

Parents' and facilitators' perceptions of children with autism spectrum disorder in an equine-assisted learning programme

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DECLARATION

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ABSTRACT

Autism spectrum disorder (ASD) currently affects an estimated 1:68 children globally and is the second most common disability worldwide. ASD is a neurodevelopmental disorder characterised by abnormal social behaviour, delays in language, sensory processing difficulties and restricted and stereotyped patterns of behaviour and interests. These impairments vary in nature and affect the individual throughout their lifetime. The cause of ASD is still unknown. Therefore interventions for individuals with ASD target the impairments of the ASD individual as opposed to treating the cause. One intervention that is proposed to effectively reduce the impairments of children with ASD is Human-Animal Interaction (HAI) interventions. HAI interventions take place when an animal is incorporated into the treatment process. A specific type of HAI intervention for children with ASD that is under researched in South Africa is equine-assisted learning (EAL).

The current study aimed to address this gap in literature by exploring the effect EAL may have on children with ASD in South Africa. The effect of EAL was explored through conducting semi-structured interviews with parents and facilitators involved in an EAL programme in the Western Cape. Eight parents with a child with ASD in the programme and 3 facilitators of the EAL programme participated in the study.

The interviews were transcribed and further analysed using thematic analysis. Following thematic analyses three main themes emerged, namely, the benefits of EAL, feedback and experiences of the EAL programme, and the perceived role EAL plays in producing the benefits. It is within the context of these themes that parents and facilitators described the beneficial nature of EAL for their child with ASD and explained how these benefits were facilitated in a session. Facilitators further provided their feedback on the physical environment of the EAL sessions, the children and the parents. The facilitators concluded that rain and wind influenced the sessions – favourably and unfavourably respectively.

These results supported findings in existing literature. However, these results also addressed a gap in literature on EAL programmes for children with ASD, in particular the lack of the facilitator's perceptions. The facilitator's perceptions, in this study were essential in providing a more in-depth understanding of the benefits, the physical context of the EAL sessions and the differential behaviour of children with autism and Asperger's syndrome within the sessions.

OPSOMMING

Outisme Spektrum Versteuring (OSV) affekteer tans ongeveer 1:68 kinders wêreldwyd en is die tweede mees algemene gestremdheid. OSV is 'n neuro-ontwikkelingsversteuring wat gekenmerk word deur abnormale sosiale gedrag, vertraging in taal, sensoriese prosesseringsprobleme, en beperkte en stereotipe gedragspatrone en belangstellings. Die aard van die gestremdheid verskil van individu tot individu en dit duur voort regdeur hul lewe. Die oorsaak van OSV is tans onbekend en intervensies vir OSV-individue teiken die gestremdheid van die individu met OSV in plaas daarvan om die oorsaak daarvan te behandel.

Mens-Dier Interaksie (MDI) intervensie word voorgestel om op 'n effektiewe manier kinders met OSV se gestremdheid te verminder. MDI-intervensië is wanneer 'n dier betrek word in die behandelingsproses. 'n Spesifieke tipe MDI-intervensië vir kinders met OSV waarmee navorsing gedoen word in Suid-Afrika, is perdry-ondersteunde leerprogramme (POL).

Die huidige studie beoog om die gaping in die literatuur aan te vul deur ondersoek in te stel na die effek wat POL het op kinders met OSV in Suid-Afrika. Die effek van POL is ondersoek deur semi-gestruktureerde onderhoude te voer met ouers en fasilitateerders van 'n POL in die Wes-Kaap. Agt ouers met 'n kind met OSV in die program en 3 fasilitateerders van die POL het deelgeneem aan die studie.

Na voltooiing van die onderhoude, is dit getranskribeer en verder geanalyseer deur tematiese analise. Na die tematiese analise het drie temas na vore gekom, naamlik die voordele van POL, terugvoer oor en ervaring van die POL, en die rol wat POL speel om voordele teweeg te bring. Dit is volgens hierdie temas wat ouers en fasilitateerders die voordele van POL vir hul OSV-kind beskryf het en verduidelik het hoe die voordele in 'n sessie gefasiliteer word. Fasilitateerders het verder terugvoer gegee oor die fisiese omgewing van die POL-sessies, die kinders en hul ouers. Die fasilitateerders was van mening dat reën en wind die sessies beïnvloed het – voordelig en nadelig onderskeidelik.

