curricula.

3.2.5 Ethics and values in interprofessional collaboration

Interprofessional values and ethics is an emerging aspect of interprofessional collaboration, reflecting a sense of respect and common values. Most recent values and ethical guidelines are provided by the Interprofessional Education Collaborative Expert Panel's report (2011):

- The concerns of patients and the population are at the centre of providing interprofessional health care.

- Patient's privacy and dignity are respected, and information is held in strict confidence by all members when delivering team-based care.
- Diversity of cultures and unique differences characterising individuals, population and health care teams are acknowledged and respected.
- The unique cultures, beliefs, roles and area of expertise of health professionals are accepted and welcomed.
- Professionals cooperate with all stakeholders, including patients, providers of care and individuals or groups contributing to or supporting the health services provided.
- Professionals build trustworthy relationships with patients, relatives, communities and other care givers involved.
- Ethical dilemmas are managed in line with interprofessional ethical principles based on client-centred service provision.
- Professional's interaction among each other as well as with patients and their families are characterised by honesty and authenticity.
- Each professional maintains proficiency in his/her professional discipline appropriate to the scope of practice.

3.2.6 Person-centred approach in interprofessional collaboration

Littlechild and Smit (2013) emphasise the importance of a person-centred approach, reflected in the values of interprofessional collaboration. A person-centred service delivery approach views patients or clients as individuals and places them in the centre of actions rather than fitting them into services. Patients are provided with choices and control in the process, they are involved in setting goals for support and the focus is on highlighting what they may be able to do instead of what they cannot do; in other words, a strength-based approach is followed. The aspect of the patient's involvement and participation in the support process, however, requires attention as it is important to have a clear indication of what is understood by involvement of and participation by both service providers (professionals) and service users (clients/patients). Roulstone *et al.* (as cited in Littlechild & Smith, 2013) assert that there is not yet consensus on what participation means in the context of support services. Involvement and participation may vary in degree, depending on professionals' motivation and commitment to the agenda of patient/client participation (Littlechild & Smith, 2013).

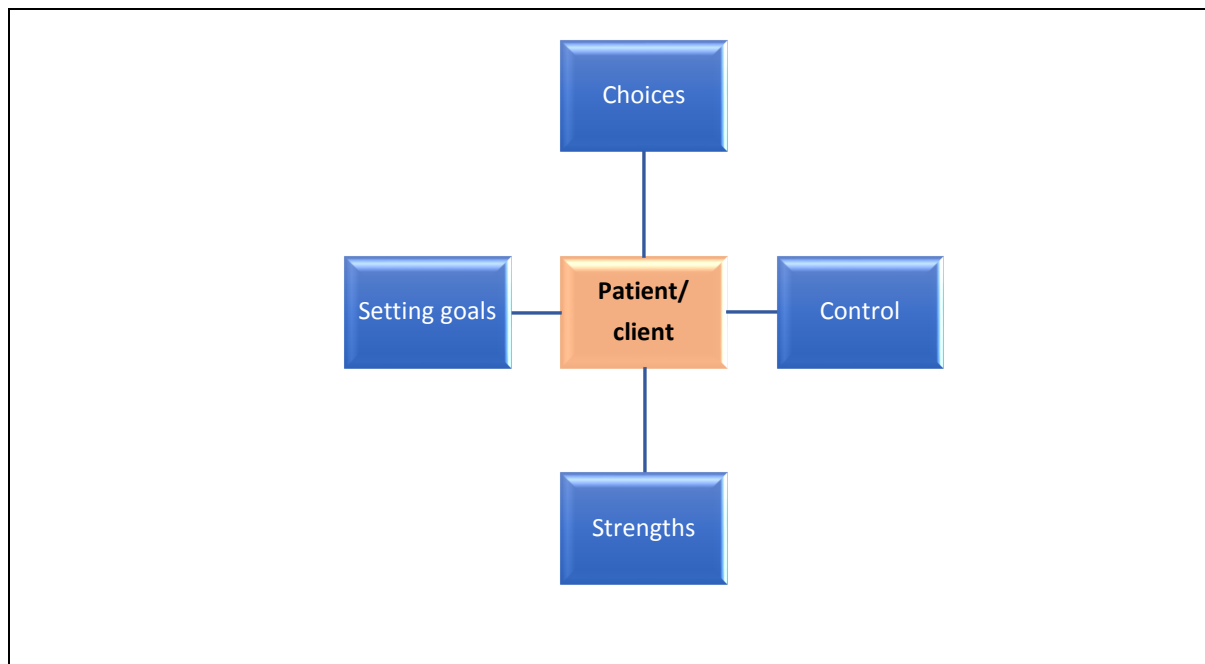


Figure 3.3: Patient-/client-centred care

3.2.7 Models of interprofessional care

As previously mentioned, a large number of terms exist under the umbrella term “interprofessional”, including “pluridisciplinary”, “cross-disciplinary”, “integrated”, “holistic”, “combined”, “multidisciplinary”, “interdisciplinary” and “transdisciplinary”. Although the main idea across all these terms is the focus on integrated problem solving by collaboration among diverse disciplines, Stock and Burton (2011, p. 1094) warn against the interchangeable usage of these terms, as there are often subtle but significant differences among them: “Terms are either used interchangeably or the term that implies the greatest consideration for what it actually means in terms of the level of integration required.” The three most commonly used models of interprofessional collaboration are *multidisciplinary*, *interdisciplinary* and *transdisciplinary*, each varying in its degree of collaborative practice, as illustrated in Figures 3.4, 3.5 and 3.6. Although the differences are subtle, they are significant in influencing the framing and validity of solving complex problems (Palmen, 2011).

A *multidisciplinary service model* involves professionals from multiple disciplines addressing a problem. Although the importance of each professional’s involvement is acknowledged, services remain independent. Families will meet with each team member separately, and separate intervention plans are developed according to the relevant discipline. This results in fragmented views of the problem and consequently incoherent therapeutic intervention.

Interdisciplinary collaboration involves a more collaborative approach. Members of different disciplines work together to find a solution to a problem. Regular team meetings are held during which each professional reports according to his/her profession. The team works towards a single service plan and a mutual goal. Fragmentation, however, occurs in the implementation of this plan as members implement parts of the plan according to their various disciplines, resulting in isolated therapeutic intervention. In both of the abovementioned approaches, deficits are treated by therapists in isolation from where the skills are used. Parents and teachers are placed in a recipient, and often subordinate, role as decisions are made by professional team members. They become dependent on the professional's expert knowledge, failing to empower the people with whom the child spends the most time, leading to a "learned helplessness" that contributes to the already overwhelming need for professional services (Downing & Bailey, 1990).

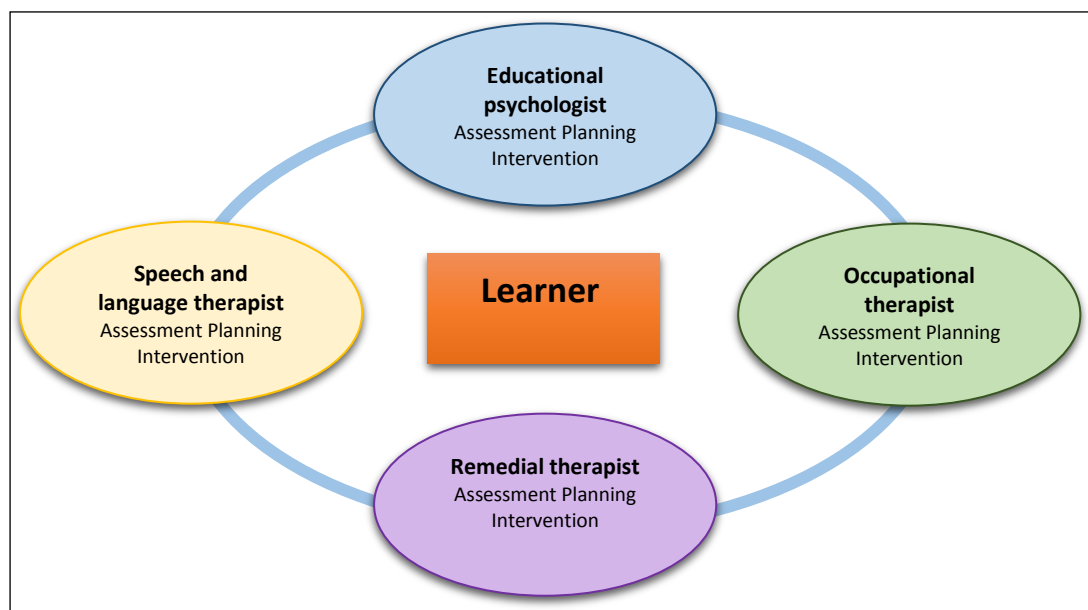


Figure 3.4: Lines of interaction and communication in multidisciplinary collaboration

(Adapted from Engelbrecht, 2004)

Although the abovementioned approaches have a collaborative component, they fall short in harmonising with the international trend of integrated holistic service delivery (Downing & Bailey, 1990; WHO, 2010).

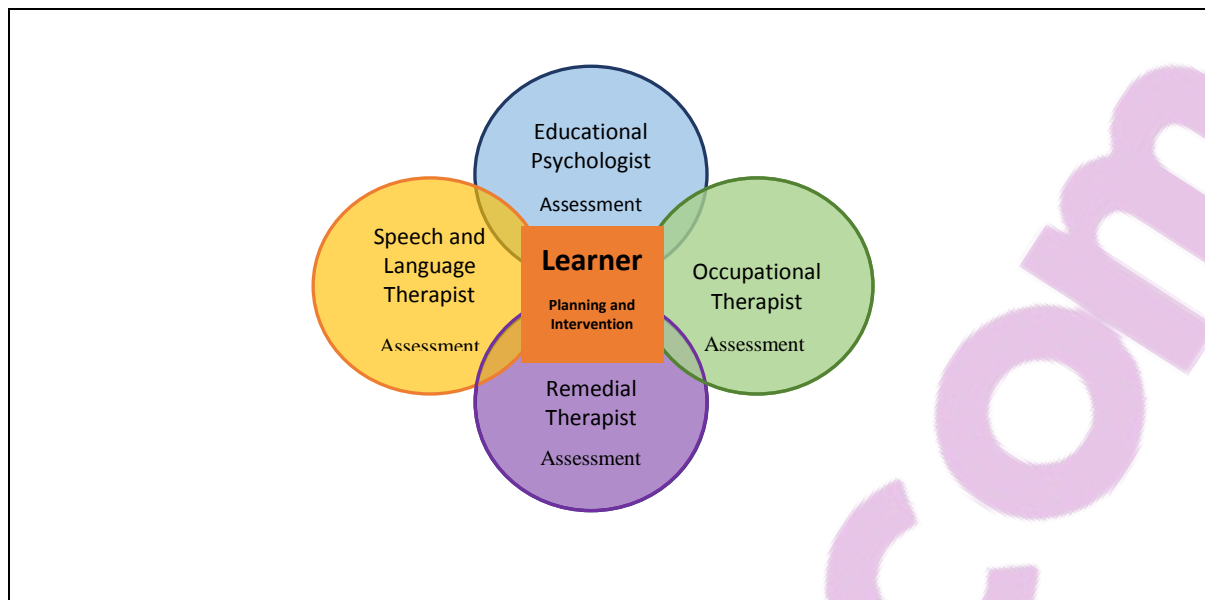


Figure 3.5: Lines of interaction and communication in interdisciplinary collaboration

(Adapted from Engelbrecht, 2004)

The *transdisciplinary* model has been advocated as the most collaborative in nature. In accordance with this model, a team of professionals from various disciplines shares roles across professional boundaries to maximise integration. A single coherent assessment with all team members present is conducted from which mutual goals and intervention plans emerge. The transdisciplinary model further harmonises with the leading international spirit of collaboration as it is systemic in nature. Communication with and involvement of parents, teachers and other role players in the client's environment are encouraged and play a critical role. The approach is person-centred, as discussed in section 3.2.6, allowing for parents, teachers and learners to take part in the decision making process. Another attractive dimension of transdisciplinary service delivery is that it fosters an asset-based approach as opposed to the needs assessment found in the medical model. Although needs are identified, the skills and capacities within the client's social system are accentuated and utilised (Engelbrecht, 2005).

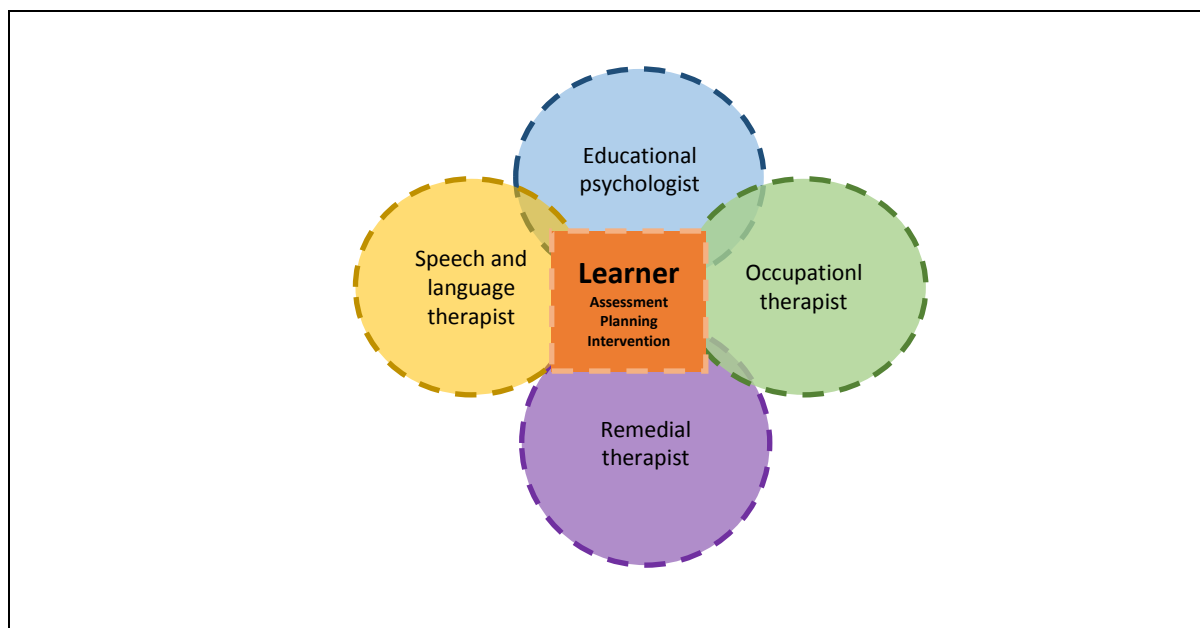


Figure 3.6: Lines of interaction and communication in transdisciplinary collaboration

(Adapted from Engelbrecht, 2004)

The application of the three described models within the fields of health and education reveals a number of essential differences. Compared to the interdisciplinary and transdisciplinary approaches, a multidisciplinary approach is less integrative in working towards a common goal. Although treatment goals are communicated to other disciplines, each discipline sets its own treatment goals and is solely responsible for reaching these goals. In an interdisciplinary and a transdisciplinary approach, collective goals are decided on and there is a greater level of integration and a higher level of communication among professionals in reaching these goals. What differentiates the transdisciplinary from the interdisciplinary approach is the level of integration when working towards a common goal. In an interdisciplinary approach, professionals stay independent although they are working towards a common goal whereas in a transdisciplinary approach, boundaries among professional disciplines are crossed to maximise integration. Tasks are performed interactively and professional skills and expertise are shared to optimise outcomes (Engelbrecht, 2004). Integration of the system is an important aspect of a transdisciplinary approach. All stakeholders, in the case of learners with BtL the learner, parents, teacher and various professionals, are involved and work towards a common goal (Stock & Burton, 2011).

3.3 TRANSDISCIPLINARITY

Transdisciplinarity emerged in the face of a global need to solve complex health and educational problems (Klein, 2004; Saunders, 2011; WHO, 2010). It is a progression from linear interdisciplinary approaches to problem solving whereby existing disciplinary approaches are combined to produce what Colwell and Eisenstein (2001, p. 60) describe as a kaleidoscope for solving complex problems. This metaphor beautifully illustrates the essence of transdisciplinarity:

The word itself is fascinating; it derives from Greek, and roughly means “beautiful form watcher.” When we turn the kaleidoscope tube to create shifting shapes and colors, we watch new and unpredictable patterns and hues appear. At the same time, the elemental components retain their integrity. So it is with the scientific disciplines, which retain their unique viewpoints and insights, but intersect increasingly with other fields to forge new frontiers at every scale.

Muir (as cited in Collwell & Eisenstein, 2001, p. 59) provides us with another useful metaphor for understanding the relevance of transdisciplinarity in solving problems in a complex and interconnected world: “When we try to pick out anything by itself, we find it hitched to everything else in the universe.” Transdisciplinarity strive to describe, explain and find solutions for problems without the restriction of disciplinary boundaries (Palmen, 2011).

3.3.1 History of transdisciplinarity

Prior to the emergence of the systems theory in the mid 20th century, the world was approached through a specialised perspective reflected by the medical model with unidisciplinary service delivery whereby the patient was diagnosed and treated by a single discipline. A practitioner of one discipline acted alone and assumed primary responsibility without actively seeking input from other disciplines and taking into account the multidimensional nature of problems. From this perspective, the world was viewed as an accumulation of fragmented parts to be studied in isolation. The rationale behind this approach was that empirical phenomena could be studied more effectively when specific knowledge rather than broad general information was obtained. The focus was on the different parts, in contrast to the integration of the parts and their complex relation within the whole (Laszlo & Krippner, 1998).

A radical shift away from this perspective happened during the 20th century with the rise of a systemic perspective with Von Bertalanffy's (as cited in Drack, Apfalter &

Pouvreau (2007) publication of his idea of a general system theory. The concept of “system” suggests a complex of interacting parts together with the relationships among them producing the identification of a boundary-maintaining process. Russell Ackoff (as cited in Laszlo & Krippner, 1998) describes a system as a set of two or more interrelated elements with the following properties: each part has an effect on the functioning of the whole, at least one part of the system affects another part of the same system and these two aspects are present in all possible subgroups of the system. Saunders (2011) remarks that these characteristics of complex systems, arising from the postmodern era, highlight its incompatibility with rational, linear problem solving that applied to the previous dispensation’s reductionistic paradigm of simple cause and effect problems.

By the 1960s systems thinking as a theoretical paradigm began to be known. Parallel to the work of Von Bertalanffy during the 1950s, another theorist, Boulding, unaware of Von Bertalanffy’s work, advocated the integration of social sciences. When Boulding came into contact with Von Bertalanffy’s work, a meeting was held in 1954 between Von Bertalanffy and Boulding; they were joined by two other important role players in the development of knowledge integration: mathematician Anatol Rapoport and physiologist Ralph Gerhard. It was soon evident that their thoughts were remarkably similar although they approached the subject from different directions (Laszlo & Laszlo, 1997). It was during this time that the language of transdisciplinarity came into being. The French psychologist and philosopher, Piaget is known to be the pioneer in using the term “transdisciplinary” at a conference in 1970 where the risk of developing paradigms in social and natural sciences and the potential risks of continuing with discipline specific sciences, in the light of these emerging theories were discussed (Palmen, 2011). Piaget (as cited in Palmen, 2011, p. 2) called for a new perspective of transcending interdisciplinary relations:

Finally, we hope to see succeeding to the stage of interdisciplinary relations a superior stage, which should be “transdisciplinary”, i.e. which will not be limited to recognize the interactions and/or reciprocities between the specialized researches, but which will locate these links inside a total system without stable boundaries between the disciplines.

Many new initiatives have been seen in the decades since 1970. A scientific research centre in France, the Centre for Transdisciplinary Research: Sociology,

Anthropology, Semiology, founded in 1973, is the official birthplace of transdisciplinarity. An international initiative was established in 1987 with the International Centre for Transdisciplinary Research and Studies.

Emerging from a research and knowledge production environment, transdisciplinarity soon found its way as an interdisciplinary model of solving complex problems in various fields.

3.3.2 Defining transdisciplinarity

When one considers the history of transdisciplinarity, originating from an academic knowledge-production context and its progress to various disciplines and subject areas, it is clear that definitions depend on the specific field of relevance. Applied to the domain of science and the creation of knowledge, Klein (2004, p. 521) proposes the following definition:

The emergent quality of trans-disciplinarity is that rational knowledge emerges not only from what we know but how we communicate it. Stakeholders enter into a process of negotiation, confronting knowledge from four (by example) kinds of knowledge in a series of encounters that allow representatives of each type to express their views and proposals. In the process a fifth type of knowledge progressively emerges. It is a kind of hybrid product, the result of “making sense together”.

Klein’s definition highlights important aspects of communication and the creation of something new through interaction. This definition is relevant to the focus of this study as professionals from various disciplines work together as a team, focussing on solving a mutual problem, namely the learner’s difficulty to learn, to create a mutual understanding of the learner’s difficulties and strengths or, according to Klein’s (2004) definition, a “fifth knowledge”. Kilgo’s (as cited in Silverman, Hong, & Trepanier-Street, 2010, p. 463) definition of transdisciplinarity emphasises the teaming component: “transdisciplinary teamwork... involves team members who perform tasks collaboratively by sharing information and roles.” He also includes the creation of something new through transcendence of boundaries: “Mutually agreed upon goals or outcomes are developed and information, knowledge and skills are transferred across disciplinary boundaries” (Kilgo, 2006, p.7, as cited in Silverman *et al.*, 2010).

In the domain of health and educational service delivery, King *et al.* (2009, p. 211) define transdisciplinarity as “sharing of roles across disciplinary boundaries so that communication, interaction and cooperation are maximised among team members”.

Nicolescu (as cited in Palmen, 2011) describes transdisciplinarity as a new “holism” that transcends disciplinary knowledge systems.

The heart of transdisciplinary collaboration is interacting individuals engaged in the process of solving multifaceted problems. Transdisciplinarity is also systemic in nature as it is a holistic approach aimed at solving problems arising from 20th-century “turbulent” change in organisation, bringing forth complex systems, versus a reductionistic approach to solving linear problems (Laszlo & Krippner, 1998). Rodriguez (as cited in Ch, 2013) asserts that transdisciplinarity is a global perception of the ultimate connection of all or many disciplines. From this perspective, all human activities appear as a unitary whole (Ch, 2013). In this regard, Schwaniger (2001) argues that systems theory is the science that deals with the structure and behaviour of all wholes. As transdisciplinarity occurs over such a broad spectrum of disciplines, there are many theoretical frameworks from which one can approach this subject. Saunders (2011) examined transdisciplinarity from a post modernistic complexity theoretical perspective. Saunders’ (2011) understanding of transdisciplinarity within the framework of postmodernism and complexity theories makes sense as it highlights the holistic, integrated way of solving complex problems arising from the postmodern world.

In the context of this study, transdisciplinarity was examined as an approach to meet the complex multifaceted challenges of learners experiencing BtL. There are few areas of education that call upon so much collaboration and teamwork as the field of supporting learners experiencing BtL. For this study, social systems theory (described in Chapter 1) was employed to understand transdisciplinarity as an approach to support these learners. Supporting these learners involves interaction among various parties and systems such as the learner’s own internal biological and psychological systems, parents, teachers and various professionals, as illustrated in Figure 3.7. Transdisciplinarity in this context of health and educational support service requires an understanding of transdisciplinarity within the broader theoretical framework of social systems theory.

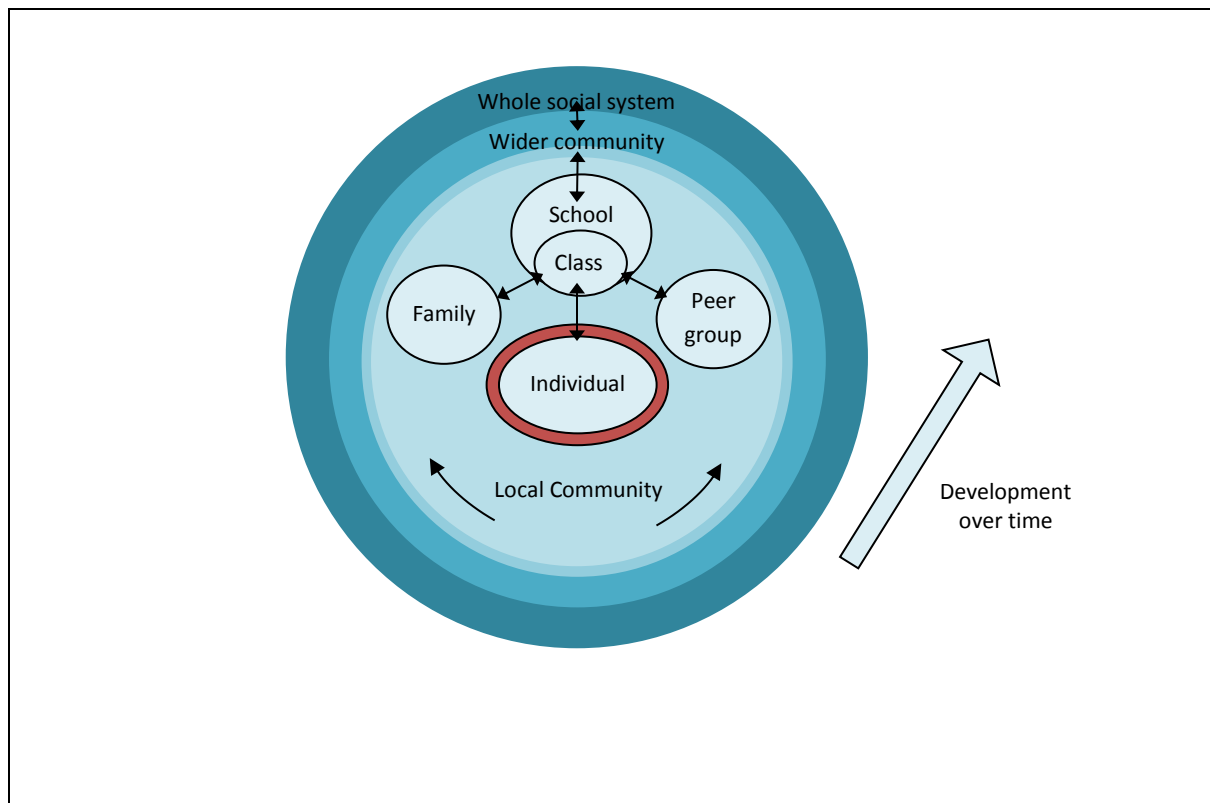


Figure 3.7: Levels of system related to the education process

(Source: Donald et al., 2010, p. 43)

3.4 APPLICATION OF TRANSDISCIPLINARY SERVICE DELIVERY IN SUPPORTING LEARNERS EXPERIENCING BARRIERS TO LEARNING

The literature reviewed so far focussed on the conceptualisation of transdisciplinarity from an historical and theoretical perspective. As the aim of this study was to investigate a transdisciplinary approach in supporting learners experiencing BtL, attention had to be paid to the practical aspects of transdisciplinarity when applied as a service delivery model in supporting learners. The application of transdisciplinarity in support services is advocated as a vehicle through which professionals, teachers and carers/parents can provide high quality support that is sustainable and cost effective. Various components of a transdisciplinary service model are presented in the literature. King *et al.* (2009) propose three unique “operational features” of transdisciplinarity: *arena assessment*, intensive and ongoing *interaction and cooperation among professionals from various disciplines* in which they exchange knowledge and skills across disciplinary boundaries (multiskilling), and also *role release*.

3.4.1 Arena assessment

During an arena assessment, professionals from different disciplines plan and conduct an assessment simultaneously. The arena assessment consists of five elements: team, facilitator, process, staffing and outcome. The first element requires a team of professionals from multiple disciplines. Team members will vary from case to case, depending on the purpose of the assessment, usually gained from the referral source. The second element, facilitation, refers to one individual team member, appointed by the team based on the child’s needs, who interacts with the child. Other team members observe actions through a one-way window. The process requires a holistic perspective whereby information is gained from all aspects of the child’s functioning, such as family, physical, cognitive, social, emotional, scholastic as well as external factors influencing the child. Staffing refers to the process after the assessment whereby all team members and, in some cases, parents synthesise and analyse information gained from the assessment. The last element is the outcome of the assessment. Qualitative and quantitative descriptions of the child are set out with a focus on defining the child’s strengths and needs. The purposes of an arena assessment are to obtain a cohesive, holistic view of the child, determine the related skills across various areas and decrease handling and time spent with multiple professionals whereby the family is required to repeatedly answer the same questions. The arena assessment is also known to be more cost effective (Bornman & Uys, 2005; King *et al.*, 2009; Long & Sippel, 2013).

3.4.2 Interaction and cooperation among team members

The transdisciplinary team consists of professionals from various disciplines who are in constant interaction and collaboration with each other, exchanging knowledge and skills. Bornman and Uys (2005) describe the process of exchanging skills among professionals as “multiskilling”. Professionals (and any other caregiver) can be trained in more than one skill from various disciplines. Skills associated with one discipline can be taught to a professional from a different discipline working with the same client. A professional, teacher or carer will therefore have more than one skill in supporting the client. Multiskilling can happen on different levels. Bornman and Uys (2005) describe four main levels of multiskilling in the care of disabled individuals, namely *cross-training of basic client care skills*, such as routine, easily trainable and low-risk procedures; *cross-training of professional nonclinical skills*, such as client education, team dynamics, communication skills, and so forth; *cross-training of administrative skills*; and *cross-training of clinical skills*. The speech and language therapist, for example, can train a teacher who is part of a transdisciplinary team to provide communication opportunities when teaching. Initial and ongoing instruction from each discipline represented on the transdisciplinary team to other team members is necessary to accomplish these goals. The transition of roles across disciplines happens through a process of role release.

3.4.3 Role release

Role release is a process whereby a certain team member provide services in consultation with other members from various disciplines. It takes place when individual members may share or blend their roles, and a selection of team members or all members, are appointed to be responsible for delivering intervention. King *et al.* (2009) mention the action of role release as an essential characteristic of transdisciplinary support. They describe role release as “the most crucial and challenging component in transdisciplinary team development” (King *et al.*, 2009, p. 213). It is an ongoing process involving various aspects (see Figure 3.8) including the following:

- Role extension: Theoretical knowledge and skills in the professional’s own discipline.
- Role enrichment: Professionals develop a basic awareness and understanding of the terminology and basic practices of other disciplines.
- Role expansion: Professionals acquire information to make knowledgeable observations and recommendations outside their own discipline.

- Role exchange: Learning and implementation of theories, procedures and methods from other disciplines.
- Role release: Newly acquired skills are used in consultation with a professional from the discipline responsible for those practices.
- Role support: Professionals encourage and support each other across disciplinary boundaries.

Role release does not suggest role “abdication”. Certain activities, specific to a particular discipline, such as assessment, planning of intervention and supervision require service providers to be adequately trained and licensed and may not be delegated. Intervention activities, however, can be shared through thorough training and performed by professionals from various disciplines as well as caregivers, teachers and parents (Bowser, 2013). It is the responsibility of team members to identify activities appropriate for release and provide the necessary training to other team members. The decision to release a certain task or role is made through professional judgment in determining which activities may appropriately be shared:

It remains the responsibility of therapists to determine what constitutes adequate training and supervision in role release. However, practitioners who resist role release due to concerns for their liability must also consider the potential risks to children and staff when therapeutic intervention is limited to isolated treatment sessions (Rainforth 1997, p. 57, as cited in Bowser, 2013, p. 3).

Giangreco, M., York, J., and Rainforth, B. (1989) stress that role release requires continuous training and monitoring by qualified professionals.

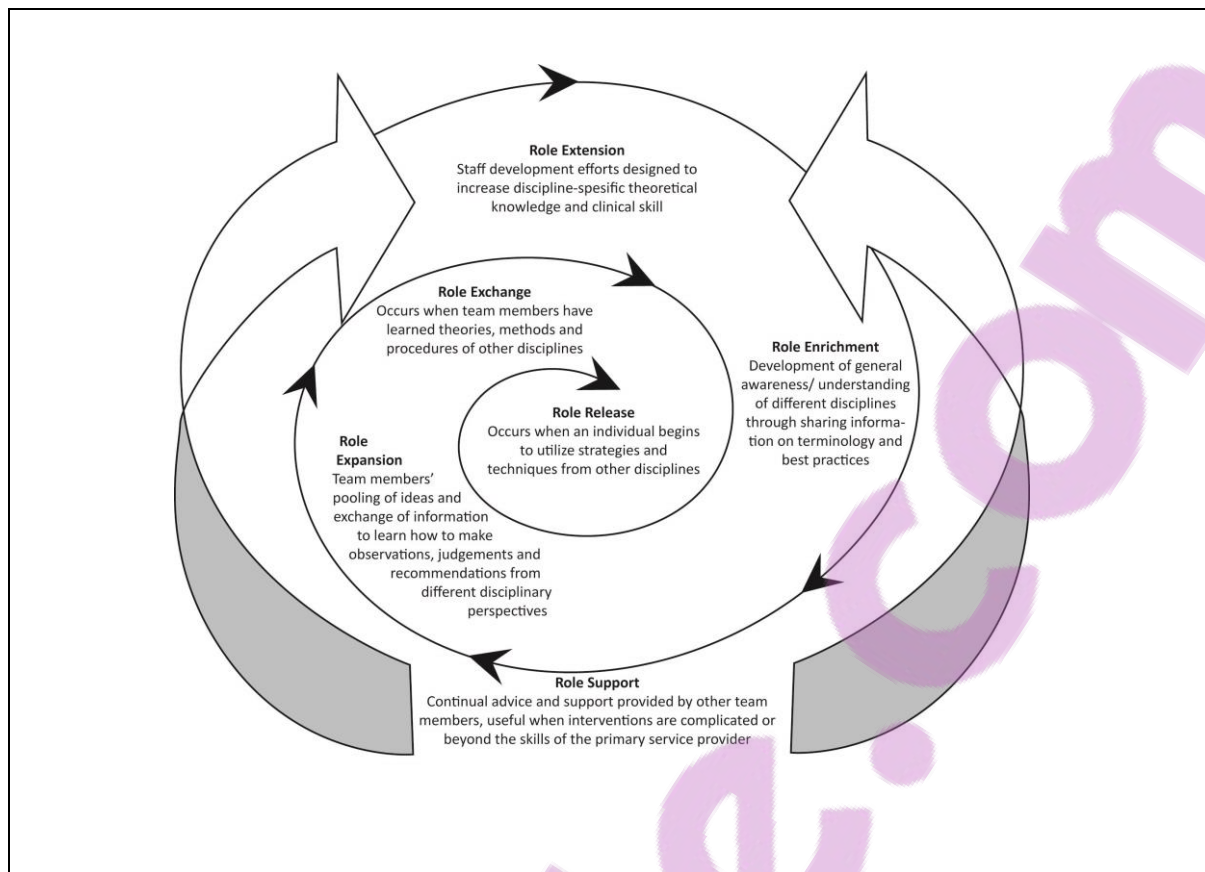


Figure 3.8: The process of role

(King et.al., 2009. p. 214)

3.5 BENEFITS OF A TRANSDISCIPLINARY SERVICE DELIVERY MODEL

King *et al.* (2009) mention the following presumed benefits of a transdisciplinary approach:

- a) Services are more efficient as fewer professionals have to be seen routinely. This allows more time to see a larger number of learners.
- b) The arena assessment is expected to cost 40% less than an interdisciplinary approach for comparable assessment services. Although overall expences in the short-term may be higher, longer-term expences are predicted to be lower.
- c) A reduced amount of duplication of the same information is required by different professionals. This lessens the amount of intrusion on the family.
- d) Coordinated and prioritised recommendations can be less confusing to parents.
- e) Intervention plans are integrated and mutual goals are set by professionals and the family.
- f) Professionals develop and enhance their own knowledge and skills.

Giangrecco *et al.* (1989) highlight the benefits of providing intervention in a variety of settings such as the classroom, school and community. Therapeutic intervention is continuously supporting the learner's educational programme.

3.6 CHALLENGES OF THE TRANSDISCIPLINARY APPROACH

King *et al.* (2009) explicate the challenges experienced by service providers on various levels: professional, personal and interpersonal. On a professional level, service providers can experience a sense of loss of their professional identity. The aspect of liability within a transdisciplinary team can cause fear of negligence due to lack of supervision among team members. On an interpersonal level, professionals can also feel threatened by team members, resulting in inadequate sharing of professional knowledge. Personal attributes including compassion, empathy, self-reflection, self-awareness, self-control, sensitivity, authentic interaction, competency in facilitation and the ability to communicate effectively are vital for any professional serving in a transdisciplinary team. Self-confidence and a strong sense of professional identity are important qualities needed for sharing professional knowledge without feeling threatened (King *et al.*, 2009). King *et al.* (2009, p. 215) assert that

therapists with higher levels of expertise will be most comfortable and proficient with TA. Novice practitioners may feel overwhelmed by the expectation that they operate in a collaborative team manner, especially if they have not received university training in interprofessional practice.

Building an effective team, providing training in role release, ensuring sufficient role support and engaging in succession planning are some of the managerial challenges mentioned (King *et al.*, 2009). An attitude of openness to learning as well as flexibility is required to meet these challenges.