Hierdie resultate het die bevindings in huidige literatuur ondersteun. Die resultate het ook 'n gaping in die literatuur oor 'n POL vir kinders met OSV gevul – spesifiek wat die fasilitateerder se persepsies betref. Die fasilitateerder se persepsies in hierdie studie was noodsaaklik om die voordele, die fisiese konteks van die POL sessies en die differensiële gedrag van kinders met outisme en Asperger se sindroom binne die sessies beter te verstaan.

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LIST OF ABBREVIATIONS

- AAA- Animal-assisted activities
AAT- Animal-assisted therapy
ABA- Applied behavioural analysis
ADHD- Attention deficit /hyperactivity disorder
ASD- Autism spectrum disorder
CDD- Childhood disintegrative disorder
DSM-5- Diagnostic Statistical Manual of Mental Disorders (5th edition)
DSM-IV- Diagnostic Statistical Manual of Mental Disorders (4th edition)
EAI- Equine-assisted interventions
EAL- Equine-assisted learning
EFP- Equine-facilitated psychotherapy
HAI- Human-animal interaction interventions.
HT- Hippotherapy
PDD- Pervasive developmental disorder
PDD-NOS- Pervasive developmental disorder not otherwise classified
PECS- Picture-exchange communication system
TEEACH- The treatment and education of autistic and related communication handicapped children
THR- Therapeutic horseback riding

CHAPTER 1

INTRODUCTION AND BACKGROUND TO THE PROBLEM

1.1 INTRODUCTION AND PROBLEM STATEMENT

Animals have been bred to coexist with humans and subsequently developed a bond with humans through fulfilling a range of roles, from herding and guarding to being a companion, best friend and family member (Fine & Beck, 2010; Serpell, 2010). Numerous studies have found that the formation and strengthening of this bond between animals and humans may increase the well-being of humans through facilitating psychological, social and physical benefits (Fine & Beck, 2010). These benefits include the non-judgmental emotional support of the animal, increasing a person's happiness, self-confidence, and reducing their stress and anxiety (Chardonnens, 2009; Fine & Beck, 2010).

Given this proposed belief that animals contribute to the well-being of humans, multiple interventions have been employed that integrate a particular animal (like a dog, cat or horse) as a central component and catalyst to achieve therapeutic goals (Fine & Beck, 2010). The umbrella term for these interventions is human-animal interaction (HAI) interventions.

HAI interventions encompass amongst others, animal-assisted activities (AAA), animal-assisted therapy (AAT), therapeutic horseback riding (THR), hippotherapy (HT), equine-assisted learning (EAL) and equine-facilitated psychotherapy (EFP). A wide variety of populations may benefit from these interventions. Physical benefits include reducing stress and improving a person's posture (Fine & Beck, 2010). A social benefit may be improved social-communication skills and increased social interaction. On a psychological level these interventions may relieve depression and increase a person's self-esteem and happiness (Beetz, Uvnäs-Moberg, Julius, & Kotrschal, 2012; Fine & Beck, 2010).

According to Klontz, Bivens, Leinart and Klontz (2007), horses are unlike other animals, as they (horses) can facilitate therapeutic change through their unique ability to mirror and 'read' a human's nonverbal behaviour and to moderate their (the horse) own behaviour accordingly. Through mirroring the person's emotional and physical state through their own behaviour towards that person, the horse gives accurate and unbiased feedback on the person's behaviour (Klontz et al., 2007). It is through this feedback process that the person becomes aware of their

feelings and behaviours. When reflected upon with the help of a psychotherapist, it helps the person to resolve emotional difficulties and change their maladaptive behaviour, which subsequently leads to personal growth (Hauge, Kvalem, Pedersen, & Braastad, 2013; Klontz et al., 2007).

According to Selby and Smith-Osborne (2013) and Simmons (2011), equine-based interventions were beneficial for a variety of individuals, including but not limited to those with disabilities, chronic mental illnesses, behavioural and attentional issues and the at-risk youth. Horses were beneficial to these and other populations through increasing their confidence, communication, self-acceptance and by reducing their anxiety and isolation (Simmons, 2011).