3.7 CONCLUSION

This chapter provided a literature review of transdisciplinarity as an approach to providing an integrated interprofessional service in health and education. An overview of interprofessional collaboration from a global and local perspective was provided. An historical account of transdisciplinarity was followed by defining transdisciplinarity and explaining its relevance to the field of supporting learners experiencing BtL. The chapter was concluded with an overview of the practical implementation of a transdisciplinary service delivery model. The application of a

transdisciplinary service delivery model described in Section 3.4 is found within the context of physical disability, autism spectrum disorders and early childhood intervention. After an extensive search in the literature, I was not able to find any published information on the application of a transdisciplinary approach in supporting learners experiencing learning difficulties (refer to 2.4.1). The dearth of knowledge of the practical implementation of a transdisciplinary approach is confirmed by various researchers (Bornman & Uys, 2005; King *et al.*, 2009; Saunders, 2011). I hope to add to the knowledge of the application of a transdisciplinary approach through the empirical data that will be described in the following chapter.

CHAPTER 4: CHAPTER 4: EMPIRICAL RESEARCH DESIGN

4.1 INTRODUCTION

In this chapter I provide a detailed outline of the sequential mixed method research design followed to investigate selected health and education professionals' perceptions of a transdisciplinary approach in supporting learners experiencing BtL, thus, answering the main research question. Mixed methods research is a rapidly developing research approach that emerged in response to the limitations of using a singular qualitative or a singular quantitative method. It is increasingly used to address complex problems in the health care sector as well as in education (Doyle, Brady, & Byrne, 2009; Gorard, 2012), making it an appropriate choice to investigate transdisciplinary service delivery within the context of BtL.

4.2 RESEARCH AIMS

The main purpose of this study was to answer the following main research question.

4.2.1 Research Question

What are the perceptions of a transdisciplinary collaborative service delivery approach among health and education professionals providing support services to learners experiencing barriers to learning in the Western Cape?

To achieve this aim, I first reviewed the existing literature on BtL and various service delivery approaches, in particular the transdisciplinary approach. Second, I formulated three research sub-questions to gain insight into professionals' current service delivery approaches and the level of their knowledge of what a transdisciplinary approach entails.

Research sub-question 1

Which of the health and education professionals in the Western Cape identified for this study provide services to learners experiencing barriers to learning?

Research sub-question 2

What are the collaborative approaches followed by health and education professionals in the Western Cape identified for this study?

Research sub-question 3

What is the level of exposure to a transdisciplinary approach in addressing barriers to learning among identified health and education professionals in the Western Cape?

To answer the research sub-questions, a quantitative questionnaire was sent out to selected professionals in the Western Cape in five different disciplines expected to be involved in the support of learners experiencing BtL namely, speech and language therapists educational psychologists, physiotherapists, occupational therapists and learning support teachers. I used the responses to the questionnaire to answer the research sub-questions and inform the choice of participants for the qualitative focus group discussions in which professionals discussed their views on a transdisciplinary approach, thus answering the main research question. This research process is presented diagrammatically in Figure 4.1.

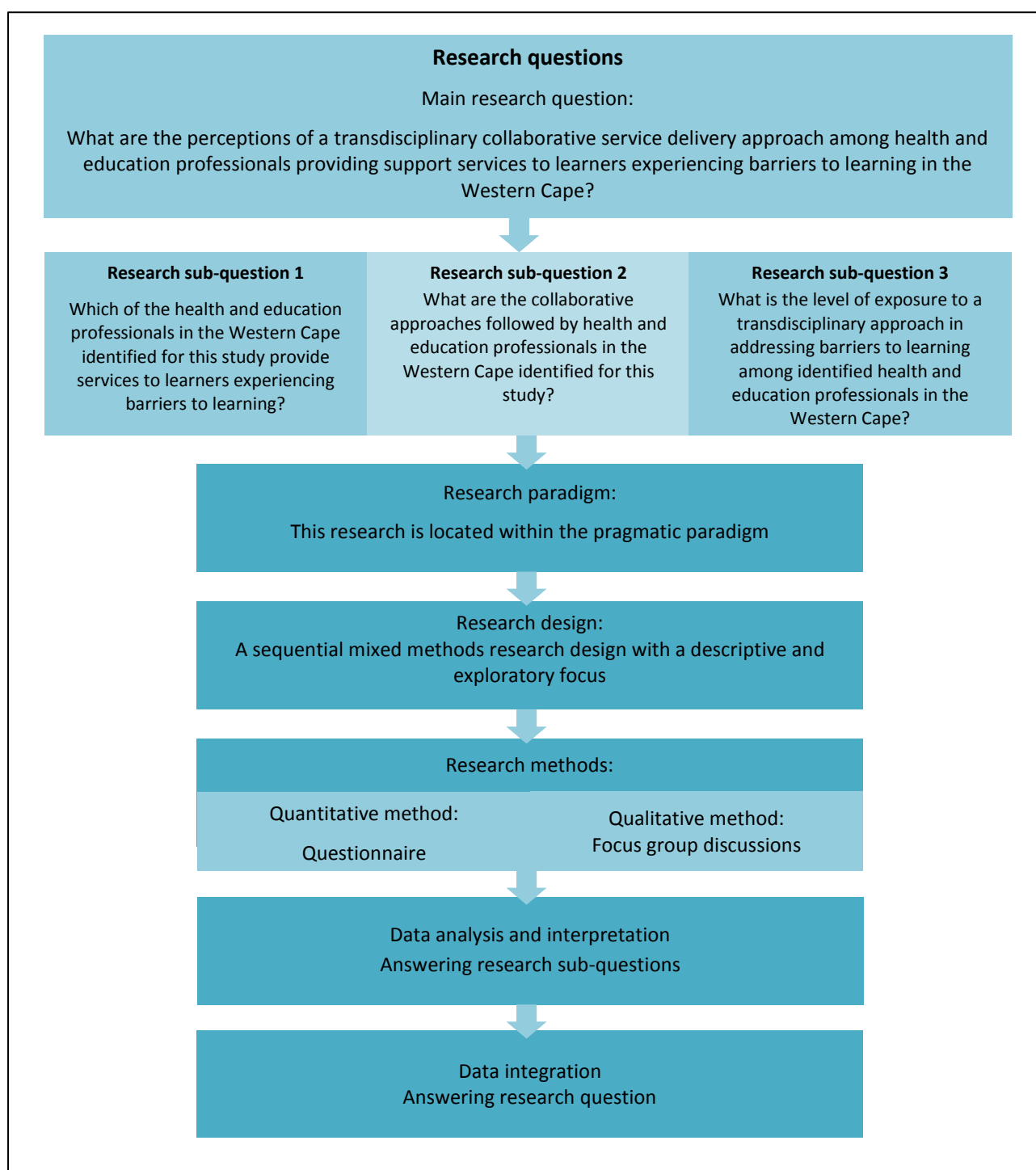


Figure 4.1: The research design

(Adapted from Mouton, 2001, p. 47, 49)

4.3 RESEARCH PARADIGM

The process of research begins with the researcher's theoretical assumption about knowledge and knowledge production (Mertens, 2005). I chose a pragmatic paradigm to guide the mixed method research used in this study. According to Merriam (1998), the researcher should have a clear understanding of the

paradigmatic underpinning the specific chosen philosophical foundation when deciding on a research design. In deciding on pragmatism as a research paradigm for this study, I first had to familiarise herself with the meaning of the word “paradigm” as she found that various meanings of this term existed, depending on the context in which research was done. The meaning of “paradigm” in social science research differs from its meaning in other scientific fields. Within social science, the conceptualisation of the term “paradigm” varies. A common characteristic among various explanations is the idea of mutually agreed upon belief systems among researchers influencing the kind of knowledge pursued, as well as the interpretation of the collected evidence (Morgan, 2007). The difference, however, lies in the degree of generality of exactly what the belief system is, moving from most general to most specific, as explicated by Morgan’s (2007) description of four different definitions of this term:

The first definition describes paradigms as a worldview, a broad overarching perspective or shared understanding of reality. It does not, however, specify what is included and what is excluded when using the term ‘worldview’. Morgan (2007) argues that the understanding of paradigms as worldviews is of little relevance in comprehending the reasons for blending qualitative and quantitative methods in research.

Second, paradigms are expounded as epistemological stances, having a major impact on the discussion of mixed methods. Paradigms are mutually supported systems of beliefs influencing the way in which research questions are asked. The focus is placed on the researcher’s world view in the understanding of knowledge (Morgan, 2007), conveying the notion of epistemological issues inherently involved in the nature of knowledge.

Third, paradigms are described as shared agreement between members of a speciality area. In essence, paradigms are viewed as mutually agreed upon beliefs among a specific group of researchers. These researchers agree on the relevance and meaningfulness of research questions and methods applied in response to research questions (Morgan, 2007). In agreement with this stance, Robson (2011) argues for a pragmatic approach whereby the research methodology is steered by a quest for that which is useful in answering the research question, as opposed to principles dictating philosophical approaches. This perspective emphasises the

practice of research rather than focussing on research when considering ontological and epistemological issues (Denscombe, 2008).

Lastly, paradigms are used as model examples of how research is done in a given field and can be used to orientate newcomers studying a certain field. This perspective is of little relevance in understanding combined methods (Morgan, 2007).

Supporting the above argument for demoting paradigms as philosophical stances and promoting their practice-driven nature that allows for variations and inconsistencies, I chose pragmatism as the paradigm to guide and regulate my investigation that used a mixed method approach, combining qualitative and quantitative methodologies to answer the research questions stated in Chapter 1.

4.3.1 Pragmatism as research paradigm

Pragmatism as a paradigmatic framework is commonly used as the underlying philosophical framework for a mixed methods approach (Creswell & Plano Clark, 2011; Denscombe, 2008; Doyle *et al.*, 2009; Feilzer, 2010; Johnson, Onwuegbuzie, & Turner, 2007; Morgan, 2007). Pragmatism allows researchers to integrate a number of methods to answer research questions, providing a link between qualitative and quantitative research paradigms. The ontological stance of pragmatism encourages the idea that the outcome carries a heavier weight than the process, allowing researchers to decide which methods are most efficient in answering research question (Morgan, 2007). Pragmatic methods of research are guided by the principle that the feasibility of research cannot be entirely determined by theory or data, and “a process of abduction is recommended which enables one to move back and forth between induction and deduction through a process of inquiry” (Doyle *et al.*, 2009, p. 5). Denscombe (2008) describes two aspects of pragmatism, making it relevant as an underlying framework for a mixed methods approach:

1. Pragmatism challenges rigid and inefficient dualisms and searches for common ground among philosophies instead of maintaining the status quo of dividing principles, endorsing a fusion of approaches.
2. It offers a foundation for using a mixed methods approach as another possible research approach to using either qualitative or quantitative methods to answer the research question. Denscombe (2008), however, warns against

the use of pragmatism as a common-sense and convenient method, implying fundamental paucity of values in the research process. He stresses the danger of understanding pragmatism as an approach in which 'anything goes' as this idea is not related a mixed methods research approach.

The epistemology of a research study explains how knowledge is produced and what the nature of that knowledge is (Mertens, 2005). In using a mixed methods approach in this study, the pragmatic assumption that I made was that the collection and analysis of various types of data were the most effective way to answer the research question, thus allowing me to use different paradigmatic assumptions. By utilising both quantitative and qualitative methods, I used interpretivism/constructivism as qualitative research assumption and positivism/postpositivism as quantitative assumption (further explicated in sections 4.4.3 and 4.4.4) to gain an understanding of professionals' perceptions of a transdisciplinary approach in addressing BtL.

4.4 RESEARCH DESIGN

4.4.1 Mixed methods design

Mixed methods research is a rapidly developing research approach that emerged in response to the limitations of using a singular qualitative or singular quantitative approach. Johnson *et al.* (2007, p. 123) posit the following definition of mixed methods research, founded on an extensive analysis of various definitions by superiors in the field:

Mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration.

Teddlie and Tshakkori (2012, p. 777) delineate mixed methods research as a methodological eclecticism, realising in the researcher's selection and integration of techniques of both the qualitative and quantitative approaches that are most suitable for investigating a certain phenomenon:

A researcher employing methodological eclecticism is a connoisseur of methods who knowledgeably, and often intuitively selects the best techniques available to answer research questions that may evolve as a study unfolds.

4.4.2 Sequential mixed methods design

For this study, I chose a sequential mixed methods design. Differentiation among various types of mixed methods research design exists and is described by Teddlie and Tashakkori (2012) as “signature research design”, defining mixed methods “in relation to quantitative and qualitative research” (Teddlie & Tashakkori, 2012, p. 782). Doyle *et al.* (2009) describe the differentiation in mixed methods research as types or classification systems. The key factor in classification of mixed methods research lies in the reason behind the choice of mixed methods approach. Teddlie and Tashakkori (2012) propose that three major questions be asked by the researcher before deciding which type of mixed methods design to use: first, whether quantitative and qualitative research will be done simultaneously or sequentially, second, whether equal priority will be given to both approaches or whether one approach will be of more significance than the other and, third, during which phase of the research process the mixing of qualitative and quantitative information will transpire (Doyle *et al.*, 2009).

In answer to these questions, Creswell and Plano Clark (as cited in Doyle *et al.*, 2009) developed four types of mixed methods research design: triangulation, embedded, explanatory and exploratory. However, Guest (2013) argues for a reduced number of descriptive dimensions, suggesting only two dimensions, namely timing, in other words whether qualitative and quantitative data will be collected simultaneously or sequentially, and purpose of integration, referring to the reason for mixing data sets. In discussing mixed methods research typology and the fusion of quantitative and qualitative data, Guest (2013, p. 146) proposes a shift in focus from the whole design to the place(s) of connection: “The point of interface refers to any point in a study where two or more data sets are mixed or connected in some way.” He suggests that the research design simply be described as “mixed methods research” with a description of the point of interface, in other words, the phases in which two data sets are mixed, for example “three sequential phases” or “multiple points of interface” (Guest, 2013, p. 146).

According to Guest (2013), explaining and depicting the aim and timing of data integration can provide the reader with a sound understanding of the study design. The sequential mixed methods design with two stages of data collection is illustrated in Figure 4.2.

Mertens (2005) posits a sequential mixed methods design in which one set of data serves as the foundation for the gathering of a further set of data. In mixed methods research, one type of question is answered by both quantitative and qualitative data analysis and interpretation. To answer the main research question, research sub-questions were formulated during Stage 1 of this study to provide information for answering the main research question. Quantitative data collection methods were used to answer the research sub-questions, followed by qualitative data collection during Stage 2. Data were collected and analysed separately in a sequential manner during these two stages (illustrated in Figure 4.2). Analysed quantitative and qualitative data were integrated during the final research stage in which conclusions were drawn and recommendations were made.

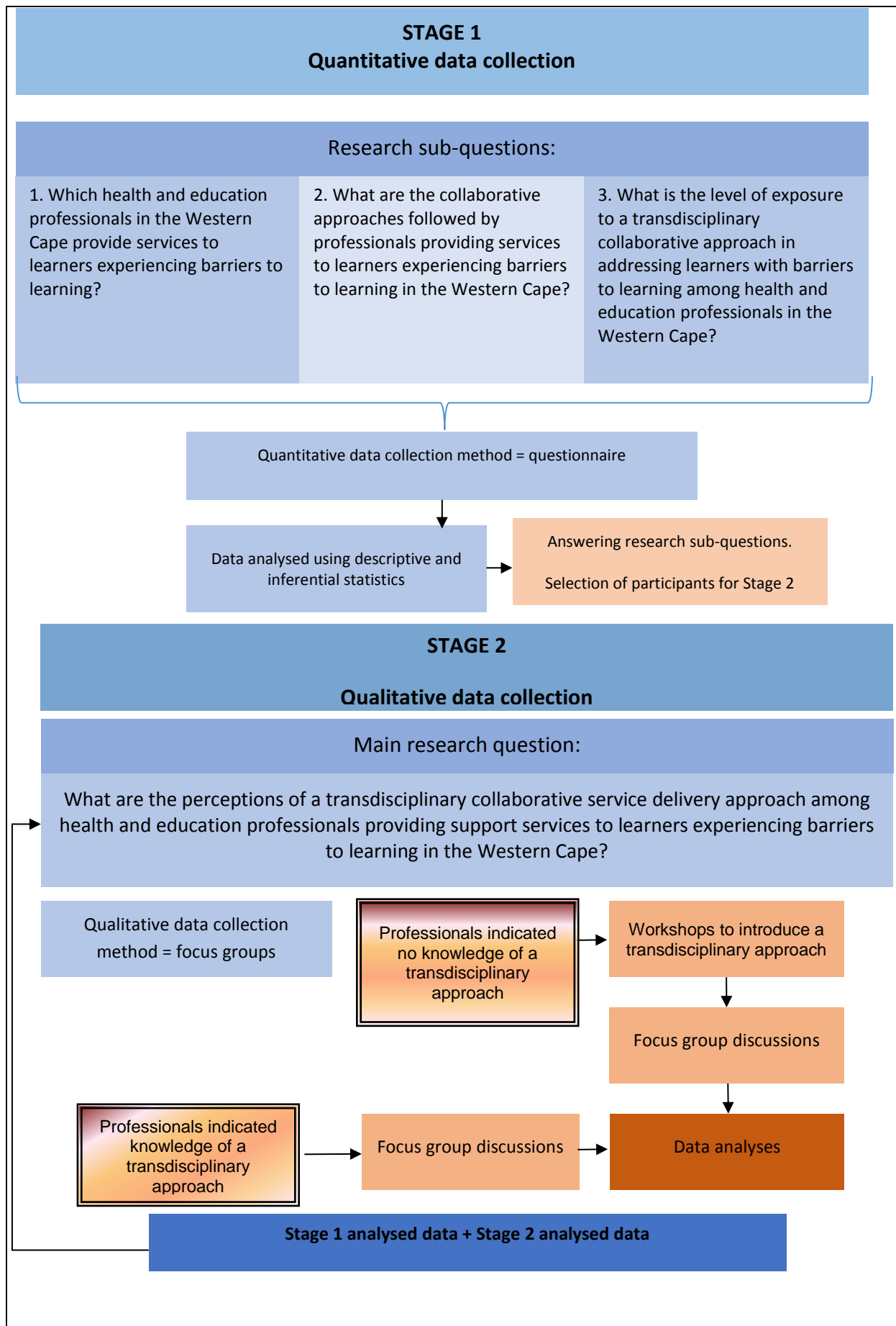


Figure 4.2: Sequential mixed methods design

With this design, I followed Guest's proposed shift from the overall design to the point of integration where boundaries between "data collection, analysis and presentation stages of the research process" (Guest, 2013, p. 146) could be well defined.

4.4.3 Quantitative paradigm

As explained above, I chose a mixed methods design that allowed the use of both qualitative and quantitative methods in two phases, as illustrated in Figure 4.2. These research methods are founded within different philosophical frameworks or paradigms that will now be discussed.

Quantitative research is rooted in postpositivistic assumptions that are widely used to collect and interpret quantitative data (Mertens, 2005). Positivism, the forerunner of postpositivism, understood knowledge to be merely a description of that which could be observed and measured through science. Deductive reasoning, or reasoning from existing laws of cause and effect, was used to postulate theories. In time, the positivistic view shifted to postpositivism, rejecting some of positivism's central beliefs. The main shift involved the certainty of knowledge uncovered by science. Although postpositivists acknowledge the existence of truth or knowledge, they believe that the process of gaining knowledge through science can be fallible; therefore, they acknowledge the possibility of errors. They advocate continuous revision of theory in the effort to unveil that which is (reality). While positivism believes that truth (knowledge) can be uncovered by science, postpositivism contends that science can strive towards unveiling truth or reality, but because of errors occurring in search of what is, existing knowledge always needs to be reviewed in search of truth. Another shift centres on the aspect of objectivity.

Postpositivists reject the idea that the world can be studied from a neutral point of view. The epistemological point of view of postpositivism is that of experiential realism. Experiential realism asserts that there are limits to our objective observation of reality. Our perceptions influence what we see and measure. However, experiential realism does believe that there are limits to subjectivity, separating itself from constructivism, which considers all research efforts to be entirely subjective (Johnson & Onweugbuzi, 2004; Mertens, 2005).

4.4.4 Qualitative paradigm

Epistemological assumptions most often associated with qualitative methods are constructivism and interpretivism. The ontology of constructivism assumes reality to be constructed within a social context and through social interaction. Constructivism finds its roots in the philosophy of interpretive understanding, named hermeneutics. Constructivism sees hermeneutics as “a way to interpret the meaning of something from a certain standpoint or situation” (Mertens, 2005, p. 12). According to constructivism, research cannot be independent from the researcher’s values and therefore objective truth or knowledge does not exist. Because knowledge and meaning are socially constructed, the researcher pursues multiple constructions of meaning (Mertens, 2005).

Interpretivism and constructivism are closely related and often coupled together in qualitative research. Both these philosophical stances consider knowledge to be produced through human interaction. In opposition to positivism, they assume that meaning is not fixed but is created through interaction and interpretation of the phenomena studied (Hammond & Wellington, 2013). Focus groups create opportunities for interaction among individuals relating to a specific phenomenon, in the case of this study the transdisciplinary approach in addressing BtL, thus producing knowledge to be interpreted. In this study, analytical methods for interpreting data produced through focus group discussions were based on the constructivist and interpretivistic notions in exploring professionals’ understanding and perceptions of a transdisciplinary approach in addressing BtL.

4.5 STAGE 1: QUANTITATIVE RESEARCH METHOD

The first part of the empirical research was descriptive in nature. Descriptive methods attempt to describe a phenomenon systematically and are associated with quantitative research. These methods are concerned with the question “what is?” (Johnson & Christensen, 2012).

During the first stage, I focussed on describing the present collaborative approaches followed by health and education professionals in the Western Cape who provided services to learners experiencing BtL as well as the level of their exposure to a transdisciplinary collaborative service delivery approach, thus answering the three research sub-questions. A questionnaire (see Appendix B) gathering quantitative data was employed as the data collection method.

Additional information obtained from the questionnaire concerned these professionals' engagement with various categories of BtL and work environment. The aim of the data collected during the first stage was to provide a general picture of current service delivery models used by professionals who worked with learners experiencing BtL.

4.5.1 Data collection: Questionnaire

Various forms of nonexperimental methods exist: survey research, questionnaires, historical research, observation and analysis of existing data sets, to name but a few. A questionnaire was used for this part of the empirical study, and it can be described as a survey. Questionnaires are used by researchers to measure characteristics such as participants' attitudes, feelings, beliefs and perceptions. To create a questionnaire for research purposes, I have to follow appropriate steps to ensure the quality of the data needed to answer the research question. Johnson and Christensen (2012) provide principles for questionnaire construction. In the development of the questionnaire for this study, the following aspects were carefully considered:

- Questionnaire items had to match the research objectives.
- A good understanding of who the participants were was necessary.
- Language familiar to the research participants had to be used.
- Items had to be clear, precise and relatively short.
- "Leading" or "loaded" questions had to be avoided.
- The researcher decided on using closed-ended questions and considered the different types of response category needed to answer the research questions.

4.5.2 Participants

The population for this study included the following health and education professionals: speech and language therapists, educational psychologists, occupational therapists, remedial therapists and physiotherapists in the Western Cape. Random sampling was done to select occupational therapists and physiotherapists as it would have been too expensive to send the questionnaire to the whole population. These two categories of professionals in the Western Cape who were registered with the HPCSA were randomly chosen using Excel's randomising function are outlined in Table 4.1.

Table 4.1: Random Selection of Occupational Therapists and Physiotherapists

	Occupational therapists	Physiotherapists
Population	1 088	1 683
Random sample	320	470

The whole population was used for educational psychologists (population size: 284) and speech and language therapists (population size: 223) in the Western Cape. Postal addresses were obtained from the HPCSA.

As remedial teachers are not registered with any specific board or organisation, addresses were obtained from the Western Cape Education Department's address list (<http://wcedemis.pgwc.gov.za/wced/findaschool.html>) to select learning support teacher participants. A convenient sample of 209 was selected out of a population of 1 145. This population consisted of all ordinary primary schools and special needs schools in the Western Cape. Convenience sampling is a nonprobability sampling method. Participants are chosen according to their availability, and convenience sampling is often used in studies intending to explore a certain phenomenon (Mertens, 2005). In most cases, survey researchers use convenience sampling as the financial and logistical resources required to use the whole population are not always available. According to Muijs (2011), the most effective sampling method for unbiased generalisation is probability sampling, of which the most well-known technique is simple random sampling whereby everyone in the population has an equal chance of being chosen as participant. The sample is randomly drawn from the population using random number generators. I considered the limitation of convenience sampling for generalising results to a wider population and found it feasible for this study as the aim was not to generalise but to provide background information for the qualitative information for the qualitative stage of the empirical study.

4.5.3 Data analysis and interpretation

The goal of descriptive research is to describe a specific phenomenon using statistical methods to summarise and analyse or make sense of collected data (Johnson & Christensen, 2012). The IBM SPSS programme (version 22) was used to analyse the data. Descriptive statistics were calculated in order to describe the

data per question. These included frequencies and means, depending on the level of measurement. Following this initial exploration of data, inferential techniques were used to determine the relationship among variables in the data set. Due to the categorical nature of the variables, this was done through crosstabs and the accompanying chi square values.

4.5.4 Validity

Content validity ensured that the data collected provided valid information for answering the three research sub-questions. Relevant professionals were consulted in the process of setting up the questionnaire to ensure the validity of the questions.

4.5.5 Advantages and disadvantages of quantitative data

Considering the purpose and design of this study, one of the advantages of quantitative methods was that they provided precise quantitative numerical data to describe the current service delivery approaches used by the professionals involved. The statistical software used to analyse the data saved a significant amount of time. The data could be easily presented with graphs. The results were relatively objective as I was not directly involved with the participants, allowing less interference of subjective interpretation. Quantitative research is useful for studying a phenomenon involving large numbers of people (Johnson & Christensen, 2012; Mertens, 2005). Disadvantages include problematic sampling jeopardising generalisation to larger populations, discrepancy between the categories and theories used by the researcher and those known by the participants, low response rates and the high costs involved in postal questionnaires (Johnson & Onweugbuzi, 2004; Mertens, 2004).

4.6 STAGE 2: QUALITATIVE RESEARCH METHOD

During the second stage of the research, I employed a qualitative data collection method to gain insight into the perceptions of a transdisciplinary service delivery approach among professionals supporting learners who experienced BtL.

Creswell (1998, p. 15) defines qualitative research as

an inquiry process of understanding based on distinct methodological traditions of inquiry that explore a social or human problem. The researcher builds a complex, holistic picture, analyses words, reports detailed views of informants, and conducts the study in a natural setting.

A variety of definitions and descriptive terms exist in the literature to describe qualitative research, varying from user to user. However, Bogdan and Biklen (2007) describe common characteristics of qualitative research:

- The qualitative researcher is naturalistic in the sense that the researcher is the key research instrument, collecting data within the actual setting of the phenomenon studied.
- Data collected are descriptive in nature with a respect for detail.
- Qualitative research is concerned with the process as opposed to the outcome. The researcher is interested in understanding how things work.
- Qualitative researchers are prone to analysing data inductively. Open-ended questions are explored rather than testing hypotheses.
- Meaning is an essential concern for qualitative researchers. The focus is on understanding participants' perspectives and the meaning attributed to a certain phenomenon.

Not all of the above characteristics may be exhibited to the same degree within a research study, and in some studies one or two of these characteristics may be lacking. Bogdan and Biklen (2007) maintain that the question is not whether a certain study adheres to all of these characteristics in a pure and perfect way, but to which degree all or certain of these characteristics are present (Bogdan & Biklen, 2007).

Denzin and Lincoln (as cited in Creswell, 1998, p. 14) convey the notion of qualitative research being a study of phenomena “in terms of the meanings people bring to them”, stressing the particular objective of this stage of this research study, namely to study a transdisciplinary approach in addressing BtL in terms of the meaning attached to it by professionals in the field. Denzin and Lincoln (2011) depict qualitative research as an interdisciplinary, transdisciplinary and sometimes counterdisciplinary field spanning the human, social and physical sciences. Denzin and Lincoln (2011) describe how qualitative research has a wide range of traditions using different theoretical paradigms at different historical moments.

Qualitative research follows a flexible and cyclical design, allowing time for reflection at the end of various cycles or stages, as opposed to the fixed linear design of quantitative research (De Vos, Strydom, Fouché, & Delport, 2011).

4.6.1 Data collection: Focus group discussions

Focus group discussions are data collection methods often used in qualitative research. A focus group discussion is a group interview consisting of a small number of participants and a facilitator. Participants share common social or cultural backgrounds, or similar interests or experiences. Structured or semistructured questions are used to foster conversation among participants about a particular topic. It is useful to employ this data collection method when the researcher is interested in individuals' perspectives, thoughts and feelings regarding a specific subject; in the case of this study, to research professionals' perceptions of a transdisciplinary approach in addressing BtL. Group members stimulate each other to elicit and express their views (Bogdan & Biklen, 2007; Mertens, 1998). Liamputtong (2011) emphasises interaction as a distinctive characteristic of the focus group interview, allowing the participants to be in control. For this study I was in a position to listen attentively and observe nonverbal expressions and voice tones. This provided me with the opportunity to appreciate participants' views (Liamputtong, 2011). Liamputtong (2011, p. 5) asserts that focus groups as a research method have value in terms of two key perspectives:

They offer the researcher a means of obtaining an understanding (insight) of a wide range of views that people have about a specific issue as well as how they interact and discuss the issue. A focus group, for example, could be used to find out how consumers perceive health care and services, both in terms of their own opinions and in relation to others.

The aim of the focus groups was to gain an understanding of professionals' perceptions of a transdisciplinary approach in supporting learners experiencing BtL. The literature study in Chapter 3 revealed certain specific aspects by which a transdisciplinary approach is characterised:

- Arena assessment
- Multiskilling
- Role release
- Parent and teacher participation.

As the transdisciplinary approach is embedded in the bigger framework of interprofessional collaboration (see 3.2), general characteristics of interprofessional collaboration emerged:

- Holistic nature of the approach
- Teamwork skills
- Ethics and values.

To gain an understanding of professionals' perceptions of these characteristics, I formulated a priori questions based on the literature study to guide the group discussion. However, the intent was to create a free-flowing discussion. Participants were encouraged to discuss any other relevant aspects of the transdisciplinary approach should these not be addressed in the guiding questions. After each workshop and focus group, I reflected on my own experiences (see Appendix G) in order to increase objectivity and prepare my thoughts for the data analysis and interpretation phase.

4.6.2 Participants

Recruitment of participants started during the first research stage with the quantitative questionnaire distributed to the target groups. I selected potential participants by viewing their responses to the questionnaire (see Appendix B for the questionnaire). To ensure information-rich participants, professionals recruited for the focus groups had to adhere to specific criteria that were indicated on the questionnaire. This is outlined in Table 4.2 on the next page.

I made telephonic contact with professionals who adhered to the above criteria, therefore using a purposeful sampling method. Purposeful sampling is valuable when seeking to obtain qualitative information (Hennink, Hutter, & Bailey, 2011). The research purpose and process were explained to the potential participants. Those professionals who indicated that they had no knowledge of a transdisciplinary approach were asked whether they would participate in a two-hour informative workshop on a transdisciplinary approach prior to the focus group discussion. I ensured that the participants who were contacted adhered to the above criteria by confirming it with them during the telephonic conversations. Once I had enough participants for the eight groups, I stopped contacting the rest of those who had indicated their willingness to participate.

Bestptfe.com

Table 4.2: Criteria for selection of participants of focus groups

Criteria	Groups 1-4	Groups 5-8
Qualification	Participants had to indicate that they belonged to one of the five discipline categories (educational psychologist, occupational therapist, speech and language therapist, remedial therapist and physiotherapist).	Participants had to indicate that they belonged to one of the five discipline categories (educational psychologist, occupational therapist, speech and language therapist, remedial therapist and physiotherapist).
Supporting learners experiencing barriers to learning	Participants had to confirm that they supported learners experiencing barriers to learning by ticking the 'Yes' box for Question 4 on the questionnaire.	Participants had to confirm that they supported learners experiencing barriers to learning by ticking the 'Yes' box for Question 4 on the questionnaire.
Knowledge of a transdisciplinary approach	Participants had to indicate that they had poor knowledge of a transdisciplinary approach.	Participants had to indicate that they had good or excellent knowledge of a transdisciplinary approach.
Willingness to participate	Participants had to indicate that they were willing to take part in the workshops and focus group discussions. They had to provide their contact details as were asked on the questionnaire.	Participants had to indicate that they were willing to take part in the focus group discussions. They had to provide their contact details as were asked on the questionnaire.

For participants of groups 1–4, arrangements for specific dates and locations to conduct the workshops were followed up via email. Four informative workshops of two hours were then held with the different groups at various facilities (see Appendix C for workshop content). Continuous professional development points were obtained from the HPCSA for the workshops. During one of the workshops which was held at a distance of 400 km from where I live, only two participants arrived. Although all the intended participants confirmed their attendance prior to the workshop, two of them were prevented to attend due to unforeseen circumstances. I realized that it would not be possible to re-schedule another workshop due to time and financial restrictions. A new group, with members working at a closer distance to where I live was arranged through information received from returned questionnaires.

Following the workshops, arrangements were made to meet for focus group discussions. Arrangements regarding time and location for groups 5–8 (professionals who indicated that they had good or excellent knowledge of a transdisciplinary approach) were also made via email once each participant had been contacted telephonically. In some cases snowball sampling was used. Some of the professionals whom I contacted who qualified for groups 5–8 informed me that they had team members who met the specific criteria for the study who might be interested in participating. This can therefore be described as snowball sampling.

Locations for workshops and focus groups were chosen on the grounds of accessibility to all group members.

4.6.2.1 *Characteristics of participants*

A. Group 1

This group consisted of professionals who working both in private practice and at a school. Some of them were known to each other as some of these professionals worked part-time at the same school, following a multidisciplinary approach.

Table 4.3: Characteristics of group 1

Participant	Age	Gender	Discipline	Years of experience in the field	Work environment (private practice/ school)
1	56	Female	Remedial therapy	34	School
2	26	Female	Speech and language therapy	3	School and private practice
3	52	Female	Educational psychology	6	Private practice
4	40	Female	Physiotherapy	18	School and private practice
5	36	Female	Occupational therapy	12	School and private practice

B. Group 2

The group consisted of professionals working in private practice, except for the remedial therapist who works at the school where the workshop was conducted. Some of the participants were known to each other as they all worked in the same suburb.

Table 4.4: Characteristics of group 2

Participant	Age	Gender	Profession	Years of experience in the field	Work environment (Private practice/ School)
1	34	Female	Physiotherapy	9	Private practice
2	28	Female	Speech and language therapy	6	Private practice
3	55	Female	Occupational therapy	30	Private practice
4	47	Male	Educational psychology	29	Private practice
5	65	Female	Remedial therapy	40	School

C. Group 3

The majority of the group members working in private practice. They were not known to each other prior to the preceding workshop. The remedial therapist works at the school where the workshop was conducted.

Table 4.5: Characteristics of group 3

Participant	Age	Gender	Discipline	Years of experience in the field	Work environment (private practice/ working within a team)
1	41	Female	Speech and language therapy	20	Private practice
2	49	Female	Remedial therapy	26	School
3	47	Female	Physiotherapy	25	Private practice
4	47	Female	Educational psychology	6	Private practice

D. Group 4

Participants from this group working in various settings. The physiotherapist, occupational therapist, educational psychologist and speech and language therapist mainly work in private practice. The remedial therapist works at a school for learners with severe intellectual disability. Some of the participants were known to each other as they all provided consultation services to the abovementioned school.

Table 4.6: Characteristics of group 4

Participant	Age	Gender	Discipline	Years of experience in the field	Work environment (private practice/ school)
1	50	Female	Physiotherapy	28	Private practice
2	49	Male	Educational Psychologist	21	Private practice
3	39	Female	Speech and language therapy	18	Private practice
4	64	Female	Remedial therapy	40	School

E. Group 5

Professionals from this group all work within a transdisciplinary team at the same school for learners with physical disability as well as specific learning difficulties.

Table 4.7: Characteristics of group 5

Participant	Age	Gender	Discipline	Years of experience in the field	Work Environment (school)
1	30	Female	Physiotherapy	7	School
2	52	Female	Speech and language therapy	30	School
3	57	Female	Occupational therapy	33	School
4	42	Female	Educational psychology	6	School
5	29	Female	Remedial therapy	6	School

F. Group 6

Members of this group work at a school for learners on the autism spectrum. They work in a transdisciplinary team. Participant two was a classroom teacher at the school. All the teachers at the school are well trained in remedial therapy.

Table 4.8: Characteristics of group 6

Participant	Age	Gender	Discipline	Years of experience in the field	Work environment (school)
1	32	Female	Occupational therapy	9	School
2	30	Female	Teaching	5	School
3	28	Female	Speech and language therapy	4	School
4	26	Female	Speech and language therapy	2	School

G. Group 7

This group consisted of six participants from various disciplines, working at a school for learners with specific learning difficulties.

Table 4.9: Characteristics of group 7

Participant	Age	Gender	Discipline	Years of experience in the field	Work environment (school)
1	36	Female	Educational psychology	5	School
2	30	Female	Speech and language therapy	7	School
3	37	Female	Physiotherapy	14	School
4	27	Female	Occupational therapy	5	School
5	57	Female	Educational psychology	25	School
6	55	Female	Occupational therapy	27	School

H. Group 8

This group consisted of 5 therapists working as a transdisciplinary team with learners with severe intellectual and physical disabilities.

Table 4.10: Characteristics of group 8

Participant	Age	Gender	Discipline	Years of experience in the field	Work environment (School)
1	49	Male	Educational psychology	14	School
2	48	Female	Physiotherapist	25	School
3	28	Female	Speech and language therapy	6	School
4	28	Female	Occupational therapy	5	School
5	45	Female	Remedial therapy	12	School

4.6.3 Data analysis and interpretation

According to Onwuegbuzie, Dickinson, Leech and Zoran (2009), there is little information on the analysis of focus group data despite the wealth of knowledge available on conducting focus groups. However, a number of qualitative analytical techniques are suitable for analysis of focus group data.

The purpose of any research is to produce findings through data transformation. Data were collected during eight focus group discussions, as explained in Section 4.6.1. Babbie (as cited in De Vos *et al.*, p. 399) defines qualitative data analysis as “non-numerical examination and interpretation of observations, for the purpose of discovering underlying meanings and patterns of relationships”.

Transformation of data requires a process by which data are interpreted through the application of various analytic strategies involving “sorting, organising and reducing them to more manageable pieces and exploring ways to reassemble them” (Schwandt, 2007, p. 7, as cited in De Vos *et al.*, 2011, p. 399).

I followed a hybrid process using both deductive and inductive analysis in the interpretation of raw data collected from the focus group discussions. This hybrid approach is based on a study done by Fereday and Muir-Cochrane (2006). They used Schutz’s (as cited in Fereday & Muir-Cochrane, 2006) theory of social phenomenology as a philosophical framework for data analysis and interpretation. Social phenomenology is used to explore people’s subjective experiences, based on the assumption that people ascribe meaning to a situation before they make a judgement (Fereday & Muir-Cochrane, 2006). In studying the perceptions of a transdisciplinary approach of professionals involved in supporting learners experiencing BtL, in other words the meanings that they ascribed to a transdisciplinary approach, I found this philosophical framework useful to keep in mind.

The aim of the focus groups was to understand professionals’ perceptions of specific characteristics of a transdisciplinary approach and general elements of interprofessional collaboration in the context of supporting learners experiencing BtL (see 3.4). I also wanted to explore the participants’ views on the transdisciplinary approach in relation to other interprofessional collaboration models, such as a pluridisciplinary, multidisciplinary and interdisciplinary approach (see 3.2.7). Against the background of the literature study on BtL and the differentiation in levels of support for various categories of BtL (Chapter 2), I wanted to know what professionals’ thoughts were on using some aspects of the transdisciplinary approach as opposed to using the whole transdisciplinary approach with all of the above characteristics. To reach these goals, open-ended questions (see Appendix H) were formulated to guide the focus group discussions. However, to avoid missing out on important data, I encouraged group members to discuss any other topics beyond the guiding questions.

Based on the responses, which were organised according to the questions asked during the focus group discussions, I used an a priori framework (Creswell, 2005) to guide the data analysis process. An a priori analysis framework entails deductive

analysis; in other words, before I analysed the data, I had the answers to the a priori questions used during the focus group in mind. However, I did not want to miss out on important information emerging from the data, and therefore I also followed an inductive process of data analysis (Creswell, 2009; Merriam, 1998) by using constant comparison analysis.

The process of constant comparison analysis can be divided into three stages. The first stage involves open coding whereby I use codes or descriptions to break up data into smaller units. During the second stage, data are displayed to provide an overview. Finally, the reduced and displayed data are interpreted and verified to answer the research question (Miles, Huberman, & Saldanah, 2014).

4.6.3.1 Data analysis process

Data collected through focus group discussions were analysed in three stages, as illustrated in Figure 4.3

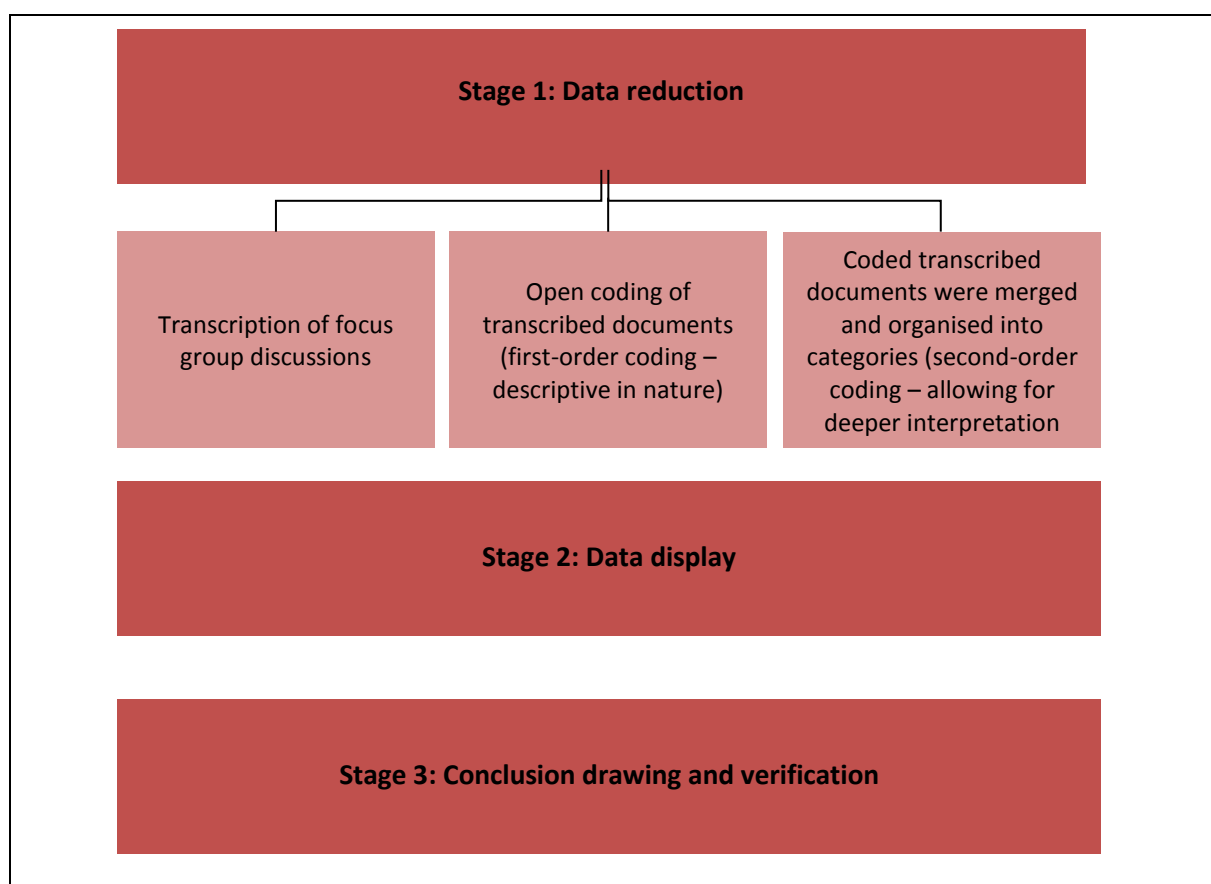


Figure 4.3: Process of data analysis as proposed by Miles *et al.*, 2014A

A. Stage 1: Data reduction

Firstly, I had to prepare the data for analysis by transcribing the audio recordings of the focus group discussions. This initial action afforded me the opportunity to immerse myself in the bulk of the data, preparing my thoughts for the coding process. In transcribing the audio files, I was mindful to provide verbatim transcriptions, including participants' colloquial language and disjointed and unclear speech.

Coding is the first concrete activity in the data reduction process and can be divided into two levels. First-order coding is descriptive in nature, and interpretation of data is limited. Second-order coding is more abstract and characterised by a deeper level of interpretation, leading to abstracting and comparison of data (see Figure 4.3).

I started off by reading through all the focus groups transcriptions, tentatively formulating and writing down codes within the text. Sixty-three initial codes were formulated, of which I compiled a coding book, defining each code (see Appendix E). These codes were then revised with the aim of reducing them to a more manageable number, to eliminate codes that did not contribute to the research aim. The number of codes was reduced to 32 (Table 5.7). Code saturation was reached after coding six focus group transcriptions. The initial codes were descriptive in nature, serving as a label to statements made for the purpose of further interpretation. The process was repeated to ensure that I had not missed any important information. After the initial coding of each focus group's transcribed text, I merged the documents into one and compared the codes of all eight groups. From here I moved to a higher level of conceptualisation, developing various themes (Figure 4.4). In developing these themes, I was guided by the a priori questions used during the focus group discussions. Four themes and 11 sub-themes were then formulated (see Table 5.7).

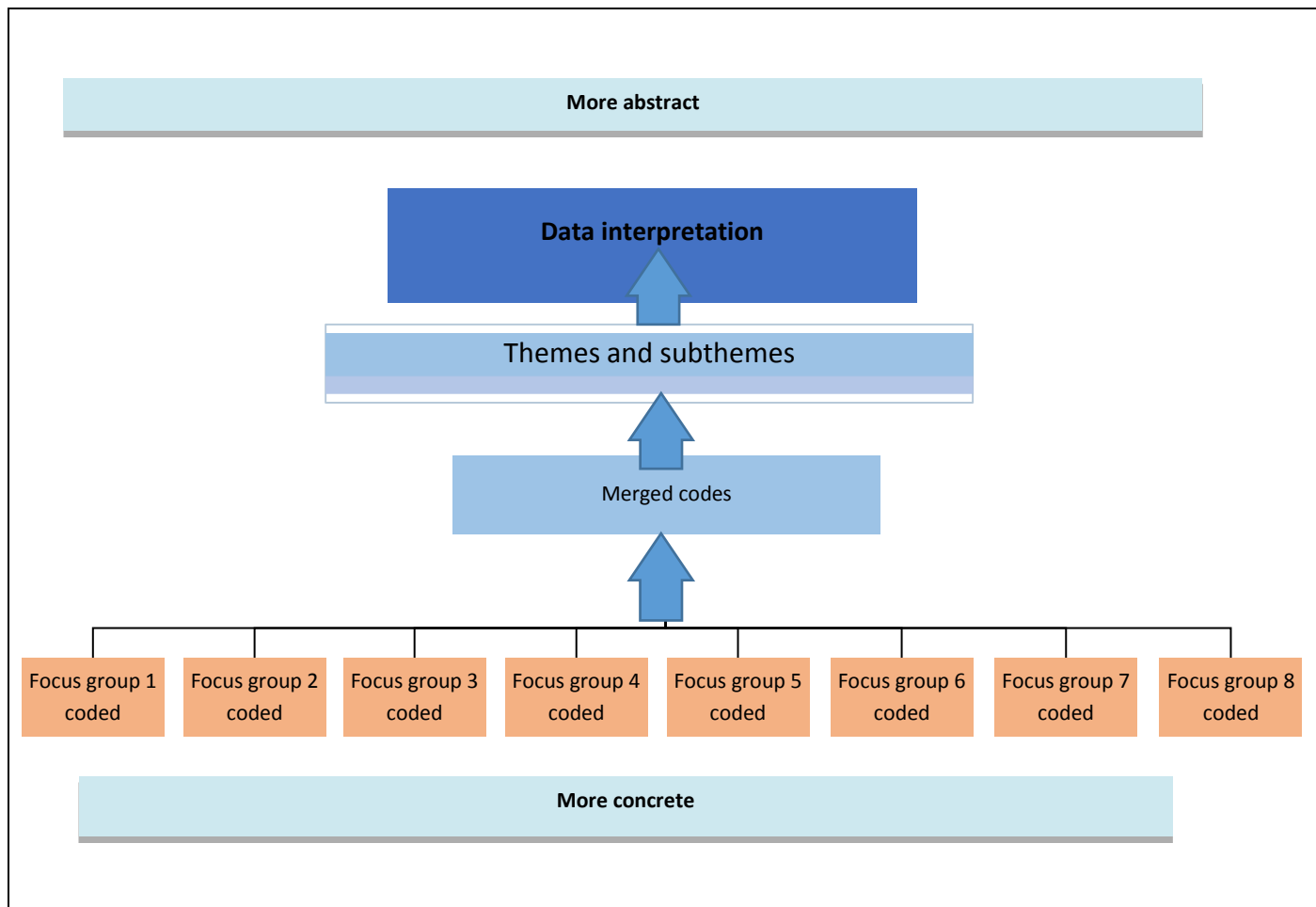


Figure 4.4: Levels of abstraction in data analysis

(Adapted from Punch, 2009, p. 181)

B. Stage 2: Data display

The reduced data, in this case the six categories formulated during the data reduction phase, were displayed in table form, providing a structured construction of information which allows the drawing of conclusions. This allowed me to interpret the data on an abstract level.

C. Stage 3: Drawing of conclusions and verification

Although tentative interpretations and conclusions were arrived at throughout, in the final phase of the process of analysis I used the reduced and displayed data to draw and verify conclusions. The conclusions are embedded in the data; therefore, they are inductive. They are also deductive as the conclusions were influenced by most of the existing literature (Hennink *et al.*, 2011).

4.6.4 Evaluating quality

For qualitative research to provide meaningful and trustworthy outcomes, the quality or trustworthiness of the study needs to be ensured. Guba (as cited in Shenton, 2004) developed four strategies to enhance the trustworthiness of a qualitative study, namely ensuring *credibility*, *transferability*, *dependability* and *confirmability*. Below I describe my efforts in adhering to these criteria.

4.6.4.1 Credibility

Credibility is regarded as the primary criterion for the trustworthiness of a study. It refers to the accuracy of collected data, data analysis and interpretations. A comprehensive description of the research process and selected participants needs to be supplied. Krefting (1991) provides strategies to be followed by qualitative researchers to enhance the credibility of the study. The following actions from this study adhered to these strategies:

- ☑ Prolonged engagement (one year) with the data production through initial telephonic conversations with participants, workshops and focus group discussions took place.
- ☑ Sufficient data were generated until saturation was reached.
- ☑ Besides providing a comprehensive description of the process of data collection, analysis and interpretation within the study, I discussed the research process and findings with two professionals. One colleague with whom I discussed the data collection process had valuable experience of the transdisciplinary model. I continuously checked my research methods and processes with my supervisor. The research design was also approved by the Ethics Committee of the University of South Africa.
- ☑ The credibility of the focus group discussions was enhanced by rephrasing and checking for correct understanding of participants' contributions when I was not sure what they meant to say.
- ☑ An audit trail, including reflections and decisions made during the course of the research process, initial and edited codes as well as examples of transcribed analysed documents, are provided.
- ☑ Analysed data and findings were verified with participants. I asked four participants, each representing a different focus group, to check whether they agreed with the categories formulated from the reduced codes. I also asked two participants who had been working in a transdisciplinary team for a number of years to check whether the analysed data reflected their experiences in practice.

4.6.4.2 *Transferability*

Transferability refers to the external validity of the study, in other words, to what extent this study can be applied to other situations or studies (Merriam, 1998). The following were considered in ensuring the transferability of the study, guided by Krefting's (1991) strategies to enhance transferability:

- ☑ The aim of this qualitative research was not to generalise findings to larger populations but to provide rich descriptions of participants' perceptions of a transdisciplinary model and to analyse and interpret collected data to inform and enhance service delivery practices among professionals supporting learners experiencing BtL.
- ☑ Although the aim was not to transfer findings, rich descriptions of the data production and analysis process as well as participants provided information for other researchers to gauge whether this research would be transferable to a certain situation.
- ☑ The research steps were described in detail, and a visual representation is provided in Figure 4.2.
- ☑ Contextual and demographic information of each participant as well as background information and composition of each focus group was provided (Section 4.6.2.1).
- ☑ According to Suter (2012), transferability is enhanced by comparisons across cases providing similar findings.
- ☑ I provided multiple examples of professionals' perceptions in the data interpretation phase (see Chapter 5).

4.6.4.3 *Dependability*

Dependability in qualitative research compares with the reliability of quantitative research. The researcher should provide evidence that if the study were to be repeated, it would provide similar outcomes. Other researchers should be able to track the decision trail followed by the researcher in conducting the study (Krefting, 1991). I ensured the dependability of this study by means of the following actions:

- ☑ Dense descriptions of the methods of data gathering and the process of analysis and interpretation were provided.
- ☑ A code-recode procedure was followed during the analysis phase. Initial codes were reviewed and edited over a period of time. Initial codes used are provided in Appendix E. Examples of coded transcripts are provided in Appendix F.
- ☑ The actual research process and decisions made along the way are provided in the next chapter. Reflections on focus group discussions are provided in Appendix G.

4.6.4.4 Confirmability

Confirmability refers to the neutrality or objectivity of the researcher and the limitation of researcher bias (Suter, 2012). The following were done to strengthen the degree of researcher objectivity both during the focus group discussions and in engaging with the data during the data analysis and interpretation phase:

- ☑ The researcher provided a chronological account of her progress with the study to make clear how and why decisions were made. This helped her to maintain focus and enhanced objectivity (Krefting, 1991).

4.6.5 Advantages and disadvantages of qualitative research

The foremost strength of qualitative research is the production of rich, in-depth information. Insight is gained into 'real life' as the researcher focuses on studying the subject within its natural environment. It provides the researcher with an opportunity to get close to the participants, resulting in a better understanding of their perspectives. Denzin and Lincoln (2008) argue that qualitative researchers are more likely to challenge the limitations of the status quo, leading to social change. Further benefits are thick descriptions, in other words, not only describing the phenomena studied but also their context and influences, flexibility in the research design and production of meaningful data that can be connected to the broader social world (Bogdan & Biklen, 2007; Denzin & Lincoln, 2011; De Vos, *et. al*, 2011). Qualitative data collection is regarded as the best strategy when exploring a novel area and can be used to form hypotheses for further research. Miles *et al.* (2014) contend that qualitative data collection can lead to unexpected findings and has the ability to generate new conceptual frameworks.

Subjectivity, the hallmark of qualitative research, is also found to be one of the central challenges. Information gathered through qualitative methods, such as interviews, is open to misinterpretation and observer bias in which there is room for researchers to interpret the data in a way that confirms what they wish the data to show. Generalisation of findings to larger populations is complicated in qualitative research because of small sample sizes and the subjective nature of interpretation (Johnson & Onweugbuzi, 2004; Mertens, 2005).

4.7 DATA INTEGRATION

Quantitative (Stage 1) and qualitative (Stage 2) findings were integrated in the final stage with findings from the literature study to answer the main research question (see Figure 4.2).

4.8 ETHICS CONSIDERATIONS

Ethics in research should be an integral part of the research planning and implementation process (Mertens, 2005). The following were considerations of particular significance for this study (see Letter of Consent in Appendix D).

- The privacy of the research participants and the confidentiality of the research were ensured.
- Questionnaires, personal documents and recorded material from the workshops and focus group discussions were handled in strict confidence, in adherence to the HPCSA's ethical guidelines (Health Professions Act No. 56 of 1974, 2006).
- Informed consent was obtained from all focus group participants. The possible risk of discomfort to participants, guarantee of anonymity/confidentiality, guarantee of voluntary participation and termination without penalty, method of selection of participants and numbers involved, benefits or compensation for participants, name of the institution guiding the ethical approval and my contact details were included.
- A letter of consent including all of the above (see Appendix D) was provided and explained to and signed by all participants of the workshops and focus group discussions.
- In the event of unforeseen circumstances where participants in the study experienced harm or injury as a result of their participation, debriefing and support would be provided.
- No harm to any participants was expected. Should participants have had negative experiences during the course of the discussions, the appropriate debriefing and support would have been provided.
- The letter of consent signed by professionals participating in the focus group discussions (see Appendix D) informed the participants that the results of the study would be made available to them. Results of the study will be sent to focus group participants who indicated that they are interested in the findings

through electronic mail. Actual or potential benefits of the research findings will be communicated to all focus group participants.

- Should there be any compensation or reimbursements or services provided to participants, this would be communicated to them.
- No compensation or reimbursements or services were offered to participants.

4.9 CONCLUSION

The focus of this chapter was on setting out the research design followed to collect empirical data. The chapter started off with an exposition of pragmatism as a research paradigm for a mixed methods design. This was followed by a discussion of mixed methods research and its application to this study. The sequential mixed methods design chosen to collect data in order to answer the three research sub-questions and ultimately the main research question was set out and illustrated, followed by an explanation of the quantitative and qualitative data collection methods with their underlying philosophical assumptions. The sampling techniques used to select participants for the two research stages were then discussed, followed by a presentation of the process of quantitative and qualitative data analysis followed for this study. The chapter concluded with a consideration of ethical matters relevant to this study. In the next chapter, the data collected will be presented and interpreted.

CHAPTER 5:

DATA ANALYSIS AND INTERPRETATION

5.1 INTRODUCTION

The research design and methodology for this study were discussed in the previous chapter. This chapter provides the analysis and interpretation of the data collected. Firstly, the analysis of the quantitative data collected during the first phase will be presented. The three research sub-questions stated in Chapter 1 will be answered, followed by analysis and interpretation of the qualitative data. The analysed data will be interpreted in the light of the findings of the literature study conducted in Chapters 2 and 3.

5.2 ANALYSIS AND INTERPRETATION OF QUANTITATIVE DATA

Firstly, the response rate, validity and reliability of the quantitative data obtained are discussed.

Secondly, the findings related to the respondents' various professional categories are discussed, followed by the findings comparing professional categories and support provided to learners experiencing the various categories of BtL, thus answering Research sub-question 1:

Which of the health and education professionals in the Western Cape identified for this study provide services to learners experiencing barriers to learning?

Thirdly, the service delivery approaches used by professionals providing services to learners experiencing BtL are presented, answering research sub-question 2:

What are the collaborative approaches followed by health and education professionals in the Western Cape identified for this study?

Lastly, the findings on professionals' exposure to a transdisciplinary approach are presented and discussed, answering research sub-question 3:

What is the level of exposure to a transdisciplinary approach in addressing barriers to learning among identified health and education professionals in the Western Cape?

5.2.1 Response rates, validity and reliability

In 2013 a total of 1 697 questionnaires were sent to the following professionals in the Western Cape: occupational therapists (319), speech and language therapists (223), educational psychologists (284), physiotherapists (470) and learning support teachers (209). A total of 212 (12.5%) responses were received with three responses missing. Response rates are presented in Table 5.1. Unfortunately, a printing error occurred on the questionnaire, omitting the category for occupational therapists on the posted questionnaire. Returning questionnaires brought this fault to my attention as some occupational therapists participating added this category in handwriting. In addition, I received an email from an occupational therapist making me aware of the omission. Corrected questionnaires were re-sent to the sample of occupational therapists with a letter (see Appendix B1 requesting those who had already returned the questionnaire not to do so again).

Reliability and validity are important aspects of a quantitative study. Validity refers to what degree the instrument measures what it claims to measure (Mertens, 2005). The purpose of the first part of the study was not so much to be able to generalise to other provinces and to ensure external validity but rather to investigate the current practices of selected professionals in the Western Cape Province in providing services to learners experiencing BtL to provide a backdrop for understanding their perceptions of the transdisciplinary approach.

For the purpose of this study, I had to establish content validity to ensure that the data collected through the questionnaire would provide valid information for answering the three research sub-questions. To achieve this purpose, I consulted with five professionals from the various disciplines involved in the study as well as her study supervisor. A written explanation of the purpose of the questionnaire was emailed with the draft questionnaire to two educational psychology colleagues as well as the study supervisor. I asked them to examine the items and provide her with feedback as to whether they believed that the items would provide valid information to answer the three research sub-questions. The other professionals, an occupational therapist, a speech and language therapist and a remedial teacher, all working at the same school, were approached in person and provided with an oral explanation of the purpose of the questionnaire and a copy of the draft questionnaire. They provided me with oral feedback. Suggestions were made about the description of the geographical areas as well as some language related aspects.

Once these suggestions were incorporated, I asked two educational psychology colleagues to complete a pilot questionnaire. The reliability of the quantitative part of this study was strengthened through the consistency of the instructions and questionnaires. All participants received the same instructions, and the same questionnaire was sent to each participant. All questionnaires were sent by mail.

The low response rate for learning support teachers could be ascribed to the fact that questionnaires were sent to schools and it is likely that some questionnaires did not reach the learning support teacher at the school. The heavy workload of learning support teachers could also have caused the low response rate. The response rate for physiotherapists was also low. Considering the analysed data from Table 5.2, one can see that physiotherapists are least involved in supporting learners experiencing BtL, which could account for the low response rate.

Table 5.1: Professionals' Responses to Questionnaire

		Qualification			Cumulative Percent
		Frequency	Percent	Valid Percent	
Valid	Educational Psychologist	49	23.1	23.4	23.4
	Speech and language therapist	58	27.4	27.8	51.2
	Physiotherapist	28	13.2	13.4	64.6
	Learning Support Teacher	27	12.7	12.9	77.5
	Occupational therapist	47	22.2	22.5	100.0
	Total	209	98.6	100.0	
Missing	System	3	1.4		
Total		212	100.0		

5.2.2 Professionals providing services to learners experiencing barriers to learning

The complex nature of BtL necessitates the involvement of more than one professional discipline to support learners and their families. The literature reveals that BtL are caused by *external factors* such as poverty, poor education and neglect and/or *internal factors* involving the learner's health, neurological makeup and sensory modalities. In many cases both external and internal factors are relevant.

Donald *et al.* (2010) point out the significantly high prevalence of BtL caused by external factors in developing countries compared to developed countries. The influence of external circumstances can therefore not be ruled out in understanding the nature of BtL and support provided in the South African context (Donald *et al.*, 2010). Although I focussed on BtL caused by internal factors, the South African context with its high level of socio-economic challenges (see Section 2.3) was kept in mind throughout the study.

Health and education disciplines known to support learners with BtL caused by internal factors can include paediatric neurology, psychiatry, speech and language therapy, audiology, optometry, occupational therapy, physiotherapy, educational psychology and learning support. Questionnaires (see Appendix B) were sent to five of these categories, namely speech and language therapists, occupational therapists, educational psychologists, physiotherapists and learning support teachers to determine their involvement with learners experiencing BtL and to gain an understanding of their service delivery practices.

In answering research sub-question 1: *Which of the health and education professionals in the Western Cape identified for this study provide services to learners experiencing barriers to learning?*, the data displayed in Figure 5.1 indicate that all of the categories involved in this study, occupational therapists, speech and language therapists, educational psychologists, physiotherapists and learning support teachers, provide services to learners experiencing BtL. According to Figure 5.1, the majority (83.08%) of professionals indicated that they provided support to learners experiencing BtL, indicating that the sample used for this study was relevant to the purpose of the study. According to Table 5.2, remedial teachers (100%) and educational psychologists (93.8%) are categories of professionals with the highest percentage of support provided to learners experiencing BtL, followed by speech and language therapists (89.1%) and occupational therapists (84.4%). As mentioned above, the results indicate that physiotherapy is the discipline least involved in providing services to learners experiencing BtL (30.8 %).

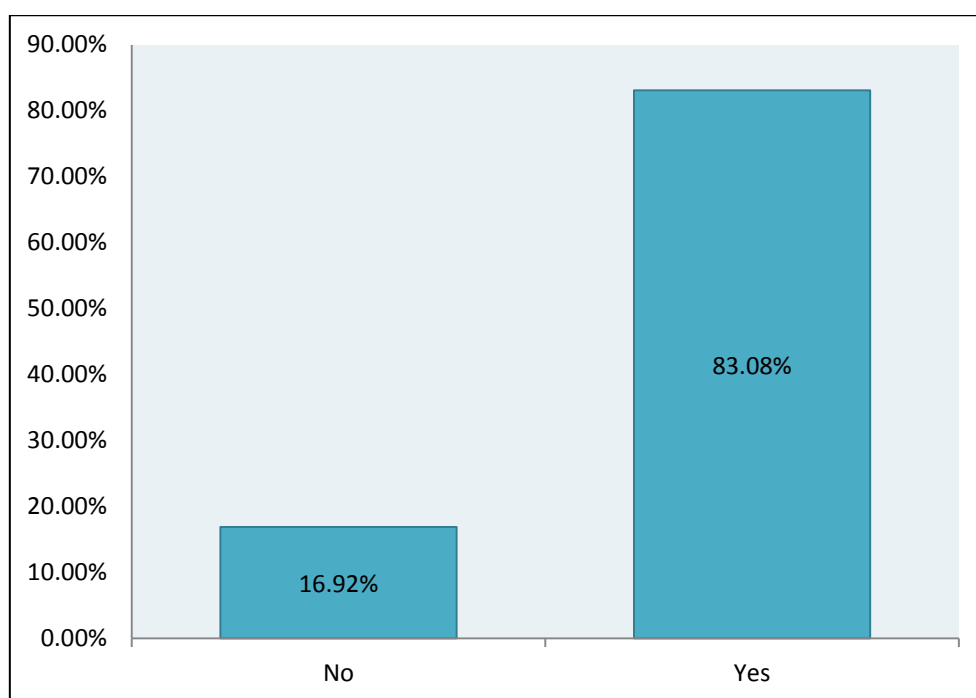


Figure 5.1: Professionals providing services to learners experiencing barriers to learning

Table 5.2: Professional categories supporting learners experiencing barriers to learning

			Qualification					
			Educational psychologist	Speech and language therapist	Physiotherapist	Remedial therapist	Occupational therapist	Total
Learners with barriers to learning	No	Count	3	6	18	0	7	34
		% within qualification	6.3%	10.9%	69.2%	0.0%	15.6%	16.9%
	Yes	Count	45	49	8	27	38	167
		% within qualification	93.8%	89.1%	30.8%	100.0%	84.4%	83.1%
Total		Count	48	55	26	27	45	201
		% within qualification	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

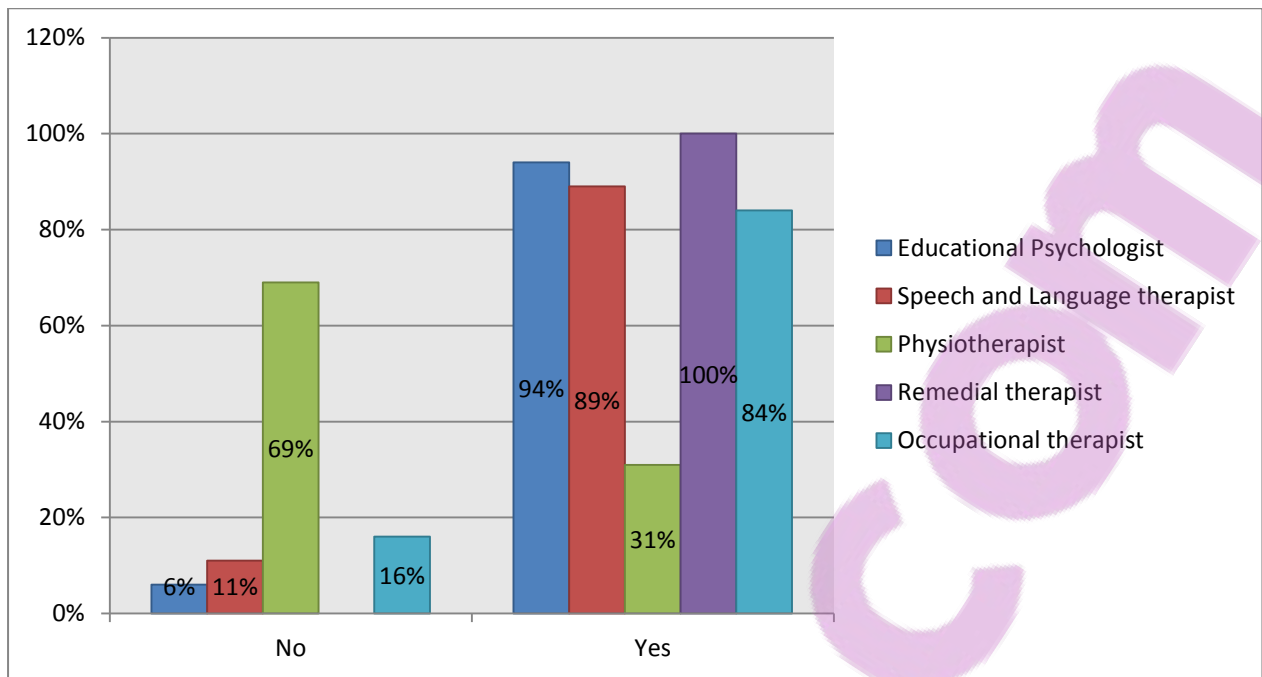


Figure 5.2: Professional categories supporting learners experiencing barriers to learning

The literature study revealed that BtL are caused by external, internal or a combination of external and internal factors (sections 2.3 and 2.4). Internal barriers are usually referred to in the literature as “learning disorders”. However, much confusion exists about this term. In this study, the term “learning disorders” was used as an umbrella term referring to learners who experienced a breakdown in learning due to a variety of factors stemming from within the learner. These BtL are classified as *learning difficulties*, including developmental and academic difficulties and ADHD, and *learning disabilities*, including intellectual disability, sensory disability, physical disability and pervasive developmental disorder (see Figure 2.3). A description of each category is provided in Section 2.4.1.3.

According to Table 5.3, *specific learning difficulties*, *intellectual disability* and *autism spectrum disorders* are the categories with the highest involvement from responding professionals. Respondents indicated that they worked least with the *blind/partially blind*, *deaf/partially deaf*, learners with *epilepsy* and learners with *cerebral palsy*.

Table 5.3: Categories of barriers to learning supported by health and education professionals

	Responses		
	N	Percentage	Percentage of cases
Intellectual	119	19.8%	66.9%
Physical	68	11.3%	38.2%
Deaf /partially deaf	49	8.2%	27.5%
Epilepsy	42	7.0%	23.6%
Specific learning difficulties	152	25.3%	85.4%
Cerebral palsy	51	8.5%	28.7%
Autism spectrum disorders	95	15.8%	53.4%
Blind/partially blind	24	4.0%	13.5%
Total	600	100.0%	337.1%

5.2.3 Collaborative service delivery approaches

Collaborative services tie in with the global shift to holistic approaches in health and education. The change to inclusive policies inevitably changed the roles of professional support services provided to learners experiencing BtL. The Department of Education promotes collaborative practice as an effective means to meet the multiple needs of the developing child. The data presented in Table 5.4 provide the answer to research sub-question 2: What are the collaborative approaches followed by health and education professionals in the Western Cape identified for this study? The data indicate that the highest percentage (32.4%) of professionals use a *pluridisciplinary* service delivery approach in dealing with learners experiencing BtL. Twenty-seven point three per cent of respondents use a *multidisciplinary* approach and 21.5% an *interdisciplinary* approach. The transdisciplinary approach (16%) is least used by professionals in providing services to learners experiencing BtL.

Table 5.4: Collaborative approaches used by various professional categories

	Responses		
	N	Percentage	Percentage of cases
No collaboration	7	2.7%	3.8%
Pluridisciplinary	83	32.4%	45.4%
Multidisciplinary	70	27.3%	38.3%
Interdisciplinary	55	21.5%	30.1%
Transdisciplinary	41	16.0%	22.4%
Total	256	100.0%	139.9%

Table 5.5: Work environment and collaborative practices

Work environment * Qualification crosstabulation								
			Qualification					
			Educational psychologist	Speech and language therapist	Physiotherapist	Remedial therapist	Occupational therapist	Total
Work environment	Private practice	Count	26	20	21	0	13	80
		% within qualification	55.3%	38.5%	84.0%	0.0%	34.2%	42.8%
	School	Count	6	14	2	23	10	55
		% within qualification	12.8%	26.9%	8.0%	92.0%	26.3%	29.4%
	Both	Count	15	18	2	2	15	52
		% within qualification	31.9%	34.6%	8.0%	8.0%	39.5%	27.8%
Total		Count	47	52	25	25	38	187
		% within qualification	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

The results of the quantitative study reveal that the majority of professionals follow collaborative approaches. A pluridisciplinary approach is most widely used by professionals in private practice. Professionals working in schools use multidisciplinary and interdisciplinary approaches. Transdisciplinarity is the approach least used by professionals, both in private practice and at schools. As all of the

above approaches fall within the broader context of interprofessional collaboration, which is rooted in the social systems framework, it can be concluded that the majority of professionals taking part in the study have moved away from the medical model characterised by a lack of collaborative effort to a social systems approach advocating collaboration and a holistic perspective.