Horses are used in a wide variety of equine-based HAI interventions. These interventions use the unique aspects of horses, like their mirroring ability, in various manners to address a diversity of psychological issues or to facilitate specific skills like personal control, attention, focus and problem solving that may be lacking in a given population (Hallberg, 2008). These therapeutic interventions may take place with the client either on the horse (mounted based) or off the horse (ground based). Equine-based interventions (EAI) include EAL, THR, HT and EFP (Professional Association of Therapeutic Horsemanship International (PATH Intl.), 2016).

The current study will focus specifically on EAL, which teaches various horsemanship and basic riding skills to children with physical or mental disabilities and children with autism spectrum disorder (ASD). Through these methods EAL aims to develop the children's confidence, non-verbal and verbal communication, sensory management and control, as well as stimulate their motor, neurological, social and cognitive functioning (Bass, Duchowny, & Llabre, 2009; Gabriels et al., 2012; Nelson et al., 2011; Ward, Whalon, Rusnak, Wendell, & Paschall, 2013). It is particularly beneficial for children with ASD because their core and comorbid impairments may be reduced (Gabriels et al., 2015; O' Haire, 2017). EAL is facilitated by an equine specialist and is predominantly ground based (Bass et al., 2009).

ASD is a complex and persistent neurodevelopmental disorder appearing in the first three years of a child's life (Mash & Wolfe, 2013). It is characterised by abnormal social behaviour, delays in language, sensory processing difficulties and restricted and stereotyped patterns of behaviour and interests (American Psychiatric Association (APA), 2013; Mash & Wolfe, 2013). Each social, communication, behavioural and sensory impairment presents with a unique combination of symptoms and with varying degrees of severity in each child. In other words, the

nature and severity of each child with ASD impairments are unique (Grandin, Fine, & Bouwers, 2010).

Individuals with ASD furthermore may have comorbid impairments of inattention, hyperactivity, irritability and impaired intellectual functioning and adaptive living skills. They also have high incidence rates of stress, anxiety and depression (APA, 2013; Gabriels et al., 2015). These impairments and comorbid impairments may cause children with ASD to exhibit more challenging or inappropriate behaviours compared to children with other disabilities (Gabriels et al., 2015).

Globally it is estimated that 1:68 children have ASD and it is prevalent across socioeconomic, ethnic and racial lines (Center for Disease Control and Prevention (CDC), 2014; Van Rooyen, 2016). Furthermore, ASD is the second most common disability after intellectual disability (CDC, 2014; Van Rooyen, 2016). No comprehensive prevalence statistic of ASD in South Africa could be located (CDC, 2014; Elsabbagh et al., 2012). However, a statistic was located that gives an indication of the prevalence of ASD in the Western Cape. According to Bateman (2013), 10 children are collectively diagnosed with ASD at Tygerberg Hospital, Red Cross Children's Hospital and Lentegeur Hospital each week. All these hospitals are situated within the municipal boundaries of Cape Town in the Western Cape.

These global and provincial prevalence statistics of ASD, however, must be regarded as preliminary due to the substantial variance of the prevalence of ASD found throughout various epidemiological studies (Elsabbagh et al., 2012). Even though the statistics are varying, a comprehensive global prevalence study did reveal that globally ASD had increased substantially since 2000 to such an extent it has been occasionally labelled an epidemic (Elsabbagh et al., 2012; Mitchell & Holdt, 2014). Given the high prevalence and severity of the impairments of ASD, there is a considerable need for effective treatment and subsequently for research on the proposed treatments (Bass et al., 2009; Gabriels et al., 2012).

Research concerning children with ASD in an EAL programme has predominantly been done internationally. South African research focusing on children with ASD in an EAL programme is limited (Boyd, 2015; Gabriels et al., 2012). International studies in the field revealed that EAL was beneficial for children with ASD through reducing their core and comorbid impairments. According to Bass et al. (2009) and Gabriels et al. (2015), EAL improved children with ASD's social behaviour and motivation, expressive communication,

motor planning and decreased their anxiety. Studies that explored the perceptions of either the facilitator of an EAL programme or the parents of children participating in an EAL programme indicated that the programme increased the child's happiness, confidence and pride (Boyd, 2015; Scialli, 2002).