However, with the majority of participants in private practice following a pluridisciplinary approach, service delivery efforts are still at the lower levels of collaboration with no integration among disciplines. On a continuum of collaboration and integration, pluridisciplinary efforts are described as least collaborative with no integration among the various disciplines at any stage of the support process. Multidisciplinary efforts are more collaborative, involving multiple disciplines sharing knowledge, comparing results and posing various perspectives; however, no integration occurs in seeking communal goals (Stock & Burton, 2011). Interdisciplinary endeavours are highly collaborative, bridging disciplinary boundaries. Mutual goals are set to solve complex problems. The transdisciplinary approach allows for the highest level of collaboration and integration in which the complexity of BtL is acknowledged and collaboration is valued in seeking to solve problems. Disciplinary boundaries are crossed, creating unified goals to meet the complex needs of learners within their socio-ecological context. Service delivery at schools where multi- and interdisciplinary approaches are followed allows for higher levels of collaboration and integration among the various disciplines.

With transdisciplinarity being the approach least followed, both in private practice and within school teams, it is clear that service delivery practices have not yet reached maximum levels of collaboration and integration among disciplinary boundaries as a way of solving the complex difficulties presented by learners experiencing BtL.

5.2.4 Previous exposure to a transdisciplinary approach

In answering research sub-question 3: What is the level of knowledge of a transdisciplinary approach in addressing barriers to learning among identified health and education professionals in the Western Cape?, the analysed data displayed in Table 5.6 indicate the level of exposure to a transdisciplinary approach among the various disciplines. Sixty-seven point three per cent of educational therapists, 58.9% of speech and language therapists, 52.4% of physiotherapists, 51.9% of remedial

therapists and 50% of occupational therapists indicated that they had had previous exposure to a transdisciplinary approach.

Table 5.6: Previous exposure of professional categories to a transdisciplinary approach

		Educational psychologist	Speech and language therapist	Physiotherapist	Remedial therapist	Occupational therapist	Total
No	Count	16	23	10	13	21	83
	% within Q1.1	32.7%	41.1%	47.6%	48.1%	50.0%	42.6%
Yes	Count	33	33	11	14	21	112
	% within Q1.1	67.3%	58.9%	52.4%	51.9%	50.0%	57.4%
Total	Count	49	56	21	27	42	195
	% within Q1.1	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

5.3 ANALYSIS AND INTERPRETATION OF QUALITATIVE DATA

The aim of the second research stage was to gain an in-depth understanding of professionals' perception of a transdisciplinary service delivery approach in supporting learners experiencing barriers to learning. The results of the quantitative study were used to select participants for the qualitative research. Qualitative data were collected through eight focus group discussions, as set out in Chapter 4. Professionals participating in the focus group discussions consisted of the relevant health and education professionals in the Western Cape providing services to learners experiencing barriers to learning. Detailed information about the focus groups and participants is provided in Chapter 4 (4.6.1 and 4.6.2)

The data collected from the focus groups were analysed following a combination of inductive and deductive analysis strategies (see 4.6.3). The results of the data analysis are presented below in table form to provide an overview of the main categories, themes and codes formulated during the analysis process (see Appendix F for samples of analysed data).

Table 5.7: Analysed data: Themes, subthemes and codes

Themes	Subthemes	Reduced codes
Theme 1: Transdisciplinary service delivery	Subtheme 1: Specific transdisciplinary operational aspects	<ul style="list-style-type: none"> • AA: Arena assessment • MS: Multiskilling • RR: Role release • CT: Composition of team • TC: Team coordinator
	Subtheme 2: Using some aspects of the transdisciplinary approach	<ul style="list-style-type: none"> • Ct: TDM: Challenges to implementing transdisciplinary model • AtN: Adapt to needs • SMS: Spontaneous multiskilling and role release
	Subtheme 3: General aspects of interprofessional collaboration	<ul style="list-style-type: none"> • H: Holistic nature • TS: Teaming skills • E: Ethics
Theme 2: Parents and teachers as part of the transdisciplinary team	Subtheme 1: Benefits	<ul style="list-style-type: none"> • TtP: Transition of therapeutic progress • EPT: Empowerment of parents and teachers • Pr.E: Professional empowerment and work satisfaction • BL: The learner
	Subtheme 2: Challenges	<ul style="list-style-type: none"> • LU: Lack of understanding • PA: Parents' acceptance of barriers to learning • SE: Socio-economic circumstances • PM: Parent motivation
Theme 3: Advantages of transdisciplinary service delivery	Subtheme 1: Quality of service delivery	<ul style="list-style-type: none"> • Compr: Comprehensive service
	Subtheme 2: Financial benefits	<ul style="list-style-type: none"> • IS: Integration of services • T: Time
	Subtheme 3: Professional benefits	<ul style="list-style-type: none"> • WS: Work satisfaction • PD: Professional development
	Subtheme 4: Transdisciplinarity vs. other collaborative models	<ul style="list-style-type: none"> • IvF: Integration vs. fragmentation • F: Financial • T: Time
Theme 4: Challenges of transdisciplinary service delivery	Subtheme 1: Professional and personal challenges	<ul style="list-style-type: none"> • C: QS: Quality of service • EC: Ethical • IPC: Interpersonal
	Subtheme 2: Practical aspects of implementation	<ul style="list-style-type: none"> • R: Remuneration • TC: Time • N: Novelty of approach

5.3.1 Themes and subthemes

Initially, 63 inductive codes were formulated (see Appendix E). These initial codes were then reduced to 32 codes. Eleven deductive subthemes were then formulated, guided by the a priori questions used during the focus group discussions. Analysis of the subthemes resulted in four main themes (Table 5.7).

Following is an exposition in which each of the main categories is summarised, supported by references to the data transcripts. The summarised categories are interpreted and discussed with reference to the literature review (Chapters 2 and 3).

5.3.1.1 Theme 1: Transdisciplinary service delivery

Table 5.8: Theme 1: Transdisciplinary service delivery

Operational features	General aspects of interprofessional collaboration	Using some aspects of transdisciplinary service delivery
<ul style="list-style-type: none">•Arena assessment•Multiskilling•Role release•Composition of team	<ul style="list-style-type: none">•Integrated holistic service•Teamwork skills•Ethics	<ul style="list-style-type: none">•Challenges implementing transdisciplinary services•Adaptation according to existing needs•Spontaneous multiskilling

Nandiwa and Dang-Vu (2010, p. 6) describe transdisciplinary service delivery as an effort by multiple professionals involved in addressing a specific individual's needs as "reaching into the space between the disciplines". Transdisciplinary service delivery involves various components. It is characterised by essential operational features such as *the arena assessment*, *multiskilling* and *role release* (Giangreco, et.al.,1989; Hillier, 2010; King *et al.*, 2009; York, J., Rainforth, B., & Giangreco, M., 1990). As part of the broad interprofessional collaboration spectrum, transdisciplinarity also involves competencies in teamwork, effective communication, conflict resolution and problem solving for optimal functioning of a transdisciplinary team (Katzenbach & Smith, 1994).

In conceptualising what emerged from the discussions, I divided the above-mentioned components into two categories: *operational features of transdisciplinary service delivery* and *general aspects of interprofessional collaboration*. Some of the participants who were working in a transdisciplinary team expressed their

experiences of these aspects, while participants who were not working in a transdisciplinary team shared their understanding and perceptions as they related these to their work with learners experiencing BtL from their current service delivery approaches.

A. Operational features of transdisciplinary service delivery

i) Arena assessment

The arena assessment, as one of the defining features of transdisciplinary service delivery, is described by King *et al.* (2009, p. 212) as an assessment whereby professionals “from multiple disciplines assess the child simultaneously, using both standardized measures and informal methods”.

Discussions on the arena assessment mainly centred on the need to distinguish among various categories of BtL and specific requirements for identification of, and support provided for, each category. The literature study (Donald *et al.*, 2010; Kruger & Smith, 2011) revealed the following categories of BtL originating from intrinsic factors: Learners experiencing *specific learning difficulties* such as dyslexia, dyspraxia and ADHD have at least average intellectual ability, but they fail to reach their potential due to a breakdown in learning related to some dysfunction in the central nervous system. Some learners have *sensory disabilities* such as impaired hearing (deaf) or sight (blind). *Intellectual impairment* is characterised by limitations in intellectual functional and adaptive behaviour. Learners on the *autism spectrum* experience social and language impairment. Learners with a *physical disability* such as epilepsy, cerebral palsy and spina bifida also need specific support from education and health care professionals within the learning context. All of the above categories present with complex needs, usually requiring intervention from more than one professional. Professionals’ responses reflected this need for diversification in service delivery for the various categories of BtL.

Participants who had experience with the arena assessment described various forms of and goals for conducting an arena assessment, depending on the specific category of learning barrier. Participants working with intellectually disabled learners described an informal assessment with the absence of formal testing instruments as useful as learners with intellectual challenges often cannot follow the test instructions:

"We do screeningits a more informal setup where everybody is sitting around the table discussing the child but the child is there and a lot of the time we appreciate it if the child is playing on their own and then in the discussion at different points you're watching the child and see what is happening and you do an informal assessment."

One of the participants previously worked in a transdisciplinary team at a school for learners with autism spectrum disorders where assessment was done with therapists sitting behind a one-way mirror:

"In that arena assessment we sat behind a one-way mirror" (Translated from Afrikaans).

The usefulness of the arena assessment for learners experiencing specific learning difficulties elicited various perspectives. In one of the groups, all the participants worked within a transdisciplinary team at a school where they provided services to learners experiencing a variety of BtL. Although they conducted the arena assessment for learners for whom formal standardised assessment instruments were not useful, assessment of learners with specific learning disabilities was done within the disciplinary boundaries. They argued that the practical reality of the assessment was too complicated for an arena assessment:

"It is a terrible test battery which needs to be done if you just look at learning support, you can't do it with someone else, then your focus for the evaluation must be different....I can almost not see that happening – not in an arena assessment. Although there is transdisciplinarity but there is not an arena assessment."

One of the participants in Group 4 also raised this issue; although she believed that it would be ideal to have various therapists involved in the assessment, the process of conducting formal assessments would be inefficient considering the time needed for such an assessment:

"Just my assessment alone is five hours, then the others must also do theirs. It will be too long – a waste of time."

The matter of the effectiveness of the arena assessment compared to that of standardised tests, not only in the case of learners with intellectual disabilities but also for assessing learners from disadvantaged communities who had not had the

cultural exposure presented in the standard assessment instruments, was also discussed:

"I mean some children.... a child just cannot cope with a standardised assessment and your results will just not be valid. If you are working in a disadvantaged community, a lot of our standardised tests are not appropriate to what they are exposed to."

Three of the groups consisting of therapists working in pluridisciplinary private practices where the majority of their clients were learners experiencing specific learning difficulties believed that the arena assessment could be useful when assessing learners from this category. They expressed the need for the presence of more than one discipline in the assessment due to the multifaceted and complex nature of specific learning disabilities:

Educational psychologist:

".....when I am assessing for example and something comes up OT (occupational therapy) related or auditory perception it would be useful to have a person right there that you can ask the relevant significance because you may pick it up but you don't really know the impact of what you see."

Speech and language therapist:

"...for example a child who does not use prepositions very often the child has very poor body space perception which is an OT thing and if you're not sure its great if you could just or go in and say is it possible or if the child comes for your part just check this is it there or not there and very often it comes out they confirm it"

Participants who served learners with severe disabilities for whom standardised assessment instruments were not valid as well as learners experiencing specific learning difficulties for whom standardised assessment instruments were used believed that both observation and standardised assessment could be useful for the arena assessment, depending on the diagnosis. *"Using a standardised assessment or an observation of a functional skill, is dependent on the diagnosis."*

One of the participants arguing for the arena assessment as helpful in the case of a learner with specific learning difficulties raised the issue of the value of the observer's position in that it provided different perspectives and more information than assessing a learner without having members of other disciplines present:

“...when you are involved in an assessment, you are interacting with the child and you observe certain things, but if you are standing back at the distance you can observe other things. So it's nice to have two people because it is almost like having a camera present ...”

ii) Multiskilling and role release

The members of the transdisciplinary team are in constant interaction and collaboration with each other, exchanging knowledge and skills. This process of skills transference is described by Bornmand and Uys (2005) as multiskilling. The process whereby services are provided by one team member in consultation with other members is called role release. As with the arena assessment, multiskilling and role release are described as defining features of the transdisciplinary approach (Giangreco *et al.*, 1998; Hilier *et al.*, 2010; King *et al.*, 2009).

The importance of and need for multiskilling were extensively discussed in all the groups. The majority of participants who were working within a transdisciplinary team discussed the significance of providing teachers with knowledge and skills. In some cases, training is provided to teachers whereas in other cases, teachers learn skills by being present in therapy sessions or observing the therapist working in the classroom. Participants expressed positive experiences with this aspect of the transdisciplinary approach and found it an effective and constructive way of empowering teachers and ensuring continuation of the therapeutic process. I sensed hope, energy and an urgency to address this need among participants when the subject of skills transference to teachers was discussed. The literature supports the critical importance of therapists aligning with the educational programme (Giangreco *et al.*, 1989).

“We have a role release model...where we have term on term off. So two terms of the year we see a certain class and then the other two the educator will continue with consultation if they require it to continue speech and OT sessions.”

“In therapy we don't ever see the children without the educator or the assistant present because otherwise there is no continuation of learning....”

“We follow a programme here at school which is definitely transdisciplinary where we empower the teachers to do language stimulation and we do phonological awareness with the teachers so we share our expertise with the....”

"It also happens in staff developments. I did a staff development on handwriting issues ...and I'm going to do another one next year...."

iii) Composition of the transdisciplinary team

Participants had two different views on the composition of the team. Some argued for a variation of team members, depending on the nature of the learning barrier, although it might take some experience to know which professionals should form part of the team for each learner being assessed and supported. However, other participants believed that it would not be possible to know beforehand which discipline to involve in the team due to the complex nature of BtL:

"Your selection of therapists in terms of that in your assessment, if all therapists are there from all disciplines, or, if you have a motor thing, like a developmental motor disorder, then you would really be assessing...whereas a language dependent assessment the speech therapist have greater weighting...I think you are never going to have the whole team for every single child...."

"But I also think that in the beginning its that just learning to trust each other and know, and eventually you will be able to say well this assessment can happen with A, B, C and D"

"Some of the children who are hearing impaired – that's their only impairment, but they might as well have motor impairment alongside it or emotional issues – so you can't even label the category to say what the needs of the child are"

"and I think until you have done the assessment you actually realize where the breaks might be you don't have a diagnosis before you get the child, so you can't really select the therapist."

From the literature study it is evident that although the transdisciplinary approach in education and health services is characterised by specific components such as arena assessment, multiskilling and role release, the composition of the team and choice of facilitator can depend on the specific needs of the learner (Hillier *et al.*, 2010).

B. General aspects of interprofessional collaboration

Interprofessional collaboration as part of the evolving field of integrated holistic service delivery advocates teamwork and the combining of skills to maximise service outcomes (WHO, 2008). The transdisciplinary approach forms part of the broader spectrum of interprofessional collaboration (see 3.2). Therefore, apart from specific

transdisciplinary operational elements, general aspects of interprofessional collaboration were discussed. Aspects such as the integrated and holistic nature of working within a team were conveyed, with a positive and optimistic feel to the discussion:

"You are working together with a child, all doing the same thing."

"If you have a case discussion you decide on broad overall goals."

"Nobody thinks in isolation. No child is only seen with the direct problem...they present with we always ask the 'behind the scene' questions."

Participants believed that effective teamwork and teaming skills were essential elements of transdisciplinary service delivery. Communication as an integral part of teamwork is an element that repeatedly surfaced in the discussions. In most of the discussions, the importance of communication was directly linked to quality of service and ensuring continuity, eliminating fragmented intervention.

"If you don't communicate you don't know what your colleague is thinking – it can hamper progress – it can move things to the limit in terms of achieving progress."

"I feel with the parent, teacher and myself need to do this together if I for example give the child an A for the word apple, the teacher must also do this and the mother" (translated from Afrikaans).

"We are a transdisciplinary team and we are child centred...if there is conflict within the team then the team is split...you won't take on board something from someone you are not hearing."

One of the groups discussed the importance of communication in the form of formal documentation to prevent misunderstandings and ensure continuity of intervention:

"You [refer to group member] said it a while ago, we all think of the child within the TD approach and we are all aware that we need to make decisions as a team...each child has an individual plan and once a year we meet with the parents and everybody involved with the child to update it. The individual plan is then filed and available it is basically the most important document. All new information is updated in the individual plan. Say for instance someone has queries we go to the individual plan and see what was decided. We share all information...we always refer back to that we have to move as a team and document all these things."

The above responses agree with the findings from the literature study (Bornmand & Uys, 2005; Bridges *et al.*, 2011; CHIC, 2008; D'Amour *et al.*, 2005; Way, Jones & Busing, 2000; WHO, 2010) stating that the common goal of interprofessional collaboration is to improve the quality of patient care through integration of services and the empowerment of patients as active partners in care. Core competencies such as clear and open communication, shared problem solving, well defined patient-centred goals and skills in conflict resolution were presented as essential aspects of effective teamwork (see Section 3.2.4).

Participants who were registered with the HPCSA and worked in a transdisciplinary team within a school, including educational psychologists, speech and language therapists, physiotherapists and occupational therapists, discussed their concerns with regard to the ethical principle of professional boundaries and confidentiality. Teachers forming part of the transdisciplinary team are not bound by the same ethical principles and therefore are not always understanding or mindful of the importance of professional boundaries and confidentiality:

"What is different working in a school are the boundaries. Your boundaries are not as strong when you are working within a school because you can't the only way you can have really tight ethics and boundaries is when you are in private practice. But here its different you have to socialise we interact with other people."

"What makes a team approach difficult is boundaries and confidentiality and I think what makes it difficult is from the therapist's side we are bound by an ethical code but not from the teacher's side there is no ethical code binding them so there is the expectation from me as the psychologist to divulge information which is not necessarily in the child's best interest if the whole team knows it. Therapists understand. Teachers struggle to understand this...it causes conflict."

".....sometimes in a group a transprofessional team you have to cross the boundary in an effort to make sure that the whole team know where this child is coming from obviously you keep the most detail aspects to yourself but everyone has to be on the same page and everyone has to have the common understanding about the child so you would have to release some information that would be in the best interest and you have to be willing to do that."

C. Using some aspects of the transdisciplinary approach

Transdisciplinary service delivery is characterised by specific essential elements, as discussed above. This model was originally used to expand the effectiveness of early childhood developmental services as well as intervention for learners and adults with severe learning difficulties in residential care. The benefits of this model were widely recognised, leading to its adoption and adaptation to the field of special education. Variations of the transdisciplinary model emerged as it was adapted to the needs of various support settings (Giangreco *et al.*, 1989; Nandiwada & Dang-Vu, 2010). Voices in the literature warn against transdisciplinary aspects taken out of context (York *et al.*, 1990). Crossing disciplinary boundaries should be purposeful, supervised by relevant professionals and supported by all team members (Hillier *et al.*, 2010).

From the discussions it was clear that professionals perceived the transdisciplinary approach as an ideal model for providing services to learners experiencing BtL due to the complex needs of these learners. However, the many challenges (Theme 4 below) hamper implementation of the complete approach. Professionals believe that some aspects of the transdisciplinary approach can be and, in many cases are, already spontaneously incorporated within their current service delivery models, be it pluri-, multi- or interdisciplinary. Multiskilling is one aspect in particular that is being applied in various ways:

“I think...it is still valuable without the whole package, so I think that even if you ideally would do the arena assessment, but even if you not able to do the arena assessment, if you can still do some skill-transference I think it can still be valuable even if you don't have the whole approach.”

Researcher: “If you do the assessments in the different disciplines, do you think that some of the other aspect like multiskilling can still be useful?”

Participant: “Ja, I think it's pivotal.”

Participants involved in disadvantaged communities where a skills shortage existed used multiskilling and role release to alleviate this need. They conveyed positive experiences in this regard:

“It's a lot of training we are doing for our outreach. So the things we do are auditory perception skill. We have checklists to see what skills are and we go through the levels that the learner should achieve, the norm, what to do if the

learner at the particular age, what to do if the learner is not achieving. So it's literally saying, 'You are the speech therapist when you're in class and you adapt according to your need.' ...I agree with everyone there is a lot of incidental learning."

A member of Group 7 who worked in a multidisciplinary team shared with enthusiasm her experience of skills transference in the team:

"There is a lot of transfer and what is wonderful in our setup we are very generous with knowledge and skills."

Another member of the same group mentioned that she was forced to cross disciplinary boundaries due to the lack of skills within the team. She shared both her excitement about learning new skills as well as hesitance, knowing that she did not have proper training and adequate knowledge:

"For several years when we were working at...[school] we didn't have a physiotherapist so as an OT I had to do a lot of physiotherapy and our two professions overlap a lot but we have now one physiotherapist and 4 OT's so we have to do physiotherapy a lot of the time. So I had to learn. We also don't have an optometrist here so I also do a lot of well not a lot I do some visual therapy but I am very aware how little I know but someone has to do it so I'm doing it and then I'm, for me I always wanted to know what speech therapists do or psychologists so I want to know as much as I can to include that in my sessions."

"A lot of us do training with the teachers and there is a lot of role release with the teachers."

A participant who worked in a pluridisciplinary way in private practice conveyed the need to adapt the model according to existing needs:

"I feel the whole idea of the model is complete – all the aspects are there. Of course you act according to the need. One possibly has to adapt here or there. So I'll say it has adapted according to the need" (translated from Afrikaans).

An occupational therapist, also working in a pluridisciplinary private practice, shared her positive experience with skills transference across disciplinary boundaries with the guidance and support of her speech therapy colleague.

"A case we have at the moment, a Gr R boy who was done with therapy with me [occupational therapist] and his original problems were praxis, motor planning and gross motor he was really behind in his development. He was released from

OT and continued with speech therapy. Then he reached a plateau with sound processing of auditory sequencing and then also syllabification, where he omitted syllables. The speech therapist suggested I take him in again for OT and we decided together on activities needed like jumping and movement with sound and where you use visual techniques with sound.....the speech therapist saw a remarkable improvement, to such an extent that we could move on from the plateau.”

5.3.1.2 Theme 2: Parents and teachers as part of a transdisciplinary team

Table 5.9: Theme 2: Parents and teachers as part of a transdisciplinary team

Benefits	Challenges
<ul style="list-style-type: none"> • Transition of therapeutic progress • Empowerment of parents and teachers • Professional empowerment and work satisfaction • Benefits to the learner 	<ul style="list-style-type: none"> • Lack of understanding • Parents' acceptance of barriers to learning • Socio-economic circumstances • Parent motivation

A. Benefits

The ecosystemic theory highlights the vital importance of involving the learner’s “systems” (see 2.2) in supporting a learner experiencing BtL. The literature reveals parents and teachers as integral parts of transdisciplinary service delivery (Hillier *et al.*, 2010; York *et al.*, 1990). The importance of parents’ and teachers’ involvement was a compelling theme in all discussions. From the discussions it became clear that when teachers were included, they felt supported and equipped. This enhanced their understanding and the support that they provided to the learner in class. Transference of discipline-specific knowledge to teachers accelerates and furthers the therapeutic process. Teachers play an important role in the transition of therapeutic progress to the child’s everyday functioning in the academic and social context. These findings are supported by the literature. York *et al.* (1990) assert that teachers and assistants are usually the primary implementers of therapy as they

have the most direct contact with the learner. Therapists provide training in skills and remain in a supervisory role (York *et al.*, 1990).

A physiotherapist working in a transdisciplinary team reported her positive experience with teachers' involvement in the team:

"If I'm going into a class there are often times where I'll say he is doing this and this and the teacher would say its just him its like a personality thing and here you are assuming and interpreting. I think as a teacher you have that fuller overview."

Another participant, also working in a transdisciplinary team, expressed the necessity of teachers' involvement for the sake of continuation of the therapeutic process:

"Many of the teachers feel they are excluded in the rehabilitation process.... I think it is wise to include them as they can proceed with it" (translated from Afrikaans).

One of the participants in Group 1 had professional experience in working overseas. She spoke with enthusiasm about the leading role that teachers could play in assisting learners experiencing BtL, specifically in transcending disciplinary boundaries:

"...when I was working in the States the movement opportunities of education was actually initiated and developed by teachers and when I went into that school it was actually so amazing because the teachers were like therapists...they would come up with goals which would have included aspects of physical or speech therapy, and then basically be as the therapist. You are going in to setup systems and oversee it but the child was getting it on a daily basis and it makes such a difference in terms of the teacher understanding. You know – when the child lies down they send them to therapy but they don't correct the position when they in the classroom you are not going to get the same level of carry over."

The benefits of teachers' involvement in a transdisciplinary approach were discussed in terms of benefits specific to the quality of service delivery, such as continuity and transition of therapeutic goals to different settings (classroom, playground, and so forth):

"Yes and it is so important because the teacher spends most time with the children where we only spend half an hour twice a week" (translated from Afrikaans).

"You try to convey your knowledge to them [referring to the teachers] then the teacher is better equipped to help them" (translated from Afrikaans).

"They understand the child better their expectations of the child change and their feeling of support is so much stronger so they feel that ya they have someone backing them."

"The teacher is the one that can make the transitions, or all the transitions, the academic transitions and the social transitions for the child."

The benefits for the teacher in being part of a transdisciplinary team involve a greater level of support and empowerment:

"I feel a lot of our work is around supporting the teachers. As you say, once they feel supported it takes the load away from them. You go in and you see the relief on their faces. They say oh this makes sense or this is helpful because it correlates with what I found or it differs from what I found in the child...."

Teachers' involvement in a transdisciplinary approach also holds benefits for the learner in the class as teachers adapt their expectations and relieve the learner of unnecessary pressure when they have a clear understanding of the learner's difficulties.

"...the teacher is an integral part of the team. The teachers need the support. It takes the load off them. Also from the point of view they might have expectations of the child then you tell them the child has difficulties so that is an unrealistic expectation. They take the heat off the child and the child's anxiety dissipates."

B. Challenges

Some of the challenges in involving parents and teachers as part of a transdisciplinary team came to light:

"Sometimes it is difficult because the therapists agree on some things....and then sometimes from the teacher's side they don't always understand 100% why we make a certain decision because they sit with the child the whole day in the class...it is a different setup so maybe it is a good thing for the whole school to be trained in transdisciplinarity and how the teachers forms part of such a team."

"But also sometimes when new teachers start they are quite defensive because they think they should be doing it all by themselves."

Participants viewed parents' acceptance of learners' difficulty and their understanding of and involvement in the treatment programme as essential. Parents' involvement also empowers the professionals. It is important that parents know their responsibility as part of the team in which everybody works towards the same goals.

"I think it is very important because you can't actually work without the parents and because they know their child the best..."

"With the parent as part of the team that is your baseline you form as baseline for your goal setting for the child the child cannot verbalise for himself but the parent can tell you what the child is struggling with and then we can set our goals according to that so the parents play a very important part in goal setting."

"It always helps to see things from a parent's perspective and understand."

"If the parents have a better understanding that allows for a better buy in for what we're doing cause...."

"When the parent is on the team...they know the child the longest in terms of they see them for longer times in the day we see them for shorter times so they're basically more knowledgeable on the child's personality and hobbies and those kind of things. It's valuable to get that insight as well. Because they may have suggestions in saying he's not going to swim but he likes hitting a ball so then for those type of things..."

Although parents' role as part of the transdisciplinary team is seen as essential, various factors play a role in hampering parents' involvement in supporting the learner. For some parents, acceptance of their child's disability is a process that needs time. Unless they have accepted the difficulty, they cannot "buy into" the therapeutic programme. This is an important aspect that needs to be understood and respected by professionals.

"And then I think one of our big challenges is a large group of parents who are not involved due to their personal circumstances and then there are the parents whose children are physically disabled where parents have not yet accepted en they see the team's intervention as a threat or someone to fight with or to be angry with so there we find that it could have worked so much better for the child if we work together in a team and have respect of each other's input" (Translated from Afrikaans).

Another challenge voiced in this regard was the practical reality of transport and parents' work circumstances. For some parents, it is not possible to attend meetings and training sessions. In other cases, parents disengage from the process of support due to their own emotional difficulties. These challenges weaken the support provided by the team as treatment goals are not carried over to the home and supported there.

"You will get the parent who is willing and do what you show them to do but there are parents who can't get to you. It depends on the parent to say 'I am part of the team'. I have an example I have a child going to OT now and I'm getting the home programmes I need to do it with my child because I am part of the team and I need to send that homework today doing it so as a parent I know what my role is I know what I need to do. But it's my willingness – nobody can force me and my commitment. So I think in a school setup it is who is your committed parents and who is able to make themselves part of that team."

5.3.1.3 Theme 3: Advantages of the transdisciplinary approach

Table 5.10: Theme 3: Advantages of the transdisciplinary approach

Quality of Service	Financial	Professional	TD vs Other Collaborative Approaches
<ul style="list-style-type: none"> •Comprehensive Service 	<ul style="list-style-type: none"> •Integration of Services •Time 	<ul style="list-style-type: none"> •Work Satisfaction •Professional Development 	<ul style="list-style-type: none"> •Integration vs Fragmentation •Financial •Time

The advantages of transdisciplinary service delivery in the health and education sector asserted in the literature are vast. York *et al.* (1990) describe transdisciplinary service delivery as an exemplary practice. It is consistently gaining popularity in special education (Eloff & Ebersohn, 2001; Friend & Cook, 2007; King *et al.*, 2009; Klin *et al.*, 2005). With a transdisciplinary approach, larger numbers of learners can be served as fewer professionals have to be seen routinely. Involvement of more than one professional during the arena assessment saves time and also has financial benefits (King *et al.*, 2009). According to King (2009), the arena assessment is estimated to be 40% more cost effective than other models of interprofessional collaboration for similar services. Transdisciplinary service delivery is especially useful in socio-economically disadvantaged or rural communities where there is a

shortage of professional skills (Davies, 2007). Integration of services results in less repetition of information and rules out confusion with regard to recommendation. Professionals gain by the development and enhancement of their knowledge and skills (King *et al.*, 2009).

All of the above advantages of the transdisciplinary approach in supporting learners experiencing BtL were echoed in all focus group discussions. The perceived benefits to the learner and his/her parents or caregivers were discussed. The majority of participants also found this approach favourable for their own professional development and work fulfilment. The advantages that this approach holds for the learner and his/her parents or caregivers can be grouped into two aspects: *quality of service delivery* and *financial benefits*.

A. Quality of service delivery

Regarding quality of service delivery, professionals believed that the transdisciplinary therapeutic process was more comprehensive and “full” as opposed to other collaborative models. The intervention was seen to save time and to be more effective.

“It makes the effectiveness of treatment quicker and more accurate.”

“I think you also cut out a lot of overlap because any report would start with background information and developmental history so again saving time and energy for the parents.”

“You are getting more therapy in terms of like if that’s a postural thing then if they are sitting correctly or doing things in my session that can be adding on to the amount of input they getting from a different session.”

“I think also saving on time, not only your time its that child’s time because they can sit in private speech therapy and I’ve not noticed a sensory or a psychological issue you know anything else and you’ve wasted that precious time and as a professional you also need to know your limitations to refer on to another person....”

“I just want to say I think it’s a wonderful approach because at the end of the day we have to sit down and I would actually say in the assessment: oh this is an OT (occupational therapy) child because I know there would be areas that I could work on. It’s a holistic assessment and you can already discern and the two disciplines could say Ok this is where he would benefit more.... And then we can

support one another. And in a school setup you would know how to do this to transfer that knowledge and say 'ok I cannot see this child there is too many on my case load you can work on that area because its maybe just one area the child needs'. So it's also transference of skills there...."

"You can address more than one problem in one setting so you kill two birds with one stone. Like...[name of participant] explained sometimes you reach more children but sometimes you reach more therapy with one child so I will be integrating some speech aspects as well so this child is getting dual medium therapy session while I'm doing physical things I'm incorporating speech activities...."

B. Financial advantages

With regard to financial benefits, the aspect of multiple needs of learners experiencing BtL came to the fore, requiring assessments from more than one professional. This is a costly process. Participants believed that this problem could be addressed through a transdisciplinary approach as services were integrated. *"It can definitely save you money its saving you time, it's helping the learner."*

Two participants from different groups raised the financial benefits of a transdisciplinary team at the school where professionals were employed by the school.

"Even the other day we were working out how much a parent would pay had they had all these assessments privately and we're looking at like R8 000 and plus depending on what this child needs whereas coming to a school like this which is a once off fee like a microscopic amount of that and you're getting all role-players involved everybody communicating everybody compiling the report – there is one report...."

"If you have a team of therapists at the school, it is the ideal situation of this model from a financial point of view as they are paid from 8 am to say 2 pm and not according to hours spent with the child."

C. Advantages for professionals

Professionals viewed the transdisciplinary approach as an advantage for their own professional growth and work satisfaction.



“And I also think you learn a lot in terms of your approach in working with the children and parents you learn a lot from the way other people do things just sort of better your own thing.”

“For me personally it is extremely valuable because you continue to gain knowledge the whole time which helps you to understand a child in a new situation better and maybe provide more effective support because you learn the whole time from people around you” (translated from Afrikaans).

“On the one hand it enhances the therapeutic input but on the other hand it says a lot of self-development of each person because the more I talk with other therapists the more I enrich my own frame of mind” (translated from Afrikaans).

“It sounds silly but the psychological support you get in the team.”

D. Advantages of the transdisciplinary approach over other collaborative approaches

As discussed in Chapter 3, transdisciplinary service delivery is one of various collaborative approaches used to provide holistic and integrated support in the health and education sectors. Interprofessional care is described as collaboration between two or more professionals working together as a team with a common purpose and commitment (WHO, 2010). Various models are presented in the literature, such as pluridisciplinary, multidisciplinary, interdisciplinary and transdisciplinary, ranging on a continuum from a low level to higher levels of collaboration. Hillier *et al.* (2010, p. 4) explain the essential difference in terms of “the level to which individual member disciplines accept transference of traditional roles and the degree to which they work together”. These differences have been expanded on in Chapter 3 (3.2.7). Many of the participants had previous experience of the pluri- and multidisciplinary approaches and perceived the transdisciplinary approach as most effective and ideal in supporting learners with BtL due to the complex nature of BtL. Fragmentation occurring in other collaborative models such as the pluri- and multidisciplinary creates frustration for therapists, parents and teachers. The aspect of financial constraints caused by other models in comparison with a transdisciplinary approach was also discussed in all the groups.

“If you’ve got...as said, all eyes on the child and the skills being layered on top of each other, I think the child - for him its beneficial to have all these different people and um, sometimes in the rapport between the child and therapist is not

there and then whatever needs to be accomplished is not accomplished because something is just not working or connecting.

[Researcher] : In what kind of approach would that happen, in a multidisciplinary where the child has just one relationship?

Yes, or in the case where the child goes to see the speech therapist then the OT then the psychologist for emotional reasons – so there are three people and this child has to adapt every time because my approach is like this and I allow that, but when I comes there I'm not...and especially if you are dealing with some things that are not integrated in your own system."

"In some ways it's important to also show teachers if it is really a true team approach it can be more effective to have multiple people involved for the same child for a shorter period because especially in current financial times a lot of teachers feel they say 'ok we'll do this therapy first' then – 'are you almost finish because I want to send them to the next therapy'."

Once again, a participant highlighted the complex nature of BtL and the overlap that exists among disciplines, making a transdisciplinary service delivery approach significant for addressing this complexity.

"Ya and everything is not separate. Like when you study you learn this disorder, this disorder – but in therapy its never like that so more than the disciplines actually overlap and without a team approach, even within the disciplines. Ya I mean like auditory processing and proprioception – you can't separate balance and core strength and coordination. They are actually...it's like this artificial little things but actually it's more linked."

"And somebody said something about parent fatigue and I think the hope is very important because a lot of parents when they don't see improvement you just get despondent. Andyou don't want to go to all the therapies because you don't see any progress."

Frustrations incurred by fragmented services delivered by other collaborative approaches, such as pluri- and multidisciplinary, were raised.

"I also had an event with a psychiatrist but he had very little understanding of what we are doing in the school the way we work but because they are now the consultant – we know we cannot do what he suggests it was very frustrating."

"We saw it with one of the hospitals where I worked. The paediatrician refer the children for various test around ADHD then all the practices comes together –

but this is what happens, everybody sees the child on his/her own in the hospital but no one gets together to discuss results – it does not mean anything.”

Advantages from a time perspective were raised.

“I think it is effective from a time point of view and a cost implication. I mean, in the private field as well as in a government school based environment. I think it is just so much more productive in terms of time than the child going from me to you to you to you. Rather spend two hours with the group and you’ve got the same findings. It is also overlap. The things I may do you may do because they are the same rather than doing it over.”

5.3.1.4 Theme 4: Challenges of the transdisciplinary approach

Table 5.11: Theme 4: Challenges of the transdisciplinary approach

Professional and personal	Practical implementation
<ul style="list-style-type: none"> •Quality of service •Ethical factors •Interpersonal factors 	<ul style="list-style-type: none"> •Remuneration •Time •Novelty of approach

The challenges of a transdisciplinary service delivery approach from the literature study involved various levels: *professional*, *personal* and *interpersonal* (King *et al.*, 2009). The responses from the participants confirmed these challenges. However, many more challenges emerged from the discussions, reflecting realities in the South African context, such as inadequate infrastructure, logistical and financial difficulties as well as the lack of education in interprofessional care during training.

A. Professional challenges

On a professional level, many participants raised concerns about the quality of services provided when working as a transdisciplinary team, especially their own liability for such services when releasing their role to another therapist within the team. The risk of superficial and ineffective service when therapists worked outside their disciplinary boundaries was also raised.

“I think a disadvantage for me would be none of us will be able to go in as deep as we would go in to. It’s almost like I don’t know if it’s superficial but your role

release will almost be skimpy or that because you didn't have the training from the beginning so I think it's a good model but I don't think it will be hundred percent effective in that way. And I can say that that if a child has a postural problem I don't think that person's handling will be as good because as a physiotherapist you're trained in where to zoom in and what causes a balance problem and that I don't think somebody would be having that skill necessarily I wouldn't have that skill that sensory skill to know this is how I really nail it to get there to that point. So from that point it will be a big disadvantage."

"And I don't think we've experienced it but I think a big disadvantage is people could overstep their professional boundaries I think even though we do role sharing you have to stop and ask for help and know where your limitations are...for example with me with sensory issues if you have a teacher or therapist who decided I know what to do with this child I'm going to give the parent or child advice on how to use it and you may be giving them the wrong techniques or giving the wrong advice you need to know when to stop and ask for advice."

"Things that could happen not necessarily in this setting but with transdisciplinary, if you are a physiotherapist and you've got a little bit of knowledge in terms of sensory integration and you apply it and instead of communicating with the occupational therapist to present the case and the full history to know what exactly is necessary you can do a lot of unnecessary therapy and there is a lot of pressure on the child and the parent to adhere to specific therapy and it's not actually necessary. So you put a lot of pressure on the parents because you are trying to carry over a skill that you are not fully equipped to do."

A member in Group 4 raised concern about the danger of creating a 'generalist', resulting in superficial knowledge and support.

"What I'm cautious about is creating a generalist with superficial knowledge of many things and you lose out on in depth clinical knowledge."

The literature stresses that role release within a transdisciplinary team does not imply role abdication. Therapists are responsible for providing adequate training and supervision in the process of role release. Team members are also responsible for identifying activities appropriate for role release (Bowser, 2003; York *et al.*, 1990). According to York *et al.* (1990), it is a misconception that individual disciplines do not perform discipline-referenced assessments. They distinguish between an environment-referenced assessment in which the context and functional targets of

instruction are identified and a discipline-referenced assessment to determine how an individual's disability impacts function. The authors warn against distortion of the critical components of a transdisciplinary approach.

B. Ethical challenges

Ethical challenges regarding confidentiality were mentioned by psychologists. In some cases, psychologists on the team may have to withhold information from team members as they need to adhere to ethical principles regarding confidentiality. This often creates tension and ethical dilemmas for psychologists on a transdisciplinary team. The literature study confirms professionals' fears of negligence due to lack of supervision among team members as a challenge in transdisciplinary service delivery (King *et al.*, 2009).

"...I think there is definitely room for that to work with a learner like that for everybody to be present to deal with a learner with other disciplines, but there is also the psychological aspect of confidentiality which is actually very difficult for a psychologist to do."

"I think in a school it's a bit more challenging to keep the balance of confidentiality I think there is a common goal and we are forced to share information with colleagues um to the extent that you have to decide what is necessary for the other person to know so I think you can keep information back if you think it's not necessary for the common goal but we are forced to be more open and more transparent with teachers other therapists in that regard we do cover ourselves that when the child get accepted here that the parents know that we have to share information reports are going to be passed from the one to the other. There is a file in the cabinet people can take the file out and have access to all the reports I think parents are aware of that. I think it's difficult here to not always to keep the professional boundaries to know what is necessary for the common goal."

"I think maybe something as a team we should look at I think we have been lucky so far I think we are getting to a realm where the ice is very thin with parents and with other um people who want information of us. So maybe that is something we as a team should study and agree on more formally. We haven't really focussed on ethics as such."

"...and even as a psychologist do a lot of time have private information about a child but sometimes even though if you are thinking of private practice you wouldn't divulge the information sometimes in a group a transprofessional team

you have to cross that boundary in an effort to make sure that the whole team know where this child is coming from obviously you keep the most detail aspects to yourself but everyone has to be on the same page and everyone has to have the common understanding about the child so you would have to release some information that would be in the best interest of the child and you have to be willing to do that.”

C. Personal challenges

Personal challenges perceived by participants varied. Issues with certain personality types that might not be suitable for a team setup, people with poor communication and conflict resolution skills, lack of maturity and the willingness to share knowledge were discussed.

In the literature, personal qualities such as interpersonal communication skills, facilitation skills and maturity are accentuated as vital for professionals serving on a transdisciplinary team (King *et al.*, 2009).

“For me personally it would be the trust issue if people are not mature if one can’t build a relationship on the bigger picture of what needs to be done.”

“Ego and immaturity...if the ego is too big and they don’t have the maturity then they just don’t fit in and then they have to move on. The majority would rule against that.”

“The coordinator also needs skills to deal with personalities, not just admin skills. How are you going to ensure cohesion between your team members” (translated from Afrikaans).

“That is why in institutions people burn out because they hurt themselves as the system dictates to them...” (translated from Afrikaans).

“...also notice not lot of people with the personalities wanting to do it.... I think you get a lot of...you find professionals who want to stick in their boundary [others agree with non-verbal confirmation] and they almost don’t want to um.... I tried to contact someone else out of the school to see if she also works with autism to sit in on her session not to steal anything because I have heard such good things and said absolutely she do not allow anybody in you know so it’s that sort of thing.”

“...you have people who have an inapt ability to communicate well to resolve conflict to um view different perspectives and options. But a transdisciplinary team is also messy because you really are getting into each other’s faces and

sometimes you need to say I don't agree with this respectfully. So I think in a transdisciplinary team if that's the kind of approach you follow then the team needs to be nurtured and be comfortable with each other. I think limited cooperation ...it could be the limited cooperation within the team um it could be...it could be conflict in terms of role release actually if you say role release but role release means I'm gonna take up on your skills and I must be open to you telling me not like this, this way is better."

D. Practical barriers to implementing transdisciplinary services

Practical barriers to the implementation of a transdisciplinary approach pointed out by the participants included difficulties with financial aspects such as remuneration, medical insurance policies not making provision for team-based care, the aspect of constructing and creating awareness of and promoting this new approach among the public, time, developing a common language, and knowledge and knowledge base. These challenges specifically centred around the private practice. Participants also mentioned the concern of lower remuneration for working within a transdisciplinary team than what was earned in private practice using a pluridisciplinary approach.

"I can say its difficult coming from a private practice where you're solely providing for yourself and it is probably a big monetary dive coming to an environment such as ours."

"Let's be honest, the people in private practice are not being paid unless you work. So to get someone coming from a cushy private practice where he earns X amount of money per patient, and work in a team setup where you will earn less money – it will be a challenge to motivate someone doing that" (Translated from Afrikaans).

"The other thing we must not forget, it is those therapist's [referring to therapists in private practice] bread and butter. So the moment they do a transdisciplinary approach the medical aid won't pay or the parents rather go to a clinic where the child gets all the input in one hour instead of driving from place to place to one therapist at a time. It is a cut-throat business outside. The OT wants her share and the ST wants hers. So although there is a need for a transdisciplinary approach outside [meaning in private practice], everyone wants their money."

"...I think, just coming back to what you said, it's not so much the sustainability of getting, well the resources to buy in initially, for someone to get to the medical aids so that you can bill that I think I see the difficulties more than in setting up ."

E. Time challenges

The challenges perceived by participants who were working at schools in a multidisciplinary team centred on finding time for multiskilling, proper role release and other operational functions of a transdisciplinary team.

“Ya the way of thinking and planning my sessions ye its very positive for me. I would like to build on that but I would like to say in a school setup it's not always possible where your timetable, that person has a time in that slot. In a school setup it's not easy to coordinate that but I think from a private setup I've been in a private practice its nice if a speech therapist came in during your session but that was in a private capacity but I would just want to say from a school capacity its hard to coordinate that.”

“Transdisciplinarity is very time consuming initially so with every evaluation it takes time. And it is not hands-on treatment so you cannot charge for it - the talking between the therapies, you can't charge someone because you had a discussion with a ST because that is not ethical – but that is important in a transdisciplinary team.”

5.4 CONCLUSION

This chapter provided an analysis of the data collected during the two research phases. Quantitative findings were discussed in answer to the three research sub-questions. Analysis of the qualitative data from the eight focus group discussions was integrated with information collected from the literature study. The following chapter will show the integration and conceptualisation of the analysed data from the two research phases, providing the answer to the main research question as well as recommendations for practice and further research.

CHAPTER 6:

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

6.1 INTRODUCTION

I started off in Chapter 1 with the motivation for this study, rooted in the inevitable changes within special needs education that were brought about by new legislation on special needs education (Department of Education, 2001). Inclusive education aligns itself with the global paradigm shift from the within-child-deficit medical model, characterised by isolated and fragmented support service, to a social system framework in which the focus is on holistic, integrated and asset-based support. The implementation of inclusive education in schools necessitates transformation of professional service delivery practices in supporting learners. Support services can no longer be provided in isolation. This transformation concerns not only professionals working within schools (statutory sector) but also those in private practice (nonstatutory sector). Professionals participating in this study communicated an urgency and eagerness for closer interprofessional collaboration, integration of services and sharing of knowledge among various disciplines, both in institutions (schools) and in private practice.

6.2 THEORETICAL FRAMEWORK

The study was founded on ecological and systems theories that were extensively discussed in Chapter 1. I was guided by an ecological perspective to look both inside the learner (biological focus) and outside at society (environmental focus) when seeking to find explanations and solutions for BtL. However, the study focussed on barriers caused by internal factors. Systemic theories focus on the pattern of organisation (system) among the different parts or elements. An individual can be a system in its own right as well as part of a number of other systems, such as the family, school and peers. In studying the developing child, Bronfenbrenner (as cited in Donald et al., 2010) combines elements of ecological and systems theory in his ecosystemic framework. He poses four nested systems to be taken into account in supporting a learner experiencing BtL (see Chapter 1.3). The results reveal that Bronfenbrenner's proposed nested systems form an integral part of the support provided. Professionals perceive taking all these systems into account as essential. The essential role of the parent and teacher as part of the support process was

stressed throughout the discussions. Change needed within macrosystems was pointed out as fundamental to promoting holistic and integrated support services.

The complex nature of BtL requires involvement of various professional disciplines, asking for integration not only among the child's home and school systems but also among the professionals involved. Globally, collaboration among disciplines is becoming increasingly important, giving rise to the movement of interprofessional collaboration. This is advocated as best practice for professional service delivery in health and education, specifically for children's services and in cases where complex needs exist.

For this study, I based my understanding of interprofessional collaboration on the theoretical framework of social capital. Social capital is often associated with service delivery practice in the health and education sectors (Farmer *et al.*, 2003; Forbes & McCartney, 2010). It refers to productive benefits generated from interaction among various sectors, in the case of this study among professionals from different disciplines. The theory of social capital is a response to the increasing need for integration of knowledge, skills and creativity among different sectors to solve complex human problems, which is the exact concern of interprofessional collaboration. Interprofessional collaboration seeks to address and solve complex problems through interdisciplinary collaboration, built on the foundations of mutual trust, shared responsibilities, interdependency and sharing of knowledge and expertise.

The findings of this study indicate that the majority of participating professionals embrace collaborative practices in providing services to learners experiencing BtL. Although the participants believe that higher levels of collaboration and integration among disciplines hold positive outcomes for the quality of the services that they provide, as well as for their own professional development and satisfaction, the results show that in reality, specifically in the nonstatutory private sector, low levels of collaboration and integration occur.

On the continuum of collaborative practice, transdisciplinarity is a progression from linear interdisciplinary approaches, offering the highest level of collaboration and integration. In combining disciplinary approaches, problems are solved not only through discipline-specific knowledge but also through communication among

disciplines. Disciplinary boundaries are transcended to create a “fifth type of knowledge...a hybrid product, the result of making sense together”, as described by Klein (2004:521).

6.3 AIM OF THE STUDY

The aim of this study, namely to investigate the perceptions of professionals providing services to learners experiencing BtL of a transdisciplinary collaborative service delivery approach, was fulfilled by asking the following research question:

What are the perceptions of a transdisciplinary collaborative service delivery approach among health and education professionals providing support services to learners experiencing barriers to learning in the Western Cape?

To answer this question, I first had to establish which professionals in the Western Cape provided services to learners experiencing BtL and gain insight into the current professional service delivery models and the level of knowledge of a transdisciplinary approach of professionals in supporting learners experiencing BtL.

Three research sub-questions were formulated to reach this goal:

1. Which health professionals in the Western Cape provide services to learners experiencing barriers to learning?
2. What are the collaborative approaches followed by professionals providing services to learners experiencing barriers to learning in the Western Cape?
3. What is the level of exposure of a transdisciplinary collaborative approach in addressing barriers to learning among various disciplinary categories of health and education professionals in the Western Cape?

Specific steps were followed to successfully answer these research questions. A literature study on BtL and professional support services to these learners was conducted, followed by a literature study on a transdisciplinary collaborative service delivery approach within the broader context of interprofessional collaboration. An empirical study, following a sequential mixed methods approach, was conducted to accomplish the following:

- To determine which health and education professionals provided services to learners experiencing BtL in the Western Cape Province, the various service delivery approaches used by these professionals and their level of knowledge of a transdisciplinary approach. A quantitative method was employed to reach this goal.

- To establish health and education professionals' in the Western Cape's perception of a transdisciplinary collaborative service delivery approach in addressing BtL. A qualitative method was employed to reach this goal.

What follows is an integration of the quantitative and qualitative findings with findings from the literature study in answer to the main research question (Figure 6.1).

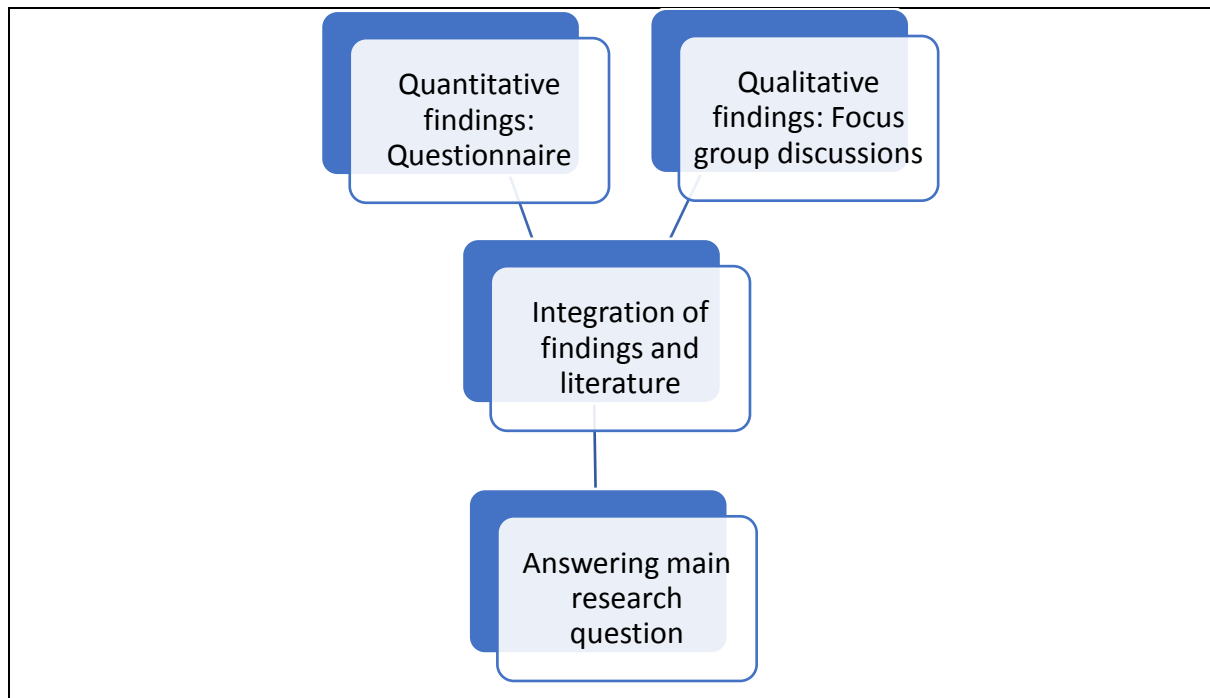


Figure 6.1: Integration of findings

6.4 PROFESSIONALS' PERCEPTIONS OF A TRANSDISCIPLINARY SERVICE DELIVERY APPROACH

In this section, professionals' perceptions of various aspects of a transdisciplinary service delivery approach in supporting learners experiencing BtL will be discussed in the light of the theoretical framework set out in Chapter 1. The quantitative and qualitative findings are integrated with findings from the literature study to provide an overall conclusion of this study (Figure 6.1).

6.4.1 Professionals' perceptions of the operational features of a transdisciplinary approach

The literature study (see Chapter 3.4) reveals three distinct components of a transdisciplinary approach, namely the *arena assessment*, *multiskilling* and *role release*. Professionals participating in this study worked in diverse settings, each setting presenting with specific needs, leading to different views on the usefulness of

these components. Perceptions and attitudes around the implementation of these three components varied.

6.4.1.1 *Arena assessment*

Some professionals argue for the effectiveness of the arena assessment only for learners who do not benefit from formal assessment. The majority of professionals currently working in pluridisciplinary practices, however, view the arena assessment as valuable for all learners experiencing BtL, including learners who benefit from formal assessment instruments. Professionals who are currently working in transdisciplinary teams at special-needs schools perceive the arena assessment as useful for learners who are not able to be assessed through formal normed assessment instruments. They find informal observation with professionals from various disciplines most useful. The same group, however, believes that the arena assessment is not useful for learners with specific learning difficulties. Learners with specific BtL present with average to above average intellectual abilities. Their learning is hampered by a specific impairment in neurological processing, preventing them from reaching their full potential. Identification and provision of the relevant support require formal standardised assessment from various professional disciplines, which is time consuming. These professionals are of the opinion that the arena assessment is not realistic for supporting learners from this category of BtL.

Conversely, participants who are currently working in a pluridisciplinary private practice where each discipline conducts assessments in isolation from the other, perceive the arena assessment as much needed and ideal, especially for learners with specific learning difficulties. These participants describe their frustration with the isolated and fragmented way in which they are currently working. They believe that the presence of, and input from, more than one discipline during an assessment will save time and be more cost-effective. The learner would not need to be assessed by two or three professionals from different disciplines to identify the BtL. Participants also believe that the transdisciplinary arena assessment will provide a more integrated view of the problem, which can be translated into an effective support plan.

6.4.1.2 *Multiskilling and role release*

Participants agree on the value of the practice of multiskilling. They find it an exciting and promising way to support learners with multiple needs within a social-systemic

framework. High value is placed on skills transference across disciplinary boundaries, not only among professionals but also to parents, teachers, facilitators and carers. The value of multiskilling and role release is rooted in the ability to provide services to more learners than would have been possible if each service provider stayed within her own disciplinary boundary. This advantage is repeatedly described in the literature in discussions of transdisciplinary services as a way of bolstering the shortage of professional services (Bornman & Uys, 2005; Klein, 2004; Saunders, 2011; WHO, 2010). Of note is professionals' expressed need for multiskilling and role release among therapists and teachers. They identify the role of the class teacher as critically important in supporting a learner and his/her family. Skills transference to teachers ensures continuation of support and enhances the quality of professional service delivery. The ability to equip teachers and other laypersons within the child's social system brings about a sense of hope and efficiency, contributing to professionals' work satisfaction.

Some of the participants voiced their concern about the perception of multiskilled professionals as generic workers or, as described by Bornman and Uys (2005, p. 244) in their defence against such a perception, as "jack of all trades", implying to result in being "masters of none". Bornman and Uys (2005) strongly disagree with such a perception. Multiskilling does not imply an abdication of professional speciality. Service providers working within a transdisciplinary team continue their speciality of skills within the specific discipline and simultaneously expand and enrich their role by developing skills that traditionally belonged to another discipline. This expansion of skills materialises through in-service training instead of formal education.

Important to note are the various levels of multiskilling described in the literature. A distinction is made between basic skills, which are low risk, uncomplicated and easy to teach, typically involving activities that are routine and frequently provided, and higher level clinical skills demanding professional judgement. Cross-training in clinical skills takes place within a transdisciplinary team where professionals from various disciplines train team members to perform certain discipline-specific skills. Continuous supervision to ensure quality of service has to be maintained by the representing professional throughout the implementation of the treatment plan. Bowser and Roberts (2003) reiterate that evaluation, treatment recommendation and supervision of intervention are not activities that can be released beyond a specific

discipline. These skills require licensing and discipline-specific training. Professional nonclinical skills appropriate for role release involve client education, teaming skills such as communication, conflict management and leadership. Administrative skills can also be cross-trained (Bornman & Uys, 2005; King *et al.*, 2009).

Considering the three operational aspects of a transdisciplinary approach, the question arises whether only certain aspects of the transdisciplinary approach can be used within a team. Can multiskilling and role release be effective practices without an arena assessment? Participants perceive multiskilling and role release as more realistic to implement within their immediate service delivery contexts than the arena assessment. Therapists working in teams at schools provide formal and informal training to teachers on discipline-specific skills. Teachers use these skills to support learners in class, with the therapist's continued guidance and support. Professionals working in a pluridisciplinary practice in the private sector believe that they can implement aspects of multiskilling and that role release can be implemented through collaboration with therapists from other disciplines, parents and teachers.

When professionals from different disciplines work closely together, it is perceived that skills can be transferred and implemented across disciplinary boundaries, even in private practice where professionals follow a pluridisciplinary approach. An example arising from the discussions is a speech and language therapist working in a pluridisciplinary private practice who is supporting a learner with dyspraxia. The same learner is supported by an occupational therapist, working at her own private practice, to address motor planning. As the learner's parents are not able to afford both therapies, the speech and language therapist collaborates with her occupational therapy colleague. The two therapists together with the parents and teacher decided that the occupational therapy was the most important at this stage. The speech and language therapist provides the occupational therapy colleague with speech and language exercises to be done in conjunction with the occupational therapy. The speech and language therapist continues to support her colleague in activities involving speech and language skills. Thus, the learner is only seen by one therapist who provides both occupational therapeutic and speech and language therapeutic input. The speech and language therapist is remunerated for her consultative role only. This lessens the financial burden on the parents and saves time and energy in driving between two therapists.

In conclusion, although professionals perceive all operational aspects of the transdisciplinary approach as valuable for addressing BtL, multiskilling and role release are seen as the most relevant in the light of existing needs and realistic to implement in supporting learners across all categories of BtL.

6.4.2 Professionals' perceptions of the parents and teachers as part of the transdisciplinary team

The importance of supporting learners experiencing BtL from an ecosystemic perspective, as emphasised in the literature study, is echoed by the participants. Of specific relevance to a transdisciplinary approach is Bronfenbrenner's (as cited in Donald *et al.*, 2010) postulation of microsystems. As previously discussed, microsystems are the systems closest to the learner from which he/she receives direct support. The goal of the transdisciplinary approach is to open these systems up to each other, making resources within the systems available by increasing the level of interaction among them. In this way, maximum support can be provided.

Professionals perceive the role of teachers and parents (microsystems) as essential in the support process. Collaboration among microsystems enhances the services that are provided. This interaction reflects the basic assumption of social capital theory, namely the productive benefits stemming from social relationships including professional associations (Forbes & McCartney, 2010). The transdisciplinary approach bridges the learner's educational and home environment to optimise the therapeutic services provided.

The benefits of teachers' and parents' involvement as perceived by the participants are numerous. When equipped and skilled by professionals from various disciplines, through formal or informal training, teachers feel supported and empowered. It enables them to further the therapeutic process. Professionals perceive teachers' involvement as essential in translating therapeutic intervention to the classroom. This transition of intervention to the learner's academic and social context enhances the quality and effectiveness of the therapeutic process. The teacher has a better understanding of the learner's difficulties and is likely to relieve the learner of unrealistic expectations and pressure. Professionals' own support service is enhanced through interaction with the teacher, learning from the teacher's daily experiences with the learner.

The factors perceived to hamper the integration of teachers and parents as part of a transdisciplinary team vary. Many professionals mentioned parents' struggle to accept their child's disability, resulting in their resistance to therapeutic intervention. The participating professionals believe that the acceptance of a child's disability is a process that needs to be respected by teachers and therapists and that parents have to be supported by the professional team in this process. In many cases, parents are not able to attend meetings due to transport issues or because they cannot afford to take a day off work to attend a meeting.

6.4.3 Professionals' perceptions of the advantages of the transdisciplinary approach

Supporting learners from a transdisciplinary perspective presents new and exciting possibilities. The advantages of professional collaboration are widely described in the literature. Globally, holistic and integrated caregiving is advocated as best practice for health and education professional services. Interprofessionalism has been gaining popularity in the face of the scarcity of professional services in third world countries. The negative consequences of, and frustrations with, fragmented service delivery also contributed to the rise of interprofessional care initiatives. The advantages of the transdisciplinary model for conditions with multiple comorbidities are specifically emphasised in the literature (Nandiwa & Dang-Vu, 2010). The often multilayered nature of BtL adds to the effectiveness of close collaboration and integration of service delivery among professionals from diverse disciplines.

Prospects to enhance service delivery practice for learners experiencing BtL and their families perceived by professionals participating in the study are abundant. Consistent with the benefits proposed in the literature, the results of this study present perceived benefits that can be divided into three categories: *advantages related to quality of care, financial benefits to those receiving services and advantages of a transdisciplinary approach* above other collaborative approaches.

6.4.3.1 Advantages related to quality of care

Integration of discipline-specific knowledge both in assessment and therapeutic intervention is perceived to maximise understanding of BtL, and the support provided to overcome these barriers is more comprehensive compared to support services provided in isolation. Participants provided various examples of the "all-inclusive" and far-reaching advantages implied when providing transdisciplinary services.

Learners can continue to practise skills learnt from sessions with therapists from various disciplines within the different therapeutic sessions. For example, a speech and language therapist, being aware of the importance of a learner being positioned in a certain way that was demonstrated to all team members by the physiotherapist, can continue to support the development of this skill during her sessions with the learner. A physiotherapist mentioned how speech and language goals could be achieved during a physiotherapy session through a transdisciplinary team approach. One of the participants described the dual benefits of working across disciplinary boundaries: *"You can address more than one problem in one setting so you kill two birds with one stone...sometimes you reach more children but sometimes you reach more therapy."* Providing parents and schools with an integrated assessment report and intervention plan is seen as one of the most useful benefits of the arena assessment. Professionals believe that this report renders a more valid and complete synthesis of assessment outcomes than that which would have been provided by a number of reports compiled by individual disciplines.

Another prominent benefit identified by participants that was perceived to enhance the quality of service provided is saving time and energy. Parents are often overwhelmed by the number of professional disciplines to consult with. When services are not integrated, parents are expected to meet with each professional individually, often at separate locations. Each consultation requires completion of intake forms, which is often a duplication of what was requested by other professionals with whom the parents have already consulted. In a transdisciplinary approach, parents complete one form used by the transdisciplinary team. Time is also saved for the service provider as he/she does not have two or three different professionals' reports to read and integrate with his/her findings in order to understand the learner's needs. The time consumed by the process of a learner receiving therapy from two or three different therapists can be minimised when services are integrated and skills transcended across disciplinary boundaries. For example, remedial therapy to address scholastic skills, speech and language therapy for articulation and language difficulty as well as occupational therapy for development of visual-motor skills can be provided by one of the team members through transdisciplinary collaboration.

Another benefit described by participants is that parents are not confused by conflicting information resulting from isolated discipline-specific interventions. The

findings from the literature study confirm increased trust and confidence experienced by the family through this united feedback from the professional team (Washington State, 2008; California Department of Education, 2000).

Effectiveness of service delivery is further enhanced by the unique perspective brought by each team member from his/her own expertise within a specific discipline. One of the professionals made a valuable contribution in describing the value of having therapists from various disciplines observing an assessment activity performed by a specific team member. She compared the advantage to that of having a camera present. While busy with the assessment, the therapist involved does not have the advantage of observing behaviour as well as uninvolved observing therapists do. Each therapist observing the assessment activity has the advantage of noticing specific behaviour from his/her disciplinary perspective. This increases the quality of understanding of the learner's difficulties. Accuracy of observation that is improved by the presence of more than one therapist is also voiced in the literature (Department of Education, 2000). The learner's behaviour during the arena assessment can be recalled by a number of team members, increasing the validity of the assessment.

The advantages of a transdisciplinary approach reach not only the learner and his/her family but also professionals providing services. Many professionals perceive the increase in professional skills through interacting with each other, as well as the support received by this interaction, in learning from each other and supporting each other as a professional benefit, enhancing their professional skills and increasing professional fulfilment. Bornman and Uys (2005, p. 243) support this increase in professionals' morale as a result of:

continuity and co-ordination of services as professionals share a common body of knowledge (e.g. general intervention principles), set joint intervention goals and reinforce skills (e.g. all activities are viewed as a therapeutic opportunity to continue treatment).

6.4.3.2 Financial advantages

The global need for integration of health and education services in the face of increasing financial strain, specifically experienced in developing countries such as South Africa, is widely described. Bornman and Uys (2005) construe multiskilling as a redesign strategy motivated by the concern for cost-effective service delivery in the

public and health sectors. Multiskilled service providers with competencies in a variety of areas are expected to be more cost-effective compared to single-skilled professionals.

Professionals participating in the study perceive the financial benefits of the transdisciplinary approach as obvious compared to the cost of interventions in which assessment and therapeutic intervention take place within the boundaries of specific disciplines. Transdisciplinary interventions within a school setting are seen as economical due to the high level of collaboration among therapists, teachers and parents. Compared to services provided by private practitioners who mostly work in a pluridisciplinary manner, requiring parents to pay several therapists for assessment and intervention, the transdisciplinary team approach is seen as considerably more cost-effective.

6.4.3.3 *Advantages of the transdisciplinary versus other collaborative approaches*

Compared to other collaborative approaches that were extensively discussed in Chapter 3.2, the transdisciplinary approach is perceived as ideal when supporting learners experiencing multilayered BtL. The advantages are far-reaching, including the learner, the family, the educational environment and the professionals providing the services. The main distinction when comparing the quality and satisfaction experienced when learners are supported from a transdisciplinary perspective rather than from the pluri- multi- or interdisciplinary approaches lies in the level of integration. Although these collaborative approaches promote an holistic and social systems-oriented view, service providers, learners and their families, and specifically teachers are still experiencing frustration as a result of therapeutic intervention being confined to the specific disciplinary boundaries. In many cases, a learner supported by a transdisciplinary team only needs to build a relationship of trust with one of the team members, as opposed to a learner supported within a multidisciplinary team where he/she has to adapt to two or three professionals, for instance a remedial therapist, a speech and language therapist and an occupational therapist. A valuable comment made by one of the participants concerned the psychological fatigue experienced by parents when little progress is seen in isolated therapeutic interventions. When discipline-specific interventions are integrated within a transdisciplinary approach, advances in one area result in an increase of hope for progress in other areas.

The financial advantages of a transdisciplinary approach are also compared to the monetary implications of other collaborative models. When services are provided by multiple professionals, in many cases teachers and parents have to prioritise therapeutic interventions according to the funds available. Professionals perceive a transdisciplinary approach as financially more viable, eliminating the exclusion of certain therapeutic interventions as all therapeutic interventions are integrated within the intervention plan set out by the transdisciplinary team.

6.4.4 Professionals' perceptions of the challenges of a transdisciplinary approach

Although a transdisciplinary approach is widely advocated as best practice for providing services to learners with multiple needs, the practice of a transdisciplinary approach is still in its infancy, posing challenges on various levels that need to be overcome. King *et al.* (2009) present obstacles on *professional, personal* and *interpersonal* levels. Controversy also exists on ethical, logistical and practical matters (Giangreco *et al.*, 1989). The need for more systematic research to guide training practices and practical implementation of a transdisciplinary approach in various settings continues. The results of this study reiterate these challenges. What stands out from the discussions is the many challenges with practical implementation posed by participants, reflecting realities within the South African context. Although all participants perceive the principles of the transdisciplinary approach as best practice in supporting learners experiencing BtL, professionals are faced with many challenges. On a professional level, apprehension exists about the quality of services delivered when therapeutic intervention occurs across disciplinary boundaries. Therapists are concerned about the depth of intervention when releasing their role to team members who have not received the same level of training in executing certain therapeutic functions. This concern is extensively discussed in the literature (Bornman & Uys, 2005, Bowser & Roberts, 2003; King *et al.*, 2009). Authors consistently warn against therapists' overstepping the boundary of their training and reiterate the importance of role release not being role abdication. The liability for appropriate training and supervision of activities released to another professional stays within the specific disciplines.

Ethical concerns regarding transdisciplinary practices were raised by many participants. Professionals registered with the HPCSA are bound by certain discipline-specific ethical guidelines. These guidelines form the basis for best

practice. Distinctive ethical guidelines exist for various disciplines, complicating professionals' actions when working within a transdisciplinary team in which services are integrated and team members act within the scope of a different practice. Violation of these ethical guidelines can result in suspension. Sharing of information across disciplinary boundaries is a mechanism to enable collaboration and integration of services. However, it creates ethical dilemmas for professionals when dealing with aspects such as confidentiality of a learner's personal information shared with team members who are not bound by specific ethical rules or guidelines such as teachers, facilitators or carers. Interprofessional values and ethics are an emerging aspect of interprofessional collaboration. Values and ethical guidelines are provided by the Interprofessional Education Collaborative Expert Panel's report (2011), including aspects such as confidentiality, cultural diversity, trust, role responsibilities and priority to preventative services. Although these guidelines are valuable to guide transdisciplinary activities, currently there are no formal ethical guidelines in South Africa set out to protect professional integrity for transdisciplinary teamwork. Significant efforts on institutional and educational levels are needed to provide professionals and transdisciplinary team members with clear ethical guidelines.

On a personal level, participants perceive aspects such as personality type, communication style, a person's ability to manage conflict and personal maturity as expected challenges when working within a transdisciplinary team. Working within a team necessarily requires of professionals to develop teamwork skills. Without the necessary teaming skills, professionals can compromise the quality of service delivery. Although teamwork skills are essential, they are often not included in training. In the literature, lack of teaming skills such as clear and open communication, the ability to resolve conflict and flexibility is found to be one of the main challenges in the successful implementation of interprofessional service delivery (Bornman & Uys, 2005; Interprofessional Education Collaboration, 2011) .

Participants perceive trust as an essential element of working within a transdisciplinary team. Working with team members who lack personal maturity can undermine trust and negate the quality of services rendered. Participants believe that certain personality types may find it difficult to share their knowledge or they may be inflexible, making it difficult to work within various disciplinary boundaries. Some participants also perceive serving within a system, such as a transdisciplinary team,

as a possible personal barrier to a professional's personal balance. When working within a team, professionals do not have the freedom to regulate work according to their own personal energy and circumstances. Some participants perceive this as a personal barrier of transdisciplinary teamwork.

Exceeding all of the above perceived challenges of a transdisciplinary approach is the lack of structural resources and the financial implications in implementing a transdisciplinary approach for professionals working in private practice. South African health care is split into a private sector where practitioners are paid on a consultation basis mainly through clients' medical insurance, and a public sector where practitioners receive a fixed remuneration. Implementing a transdisciplinary approach in the public sector is perceived as more realistic as professionals' remuneration includes time spent on team meetings and administrative duties. However, some participants working within the public sector perceive coordination of services among individuals from different disciplines to be problematic within a school setting. Coordinating times for meetings, discussion and training can be problematic. Hillier *et al.* (2010) confirm this perceived barrier in describing the difference between professionals working on an appointment basis and teachers who are committed to their class schedules. The workloads of teachers are already heavy, complicating finding time for meetings and training purposes. The resources and structures necessary to implement a transdisciplinary approach in the public sector are perceived to be a discouraging barrier. Medical insurance companies do not make provision for team-based services. Professionals foresee huge financial barriers that will have to be overcome for a transdisciplinary approach to become a reality in private practice. Thus, from a systemic perspective, change is needed on a macro level. Medical insurance policies have to be reviewed to accommodate interprofessional service delivery.

6.5 CONTRIBUTIONS OF THE STUDY

The significance of this study lies in the focus on a transdisciplinary approach in providing support services to learners across the spectrum of BtL and in various settings, including private practice. Previous studies on the subject of transdisciplinary service delivery pertaining to learners experiencing BtL were restricted to specific categories of BtL such as learners with severe physical and mental barriers and learners on the autism spectrum as well as the field of early childhood development (King *et al.*, 2009; Stokes, 2011; York *et al.*, 1990). A

number of studies have been done on transdisciplinary teamwork within the context of institutions or schools. This study is the first to investigate the usefulness of transdisciplinary service delivery including private practice.