1.2 PURPOSE OF STUDY

The motive and aim of this research was to explore, and thus increase the knowledge of parents' and facilitators' perceptions and experience of an EAL programme for children with ASD. The question thus forming the basis of this research is: What are the parents' and facilitators experience and perceptions of an EAL programme for children with ASD? This question entails that both the benefits of the programme, if any, and the parents' and facilitators' personal experiences and feedback of the EAL programme were explored.

The parents' and facilitators' feedback and experiences served to provide insight into various aspects influencing the sessions and the personal experiences of people involved in the programme. Through exploring both the parents' and facilitators' perceptions, two different perspectives of an EAL programme for children with ASD were gained. It is through interacting daily and knowing their children that the parents were able to note the various ways in which their children benefit from the programme. Although facilitators are also able to note changes in children with ASD, they provided a different perspective as they only interacted with the child during the EAL programme. The facilitators were therefore able to provide explanations about the children's changes throughout the programme.

The effect of an EAL programme for children with ASD as well as the parents and facilitators perception of it is a developing field of research internationally but is limited in South Africa¹. Research in this field is also required given the high prevalence and the severe impairment ASD has on a child. Exploring the perceptions about this treatment methodology provided an opportunity to explore the benefits of the treatment and barriers that may hinder the effectiveness of sessions in specifically a South African context.

¹ Databases that were searched that lead to this conclusion (that literature in this field is limited), was EbscoHost, science direct, google scholar, academic search premier and academic one file. The keywords used to find research with each of these databases were, "therapeutic horseback riding", "equine-assisted learning", "hippotherapy" and "equine facilitated psychotherapy". These terms were coupled with "autism spectrum disorder", "autism" "asperger's syndrome" and "pervasive developmental disorders" in order to locate relevant research.

The organisation where the current study took place is situated in the Western Cape and will be described further in section 4.4.

1.3 DEFINITIONS

In order to more comprehensively understand the effect EAL may have on children with ASD, the benefits of EAL for children with ASD need to be discussed. However, relevant concepts first need to be defined. These concepts are HAI interventions, AAT, AAA, EAI, EAL, caregivers and facilitators, and ASD. ASD will be defined in accordance with the disorders it encompasses.

1.3.1 Human-animal interaction (HAI) interventions

HAI interventions integrate a particular animal as a central component in either a therapeutic or a recreational setting, with the broad goal of increasing a person's well-being. Each HAI intervention is either used for a specific or a wide variety of populations and they can be differentiated from each other by the animal they use, their therapeutic goals and the nature of their activities (Chardonnens, 2009; Holen, 2012). HAI interventions encompass AAA, AAT, EAI, EAL and EFP.

1.3.2 Animal-assisted therapy (AAT) and animal-assisted activities (AAA)

AAA and AAT are both widely used HAI interventions. The definition of AAT that will be adopted in this current study is a widely cited definition of AAT stated by the Delta Society (as cited in Kruger & Serpell, 2010). AAT is a goal-directed treatment delivered by a health professional with specialised expertise in which “an animal that meets specific criteria is an integral part of the treatment process” (Kruger & Serpell, 2010, p. 35). The Delta Society is one of the largest organisations in America responsible for the certification of therapy animals.

AAA, as also defined by the Delta Society, is an activity in which animals that meet specific criteria are used to facilitate opportunities for motivational, educational, recreational and therapeutic benefits in a wide variety of environments (Kruger & Serpell, 2010). There are no specified treatment goals. Content is therefore spontaneous and it is delivered by a wide variety of people – from specifically trained professionals to volunteers (Kruger & Serpell, 2010).

1.3.3 Equine-assisted interventions (EAI)

EAI is a specific type of HAI intervention during which horses are used in various manners to increase a person's well-being. Each equine-assisted intervention can be

differentiated from the other by their therapeutic goals, the nature of the activities and the specific characteristics of the horse they use to achieve their goals – like the horse’s movement and/or unique communication system. (Hallberg, 2008; PATH Intl., 2016). EAI interventions include EFP, EAL, THR and HT etc.

1.3.4 Equine-assisted learning (EAL)

According to Kruger and Serpell (2010), there is confusion in the HAI field due to the multiplicity of definitions and terms that exist for similar HAI interventions and subsequently for EAI. It is the result of the existing multiplicity of terms and definitions that a clear definition of EAL needs to be stated. The EAL term will be defined in accordance with literature in the field (Kruger & Serpell, 2010).