The literature (Mashingaidze, 2012) reveals interprofessional education as critically important for interprofessional collaboration. Contributions are made to training institutes as the results of the study clearly indicate professionals' urgent need for higher levels of collaboration and integration among the various disciplines involved in addressing the multifaceted needs of learners experiencing BtL. Interprofessional collaboration can be encouraged only if training institutes adopt interprofessional education as part of the curriculum and internship programmes.

The study further contributes to the industry of medical insurance, revealing the perception of professionals working in private practice of a transdisciplinary approach as effective service delivery and the need for closer collaboration and integration of services among the various professionals involved. The results also reveal the perceived financial and professional advantages of a transdisciplinary approach to both service providers and those receiving services.

Finally, contributions are made to the knowledge of interprofessional service delivery practice by the compilation of a literature study on BtL as well as interprofessional care and transdisciplinarity. Recommendations are made for further research in the field of transdisciplinary service delivery to learners experiencing BtL.

6.6 RECOMMENDATIONS

Based on the findings of this study, the following recommendations are made to (a) the practice of service delivery, (b) professional training institutes, (c) medical insurance companies and (d) further research.

6.6.1 The practice of service delivery

- Due to the multifaceted nature of BtL, collaborative service delivery is well known as best practice for learners experiencing BtL (Eloff & Ebersöhn, 2004; King *et al.*, 2009; World Health Organization [WHO], 2010; Department of Education, 2010). The transdisciplinary approach is known as the most collaborative and integrative model of interprofessional collaboration (Engelbrecht, 2004) rendering it an effective service delivery approach for professionals providing services to learners experiencing BtL, both in private

practice and in public services such as schools. Implementation of effective transdisciplinary teams in schools and in private practice is recommended. Currently it seems more viable and realistic to implement transdisciplinary service delivery in the public sector (special-needs schools) where team members receive fixed monthly or yearly remuneration from the institution.

- Although much more research on the effective implementation of transdisciplinary teams in private practice and changes to medical insurance policies needs to be done, professionals in private practice can be made aware of the benefits and possibilities of using aspects of a transdisciplinary approach in their service delivery through workshops and training courses on transdisciplinary service delivery for continuous professional development.
- Closer collaboration among health and mental health professionals supporting learners in their private practices (such as occupational therapists, speech and language therapists, physiotherapists, educational therapists, paediatricians and child psychiatrists) and the learner's microsystem, involving teachers and parents, should be encouraged. Forums between health and education professionals are recommended to find practical solutions for fragmented service delivery and create opportunities for transdisciplinary collaboration between therapists and teachers.
- It is recommended that the HPCSA provide ethical principles and guidelines for collaborative service delivery practices.

6.6.2 Professional training institutes

- To promote transdisciplinary service delivery in South Africa, changes need to be made on a macro level. The critical importance of interprofessional education and interprofessional collaboration has been highlighted in the literature study. Incorporation of transdisciplinary collaboration as part of academic programmes and practical training at all institutes training professionals concerned with the support of learners experiencing BtL is recommended.
- Internship programmes should include exposure to transdisciplinary collaboration.

6.6.3 Medical insurance companies

Another recommendation for macro-level adjustment involves medical insurance policies. This study clearly demonstrates the perceived advantage of

transdisciplinary service delivery both for those receiving and those providing services. The results indicate that the majority of participants supporting learners experiencing BtL are in private practices, mostly funded by medical insurance. Although interprofessional collaboration is widely known as best practice for supporting learners with multiple needs within a holistic socio-ecological framework, medical insurance does not make provision for interprofessional collaborative practices. This lack of financial resources in private practice results in the continuation of outdated and inefficient fragmented or silo service delivery, making reform of medical insurance policies a necessity to encourage and support transdisciplinary service delivery in private practice. Policymakers' attention should be drawn to the perception of professionals in private practice of a transdisciplinary approach as much needed to improve the quality of the service that they deliver to learners experiencing BtL as well as the perceived potential cost savings inherent in transdisciplinary practice.

6.6.4 Further research

The field of interprofessional collaboration in South Africa is still in its infancy and requires much research to translate into effective and concrete service delivery practice. Based on the results of this study, the following recommendations are made for further research:

- The transdisciplinary approach is known for the following operational elements: the arena assessment, multiskilling and role release. These features are implemented in various ways, depending on the category of BtL and other factors such as time and infrastructure. Further research studies are required to explore the functioning of these elements within various transdisciplinary teaming practices, including schools and private practice. A suggested research question is: *To what degree are the various operational aspects of a transdisciplinary approach utilized by professionals providing services to learners experiencing BtL within various contexts?* A quantitative survey study combined with an indepth qualitative study can be applied to answer this question.
- Professionals participating in this study perceive skills transference between therapists and classroom teachers and assistants as essential for an inclusive education system. Further research is required to support such initiatives and investigate effective practice within an inclusive education system.

- The clearly voiced need among professionals currently working in pluridisciplinary private practices for closer collaboration and integrated service delivery asks for further research on the implementation of transdisciplinary service delivery practices in the private sector. Transdisciplinary research studies involving researchers from the financial and business sectors as well as education and health and mental health professionals concerned with training professionals providing services to learners experiencing BtL are required to accomplish this goal.
- Stronger and more reliable quantitative research is recommended to provide information regarding current service delivery practices among health and educational professionals providing services to learners experiencing BtL.. Qualitative results obtained from this study can be used to compile a more reliable questionnaire using pilot testing as well as pre- and –post testing.
- Results from this study indicate that the majority of professionals in private practice still follow a pluri-disciplinary approach which is least collaborative compared to multi, inter, and –transdisciplinary approaches. Future studies can include examining of professional's motivation for following current service delivery practices. A better understanding of motivating factors for choice of service delivery practice by the relevant professionals can provide valuable information to overcome barriers preventing professionals from following more collaborative practices in addressing the multiple needs of learners experiencing BtL. A suggested research question in this regard would be: Which factors play a role in professional's choice of service delivery approached used in supporting learners experiencing BtL? A well-known limitation of information gathered through a quantitative survey study is that it is difficult to obtain an in depth understanding of motivations and contextual variances through questionnaires (Mertens, 2009a). A concurrent mixed method approach can be suseful as it allows for the collection of both quantitative and qualitative data to increase the depth of the researcher's understanding. In a concurrent mixed method design, quantitative and qualitative methods are used simultaneously aimed at confirmation of findings (Wilkens & Woodgate, 2008)
- As mentioned, interprofessional care practices are interlinked with interprofessional education. Further research on interprofessional education for professionals involved in providing services to learners experiencing BtL is

essential for building professionals' capacity to provide holistic, collaborative and integrated services.

- Results from this assessment reveal that professionals providing services to learners experiencing BtL perceive this approach as useful and promising in delivering quality services to learners. Well designed experiments are commonly known for its usefulness in establishing the efficacy in interventions (McGowan, 2011). Examining the usefulness a transdisciplinary service delivery approach in supporting learners experiencing various categories of BtL by means of a true experimental design, using pre –and post tests, can add valuable information to the subject of transdisciplinary service delivery for supporting learners experiencing BtL.
- Ethics and values in transdisciplinary service delivery in the context of barriers to learning have been identified both in the literature study as well as the empirical findings as a field requiring further research.

6.7 Limitations of the Study

Reliability in quantitative research can be seen as synonymous to dependability, consistency, reproducibility or replicability. A reliable research instrument such as a questionnaire is expected to provide similar data collected from similar respondents over a period of time. Pilot studies and the use of a test-retest method is well known to increase the reliability of questionnaires (Bowling, 2009). The absence of these measures is a limitation to the reliability of the questionnaire used for the quantitative study.

Low response rates for the quantitative study's questionnaire limit generalisation of the findings to other populations. Only postal addresses of professionals registered with the HPCSA were available. An online survey using email addresses could produce higher response rates.

The omission of the category for occupational therapy from the questionnaire compromised the trustworthiness of the questionnaire as a research instrument. A concerted effort was made to resolve this dilemma by resending the questionnaire to the whole sample of occupational therapists, requesting those who had not returned the questionnaire to do so. A request was made to professionals who had returned

the questionnaire on which the occupational therapy category was omitted not to return the amended questionnaire.

The low response rate from physiotherapists and learning support teachers limited effective comparison of data with other professional categories involved. Information on qualifications, years of experience, and types of working environments participants have been exposed to in the past as well as additional training on inclusive education and collaborative approaches would have provided important background data. This could have helped in providing deeper explanations for responses.

According to Guest (2013), weighting refers to the prioritizing and importance of quantitative data and qualitative data within a mixed method study. Researchers decide on the importance each set of data will play in a given study during the planning phase. However, it is not uncommon for a shifting to take place in the weighting of a certain data set due to unforeseen complications with either the quantitative or qualitative data as describe by Gues (2013:147) “It may turn out that the qual + QUAN analysis that was planed is derailed by the validity of the quantitative instrument, so instead one is forced to emphasize the qualitative data in the final report”. In the case of my study, the limitations described above compromised the validity and reliability of the questionnaire used during the quantitative stage and consequently reduced the weight of the quantitative data and increased the weight of the qualitative data.

The findings of the study reveal partnership and collaboration with class teachers as essential for effective service delivery in supporting learners experiencing BtL. This study is limited by the exclusion of class teachers from the focus group discussions.

6.8 CONCLUSION

The importance of and need for social connectedness in all aspects of human life have been stressed as fundamental to the justification for this study. The well-known African idiomatic expression *umuntu ngumuntu ngabantu*, meaning a person is a person through other human beings, (Shuttle, 1990) beautifully depicts the underlying theory on which I have based this study. Archbishop Emeritus Desmond Tutu describes *ubuntu* as follows:

Ubuntu speaks particularly about the fact that you can't exist as a human being in isolation. It speaks about our interconnectedness...we think of ourselves far too frequently as just individuals, separated from one another, whereas you are connected and what you do affects the whole world. When you do well, it spreads out; it is for the whole of humanity (Wikipedia, n.d.).

The study centred on the need for interconnectedness and collaboration among professionals from various disciplines in health and education in addressing the complex needs of learners experiencing BtL. The findings indicate that professionals providing services to learners experiencing BtL perceive a transdisciplinary approach as useful and much needed for services provided both in schools and in private practice. Certain aspects of the transdisciplinary approach are perceived as more or less valuable, depending on the context and specific category of learning barrier. Although professionals acknowledge all aspects of the approach as valuable, multiskilling and role release are viewed as most needed. The transference of skills among therapists, teachers, parents and caregivers is perceived as much needed, contributing to effective and feasible service delivery. Further exploration is needed to define transdisciplinary teaming practices in various contexts to support learners experiencing different categories of BtL within inclusive education.

LIST OF REFERENCES

- Anfara, V. A., Jr., & Mertz, N. T. (-Eds.). (2006). *Theoretical Frameworks in Qualitative Research*. Thousand Oaks, CA: Sage
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.
- Biggs, C.C. (2010). *A transdisciplinary collaborative team's facilitated understanding(s) of 'self-esteem development in the (South African) educational context(s)'*. Unpublished master's thesis, Stellenbosch University, Stellenbosch, South Africa.
- Biggs, C. (2005). *Physical impairments and barriers and bridges to learning and well-being: The case of Rose, a learner with cerebral palsy*. Unpublished MEd Psych assignment, Stellenbosch University, Stellenbosch, South Africa.
- Bogdan, R., & Biklen, S. (2007). *Qualitative research for education: An introduction to theories and methods* (5th ed.). Boston: Pearson Education.
- Bornman, J., & Uys, C.J.E. (2005a). , *Augmentative and alternative communication and severe disabilities: Beyond poverty* (pp. 243-271). London: Whurr Publishing.
- Bornman, J., & Uys, J.E. (2005b). Multiskilling in ACC intervention. In E. Alant, & L. Lloyd. (Eds.), *Augmentative and alternative communication in severe disabilities* (pp. 243-271). London: John Wiley & Sons.
- Bowling, A. (2009). *Research methods in health: Investigative Health and Health Services* (3rd ed.). New York: McGraw-Hill. 162—176.
- Bowser, G.A., & Roberts, D. (2003). *Aspects of role release in the provision of services to young children: A concept paper offered by the Collaborative Teaming Work Group*. Retrieved on 2 February 2013 from <http://www.rsoi.org/Documents/Aspects%20of%20Role%20Release%20in%20the%20Provision%20of%20Services%20to%20Young%20Children.PDF>
- Bridges, D.R., Davidson, R.A., Odegard, P.S., Maki, I.V., & Tomkowiak, J. (2011). *Interprofessional collaboration: Three best practice models of interprofessional*

education. Medical Education Online, 37. Retrieved on 7 September 2013 from http://med-ed-online.net/index.php/meo/article/view/6035/html_115.

British Institute of Learning Disabilities. (2013). Fact Sheet: Learning Disabilities Retrieved on 15 February 2013 from <http://www.bild.org.uk/information/factsheets/>

California Department of Education (2000). *The Handbook on Assessment and Evaluation in Early Childhood Special Education Programs*. Sacramento: California Department of Education.

Carr, A. (2006). *Child and adolescent clinical psychology*. Hove: Routledge.

Ceci, S.J. (1986). *Handbook of cognitive, social, and neuropsychological aspects of learning disabilities: Volume I*. Hillsdale: Lawrence Erlbaum Associates.

Ch, F.O. (2013). *Transdisciplinary unified theory*. Retrieved on 12 April 2013 from http://www.uniklu.ac.at/gossimit/ifsr/francois/papers/transdisciplinary_unified_theory.pdf

Claridge, T. (2004). Definitions of social capital. Retrieved on May 01, 2012, from <http://www.socialcapitalresearch.com/definition.html>

Colwell, R., & Eisenstein, R. (2001). From microscope to kaleidoscope. In J. Klein, R. Grossenbacher-Mansuy, R. Haberli, A. Bill, R. Scholz, & M. Welti (Eds.), *Transdisciplinarity: Joint problem solving among science, technology, and society: An effective way for managing complexity* (pp. 59-66). Basel: Birkhauser.

Creswell, J. (1998). *Qualitative inquiry and research design*. Thousand Oaks, CA: Sage Publications.

Creswell, J.W. (2005). *Educational research: Planning, conducting and evaluating quantitative and qualitative research*. (2nd ed.), Upper Saddle River, N.J.: Person Merrill Prentice Hall.

Creswell, John W. (2009) *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. 3rd Edition. Los Angeles: Sage Publications, Inc.

Creswell, J.W., & Plano Clark, V.L. (2011). *Designing and conducting mixed method research*. Thousand Oaks, CA: Sage Publications.

Cumine, V., Leach, J., & Stevenson, G. (2000). *Autism in the early years: A practical guide*. London: David Fulton Publishers.

- D'Amour, D., Ferrada-Videla, M., Rodriguez, L., & Beaulieu, M. (2005). The conceptual basis for interprofessional collaboration: Code concepts and theoretical frameworks. *Journal of Interprofessional Care*, 1(May), 116-131.
- De Vos, AS, Strydom, H, Fouché, CB & Delport, CSL. 2011. *Research at grass roots: for the social sciences and human service professions*. (4th edition.) Pretoria: Van Schaik, 3-26.
- Dednan, A. (2011). Learning impairment. In E. Landsberg, D. Kruger, & E. Swart (Eds.), *Addressing barriers to learning* (pp. 399-417). Pretoria: Van Schaik Publishers.
- Denscombe, M. (2008, July 1). Communities of practice. *Journal of Mixed Methods Research*, 2(July), 270-283.
- Denzin, N., & Lincoln, Y. (2011). *The discipline and practice of qualitative research*. In N. K. Denzin & Y. S. Lincoln (Eds.), *The handbook of qualitative research* (4th ed., pp. 1-20). Thousand Oaks, CA: Sage.
- Department of Basic Education, South Africa. (2010). *Guidelines for inclusive teaching and learning*. Pretoria: Department of Basic Education.
- Department of Education. (2001). *Education White Paper 6: Special needs education: Building an inclusive education and training system*. Pretoria: Department of Education.
- Department of Social Development, South Africa. (2006). *Guidelines for early childhood development services*. Pretoria: Department of Social Development.
- Donald, D., Lazarus, S., & Lolwana, P. (2010). *Educational psychology in social context*. Cape Town: Oxford University Press.
- Downing, J.E., & Bailey, B.R. (1990). Sharing the responsibility: Using a transdisciplinary team approach to enhance the learning of students with severe disabilities. *Journal of Educational and Psychological Consultation*, 1(3), 259-278.
- Doyle, L., Brady, A., & Byrne, B. (2009). An overview of mixed methods research. *Journal of Research in Nursing*, 14(2), 175-185.
- Drack M., Apfalter W. & Pouvreau D. (2007) On the making of a system theory of life: Paul A. Weiss and Ludwig von Bertalanffy's conceptual connection. *The Quarterly Review of Biology* 82, 349–373.

- Dreyer, L. (2008). An evaluation of a learning support model in primary schools in the West Coast/Winelands area. Unpublished doctoral dissertation, Stellenbosch University, Stellenbosch, South Africa.
- Davies, S. (Ed.). (2007). *Team around the child: Working together in early childhood education*. Wagga Wagga, New South Wales: Kurrajong Early Intervention Service.
- Eloff, I & Ebersöhn, L. 2001. The implication of an asset-based approach to early intervention. *Perspective in Education* 19 (3): 147-158.
- Engelbrecht, 2004. In Eloff, I., & Ebersohn, L. (Eds.). *Keys to educational psychology*. Cape Town: UCT Press.
- Engelbrecht, P; Green, L. (Eds). 2007. Responding to the challenges of inclusive education in Southern Africa. Pretoria: Van Schaik Publishers.
- Engelbrecht, P. (2003). Changing roles for education support professionals. In P. Engelbrecht, & L. Green (Eds.), *Promoting learner development: Preventing and working with barriers to learning* (pp. 17-29). Pretoria: Van Schaik Publishers.
- Engelbrecht, P. (2004). Transdisciplinary collaboration. In I. Eloff, & L. Ebersohn (Eds.), *Keys to educational psychology* (pp. 248-257). Cape Town: University of Cape Town Press.
- Farmer, J., Lauder, W., Richards, H., & Sharkey, S. (2003). Dr. John has gone: Assessing health professionals' contribution to remote rural community sustainability in the UK. *Social Science & Medicine*, 57, 673-687.
- Fereday, J. & Muir-Cochrane, E. (2006). Demonstrating rigor using thematic analysis: A hybrid approach of inductive and deductive coding and theme development. *International Journal of Qualitative Methods*, 5(1), Article 7, Retrieved on 10 December 2013 from http://www.ualberta.ca/~iiqm/backissues/5_1/PDF/FEREDAY.PDF
- Feilzer, M. (2010). Doing mixed method research pragmatically: Implications for the rediscovery of pragmatism as a research paradigm. *Journal of Mixed Methods Research*, 4(1), 6-16.
- Fletcher, M.J. (2012). Classification and identification of learning disabilities. In B. Wong, & D. Butler (Eds.), *Learning about learning disabilities* (4th ed.). San Diego: Academic Press.

- Flick, U. (2007). *Designing qualitative research*. Retrieved on 5 June 2013 from <http://0-srmo.sagepub.com.oasis.unisa.ac.za/view/designing-qualitative-research/n4.xml?rskey=4kQSHm>: DOI: <http://0-dx.doi.org.oasis.unisa.ac.za/10.4135/9781849208826>
- Forbes, J. (2011). Interprofessional capital in children's services transformations. *International Journal of Inclusive Education*, 15(5), 573-588.
- Forbes, J., & McCartney, E. (2010). Social capital theory: A cross-cutting analytic for teacher/therapist work in integrating children's services? *Child Language Teaching and Therapy*, 26(3), 321-334.
- Forbes, J., & Watson, C. (2009). Service integration in schools: Research and policy discourses, practices and future prospects. *Journal of Research in Special Educational Needs*, 9(3), 218-219. doi: 10.1111/j.1471-3802.2009.01137_1.x
- Friend, M., & Cook, L. (2007). *Interactions: Collaboration skills for school professionals* (5th ed.). Boston: Pearson Education.
- Giangreco, M., York, J., & Rainforth, B. (1989). Providing related services to learners with severe handicaps in educational settings: Pursuing the least restrictive option. *Pediatric Physical Therapy*, 1(2), 55-63.
- Given, L.M. (Ed.). (2008). *The Sage encyclopedia of qualitative research methods, volume 2*. Los Angeles, CA: Sage Publications.
- Gorard, S. (2012). *Mixed methods research in education: Some challenges and possibilities*. *Mixed Methods in Educational Research Report from the March Seminar 2012 of the Norwegian Educational Research toward 2020 UTDANNING 2020* (pp. 5-13). Hanshaugen: The Research Council of Norway.
- Government, Scotland. (2010). *Guidance on partnership working between allied health professions and education*. Retrieved on 5 January 2013 from <http://www.scotland.gov.uk/Publications/2010/05/27095736/0>
- Greydanus, D. (2012). Attention deficit hyperactivity disorder. In D. Patel, D. Greydanus, H. Omar, & J. Merrick (Eds.), *Neurodevelopmental disorders: Clinical care for children and young adults* (pp. 111-121). New York: Springer.
- Guest, G. (2013, April 1). Describing mixed methods research: An alternative to typologies. *Journal of Mixed Methods Research*, 7(2), 141-151.

- Hammill, D.D. (1990, February 1). On defining learning disabilities: An emerging consensus. *Journal of Learning Disabilities*, 23(2), 74-84.
- Hammond, M., & Wellington, J.J. (2013). *Research methods: The key concepts*. London: Routledge.
- Hennink, M., Hutter, I., & Bailey, A. (2011). *Qualitative research methods*. London: Sage Publications.
- Hillier, S., Civetta, L., & Pridham, L. (2010). A systematic review of collaborative models for health and education professionals working in school settings and implications for training. *Education for Health*, 23(3), 1-12. Retrieved on 9 May, 2013, from <http://www.edujcationforhealth.net>.
- Interprofessional Education Collaborative. (2011). *Core competencies for interprofessional collaborative practice: Report of an expert panel*. Washington, D.C.: Interprofessional Education Collaborative.
- Johnson, B., & Christensen, L. (2012). *Educational research: Quantitative, qualitative, and mixed approaches* (4th ed.). Thousand Oaks CA: Sage Publications.
- Johnson, R., & Onweugbuzi, A. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher*, 33(7), 14-26.
- Johnson, B., Onwuegbuzie, A., & Turner, L. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research*, 1(2), 112-133.
- Jooste, C., & Jooste, M. (2011). Intellectual impairment. In E. Landsberg, D. Kruger, & E. Swart (Eds.), *Addressing barriers to learning: A South African perspective* (pp. 418-445). Pretoria: Van Schaik Publishers.
- Katzenbach, J.R. & Smith, D.K. (1993). *The Wisdom of Teams: Creating the High-performance Organization*. Boston: Harvard Business School.
- King, G., Strachan, D., Tucker, M., Duwyn, B., Desserud, S., & Shillington, M. (2009). The application of a transdisciplinary model for early intervention services. *Infants & Young Children*, 22(3), 211-223.
- Klein, J. (1990). *Interdisciplinarity: history, theory and practice*. Detroit: Wayne State University Press.

- Klein, T.J. (2004). Interdisciplinarity and complexity: An evolving relationship. *Emergence: Complexity & Organization* (E: CO). 6, 2-10.
- Klein, T.J. (2004). Prospects for transdisciplinarity, *Futures* 36 (4): pp.515-526.
- Klin, A., Saulnier, C.D., Tsatsanis, K.D., Volkmar, F.R., Paul, R., & Cohen, D. (Eds.). (2005). *Clinical evaluation in autism spectrum disorders: Psychological assessment within a transdisciplinary framework* (3rd ed.). New York: John Wiley & Sons.
- Koudstaal, C. (2011). Autism spectrum disorders. In E. Landsberg, D. Kruger, & E. Swart (Eds.), *Addressing barriers to learning: A South African perspective* (pp. 341-362). Pretoria: Van Schaik Publishers.
- Krefting L (1991) Rigor in qualitative research: the assessment of trustworthiness. *American Journal of Occupational Therapy*, 45(3), 214-222.
- Kruger, D., & Smith, R. (2011). Physical impairment. In E. Landsberg, D. Kruger, & E. Swart (Eds.), *Addressing barriers to learning: A South African perspective* (pp. 288-303). Pretoria: Van Schaik Publishers.
- Kumar, R. (Ed.). (2005). *Research methodology: A step-by-step guide for beginners* (2nd ed.). London: Sage Publications.
- Landsberg, D. Kruger, & E. Swart (Eds.). (2011). *Addressing barriers to learning: A South African perspective*. Pretoria: Van Schaik Publishers.
- Landsberg, E. (2011). Visual impairment. In E. Landsberg, D. Kruger, & E. Swart (Eds.), *Addressing barriers to learning: A South African perspective* (pp. 363-391). Pretoria: Van Schaik Publishers.
- Larsen, M., Berglund, E., Joseph, R., & Pratt, H. (2012). Psychological assessment and testing. In D. Patel, D. Greydanus, H. Omar, & J. Merrick (Eds.), *Neurodevelopmental disabilities: Clinical care for children and young adults* (pp. 29-52). New York: Springer.
- Laszlo, A., & Krippner, S. (1998). Systems theories: Their origins, foundations, and development. In J.S. Jordan. (Ed.), *Systems theories and a priori aspects of perception* (pp. 47-74). Amsterdam: Elsevier.
- Laszlo, E., & Laszlo, A. (1997). The contribution of the systems sciences to the humanities. *Systems Research and Behavioral Science*, 14(1), 1-25.

- Léagré, F., Stacey, D., Pouliot, S., Gauvin, F., Desroches, S., Kryworuchko, J., Dunn, S., Elwyn, G., Frosch, D., Gagnon, M., Harrison, M. B., Pluye, P & Graham, I.D. (2011). Interprofessionalism and shared decision-making in primary care: A stepwise approach towards a new model. *Journal of Interprofessional Care*, 25, 18-25.
- Learner, J. (2003). *Learning disabilities: Theories, diagnosis and teaching strategies* (9th ed.). Boston: Houghton Mifflin Company.
- Leedy, P. D., & Ormrod, J. E. (2010). *Practical research: Planning and design*. Upper Saddle River: Merrill.
- Liamputtong, P. (2011). *Focus group methodology: Principles and practice*. London: Sage Publications.
- Littlechild, B., & Smith, R. (2013). *A handbook for interprofessional practice in the human services*. Harlow: Pearson Education.
- Lomofski, L., & Skuy, M. (2003). Educational needs related to intellectual and cognitive difference. In P. Engelbrecht, & L. Green (Eds.), *Promoting learner development: Preventing and working with barriers to learning* (pp. 188-212). Pretoria: Van Schaik Publishers.
- Long, T.M., & Sippel, K.M. (2013). *Screening, evaluating and assessing children with sensorimotor concerns and linking findings to intervention planning: Strategies for pediatric occupational and physical therapists* Retrieved on 22 November 2013 from <http://www.scribd.com/doc/136603468/Screening-Sensorimotor>.
- Mashingaidze, L. (2012). *A description of the insights and attitudes of undergraduate health sciences students in the Interprofessional Education Programme at the University of the Western Cape: Experiences of community and health sciences students*. Cape Town: University of the Western Cape.
- Loopoo, V. and Singh, P. 2010. Barriers to learning within a South African context. International Conference of Education, Research and Innovation (ICERI), 15-17 November, International Association of Technology, Education and Development, Madrid, Spain.
- Mahlo, F.D. (2011). *Experiences of learning support teachers in the foundation phase, with reference to the implementation of inclusive education in Gauteng*. Unpublished master's thesis, University of South Africa, Pretoria, South Africa.

- Marina, V.H., Rodriguez, L.C., & Niemeyer, H.M. (2012). A socio-ecological model of the Opuntia scrublands in the Peruvian Andes. *Ecological Modelling*, 227, 136-146.
- McConnellogue, S. (2011, March). Professional roles and responsibilities in meeting the needs of children with speech, language and communication needs: Joint working between educational psychologists and speech and language therapists. *Educational Psychology in Practice*, 27:1. 53-64.
- McGowan, H.M. Planning a Comparative Experiment in Educational Settings. (2011). *Journal of Statistics Education*, 19(2). 2-19.
- McMillan, J. H., & Schumacher, S. (2010). *Research in Education: Evidence-Based Inquiry*. (7th ed.). Boston, MA: Pearson.
- Merriam, S. (1998). *Qualitative research and case study applications in education*. San Francisco: Jossey-Bass Publishers.
- Mertens, D. (2005). *Research and evaluation in education and psychology: Integrating diversity with quantitative, qualitative and mixed methods* (2nd ed.). Boston: Sage Publications.
- Mertens, D.M. (Ed.). (2009a). *Research and evaluation in education and psychology: Integrating diversity with quantitative, qualitative, and mixed methods* (3rd ed.). Thousand Oaks: Sage Publications.
- Mertens, D. M. (2009b). *Transformative research and evaluation*. New York: Guilford.
- Miles, M., Huberman, A., & Saldanah, J. (2014). *Qualitative data analysis: A methods sourcebook*. Thousand Oaks: Sage Publications.
- Mitchell, D. (2010, July 1). *Education Counts publication*. Retrieved on 2 December 2012 from http://www.educationcounts.govt.nz/publications/special_education/education-that-fits-review-of-international-trends-in-the-education-of-students-with-special-educational-needs/chapter-fourteen-collaboration
- Morgan, D.L. (2007, January). Paradigms lost and pragmatism regained. *Journal of Mixed Methods Research*, 1(1), 48-76.

- Muijs, D. (2011). *Doing quantitative research in education with SPSS* (2nd ed.). Los Angeles: Sage Publications. Retrieved on 27 November 2013 from <http://0-dx.doi.org.oasis.unisa.ac.za/10.4135/9781849209014>
- Nandiwada, D., Dang-Vu, C. (2010). Transdisciplinary health care education: training team players. *Journal of health care for the poor & underserved*, 21(1):26-34
- Nel, N. (2011). Second language difficulties in a South African context. In E. Landsberg, D. Kruger, & E. Swart (Eds.), *Addressing barriers to learning: A South African perspective* (pp. 167-184). Pretoria: Van Schaik Publishers.
- Newmark, R. (2002). *Inclusive Education for Learners with Down Syndrome: The Role of the Educational Psychologist*. Unpublished Doctor of Philosophy Dissertation, University of Stellenbosch.
- Onwuegbuzie, A. J., Dickinson, W. B., Leech, N. L., Zoran, A. G., (2009). A qualitative framework for collecting and analysing data in focus group research. *International Journal of Qualitative Methods*, 8(3), 1-21.
- O'Shea, L.J., O'Shea, D.J., & Algozzine, B. (1998). *Learning disabilities – from therapy toward practice*. Upper Saddle River, MI: Merrill.
- Oxforddictionaries.com. (n.d.). Perceive. Retrieved September 10, 2012, from http://oxforddictionaries.com/definition/american_english/perceive
- Oxforddictionaries.com. (n.d.). Service. Retrieved September 10, 2012, from http://oxforddictionaries.com/definition/american_english/perceive
- Oxforddictionaries.com. (n.d.). Deliver. Retrieved September 10, 2012, from http://oxforddictionaries.com/definition/american_english/perceive
- Palmen, M.J. (2011). *An exploration of transdisciplinary ontology as a foundation for sustainable development practice*. Doctoral dissertation. Cambridge: Wolfson College, University of Cambridge. Retrieved on 12 June 2012 from <http://www.idbe.org/uploads/Palmen%20E2%20FINAL%20Aug%202011.pdf>
- Panel, I. E. (2011). *Core competencies for interprofessional collaborative practice*. Washington, D.C.: Interprofessional Education Collaborative.
- Pratt, H., & Greydanus, D. (2012). Learning disabilities. In D. Patel, D. Greydanus, H. Omar, & J. Merrick (Eds.), *Neurodevelopmental disabilities: Clinical care for children and young adults* (pp. 147-159). New York: Springer.

- Prinsloo, E. (2011a). Socio-economic barriers in contemporary society. In E. Landsberg, D. Kruger, & E. Swart (Eds.), *Addressing barriers to learning: A South African perspective* (pp. 29-47). Pretoria: Van Schaik Publishers.
- Punch, K. (2009). *Introduction to research methods in education*. London: Sage Publications.
- Riley, R. (1997, December 1). Working together: Interprofessional collaboration. *Journal of Child Health Care*, 1(4). 191-194.
- Robson, C. (2011). *Real World Research*. Chichester: John Wiley & Sons.
- Saunders, E. (2011). *A transdisciplinary andragogy for leadership development in a postmodern context*. Unpublished master's thesis, University of South Africa, Pretoria, South Africa.
- Scanlon, D. (2012, November 9). Specific learning disability and its newest definition: Which is comprehensive and which is insufficient? *Journal of Learning Disabilities*, 46(1), 26-33.
- Scott, C., & Hofmeyer, A. (2007). Networks and social capital: A relational approach to primary healthcare reform. *Health Research Policy and Systems*, 5(9), 1-8.
- Schwaniger, M. (2001). System theory and cybernetics: A solid basis for transdisciplinarity in management education and research. *Kybernetes*, 30(9/10), 1209-1222.
- Scott, C., & Hofmeyer, A. (2007). Networks and social capital: A relational approach to primary healthcare reform. *Health Research Policy and Systems*, 5(9), 1-8.
- Scottish Executive. (2003). *A Scottish Executive review of speech and language therapy, physiotherapy and occupational therapy for children and speech and language therapy for adults with learning disabilities and autistic spectrum disorder*. Edinburgh : Scottish Executive.
- Selikowitz, M. (2012). *Dyslexia and other learning difficulties*. Oxford: Oxford University Press.
- Semrud-Clikeman, M., Fine, J.G., & Harder, L. (2005). Providing neuropsychological services to students with learning disabilities. In R. A'mato, E. Fletcher-Janzen, & C. Reynolds (Eds.), *Handbook of school neuropsychology* (pp. 403-419). New Jersey: John Wiley & Sons.

- Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, 22(2), 63-75.
- Shutte, A. (1990). Umuntu Ngumuntu Ngabantu: An African conception of Humanity. *Philosophy and Theology* 5(1), 39-54.
- Silverman, K., Hong, S., & Trepanier-Street, M. (2010). Collaboration of teacher education and child disability health care: Transdisciplinary approach to inclusive practice for early childhood pre-service teachers. *Early Childhood Education Journal*, 37(6), 461-468.
- Skrtic, T. (1995). Disability and democracy: Reconstructing (special) education for Postmodernity. New York: Teachers College Press.
- Stellenbosch University, (2013). *Status report on Interprofessional Education and Practice (IPEP) at the Faculty of Medicine and Health Sciences*. Retrieved on 20 January 2014 from http://sun025.sun.ac.za/portal/page/portal/Health_Sciences/English/Centres%20and%20Institutions/CHSE%20%28Centre%20of%20Health%20Sciences%20Education%29/IPE/Status%20Report%20IPEP%20strategy%20June%202013%20final.pdf.
- Stock, P., & Burton, R.J. (2011). *Defining terms for integrated (multi-inter-transdisciplinary) sustainability research*. Retrieved on 3 August 2013 from <http://www.mdpi.com/2071-1050/3/8/1090>: doi: 10.3390/su3081090.
- Stokes, S.M. (2011). *A descriptive case study of transdisciplinary team support for a learner with intellectual impairment*. Unpublished master's thesis, University of Johannesburg.
- Storbeck, C. (2011). Educating the deaf and hard-of-hearing learner. In E. Landsberg, D. Kruger, & E. Swart (Eds.), *Barriers to learning: A South African perspective* (pp. 382-389). Pretoria: Van Schaik Publishers.
- Struthers, P. (2005). *The role of occupational therapy, physiotherapy and speech and language therapy in education support services in South Africa*. Unpublished doctoral dissertation, University of the Western Cape, Cape Town, South Africa.
- Suter, W. N. (2012): *Introduction to Educational Research: A Critical Thinking Approach*. Thousand Oaks, CA, Sage.