EAL is used predominately for physically and mentally disabled populations (Bass et al., 2009; Gabriels et al., 2012). It focuses on teaching a client various horsemanship skills, such as how to control the horse and occasionally teaching the client basic riding skills. These activities aim to facilitate and develop a child’s psychological, social and cognitive skills and to improve their confidence. An equine specialist facilitates the EAL sessions (Bass et al., 2009; Gabriels et al., 2012; Nelson et al., 2011).

1.3.5 Autism spectrum disorder (ASD) and its encompassing disorders.

Although ASD is diagnosed as a single disorder in the current edition of the Diagnostic Statistical Manual of Mental Disorders (DSM) (DSM-5), it further encompasses disorders defined as pervasive developmental disorders (PDD) in the previous edition of the DSM, the DSM-IV². These disorders include autism – conceptualised as the cornerstone of the spectrum – Asperger’s syndrome, Rett syndrome, childhood disintegrative disorder (CDD) and pervasive developmental disorders not otherwise specified (PDD-NOS) (American Psychiatric Association (APA), 2000; Gotham, Bishop, & Lord, 2012). These disorders are differentiated by the nature and severity of their ASD impairments and are further required to be specified when a diagnosis of ASD is given (APA, 2000; Gotham et al., 2012). Each PDD disorder will be defined according to the DSM-IV (APA, 2000).

² Both the DSM-IV and DSM-5 will be used throughout this paper to define ASD. The DSM-5 will be used as it contains the most current diagnostic criteria of ASD. DSM-IV will be used in addition to DSM-5 as the DSM-5 ASD diagnosis encompasses disorder that are described in the DSM-IV. In addition the disorders specified in the DSM-IV are required to be specified when an ASD diagnosis (according to the DSM-5) is given (APA, 2000, 2007).

Autism is a disorder which primarily affects male children. Each affected child has variable degrees of impairments in reciprocal social interactions and communication like impaired social nonverbal behaviour (eye contact); sensory processing difficulties; restricted and repetitive behaviour and interests like inflexible adherence to routines; and repetitive motor mannerisms like hand flapping (APA, 2000).

Asperger's syndrome is conceptualised as a less severe form of autism. It is characterised by social impairment, restricted interests and communication difficulties (APA, 2000). Although these children have communication difficulties, their speech, language and cognitive development is not delayed – unlike children with autism (APA, 2000; Gotham et al., 2012; Klin, 2012). Their better cognitive development allows them to be more focused and attentive compared to children with autism (Klin, 2012).

Rett syndrome is characterised by a decline in head growth and loss of previously acquired hand (like writing or grasping), social and language skills and coordinated trunk movements (APA, 2000). It predominantly presents in girls (APA, 2000). CDD, conversely, is characterised by the loss of developed skills of language and social interaction, motor skills and adaptive behaviour between the ages of 2 and 10 years old (APA, 2000). PDD-NOS, is diagnosed when the diagnostic criteria are not met for any of the above PDD disorders (APA, 2000).

1.3.6 Caregivers, parents and facilitators

A caregiver may be defined as any person who cares for a sick, elderly or disabled person regularly. They can either be a paid individual or a family member (Stevenson, 2010). Parents may therefore be considered caregivers. Facilitators are the equine specialists who both provide and facilitate the EAL session with the child with ASD.

1.4 ORGANISATION OF THE STUDY

Chapter 1 gave an introduction and overview of the research topic. This included providing background on HAI interventions, equine-based interventions, the context of ASD in South Africa and the effect EAL, as a specific type of equine-based intervention, may have on children with ASD. By discussing these aspects, the purpose of the study was motivated. Key terms used throughout the study were also defined.

Chapter 2 expands on the background information provided in Chapter 1, through reviewing literature within the ASD and HAI intervention field respectively. This chapter will aim to provide not only a more in-depth understanding of ASD and HAI interventions, more specifically EAL programmes, but also to demonstrate the benefits that EAL may have for children with ASD.

Chapter 3 will discuss the theoretical framework of the study.

Chapter 4 will outline the research methodology that was used in the study. It will include a description of the research design, data collection methods, participants, data analysis and a description of the organisation which the study focused on.

The data collected by means of the research methodology described in chapter 4 will be described in **Chapter 5**. This will include a description of the themes and subthemes and the respective supporting quotations from the interviews that were conducted.