- Tannock, R. (2012, November 1). Rethinking ADHD and LD in DSM-5: Proposed changes in diagnostic criteria. *Journal of Learning Disabilities*, 46(1), 5-25.
- Teddle, C. & Tashakkori, A. (2012). Common "core" characteristics of mixed methods research: A review of critical issues and call for greater convergence. *American Behavioral Scientist*, 56 (6), 774-788.
- Theunissen, A.T. (2014). *An exploration of the experiences and perceptions of health and allied health care students regarding interprofessional collaboration and education in a rural clinical setting in South Africa*. Unpublished master's thesis, Stellenbosch University, Stellenbosch, South Africa.
- Thistlethwaite, J. (2012). Interprofessional education: A review of context, learning and the research agenda. *Medical Education*, 46(11), 58-70.
- Walther-Thomas, C., Korinek, L., McLaughlin, V.L., & Williams, B.T. (2000). *Collaboration for inclusive education: Developing successful programs*. Needham Heights, MA: Allyn and Bacon.
- Washington State (2008). *A Guide to Assessment in Early Childhood; Infancy to Age Eight*. Washington State Office of Superintendent of Public. Retrieved on 10 June 2014 from http://www.k12.wa.us/earlylearning/pubdocs/assessment_print.pdf.
- Way, D., Busing, N., & Jones, L. (2000). *Implementation strategies: Collaboration in primary care – family doctors and nurse practitioners delivering shared care*. Toronto: The Ontario College of Family Physicians.
- Wells, K. (2005). Treatment of ADHD in children and adolescents. In P. Barrett, & T. Ollendick (Eds.), *Interventions that work with children and adolescents: Prevention and treatment* (pp. 343-368). Chichester: John Wiley & Sons.
- Wikipedia. (n.d). Ubuntu. Retrieved 12 May 2014, from [http://en.wikipedia.org/wiki/Ubuntu_\(philosophy\)](http://en.wikipedia.org/wiki/Ubuntu_(philosophy)).
- Wilkins, K., Woodgate, R. (2008). Designing a Mixed Methods Study in Pediatric Oncology Nursing Research. *Journal of Pediatric Oncology Nursing*, 25 (1). 24-33.
- World Health Organization. (2010). *Framework for action on interprofessional education and collaborative practice*. Geneva: Health Professions Network Nursing and Midwifery Office, Department of Human Resources for Health.

- World Health Organization. (2001) International Classification Functioning, Disability and Health (ICF). Geneva: World Health Organization.
- World Health Organisation.(1992).International Statistical Classification of Diseases and Related Health Problems, 10th Revision (ICD-10). Geneva: WHO.
- World Health Organization. (1988). *Learning together to work together for health. Report of a WHO study group on multiprofessional education for health personnel: The team approach*. Technical Report Series 769. Geneva: WHO.
- World Health Organization. (2008). *World health report*. Geneva: WHO. College of Nurses of Ontario. (2008). Interprofessional collaboration among health colleges and professions. Retrieved August 6, 2013, from:
<http://www.hprac.org/en/projects/resources/hprac-1433May28CollegeOfNurses.pdf>
- Yilpet, R.R. (2008). *A study of in-service teacher training to address specific learning difficulties in Nigerian primary schools*. Unpublished master's thesis, University of South Africa, Pretoria, South Africa.
- York, J., Rainforth, B., & Giangreco, M. (1990). Transdisciplinary teamwork and integrated therapy: Clarifying the misconceptions. *Pediatric Physical Therapy*, 2, 73-79.
- Zirkel, P.A. (2010). State laws for RTI: An updated snapshot. *Teaching Exceptional Children*, 24 (3), 56-63.

APPENDICES

Appendix A: Ethical clearance certificate



Research Ethics Clearance Certificate

This is to certify that the application for ethical clearance submitted by

W Wehmeyer [32842988]

for a D Ed study entitled

Investigating a Trans-Disciplinary Collaborative Service Delivery Approach in Addressing Learners with Barriers to Learning

has met the ethical requirements as specified by the University of South Africa
College of Education Research Ethics Committee. This certificate is valid for two
years from the date of issue.

A handwritten signature in black ink, appearing to read "CS le Roux".

Prof CS le Roux
CEDU REC (Chairperson)
lrouxcs@unisa.ac.za
Reference number: 2013 FEB/ 32842988/CSLR

25 February 2013

Appendix B: Questionnaire

Welma Wehmeyer
Educational Psychologist
M.Ed. Psychology (UNISA)
Practice nr. 860000278203

Re: Research Questionnaire

RESEARCH TOPIC:

An Investigation of a transdisciplinary collaborative service delivery approach in addressing barriers to learning.

Dear Colleague

January 2013

I am currently busy with this research study for the completion of my Doctorate in Educational Psychology at the University of South-Africa.

The questionnaire is the first part of the empirical research. The purpose of the questionnaire is to establish which therapists support learners who experience barriers to learning in the Western Cape, various collaborative approaches used by these therapists as well as therapist's exposure to a transdisciplinary approach.

This questionnaire will be sent to all of the following health professionals in the Western Cape registered with the Health Profession's Council of South Africa: educational psychologists, occupational therapists, physiotherapists and speech and language therapists. It will also be sent to a sampled number of remedial therapists in the Western Cape.

Information from the questionnaire will be used to conduct the second part of this research study, involving workshops and focus-group discussions. The purpose of workshops will be to inform those therapists who indicated that they have little or no knowledge as to what a transdisciplinary collaborative approach entails. Focus-group discussions will be used to establish therapist's perception of a transdisciplinary collaborative service delivery approach in addressing barriers to learning.

Should you wish to take part in the second part of the research study, please indicate this on the space provided (see Questionnaire).

I would be most grateful if you would take a little of your valuable time to answer the questions below. **It should not take longer than 5 minutes.** A stamped-addressed envelope is enclosed. All responses will be treated confidentially.

PLEASE TURN OVER

Feedback from this research study will be provided to all interested therapists. You can contact me at info@welmawehmeyer.co.za or per telephone at 0833905788. You can also contact me if you have any further queries about this study.

Thank you for taking the time to answer the questions.

Yours truly,

A handwritten signature in black ink, appearing to read 'Welma Wehmeyer', with a stylized, cursive script.

Welma Wehmeyer

QUESTIONNAIRE

Name (Optional) -----

Contact details (Optional) -----

You can contact me to take part in an informative workshop of two hours each and one focus-group discussions on a transdisciplinary collaborative approach in addressing barriers to learning.

Yes	
No	

If you answered “Yes” at the previous question, please provide your contact details above.

PLEASE TURN OVER

The responses to these questions will be used to determine:

- (a) the proportion of therapists in the Western Cape who provide services to learners who experience barriers to learning between the ages of 6 – 9 years.
- (b) Collaborative approaches used by these therapists.
- (c) Therapist's level of knowledge of a transdisciplinary collaborative approach followed by therapists who provides services to learners who experience barriers to learning.

Please tick ☒ all relevant answers. You may need to tick more than one box for some questions.

1. I am qualified as:

An educational psychologist	
A speech and language therapist	
An occupational therapist	
A physiotherapist	
A remedial therapist/learning support teacher.	

2. I practice in the following district of the Western Cape:

Cape Winelands and West Coast	
Central Karoo	
City of Cape Town Metropole	

3. I support learners between the ages of 6 – 9 years who experience barriers to learning.

Yes	
No	

4. I support learners between the ages of 6 – 9 years who experience the following barriers to learning:

Intellectual barriers	
Sensory Barriers	
<i>Deaf</i>	
<i>Hard of hearing</i>	
<i>Blind/ Partially blind</i>	
Physical barriers	
Neurological barriers	
<i>Epilepsy</i>	
<i>Specific learning barriers</i>	
<i>Cerebral palsy</i>	
<i>Autistic Spectrum Disorders</i>	

5. I work as:

a private practitioner	
in a school both in private practice and at a school	
other (please specify) -----	

6. I use the following collaborative service delivery approach in supporting learners who experience barriers to learning:

No collaboration with other professionals	
<u>Pluri-disciplinary</u> : Working with other professional in an uncoordinated way i.e. not within an established team set-up.	
<u>Multi-disciplinary</u> : I work as part of a multi-disciplinary team. The learner is supported by a team of professionals from various disciplines. Intervention takes place according to each member's discipline. A single service plan is not formed by the team. Each professional provides independent service according to his/her discipline.	
<u>Inter-disciplinary</u> : The learner is supported by a team of professionals from various disciplines. Assessments are done by each discipline where after a single intervention plan is formulated by the inter-disciplinary team. Intervention takes place according to specific disciplines. Meetings are held where each discipline reports according to his/her profession	
<u>Transdisciplinary</u> : The learner is supported by a team of professionals from various disciplines who share roles across professional boundaries to maximize integration. A single coherent assessment, with all team members present, is conducted from which mutual goals and intervention plans emerge.	

7. I have previously been exposed to a transdisciplinary collaborative service delivery approach.

Yes	
No	

Should you have answered YES to the question above please answer the following questions:

8. I rate my knowledge of what a transdisciplinary collaborative approach is as follows:

1 Excellent	
2 Good	
3 Poor	

Thank you for participating in this research project.

APPENDIX B1: LETTER TO OCCUPATIONAL THERAPISTS

Dear Occupational Therapy Colleague

The previous questionnaire omitted the Occupational Therapist qualification option.

Please complete the enclosed questionnaire if you did NOT complete the previous one.

Many thanks,

Welma Wehmeyer



A TRANSDISCIPLINARY APPROACH IN ADDRESSING BARRIERS TO LEARNING

“It is no longer enough for health workers to be professional. In the current global climate, health workers also need to be inter-professional” (Organization, World Health Report, 2008)

1. Introduction

Welcome to this workshop about a TD model. I trust that this will be a valuable experience for all of us.

The aim of the workshop is to introduce you to a TD service delivery model

A learner with learning barriers usually require input from more than one professional. Without collaboration between the various disciplines, support becomes fragmented and this leads to many frustrations.

2. Origins of the transdisciplinary approach

Let's just have a look at where TD comes from.

Historically there are 2 overarching models of service delivery: medical model vs social systems model

Medical Model

= Unidisciplinary service delivery where the patient is diagnosed and treated by a single discipline. A practitioner of one discipline acts and assumes primary responsibility without actively seeking input from other disciplines and taking into account the multi-dimensional characteristic of problems. Phenomena can be studied more effectively when specific knowledge rather than broad general information is obtained. The focus was drawn to the different parts, in contrary to the integration of parts and their complex relation within the whole.

Social Systems Theory

Parts are studied in relation to the whole. Bronfenbrenner's eco-systemic perspective on BtL.

As professionals working with barriers to learning we have made the shifts to the social systems or eco-systemic model. We are very much aware of the fact that we have all been born into a social context. The manner in which we think, feel, behave

and develop as persons is linked to the social structures, forces and relationships with groups and individuals that make up the social context.

- Discussion on collaboration in current service delivery practices – both in private practice and schools.

3. What is Inter Professional Care (IPC)

The process of solving a problem involving multiple disciplines as the problem is too broad or complex to be dealt with by a single discipline.

- Discuss the importance of IPC for learners experiencing barriers to learning. IPC is the leading international trend for health and educational care. WHO advocates IPC as best practice?

Main IPC Models are:

Multi-Disciplinary: Each team member completes his or her training-specific assessment and intervention of the learner. The team discusses results when together and intervention takes place within the different disciplinary boundaries. (2+2 = 4)/salad bowl

Inter-Disciplinary: Assessment is done within each discipline but in a coordinated way. Results are discussed together by the team and the team as a whole takes responsibility in deciding on an intervention plan. Disciplines integrate and team members share expertise with others in order to provide support to the learner. 2+2=4 (melting pot)

Transdisciplinary: Assessment and intervention is done by the team (consisting of different disciplines) as a whole. Disciplinary boundaries are transcended. Members of a TD team think beyond their disciplinary boundaries. 2+2=yellow (cake) – TD interaction often leads to entirely new fields of knowledge.

4. Teamwork skills in IPC

IPC is a unique complex relationship between team members. Team-work skills and IPC ethic essential in IPC.

Important aspects of team work:

- Common treatment goals
- Roles and balance of
- Members to understand each other's roles.
- Working within a non-punitive and enabling environment with access to resources.
- Clear specifications regarding authority and accountability.

- Reflection team performance
- Sharing information through specific procedures.
- Mechanisms or process are in place to oversee execution of plans, assessment of outcomes and, if necessary, adjustment of goals and plans.
- Patient and carer empowerment.
- Consensus among team members regarding ethical principles guiding patient care.
- The necessity of research and development.
- Professional education and training.

Successful implementation of these principals rely on *clear and open communication, shared problem-solving strategies, skills in conflict resolution and well defined patient-centred goals*. Skills in conflict resolution are important as the diversity of team member's expertise is a potential source of conflict. Team members must acknowledge conflict in order to process differences in an effective manner.

5. Ethics and values in IPC

We have all received training in ethics and values applying to our individual disciplines. When working in an IPC team an additional set of ethics and values applies:

- The interests of patients and the populations is at the centre of inter professional health care delivery.
- The dignity and privacy of patients are respected and information is held in confidentiality by all members when delivering team-based care.
- Cultural diversity and individual differences that characterize patients, populations, and the health care team is respected
- Unique cultures, values, roles/responsibilities, and expertise of other health professions are embraced.
- Cooperate with those who receive care, those who provide care, and others who contribute to or support the delivery of prevention and health services.
- Develop a trusting relationship with patients, families, and other team members.

- Ethical dilemmas are managed specific to interprofessional patient centred care situations.
- Act with honesty and integrity in relationships with patients, families, and other team members.
- Each professional discipline maintains competence in his/her profession appropriate to the scope of practice.

Scenario-discussion:

Team:

Judy – recently hired as a team social worker.

Shirley – team registered nurse

Fran – social work supervisor (administrative team).

Carol – team facilitator

Situation

Judy, who had worked as a senior social worker in a mental health setting for 12 years, was hired as a team social worker in a community health care organization. Shirley, one of the team nurses, perceived Judy as hesitant and ineffective in patient care planning meetings.

Other team members also found Judy to be too hesitant in making decisions, often rolling their eyes when Judy asked team members for their opinions. Despite their concerns about Judy's hesitancy, team members complained when Judy did not consult them before making a patient care decision. As Judy experienced these mixed messages, she became more guarded in her social work assessments.

The interprofessional team on which Judy was placed had a culture of socializing together after work. Initially, team members invited Judy to join them, but she did not believe that socializing with colleagues was appropriate. In their socialization sessions the team discussed

Judy's behavior, often noting that her mode of dress was out of style. Carol, a team facilitator, would occasionally join the rest of the team for a drink after work. Shirley complained to Carol that Judy was not doing her job. She also mentioned that the team did not like Judy, because she didn't socialize with them and wouldn't disclose information about her personal life as they all had done with each other. The nursing assistant and dietician saw Judy as being very unfriendly. Subsequently, Carol spoke with Fran, stating that Judy was a problem and she wasn't sure that Judy would work out in the agency. In her monthly supervisory meeting Fran asked Judy how things were going with her team. As Judy's eyes began to tear she said that she was thinking of leaving. Judy said that she was confident in her mental health experience, but not her team experience. She said that she hadn't realized how hard it would be to work with a team, and commented that the team members kept comparing her to a former team social worker who was not liked by the team.

Judy told Fran that the team seemed uncomfortable with mental health issues and that she was shocked when the team made derogatory comments about patients, i.e., that some were dirty and smelly or that the team couldn't stand certain patients. In her conversation with Fran, Judy said that the team had verbally chastised her for suggesting that a patient diagnosed by the internist as bipolar, might not be bipolar. Judy was upset that she had expressed anger at the team while defending her assessment. Now Judy wasn't sure what to do because someone had told her that once you were on Shirley's bad side that she would hate you forever.

Source: Clark, P. G., Cott, C., & Drinka, T. J. K. (2007). Theory and practice in interprofessional ethics: A framework for understanding ethical issues in health care teams. *Journal of Interprofessional Care*, 21, 591-603.

Questions:

1. Make a list of the ethical dilemmas related to IPC in this scenario:
2. Discuss the following questions:
 - Do team members respect Judy or social workers in general?
 - Do they understand mental health issues of their patients?
 - Do members understand practice standards of others on the team?
 - Are discipline-based knowledge shared on this team?
 - Has the team developed a shared moral language around interpersonal relations?
 - How is the aspect of respect for cultural or personal differences violated on this team?
 - Have the team communicate openly with each other?
 - Will it be beneficial if the facilitator is monitored and evaluated?
 - Do you think this team needs to be educated about ethical standards for socialization?
3. Use the ethical guidelines above to describe what would have been ethically sound conduct in the situations mentioned above.

6. Transdisciplinary approach in practice

It entails three unique features:

- *the arena assessment,*
- *intensive and continued interaction and cooperation between professionals from various disciplines*
- *role release.*

The Arena Assessment

Members of a TD team plan and conduct an assessment simultaneously.

The arena assessment consists of five elements:

Team: of professionals from multiple disciplines. Team members will vary from case to case, depending on the purpose of the assessment, usually gained from the referral source. The second element, *facilitation*, refers to one individual team member, appointed by the team, based on the child's needs, who interacts with the child. Other team members observe actions through a one-way-window.

Process: requires a holistic perspective where information is gained from all aspects of the child's functioning such as family, physical, cognitive social, emotional and scholastic as well as external factors influencing the child.

Staffing: process after the assessment where all team members, and, in some cases parents, synthesize and analyse information gained from the assessment.

Outcome: Qualitative and quantitative descriptions of the child are set out with a focus on defining the child's strengths and needs.

The purposes of an arena assessment are to obtain a cohesive, holistic view of the child, determine the related skills across various areas, decrease handling and time spent with multiple professionals where the family is required to repeatedly answer the same questions. The arena assessment is also known to be more cost effective.

Interaction and Cooperation between team members.

The TD team existing of professionals from various disciplines is in constant interaction and collaboration with each other exchanging knowledge and skills “**multiskilling**”. Professionals (and any other caregiver) can be trained in more than one skill from various disciplines. Skills associated with one discipline can be taught to a professional from a different discipline working with the same client. A professional, teacher or carer will therefore have more than one skill in supporting the client. Multiskilling can happen on different levels.

Four main levels of multiskilling realising in the care for disabled individuals, namely

cross-training of basic skill easily trainable and low risk procedures;

cross-training of professional non-clinical skills like client education, team dynamics, communication skills etc.

cross-training of administrative skills;

cross-training of clinical skills e.g. the speech and language therapist can train a teacher who is part of a transdisciplinary team to provide communication opportunities when teaching.

Initial and ongoing instruction from each discipline represented on the transdisciplinary team to other team members is necessary to accomplish these goals. The transition of roles across disciplines happens through a process of role release.

Role Release

Role release is a process where services are provided by one team member with consultation from other members. It takes place where individual members may share or blend their roles, and all, or a selection of team members is appointed to be responsible for delivering intervention.

- Role extension: Theoretical knowledge and skills in the professional's own discipline.
- Role enrichment: Professionals develop a basic awareness and understanding of terminology and basic practices of other disciplines.
- Role expansion: Professionals acquire information to make knowledgeable observations and recommendations outside their own discipline.
- Role exchange: The theory, methods and procedures of other disciplines are learned and implemented.
- Role release: Newly acquired skills are used in consultation with a professional from the discipline responsible for those practices.
- Role support: Professionals encourages and support each other across disciplinary boundaries.

Role release does not imply role "abdication". Certain discipline-specific activities such as evaluation, treatment planning, and supervision requires service providers to be adequately trained and licenced and may not be delegated. Intervention activities however can be shared through proper training and carried out by professionals from various disciplines as well as care givers, teachers and parents (Bowser, 2013). It is the responsibility of team members to identify activities appropriate for release and provide the necessary training to other team members. The decision to release a particular role or task is made through professional judgment in determining which activities may appropriately be shared.

7. Closing off and Thank You

This was an introduction to the transdisciplinary approach. The focus of my study is to gain insight into professional's perceptions of a transdisciplinary approach for learners experiencing barriers to learning. This will be the aim of our next meeting for a focus group discussion.

I would like to thank you for your time and input today.

APPENDIX C1: VISUAL AIDS

A TRANS-DISCIPLINARY APPROACH ADDRESSING BARRIERS TO LEARNING

"It is no longer enough for health workers to be professional.

*In the current global climate,
health workers also need to be inter-professional"*
(Organization, World Health Report, 2008)



*Presented by:
Welma Wehmeyer*

Appendix D: Letter of consent: Focus groups

Welma Wehmeyer
<i>Educational Psychologist</i>
M.Ed. (Guidance and Counselling) (UNISA)
Practice nr. 860000278203

Informed Consent and Agreement of Confidentiality for _____

This informed consent form and agreement of confidentiality is for health/education professionals in the Western Cape Province providing services to learners experiencing barriers to learning. You have indicated on the questionnaire sent to you that you would like to participate in the second part of this research study involving an informative workshop and a focus-group discussion.

Name of Investigator: Welma Wehmeyer

Name of University: UNISA

This Informed Consent letter consists of two parts:

- Information Sheet (to share information about the study with you).
- Certificate of Consent and Agreement of Confidentiality (for signatures if you agree to participate).

You will be given a copy of the full Informed Consent and Agreement for Confidentiality Form after you have signed to either give or refuse your consent.

PART I: INFORMATION SHEET

Introduction

The aim of this study is to investigate a transdisciplinary collaborative service delivery approach in addressing learners with barriers to learning.

Purpose

Learners who experience barriers to learning require assessment and intervention from multiple professionals. The mutual goal for all professionals involved is to support the learner's educational needs. Given this intended mutual goal, collaboration between these professionals is an integral part of service delivery. Mounting research and literature highlights the importance and effectiveness of a collaborative service delivery approach. The *transdisciplinary* model is advocated as most collaborative in nature. In this model, a team of professionals from various disciplines share roles across professional boundaries to maximize integration. A single coherent assessment, with all team members present, is conducted from which mutual goals and intervention plans emerge. Communication with, and involvement of parents, teachers and other role players in the client's environment are encouraged and play a critical role. Another attractive dimension of transdisciplinary service delivery, is that it fosters an asset-based approach as opposed to the needs assessment resembled by the medical deficit model. Although needs are identified, the skills and capacities within the client's social system are accentuated and utilized.

Literature reveals a transdisciplinary approach to be highly effective for early childhood development services (birth to 6 years). However, meagre literature is found on the effectiveness of a transdisciplinary model to be used by professionals supporting school aged children who experience barriers to learning within the South African context. It is therefore the intention of this study to investigate health/educational professionals in the Western Cape's perception of a transdisciplinary collaborative service delivery approach in addressing barriers to learning.

Research Stages

The empirical research project consists of two stages:

1. The focus of the first stage is to describe which health and educational professionals in the Western Cape provide services to learners experiencing barriers to learning, current service delivery approaches used by these professionals and their level of exposure to a transdisciplinary collaborative service delivery approach in addressing barriers to learning.
2. The second stage of the research is aimed at gaining insight into health and educational professional's perceptions of a transdisciplinary collaborative service delivery approach in addressing barriers to learning.

Procedure

Stage One

A questionnaire will be distributed to all of the following professionals in the Western Cape to identify professionals providing services to school aged learners experiencing barriers to learning. The following professional categories will be included: educational psychologist, speech and language therapists, occupational therapists, physiotherapists, remedial therapists.

Stage Two

1. During the second stage of the empirical research, analysed data collected during stage one will be used to identify eight groups of four professionals from various disciplines per group to participate in focus group discussions. The aim of the focus group discussion is to gain insight into these professional's perceptions of a transdisciplinary collaborative service delivery approach in addressing barriers to learning.
2. Four groups of professionals who indicated that they have little or no knowledge of a transdisciplinary collaborative service delivery approach will be selected to participate in informative workshops. The aim of the workshops is to inform professionals of a transdisciplinary collaborative approach in addressing barriers to learning. Convenient sampling selection will be used. These participants will then partake in a focus-group discussion. The aim of the focus group discussion is to identify health/educational professional's perceptions of a transdisciplinary collaborative approach in addressing barriers to learning.
3. Four groups of professionals who indicated that their knowledge of a transdisciplinary collaborative service delivery approach is excellent or good, will be selected to take part in focus group discussions. The aim of the focus group discussion is to identify health/educational professional's perceptions of a transdisciplinary collaborative approach in addressing barriers to learning.

Selection of Participants

The population for this study includes the following health and educational professionals: educational psychologists, occupational therapists, speech-and-language therapists, physiotherapists, remedial therapists and learning support teachers. For the first stage of the study a questionnaire will be distributed to all of the above health care professionals in the Western Cape who are registered with the Health Professions Council. A purposeful snowball sampling technique will be used to select remedial therapists. Information gained through the questionnaire during the first research stage will be used to select participants to take part in workshops and focus-group discussions during the second research phase. Purposeful and convenient sampling will be employed.

Risks and Discomforts

This intervention holds no risk of danger or injury to yourself. Time and location for workshops and focus group discussions will be carefully selected. Participants in workshops and focus group discussions will be contacted via email to arrange times and location best suitable for all.

Benefits

Benefits of transdisciplinary collaborative service delivery are less time- and financially consuming assessment and identification procedures as well as higher levels of collaboration between professionals providing services to these learners. Closer collaboration minimizes opportunity for misunderstanding and frustration in supporting these learners.

Professionals participating in workshops and focus group discussions will gain insight into the use of a transdisciplinary collaborative service delivery approach. These insights can enhance the quality of support they provide to learners who experience barriers to learning as well as these learner's families.

Confidentiality

Confidentiality of participant's identity is of highest priority. I will share the results of the questionnaires and focus group discussions as well as information obtained from workshops only with my supervising professor. The information collected will thus be kept confidential. Completed questionnaires will be locked away and no-one but myself and my professor will be able to see it.

Results will be shared with all participants. Participants may ask me to keep certain parts of the results confidential. Provided that there is no harm or risk to any body else regarding this information, the participant's wish will be respected, as is required by the ethical code of conduct for psychologists. In the case of suspected potential harm to any person/persons, the South-African Police will be informed of such harm.

During workshops and focus group sessions, video and audio recordings will be made with the participants' consent. The recordings relate to all sessions or parts of sessions, in order to help me record (in writing) the content of discussions. The recorded information (audio and written) will be locked up and shared only with my professor who supervises this study.

Sharing of Research Findings

The findings of this study will be reported in the form of a dissertation. After the study, the completed dissertation will be available to the public to read, however no real names or other identifying particulars of the participants will be provided.

Right to refuse or withdraw: Voluntary Participation

You may choose not to participate in this study. Before you decide, you can ask me as many questions as you like and I will take the time to answer them. You can think about it and let me know what you decide in a few days' time.

You may stop participating in the research or in specific group discussions or activities at any time that you or wish.

Who to Contact

If you have any questions you are welcome to contact me.

Contact details

Work number: 021 945 1904

Cell phone number: 083 390 5788

E-mail address: info@welmaehmeyer.co.za

PART II:

CERTIFICATE OF CONSENT AND AGREEMENT OF CONFIDENTIALITY

I, _____ agree to participate in the second stage of this research study which will involve either one workshop and one focus group discussion or only one focus group, as explained in Part One of the information sheet above. The specific topic being investigated, namely a transdisciplinary collaborative service delivery approach, will involve my participation in either one workshop and one focus group discussion or just one focus group discussion as explained in Part one of the information sheet above.

I agree to keep all information shared during the focus-group discussion confidential.

I have read the foregoing information (Part One of this document). I have had the opportunity to ask questions about it and any questions that I have asked have been answered to my satisfaction.

I hereby freely and willingly I agree to participate

Print Name of Participant _____

Signature of Participant _____

Date _____ Day/month/year

OR

I do not agree to participate

Print Name of Participant-----

Signature of Participant -----

Date _____ Day/month/year

To be completed by the researcher

Statement by the researcher taking consent

I have given the information sheet to the potential participant and to the best of my ability made sure that the person understands that they will participate in the following:

1. Participating in an informative workshop of two and a half hours .
The workshop aims to provide knowledge of, and insight into, a trans-disciplinary collaborative service delivery approach in addressing barriers to learning.
2. Participate in one focus-group discussion of 90 minutes. The aim of this focus group discussion is to gain insight into health/educational professional's perception of a transdisciplinary collaborative service delivery approach in addressing learners with barriers to learning.

I agree that all information shared during focus group interviews will remain confidential.

I confirm that the participant was given an opportunity to ask questions about the study, and that all the questions asked by him/her have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.

Welma Wehmeyer

This form has been reviewed and approved by Professor H.E. Roets, who guides this study and who helps to make sure that ethical procedures are followed during this research project.

THANK YOU

Appendix E: Initial codes

	Arena Assessment
aaNB	Important
AMS	Advantages of Multiskilling
AP	Advantages for Parents
ATD	Advantages of TD
B	Business Aspects
	Benefits of arena
BAA	assessment
BEK	Need for Ethical code in TD Team
BNB	Boundaries Important
Cf	Childfocussed
ChallengesTD	Challenges of TD
CMO	Catch that which is missed out on
	Commitment Important for
CNBTD	TD
CohinT	Coherence in Team
CommNB	Communication Important
CommS	Communications Skills
Con TDtooC	Communication in TD too complex
Confid	Confidentiality Important
Confl.RS	Conflict resolutions Skills
CoTeam	Composition of Team
CT	Communication with Team
Cteach	Communication with Teacher Important
DAA	Do Arena Assessment
DofAA	Difficulties of Arena Assessment
DTDvic	Difficulty of TD Very involved cases
E&V	Ethics and Values
F	Flexibility
Fin.ARR	Financial advantage of Role Release
FNB	Facilitator Important
FU	Follow-up Important
H	Holistic
IG	Integration of Goals
ImplofTD	Necessary for Implementation of TD
IP	Intervention Plan
KOD	Knowledge of Other Disciplines
LCC	Less complicated cases easier to use certain aspects
Lteams	Lack of Teamskills
mf	Multifaceted
MNBTD	Motivation Important for TD
MS	Multiskilling
mt	More therapy is given
nPTDt	Need for Professionals to work TD

Nsenwa	Not so effective if not whole approach
Nteams	Need for Teaming Skills
PaTD	Possitive about TD
PD	Professional Development
PeTD	Possitive experience of TD
Pi	Parent Involvement
Pi + Co	Parent Involvement and Carry Over
RNB	Respect Important
RR	Role Release
SS	Sharing of Skills
TA	Teamassessment
TB-?TD	Type of barriers determine which aspect of TD approach to use
TD	Transdisciplinary Service Delivery
TDbetterthanOM	Transdisciplinary better than other Models
TDInvC	TD for more involved cases
TDRallBtL	TD Relevant to all BtL
TDS	Skills transference/transecendence between various disciplines
TDvSL	Transdisciplinary for Specific Learning Disabilities
TINB	Teachers Input Important
TNB	Teamwork Important for effective Service Delivery
usaTD	Using some aspects of TD
Y	Yes TD more valuable for certain BtL

Appendix F: Examples of coded focus group discussions

Group 6	P3: And then um we any feedback given of TD assessment are done with all professionals present unless its a sensitive case the psychologist or educator will handle it you know for obvious reasons um and then when we work together we have a role release model as you explained on your chart where we have term on term off so two terms of the year we see a certain class and then the other two the educator will continue with consultation if they require it to continue speech and OT sessions	RR		
Group 6	P2: That will be held in the class without the therapist being there so the teacher herself would be carrying out basic speech therapy lessons or OT lessons in the class with the children and corresponding to the IEDP	TDS		
Group 6	P3: And in therapy we don't ever see the children without the educator or the assistant present because otherwise there is no continuation of learning from the other side also because we don't spend every day with the child so we can learn from the educators and such is the other way.	CT	TDS	MS
Group 6	P4: I was just thinking now in terms of my experience in private practice working within a multidisciplinary team which is actually in hindsight wasn't a multidisciplinary team um when for example you do an assessment of a child at this school and you say(P3) does a speech assessment and I do on the IQ a vocabulary assessment and the results are completely conflicting then at least you can discuss it and suss it out and see why were results in my assessment as opposed to her instead of me doing an independent assessment she doing her own assessment writing a report which is sent to the parents which says two completely different things	TDbett erthan OM		
Group 6	W: So if you say the assessments are not independent you do one assessment - you plan assessments together?			
Group 6	P1: it depends. when the children come in for the observation we do the PEP profile and that we'll do all of us together or at least two of us together when we do assessments for IEDP it depends very much on the child's level of functioning so if they able we do all our own specific standardised assessments but if its more informal we do it together and the teachers and assistants are sometimes involved but we're more involved with the observation assessments.	AA		
Group 6	P2: and then obviously we use the TD team when we draw up our IEDP's. In my case I would go before I draw up each section or after I draw up each section I go to my therapists and sit down with them and discuss are you on board with me in this regard do you think I should add this or take this away if you don't think the child would be able to achieve it in two years and then once the IEDP meeting actually happens which includes the parents the OT the Psychol and speech therapist and myself (teacher) will all discuss together the outcomes we have laid out for the child for those two years and we have a discussion with the parents to see if they feel their child would be able to achieve those outcomes.	IP cf	TDS	
Group 6	W: That sounds like the client centred focus also			
Group 6	P2: Yes			

Group 6	P3: We also, I don't know how it happens at other schools actually but now we've done just class placements where all teachers and therapy staff are included in an everyone gets there say regardless of who they are and that and I don't know how other schools ...I think management just ...	H	
Group 6	W: So the whole school is part of this team	H	
Group 6	P3: Yes. Well our assistants they are part of our TD team I mean they go hand in hand. Obviously the educator being the runner of the IEdP in the classroom they are included in the IEDP for an hour um and then educators do consult with them regarding if there is a possible class placement issue or cause it's also its not just the kids don't go together if an assistant and a child don't see eye to eye it's also important	H	TINB
Group 6	W: Can I just ask: are the assistants skilled - do you do training with them?		
Group 6	P1: o ja we do in service staff training but they don't necessarily come for specific training.		
Group 6	P2 they don't have any they don't have to perform any type of assessments themselves to obtain a position as an assistant at a school but its many of them has been here for many years so their qualifications are basically their experience which are several years of experience but as P1 has said we do staff training every Tuesday and that does involve assistants and even our ground staff and hostel staff	MS	
Group 6	P3: and that's based on autism specific practice that or any issues regarding management of the school.		
Group 6	W: anybody else on this? If there is anything that comes up I can add it. Ok the next question		
Group 6	P3: Oh sorry just part of that our deputy and principal(name) one of them are always present in the IEDP's and any difficult sort of meeting and they know every child's name and they're involved in any big decision.		
Group 6	W: Thats management		
Group 6	P3: Ja we have a bigger management but they are the top two		
Group 6	W: Ok the next question: multiskilling and role release are characteristic of a TD approach and you are very familiar with these aspects. Think about your position as an OT ST teacher and Ed Pscyc and describe how you are integrating and expanding your knowledge in your interaction with the other team members. How are you expanding your own role and expanding your knowledge? In what way does that happen?		
Group 6	P3: What are we learning from each other?		
Group 6	W: yes		
Group 6	P3 Gosh everything.	MS	
Group 6	W: Tell me about that		
Group 6	P3: I think if you working with children with autism you're not your profession almost falls next to the fact that you are an autism professional then o by the way I'm also this is my role at the school but you've got to incorporate everything so any lost moment with OT I'll generally would try to do a fine motor activity as part of it like putting in the little things ask(P1) how do I do this I'll consult with her first before I just jump on the bandwagon to do what we're doing. and if there is any other things that come up you ask	MS	
Group 6	P1: and we do have some formal training where like for example the speech therapists will do for example PECS training or we'll do a staff development	MS	

	on sensory difficulties but the I think a lot of it happens like ...(P3) says informally if I would like struggling with a child emotional or behavioural I'll go to(P4) and ask what can I do in this specific situation so I think a lot of this just happens as you need it			
Group 6	P2: um I think as a teacher we have to learn the most from everyone an um as ...(P1) has said if we have difficulty with one child a pencil grip struggling to hold a pencil or tearing or struggling I will ask one of the therapist in what way can I better the child's grip or um if I have to ask(name) about environmental noises how do I incorporate that in my lesson plan. ...(P4) I would go to one of my children is still pooing in his pants what advice can you give me to try and cope with his behaviour shall I try this approach. Myself have looked up certain psychological approaches and gone to ask(P1) do you think this could work and try it that way and ..ya we've even approached other teachers who's children are a bit more functional than my children and I ask them how would you approach this situation or how can I get this child do better this.	TDS		
Group 6	P1: and I think for us therapists who aren't as involved with the kids as the teachers are we go to them a lot for specific things for specific children so if there is a specific sensory difficulty or behavioural issue we obviously need a lot of their input for managing that child.	CT		
Group 6	P4: Also for example there is nothing stopping you to go and observe other people's assessments so there is nothing wrong to go and sit in on the speech therapist and observe what they are doing how they doing and what they doing and the same with the OT's and many times in the classroom as well observing how the teachers does their different thing so If you work within a team you actually have no idea what the next person does you can't attempt your work that way			
Group 6	P2: As a teacher we sit the teacher and the assistant sits in when it is when we do have a lesson for OT or ST so we get those skills during a lesson and then reproduce those skills and then we reproduce those skills when we don't have those therapies	MS	TDS	RR
Group 7	W: The first question: What is your understanding of a TD model?			
Group 7	P1: My understanding and my perception of that its people working in different disciplines so basically they are trained in a specific way based on their expertise and basically that is then used to help the child with barriers and it is used alongside other therapists. So if you are trained in a specific skill you use that but not on your own alongside another therapist that has another skill so one works on language the other on gross motor. They integrate it to work together on different things. W: And that is what you understand the trans are, to transcend the disciplinary boundaries. P1: Yes the spilling over to the other person's influence but you still have your own expertise.	TDS	BNB	
Group 7	P2: um the way I agree is similar to what P1 say just my interpretation is slightly different where skills of one therapist is passed over to another therapist so that I could actually do a section or some of the work a physio therapist does so I may not be an expert in it but I can give parents advice coming from that perspective. Then also in our case discussions that it wouldn't necessarily be um it could be any team member that would have done the case discussion it would not be only a physio doing the case	TDS		

	discussion it could be anyone. So for me it's a deeper um um		
Group 7	Welma: transcendence?		
Group 7	P2: of skills that you do.		
Group 7	W: So you cross the disciplinary boundary in working with the child. You will learn skills from each other - is that what you are saying?		
Group 7	P2: Yes, ya		
Group 7	W: Any one of you?		
	P4: From my experience I would imagine that its actually in multidisciplinary I would think that the child is passed on between therapists but I think with a trans disciplinary I can imagine transference of skills but actually been with the other therapists in the same setting with the child at the same time where I actually on the other side of the room. So for me I would actually take on the role of the speech therapist and the OT and actually from a practical physio point of view do the practical also not just like somebody from the outside observing the child. So I can imagine that in that setup we take on different roles within the therapeutic environment that the child is coming in you know within that session. You know that is how I would see it.	TDS	
Group 7	W: So if I understand you correctly its one session where there is observation and also participation of all the therapists ..		
Group 7	P4: Yes, so transferring those skills so actually physically doing it.		
Group 7	W: Anyone who would like to add to that? Ok, the next question		
	P5: I also think important with that sort of what they have been speaking about is case discussion um someone mentioned case discussions. Maybe if you have case discussions decide on a like a broad overall goal and how each discipline can sort of reach the same goal everyone being on the same page not this one doing this and that one doing that but it's not integrated towards the bigger goal.	TDS	IG
Group 7	W: The next question: In what way are you using this model, in what way are you transcending the disciplinary boundaries in your work?		
	P2: From my side I don't think I have reached that level I'm working more individually I'm working more on individual goals. So it's one assessment of speech therapy and I focus on this and I focus on that. I do however where I can I would be getting input from the teacher so I can match that so it can benefit the learner and then obviously speaking to other professionals and hearing what their goals are and getting advice from them.		
Group 7	W: So there is a lot of collaboration		
Group 7	P2: A lot of collaboration but I haven't had the opportunity to get there to physically get with a learner and sit with other therapists and say this is the one goals we are going to work on and achieve that.	nPTDt	
Group 7	W: So that is a need?		
Group 7	P2: Hundred percent ya hundred percent.		
	P4: I've also mostly worked on a multidisciplinary base but I've been fortunate enough to work with learners almost forcing me in the direction where I needed to call ..an occupational therapist in the session working with an autistic learner but I mean that was wonderful to just working together and hearing what she says and how I can change my therapy and also another learner with the speech therapist so I've had it both ways I had to use them within a session so both of us guiding one another so from that side I've started already.	PeTD	

Group 7	W: It sounds as if you had a positive experience. P4: Ya the way of thinking and planning my sessions ye its very positive for me. I would like to build on that but I would like to say in a school setup it's not always possible where your time table, that person has a time in that slot. In a school setup it's not easy to coordinate that but I think from a private setup I've been in a private practice its nice if a speech therapist came in during your session but that was in a private capacity but I would just want to say from a school capacity its heard to coordinate that.	Petd	Chall enge sTD
Group 7	W: ok we are going to get to the challenges. P1: um I think there is definitely room for that to work with a learner like that for everybody to be present to deal with a learner with other disciplines but there is also psychological aspect of confidentiality which is actually very difficult for a psychologist to do that when there's other tings involved so I think there is a place for that but with confidentiality not always possible with us specifically with the psychology discipline.	Challen gesTD	
Group 7	W: Ok I'm glad you raised that - we'll discuss the ethics a bit later that is complicated. Anybody else on this question on how you are working in a TD way? P6: I've done it in a more consulting way, consulting other therapists especially with assessments to make sure I have interpreted it correctly. To get another point of view on the whole picture just to enrich my own picture of what I have found. I wouldn't say that it's been able to work longer than that but we wish that I think we've started moments of consulting with each other um integrating...		
Group 2	W: is daar nog iemand wat oor die tipe leerprobleme en die model ites wou se? Karl jy het nou ondervinding met outisme en gesien hulle het hoe intensiteit input P4: ja. maar dan dink ek nou aan jan krielskool mens het kans gehad om baie van daai dinge toe te pas ook daar en dit was spesifieke leerprobleme en daar was een van die dinge byvoorbeeld dit was soos 'n kliniek 'n hjele innameproses vorderingsproses en terminasie is iets wat baie lekker werk want mens bespreek dit saam as 'n span jy dink saam in die begin selfs voor opname met assessering het mens 'n vergadering met bv sielkundige en spraakterapeut en dan bespreek ons gaan ons aan met die ou of nie. so dit is al klaar sulke siftingsisteme wat goed werk en dan van daar af natuurlik ek dink bv dr.....(naam van dr) het gekom en die ouens gehelp met die aandagprobleme en dit met haar bespreek en gese wat doen ons daar en dan sy het vinnig haar inset gegee en gese ok die terapeute moet miskien hierna kyk en die opvoedkundige moet daarna kyk en so en so aan. so ja by die outistiese skool was daar spesifieke behoefte maar by die ding is dit oorlveuel maar ek meen by Jan Krielskool het ek die ander goed ook gesien. W: en het jy gesien by Jan Krielskool aspekete va die model (TD) wat daar gebruik is? P4: Ek dink omdat dit 'n kliniek is leen dithom nogal na toe ek meen mens hou weeklik vergadering met al die terapeuted almal saam um jy bespreek elke kind letterlik. Einde van die jaar is daar soos in skole 'n bespreking van elke kind volgens 'n terapeuteise standput waantoe gaan ons volgende met hierdie kind, plasings uitplasings	TDvSL	usaT D
Group 2	P5: Want in 'n skoolopset voel mens baie afgesonder want byvoorbeeld ek het nie daardie um jy weet vergaderings met terapeute nie so jy verwys maar	ATD	

	en jy kry 'n verslaggie maar dit is nie altyd so jpersoonlik nie maar dit moet wonderlik wees om deel van so 'n span te wees j	
Group 2	P3: Ons het jare terug by die Rooikruik Ontwikkelingskliniek was dit reeds ook bewys dat dit 'n baie suksesvolle TD spansamewerking waar ons elke kind in een dag gaan hy deur al die professies en dan sit jy na die tyd en gesels en selfs diagnosties te verslil en uiteindelik 'n um jy weet te kom tot op waar jy soort van die ander jprofe persoon kan oortuig van jou standpunt en saam uiteindelik verskil maak aan die kind se diagnose.	
Group 2	P1: Kan ek nou net 'n spanner in die works gooi - dit gaan eintlik oor die vorige vraag: as mens nou 'n se nou maar die hele model vat in its entirety en jy doen die hele span assessering ek dink net daar gaan obviously kinders wees wat se uithouermoe so is (wys dit is kort) ek kan aan 'n hele paar kandidate dink wat regtig net moeg sou raak en uithouermoe gewys dit net nie sou kon hou om deur 'n se nou maar 'n een na die ander afhangende van die kind maar dit kan 'n issue wees.	DofAA
Group 2	W: ok dis een van die uitdagings	
Group 2	P5: M.a.w daar sal meer sessies moet wees.	
Group 2	P1: ja of jy gaan breaks moet gee tussen-in	
Group 2	W: kom ons gaan na die volgende vraag: Comparing a TD approach with multi- or interdisciplinary approaches, do you think a Td approach can be more effective service delivery model?	
Group 2	P1: Ek dink definitief so dis soos wat jy gese het multidisciplinary jy stuur en se koebaai dit is jy voel baiekeer jy weet nie eintlik wat aangaan nie. Jy stuur maar net uit en se ok cheers	
Group 2	P2: Ons het dit nou gesien by een van die hospitale waar ek wrerk. Die pediater daar laat die kinders toe vir verskeie toetse rondom wat hy se is ADHD. En dan kom al die praktyke bymekaar die sielkundiges sien hom so dit is soort van daai tipe model maar dit is nie eintlik nie. Dis nou wat jy nou gese het wat gebeur elke persoon sien die kind of op een dag of op twee dae in die hospitaal ...maar niemand kom bymekaar daarna om te bespreek nie. Wat nou eintlik verder gedoen gaan word nie want vir baie kom van ver afdan beteken dit nie veel nie.	TDbett erthan OM
Group 2	W: so al die professies is betrokke maar hulle kom nie weer saam nie	
Group 2	P2: ja. daar is nie eers 'n uitruiling van verslae wat dalk sou gejelp het.....jy weet nie eintlik eers wie gaan almal die kind sien niedaar is nie engie ander kollaborasie nie dit maak dit moeilik	
Group 2	W: so as ek reg hoor dan se jy die TD model is beter as so iets waar alle dissiplines saamwerk maar daar is nie 'n integrering nie?	
Group 2	P2: ja definitief want dit is nie 'n holistiese benadering nie al het al die professies die kind gesien.	PaTD
Group 2	P4: so ek dink daars dalk 2 vlakke daarvan die een is die voordeel daarvan is dit maak die effektiwiteit van die behandeling beter en vinniger en meer akkuraat aan die eenkoant en aan die anderkant dink ek dit se baie van selfontwikkeling van elke persoon want hoe meer ek met 'n ander terapeut praat hoe meer verrek ek my denkraamwerk	PD
Group 1	P5: Maybe if you think about the discussion at the school yesterday, perhaps its also what assessment we should be using. And I think that is also a big factor in a TD approach. Using a standardised assessment or an observation of a functional skill, dependent on diagnosis.	TDvSL

Group 1	W: Can you give me an example?	
Group 1	P5: I mean some children you just....you said it just now, a child cannot cope with a standardised assessment and your results will just not be valid. If you are working in a disadvantaged community, a lot of our standardised tests are not appropriate to what they are exposed to.	
Group 1	W: And do you think a TD approach is valuable there?	
Group 1	P5: Yes because I think you can then use other's observation skills. And I think it is the same with the treatment, in terms of using each other's skills. And the overlap. The child does not need to go to every single discipline but the therapist could then use that multiskilling.	ATD
Group 1	P4: In some ways I was thinking, in almost any assessment, when you are involved in an assessment, ..you're interacting with the child and you observe certain things, but if you are standing back at the distance you can observe other things. So its actually nice to have two people because its almost like having a camera present. Having a camera present changes everything. the same way as having a recording - thats what the child forgets about it so you know, I think I mean I just remember working in the same room as Synthia (OT) (anonymous name) we would each be working with our own child but sometimes you would glance up and say "have you noticed this" or "did you see this position" It gives you that near-farview	ATD
Group 1	W: I understand. it is the being involved and not involved you get different perspectives.	
Group 1	P4: Yeh, you are busy with a particular aspect and then you loose something else.	
Group 1	W: And that is what you find is valuable of the TD approach because you have many other eyes that are not so involved when you are doing observations.	
Group 1	P1: You're busy taking notes and writing.	
Group 1	W: It is an interesting point you raise. I've never read (about) this. Um as an assist, but it is a very valuable point you make - an involved-uninvolved perspective. Ok, anybody else on this. As I say we'll get back to some of these aspects later. (next questionfor discussion): Comparing a TD approach with multi- or interdisciplinary appraoches, do you think a TD approach can be more effective than the other approaches and why do you say so?	
Group 1	P5: I think it is effective from a time point of view and a cost implication. I meean, in the private field as well as in a government school based environment. I think it is just so much more productive in terms of time than the child going from me to you to you to you. Rather spend two hours with the group and you've got the same findings. It is also overlap. The things I may do you may do because they are the same rather than doing it over.	ATD
Group 1	P1: Is this now the question for therapy or for assessment?	
Group 1	Welma: It could be therapy or assessment. Any aspect of the model.	
Group 1	P3: I think it has also to do with the entry?? levels within the child himself that has to be expended. if you've got...as said, all eyes on the child and the skills being layered on top of each other, I think the child - for him its beneficial to have all these different people and um, sometimes in the report between the child and therepist is not there and then whatever needs to be accomplished is not accomplished because something is just not working or connecting. W: Do you mean...in what kind of approach would that happen,	TDbett erthan OM

	in a multidisciplinary where the child has just one relationship? P3: Yes, or in the case where the child goes to see the speech therapist then the OT then the psychologist for emotional reasons - so there are three people and this child has to adapt every time because my approach is like this and I allow that, but when I comes there I'm not....so those things of the child then has to put into place is a lot of work, and especially if you are dealing with some things that are not integrated in your own system um say you have an imbalance or..			
Group 1	P1: I don't know if we are going to this point that I'm making later if I'm jumping the gun, but I think working in a team like that, working together in your therapy or the assessment. As therapists you feed off each other so you get a new energy. And I think that often one feels isolated in your work. W: is that in a multidisciplinary way. P1: Oh no no its working on your own as apposed to a transdisciplianry team. We've, all of us, work in schools so you have a lot of feed in, but even still there you are working in your own space in your own room. P1: You are still quite isolated in your own little space. Where as working like this you are getting a lot of energy from each other which is I think a healthy thing.	ATD		
Group 1	W: Yes that is more multi-disciplinary. You still feel isolated.			
Group 1	P2: Also now with the multiskilling, to an extend we work on different aspect but we dont have the skills to integrate other skills into our profession. So we are working with one child, like you said is quite isolated because we work with ourselves with the child and not have the specific knowledge to integrate other areas.	MS		
Group 1	P5: I think we just had a recent case where the emotional aspect was so great that if we would be in a TD team, the OT skills or issues he had from an OT's perspective would have been achieved so much faster if he had that support or if the pscyhologist on the TD team could come in using the multiskilling , using the OT skills. I was on my own, what i did was not working because the emotional was so great. And I think that is where a TD would have just been fantastic.	PaTD	nPTD t	
Group 1	P3: So the blocks would be addressed quicker and then the therapy works better. P5: Ya. I mean the therapies he was going to was not succeeding because the core issue just wasn't been addressed um...P1: its the emotional. P5: Ya, because the emotional issues was so huge. I think that is when you lose children when they are not in a TD setting because the parents lose stamina because it is from the one therapist to the next and no one is achieving anything...	nPTDt		TDbe ttert hanO M
Group 1	P3: And nothing is changing.			
Group 1	W: You say the parents also lose..			
Group 1	P5: The momentum because they are so on board and they are prepared to take their child to different therapies. For example this case that I've been working with, they were so on board as parents but the results were just not.			
Group 5	W: 'n Volgende vraag: Multiskilling....en role release...is deel van 'n TD benadering (opname onduidelik). Dink aan hoe jy jou vaardighede integreer metek dink dit is wat ons nou eintlik bespreek het (almaal beaam). Is daar iets waaraan julle nog kan dink, waar jy dalk nuwe vaardighede geleer het van 'n ander dissipline en dit dan toegepas het - as jy aan 'n geval kan dink?	MS		
Group 5	P1: Yesterday I spoke to(P2) because I'm working with a boy who doesn't	MS	RR	

	<p>get speech therapy because he just doesn't qualify for it at this point in time however I'm battling to understand always his words and the way he speaks to me so yesterday I could come to(P2) and say please explain um the situation and can you maybe just guide me how can you assist me to communicate more effectively so she said she'll read up about it and then we'll probably some time get together so she'll give me skills just so I can understand him better and that the two of us can assist him better.</p> <p>P2: Nog een. Toevallig is dit weer ek en(P1) ons het 'n seuntjie hy is nogal erg disartries dit is waar 'n kind sy asemhaling en sy fonasie en sy artikulasie moet koordineer en hy hakkel ook so hy het as hy praat druk hy sy spraak uit met die laaste bietjie lug in sy longe en omdat hy al hierdie goed moet antisipeer hakkel hy. So(P1) agv haar kennis is sy moet werk aan sy fisiese longkapasiteit en asemhaling maar ek gaan ook die asemhaling gebruik om sy hakkel..om sy vlotheid te verbeter so wat ek nou gaan doen sy het klaar 'n verhouding met hom met daai hulle gaan klaar die asemhaling doen en dan gaan ek nou maar net vir haar spraak goed gee op watter klanke en goed sy dit dan moet doen in haar sessies waar ek in my sessies op taal gaan fokus sodat hy weer die kurrikulum kan um want hy moet volgende jaar Graad Een toe gaan en hy is byvoorbeeld hy is Shona hys 'n Shona so ons moet hom nou net taalgereed kry terwys sy die fisiese gaan aanspreek. So en tye verander, netnou gaan ek weer dit doen en dan gaan ...</p>	
Group 5	<p>W: sy weer..</p> <p>P4: Ek het ook 'n voorbeeld dis nie iets wat voorheen gebeur het nie maar dis 'n behoefte wat nou baie onlangs uitgespreek is maar wat vir my 'n baie goeie voorbeeld is. Een van die fisioterapeute het met my kom gesels en gese hulle eintlik al die fisioterapeute het 'n behoefte om meer te leer van trauma - baie van die kinders wat hulle hanteer het hierdie jaar is kinders wat na operasies terugkom en dan met baie um um wat is die woord...opposisionele gedrag toon wat dan in terapie want kyk dan in</p>	
Group 5	<p>terapie want die fisioterapeute moet dan met terapie vir hulle help met rehabilitasie maar dit is baie pynvol um en hulle raak dan baie kwaad en bied baie weerstand teen wat die fisioterapeute wil he hulle moet doen en en hulle het gevoel hulle wil graag met ons sielkundiges gesels dat ons bietjie vir hulle help om die emosionele aspek beter te verstaan sodat hulle binne hulle terapie beter ..moet ons net kwaai wees en se julle moet dit net doen of moet ons simpatiek wees - hoe moet ons hierdie opposisionele gedrag wat ons kry binne ons terapie hoe moet ons dit hanteer.</p>	MS
Group 5	<p>W: Ja dit is ook weer 'n tipiese TD situasie. Julle almal, soos ...(P1) se, dink geïntegreerd niemand dink gefragmenteerd nie. Iemand wat nog 'n voorbeeld wil gee?</p>	
Group 5	<p>P2 (lag) ek dink daai is nogal gedek.</p> <p>W: Die volgende vraag, die arena assessering, waar die kind geevalueer word en almal kyk saam, of die observering van die kind deur almal saam dit is ook 'n kenmerkende aspek van TD model. Wat dink julle hiervan? Ek weet</p>	
Group 5	<p>julle werk met gestremde kinders en julle werk met kinders met spesifieke leerprobleme. Miskien kan julle vir my van albei - julle doen dit nie noodwendig vir kinders met spesifieke leerprobleme nie maar ek wil graag hoor wat is julle gedagtes sou so iets wat dink julle hiervan?</p>	
Group 5	<p>P1: We do screening ...(P4) can tell you more but its a more informal setup</p>	DAA

	where everybody is sitting around the table discussing the child but the child is there and a lot of the time we appreciate it if the child is playing on their own and then in the discussion at different points you're watching the child and see what is happening and you do an informal assessment		
Group 5	W: With the whole team?		
Group 5	P1: ja everybody will be sitting like we're sitting here and the child is playing there making your deductions		
Group 5	W: so that is a sort of an arena observation. Is that for all learning difficulties?		
Group 5	P2: Nee nee sorry dit is net vir jou eintlik jou jong fisies gestremde kind. Ek het dit ook byskool gedoen met die outistiese kind waar julle nou mos nie in 'n toetsituasie so ons het dit daar daardie arenaassessment agter die eenrigtingspeel gedoen maar ek sou nogal graag wou weet hoe sou mens TD kan doen met 'n leergestremde kind want dit is 'n vreeslike toetsbattery wat mens doen as mens net kyk na leerondersteuning jy kan dit nie saam met iemand anders doen nie so dan moet jou fokus van jou evaluasie anders wees. Jy moet of sy skills sy vlak van vaardigheid bepaal ek kan amper nie sien hoe dit - nie in 'n arena setting nie daars wel TD maar daar is nie 'n arena setting nie (almal beaam)	TDvSL	DofA A
Group 5	W: Te ingewikkeld om dit te doen (almal se ja)		
Group 5	P4: Ek dink vir my wat ek verstaan en hoe ons dit hier toepas is die verskil tussen 'n formele assessment met gestandaardiseerde toetse en waar jy jou norms gebruik en en gestandaardiseerde inligting wil kry dit gebeur elkeen in sy eie ons bepreek dit na die tyd maar die assessment self doen elke terapeut alleen dis die oomblik as jy wegbeweeg as jy nie die gestandaardiseerde meting kan gebruik nie en jy moet nou gaan op gevoel en observasies dan kyk ons regtig na kinders wat nie instaat is om 'n formele assessment deur te gaan nie dan is daar waarde in wanneer ons kyk na goed soos alternatiewe kommunikasie het hy 'n ja en nee en oorsaak response wat is sy handfunksie en ken hy basiese konsepte wat meer 'n algemene ding is wat almal van ons wil weet ken die kind sy kleure ken hy sy vorms op 'n manier het die kind 'n behoefte aan kommunikasie so dis iets wat amper meer generiese inligting wat ons dan in so 'n arenaassessment probeer waarneem. Die oomblik as mens begin kyk na die akademiese baan en mens begin kyk na kinders wat ons akademies wil ondersteun agv 'n spesifieke leerhindernis moet dit baie meer gefokus wees.	TDInvC	
Group 3	P3: i think what you are trying to say along the way you find a hiccup you can adjust your goal and in a team you would have hand it over and say this is your plan and they will keep working but as a profession you would be able to change and say hang on that way is not working ...	ChallengesTD	
Group 3	P4: and that often happens in therapy where we would have to shift and change.		
Group 3	P3: (same thought of above explained)		
Group 3	R: this sounds to me more like a stumbling block of the TD approach not really can we use different aspects because the question is: do you think you have to use all aspects or can you use certain aspects.....(continue) do you think if you use the whole team approach all aspects it would be better		\$
Group 3	P4: yes then you go every step of the way		

Group 3	P3: I think your less complicated cases are easier to do like this than your complicated cases if you have your complicated cases	Y
Group 3	P1: with more disciplines involved	
Group 3	P3: more disciplines involved yes then it obviously becomes more difficul but a kid with maybe mildly gross motor problems but more speech and language and physiological but a child who is physically disabled and has the speech and drooling and feeding problems obviously psychological then those children are going to need a lot more than a whole team than a child that is less disabled	TDInvC
Group 3	P1: and also I think like a child like that the process is long where other children may be a 2 year intervention (P3 agrees "defenitely")	
Group 3	R: can you say that again ...(P1)	
Group 3	P1: if you have say a severely involved child that is a lifelong involvement with a team like that where a less involved child maybe a year or two and that makes the process harder because the team would not necessary stay together for the whole time and then you have to keep changing and the paper work	Challeng esTD
Group 3	P2: the intuitive side of it	
Group 3	P1 I dont know what the word is um the side of how we treat our clients at the moment that will need to be documented and its time consuming so you need to focuss on the very essence and the things to be done	
Group 3	R: we can discuss it again at the stumbling blocks. Ok it sounds that the stumbling blocks are coming in all the time (P2 ask to repeat the question): A TD sd has many aspects e.g. arena assessment, role release etc	
Group 3(repeat question)	
Group 3	P3: it depends on the child if certain aspects are going to be needed or not	
Group 3	R: so for you ...(P3) its the uncomplicatd child it can work like that and for you(P1) you feel the whole approach is needed	
Group 3	P1: those 3 things define the approach if you lose one of it you lose the approach you cant call it that anymore then you must call it like one of the other appraoches like interdisciplinary or multi...	usaTD
Group 3	P2: I still feel that the team leader the person that is in charge of the project whatever name we're gonna give them, has got to be very very skilled in seeing the bigger picture they got to have that style of management and that style of thinking they've got to be born with it you cant learn it they've got to know when to brring who in and at what stage and into what level	FNB
Group 3	P1: and it have to be someone with good expereince they have to know exactly what OT's speech therapists etc do they have to have lots of knowledge	KOD
Group 3	P3: all the disciplines as well as the range within that discipline that you see I mean you can have such a wide range within that discipline	
Group 3	R: can i come back to this question I think the question is not clear.(P1) you say that this is the TD approach if you take one away its not, my question is: can certain aspects be usefull in providing sercices?	
Group 3	P1: but then you cant call it TD	
Group 3	R: if you are doing multiskillinjg or role release as aspects of TD would it be useful?	usaTD
Group 3	P1: yes yes	usaTD

Group 3	R: you feel it would be useful but then its not called a TD approach completely	usaTD
Group 3	P1: yes	usaTD
Group 3	R: and um how can this be useful? (P3) you said for a child who does not need that much input its easier um in what other ways can you use aspects of the approach and not the whole approach?	
	P1: the role release can be financially easier for a parent because then...um currently an OT and I work together and we have vast experience working with 2 differernt disciplines and she would often phone me and we do role release because I'll say to the mom for 3 motns you are going to be with me and you pay me and for 3 months you will be with her or sooner when I see because very often I see speech and hearing is based on what the perceptual development in a child is so I'll work up to a point and then I realise this child is stuck because he cannot glue his language on his brain and then he needs to come and I refer him back tjhere so financially the parent because now she doesn't have to pay for both of us and we drag our wings and we go slower and slower actually goes faster because the child gets released to go and build on those builing blocks and then the moment she sees its there she sends him back so that I come back and re-inforced what I've done	usaTD
Group 3	R: and do you sometimes skill each other?	
Group 3	P1: yes we do courses together like a sign language course we did together um sensory training	MS
Group 3	R: which is a OT	
	P1: ya so sometimes we don't even do it together but we've gone for extra training like neurodevelopmental training wasn't necessarily together but we both completed the course together but for example when she has done one that I havn't done she'll inform met because she'll probably need part of the association already like when feuerstein people come over	MS
Group 3	R: and you do some of the multiskilling in you set up with(the OT)	
Group 3	P1: because multiskilling also involves the parent your half an hour means nothing in his life so you have to train the parent in doing, for example a technique that the OT is doing the brushing but it gets so watered off if the OT shows the facilitator or the aupair who then shows mommy then you've lost 2 thirds of the approach already so its always very good if another discipline knows exactly what you do so then you'll ask the mom or the aupair to show you and then you instantly realise ok this is where we lost some and then you send the package back again because its very good that you can check that the queality of what needs to be done is done correctly and properly	Pi+Co
	P3: and also I've worked in a school setting where you have all the multi-disciplines work so well because you there is so much of that cross training and you can build ok you do the all the physio first you go from physio to OT and then you do your speech so you build all the blocks up	MS
Group 3	P1: yes and the child is(unclear) 6-8 hours a day so which is	
	P3: yes that continious sense from that half and hour and hour I see my children for an hour um and then its gone and an hour is not much and you cant do more often that that because lives are busy finacial as well as you want to be a kid	

Group 3	R: so if you work in a team you know that that will continue. P4: I just think it would be when I'm assessing for example and something comes up OT related or auditory perception it would be useful to have a person right there that you can go and ask um the relevant significance because you may pick it up as you dont really know the impact of what you see	TDS
Group 3	P1: for example a child who does not use prepositions very often the child has very poor body space perception which is an OT thing and if you're not sure its great if you could phone a person or just go in and say is it possible or if the child comes for your part just check this is it there or not there and very often it comes out they confirm it I see the language can't be for that because the child is struggling in that physical area	BAA
Group 3	R: so in that way the arena assessment would be usefull	BAA
Group 3	P4: mm(confirming sounds) and also that difference that you were speaking last time between OT and physio therapy if both are on the team you woujld be able to say no this is more your area of expertise and the child would be greater benefit then by the intervention so	BAA

Appendix G: Journal: Focus group discussions

FOCUS GROUP	DATE	THOUGHTS/NOTES
<p>Group 1</p> <p>This group consisted of professionals who work both in private practice and at a school. They are known to each other as some of the professionals work part-time at the same school, following a multi-disciplinary approach.</p>	20 September 2013	<p>Participants were warm and welcoming towards each other which helped with the flow of the conversation. I sensed a positive and hopeful energy in discussing the TD approach as if they see the TD approach as an answer to the frustrations they experience with fragmented service delivery.</p> <p>All participants had equal part in the conversation.</p>
<p>Group 2</p> <p>The majority of group members work in private practice. They were not known to each other prior to the proceeding workshop.</p>	9 October 2013	<p>Participants do not know each other well. Participants only met each other at the preceding workshop. The event was pressured by a time limit which left little time to warm up and get to know each other. Initially it felt to me as if my questions did not come across clear enough as I had to re-state initial questions. As the discussion progressed, participants felt more comfortable and there was a better flow in the conversation.</p>
<p>Group 3</p> <p>The group consisted of professionals working in private practice. The remedial therapist work at the school where the focus group was conducted. Some of them were known to each other as they all work in the same suburb.</p>	25 October 2013	<p>We struggled to find a time for this meeting. I thanked group members for their patience with all the emails going back and forth and many re-schedulings.</p> <p>The conversation was rich and meaningful from the start. Participants are well known with each other and some of them have previously worked with each other in a pluri-disciplinary way. My overall feeling is that this group tried to give a balanced perspective on TD service delivery. Initially the remedial therapist felt self-conscious to be recorded but as the conversation continued she voiced her opinions.</p>

<p>Group 4</p> <p>Participants from this group work in various settings. The physiotherapist, occupational therapist, educational psychologist and speech and language therapist mainly work in private practice. The remedial therapist work at a school for learners with severe intellectual disability. Some of the participants were known to each other as they all provide consultation services to the above mentioned school.</p>	<p>7 February 2014</p>	<p>Hermanus</p> <p>Initially the conversation was dominated by participant's view on the stumbling blocks of a TD approach. It felt as if they approached the discussion with apprehension as they felt there were many stumbling blocks preventing the implementation of such an approach. Once I explained to them that we are discussing many aspects of the approach and stumbling blocks will be a specific topic of discussion, the conversation had a better flow and participants were able to voice their views on the various aspects discussed.</p> <p>I sensed an excitement with this group about the prospects of using aspects of the TD approach at the school where most of them provide services on an ad hoc basis.</p>
<p>Group 5</p>	<p>19 September 2013</p>	<p>This group surprised me with their rich experience and success they achieve through a TD approach. The conversation had an easy flow and my inputs were minimal. I felt elevated after this discussion as I was encouraged by the enthusiasm of this group about the use of TD service delivery approach in addressing BtL.</p>
<p>Group 6</p>	<p>30 October 2013</p>	<p>Participants shared their experiences of a TD approach which are all positive. They conveyed a great sense of loyalty to the system (school) in which they work and it seems that they feel well supported by this system which is based on TD principles. Conversations were based on their own experiences as a team.</p>

Group 7	12 September 2013	<p>The number of participants (8 in total) provided a wide range of discussions. At times I had to re-focus participants to the topic of discussion as they tended to get distracted by the discussing frustrations they have with the system in which they work. In discussion the various aspects which I proposed through the a priori questions, participants were almost amazed at the many “incidental” and informal ways in which skills are transferred among them. Although this group identify themselves as TD team, they voiced a need for further training and development of the TD approach. I was encouraged by their interest in the results of this study.</p>
Group 8	23 May 2014	<p>This is a group with many strong personalities. They work under difficult circumstances. I admire the strong cohesion within this group and their ability to communicate differences in a productive manner. They are passionate about TD service delivery and spend much time discussing the importance of teaming skills. They are interested in doing a follow-up discussion based on the results of the assessment and in furthering their TD service delivery.</p> <p>The conversation had a good flow. The remedial therapist is a new team member and her input was limited. It appeared as if she is still finding her feet within this team. However, she made valuable conversations.</p>

Appendix H: A priori questions

I (a) A Priori Questions: Groups 1-4

A priori questions of Focus Group discussions: Groups One to Four

Introduction

Thank you for participating in this focus group discussion. You attended the workshop on a transdisciplinary approach for learners experiencing barriers to learning a few weeks ago.

As mentioned at the workshop, the focus of my study is to investigate professional's perceptions of a transdisciplinary approach in providing services to learners experiencing barriers to learning.

I prepared a set of questions to be discussed. You are most welcome to add questions or aspects to discuss as we go along.

This is a focus group; ideally, I would like you all to talk to discuss the questions among each other, rather than answering me. As I would like to gain insight into your perceptions of a transdisciplinary model for learners experiencing barriers to learning. I shall limit my participation and only act as facilitator.

The discussion will be tape and video recorded. I would like each of you to say your name before speaking. This will make it easier to transcribe the discussion. The recorded material will only be viewed by myself and my professor and your names will not be mentioned on the transcripts or in the thesis and published article. Results of the study will be available to you should you be interested.

There are no right or wrong answers and each member's input is valued and will be respected.

It is acceptable to disagree with what a group member says as this is a discussion of perceptions.

Group members introduce themselves

Name, discipline, how long he/she has been in the profession.

Questions:

1. What is your understanding of a transdisciplinary service delivery approach for children experiencing barriers to learning?
2. Transdisciplinary service imply various aspects e.g. the arena assessment with a single integrated report and treatment plan, multi-skilling and role release. Do you think all aspects or just certain aspects of a transdisciplinary approach can be useful in providing services to learners with barriers to learning?
3. There are various categories of barriers to learning: intellectually impaired, blind, deaf, specific learning difficulties (dyslexia, apraxia, ADHD etc.). Would you consider a transdisciplinary approach (or aspects of this approach) to be more relevant for certain of these categories? Please explain.
4. Comparing a transdisciplinary approach with multi- or interdisciplinary approaches, do you think a transdisciplinary approach can be a more effective service delivery approach? Please explain.

5. Considering your current service delivery model (pluri- multi- inter) in what way /how will, or won't, a transdisciplinary model improve your service to children experiencing learning difficulties?
6. What would you say is necessary to implement a transdisciplinary approach for professionals working in private practice?
7. If you were given the opportunity to work in a transdisciplinary team, with all the necessary administrative and other resources available (e.g. building, billing system etc) would you consider it? Explain.
8. What do you think are the advantages of a transdisciplinary approach?
9. What could be disadvantages/stumbling blocks of a transdisciplinary approach?

I (b) A Priori Questions: Groups 5-8

A priori questions of Focus Group discussions: Groups Five to Eight

Introduction

Thank you for participating in this focus group discussion. As you know, learners experiencing BtL usually require the input from more than one therapist and therefore collaboration or team work among professionals providing services to these learners is vital.

A number of models of team work exist, varying in the degree of collaboration. The uni-disciplinary model where therapists are not working within an established team but do contact each other to discuss findings and intervention, is least collaborative.

A multi-disciplinary approach where therapists form a team and discuss assessment results and intervention plans with each other is more collaborative.

The next level of integration is an interdisciplinary approach where assessment findings are discussed to develop a holistic intervention plan. Intervention however happens within disciplinary boundaries.

A transdisciplinary approach is most collaborative model as professionals cross (transcend) disciplinary boundaries to maximise integration.

The focus of my study is to investigate professional's perceptions of a TRANSDISCIPLINARY approach in providing services to learners experiencing barriers to learning. As you are working together as a TRANSDISCIPLINARY team, the focus of this discussion is to explore your thoughts and perceptions of this model.

I prepared a set of questions to be discussed. You are most welcome to add questions or aspects to discuss as we go along.

This is a focus group; ideally, I would like you all to talk to discuss the questions among each other, rather than answering me. As I would like to gain insight into your perceptions of a transdisciplinary model for learners experiencing barriers to learning. I shall limit my participation and only act as facilitator.

The discussion will be tape and video recorded. I would like each of you to say your name before speaking. This will make it easier to transcribe the discussion. The recorded material will only be viewed by myself and my professor and your names will not be mentioned on the transcripts or in the thesis and published article. Results of the study will be available to you should you be interested.

There are no right or wrong answers and each member's input is valued and will be respected.

It is acceptable to disagree with what a group member says as this is a discussion of perceptions.

Group members introduce themselves

Name, discipline, how long he/she has been in the profession.

Questions

1. What is your understanding of a transdisciplinary approach?
2. In what way are you using the transdisciplinary team model at school?
3. What do you understand to be the essence of a transdisciplinary approach in the context of your school?
4. Multiskilling and Role release are characteristic of a transdisciplinary approach. Think about your position as an occupational therapist, speech and language therapist, educational psychologist, physiotherapist, remedial teacher/learning

- support teacher in the team. Describe how you are integrating and expanding your knowledge in your interaction with other team members from different disciplines?
5. The arena assessment, where all team members are involved in one integrated assessment and provide one report is also characteristic of a transdisciplinary approach. What are your thoughts on this way of assessment?
 6. Teamwork requires teaming skills such as open communication, problem solving skills, conflict resolution.
 - (a) Do you think this is important in a transdisciplinary team?
 - (b) As a team, did you have specific training on teamwork or enrichment in team skills? Do you think this is necessary/not necessary? Please explain.
 7. Working within a transdisciplinary team also requires specific team ethics and values. What is your experience in this regard? Do you think it is important to have team ethics and values? Please explain.
 8. Another aspect of a transdisciplinary approach is to involve parents in the assessment and intervention process. What are your thoughts on this?
 9. What do you think are the advantages of a transdisciplinary approach in working with learners experiencing barriers to learning?
 10. What are the disadvantages or stumbling blocks of a transdisciplinary approach?
 11. Do you think there is a need for more professionals providing services to learners with barriers to learning to work in a transdisciplinary team? Please explain.

Ending off

Thank you for your input. Are there any more questions you would like to discuss?