Chapter 6 will conclude the thesis by discussing the results described in Chapter 5, the limitations of the current study and recommendations for future studies. The results in chapter 5 will be discussed in relation to existing literature and the theoretical framework of the study.

1.5 CHAPTER SUMMARY AND CONCLUSION

In Chapter 1 the current study was introduced by discussing the distinctiveness of horses within the context of HAI interventions and the integral benefits horses may have for children with ASD specifically. ASD was further defined and its global and national prevalence was discussed. This discussion of ASD served to demonstrate the need and importance of equine-assisted interventions for children with ASD.

In Chapter 2 the current international and national literature on ASD and HAI interventions, more specifically EAL, will be discussed.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

To provide a platform from which to discuss the benefits of an equine-assisted learning (EAL) programme for children with autistic spectrum disorder (ASD) and the perceptions of those people involved, ASD will be discussed first. Then ASD will be discussed within the context of human-animal interaction (HAI) interventions, with reference to equine-based interventions (EAI), more specifically EAL, a specific type of equine-based intervention.

2.2 AUTISM SPECTRUM DISORDER

In order to provide an understanding of ASD, within a global and South African context, its clinical features, the diagnostic process, prevalence, aetiology, prognosis and the available treatment options will be discussed.

2.2.1 Clinical features

ASD is a neurodevelopmental spectrum of disorders which is characterised by impairments in social-communication and a repetitive pattern of interests and behaviours (Gentile et al., 2013). ASD typically manifests in early childhood between the ages of 2 and 3 years old. The severity and presentation of these two impairments in the affected children vary. Thus, each child with ASD is unique due to the variation in presentation and severity of the symptoms. The effect of their symptoms is, however, evident in multiple contexts and domains, including their social-emotional reciprocity, relationships and language (Mitchell & Holdt, 2014). The factors influencing the uniqueness of children with ASD impairment presentation will be discussed in section 2.2.1.3.

2.2.1.1 *Diagnostic history*

Before the current diagnostic criteria of ASD according to the Diagnostic Statistical Manual (DSM-5) is described, it is necessary to provide a brief diagnostic classification history of autism and ASD. This involves discussing how the diagnostic criteria and classification have changed throughout previous DSM editions.

Autism was first identified in 1943 by Kanner who termed it as infantile autism (Gotham et al., 2012; Kanner, 1943). The children Kanner identified as having infantile autism presented with impaired social responses to others, impaired communication and behavioural rigidity (Kanner, 1943). For decades infantile autism was integrated into the diagnosis of childhood schizophrenia – characterised by disordered personality, thought and mood with an onset after 11 years old (Gotham et al., 2012). This happened because many psychologists and researchers thought the behavioural symptoms of autism and childhood schizophrenia were indistinguishable from each other.

However, in 1970 Rutter and Kolvin distinguished these two disorders (Gotham et al., 2012), leading to the first inclusion of infantile autism in the DSM III (1980) under a new diagnostic category of pervasive developmental disorders (PDD) (Gotham et al., 2012). In 1987 in the DSM III-R, the diagnostic term was changed to autistic disorder. The DSM-IV (2000) further expanded the PDD category to include Asperger's syndrome, childhood disintegrative disorder (CDD), Rett syndrome and pervasive developmental disorder – not otherwise specified (PDD-NOS) (See section 1.3.5) (APA, 2000).

2.2.1.2 Current diagnostic criteria

In order to diagnose ASD according to the latest edition of the DSM (DSM-5), the child needs to display deficits in social communication and interaction (Criterion A) and have repetitive interests and behaviours (Criterion B) (APA, 2013). DSM-5 further stipulates that these behaviours need to be present in the child's early development, cause significant impairment in the child's functioning and are not better explained by an intellectual disability or global developmental delay disorder (APA, 2013).

Criterion A deficits further include impairments in social-emotional reciprocity; impairments in nonverbal behaviour like minimal use of gestures, lack of eye contact and physical touching; and/or impairments in verbal communicative behaviour like stereotyped speech and late onset of phrase speech; and an inability to develop, understand and maintain relationships (APA, 2013; Gotham et al., 2012).

Criterion B stipulates that the children have stereotyped behaviours and insist on sameness and routines (APA, 2013). They become distressed when their routines are changed. They may also have restricted or unusual fixated interests, like a strong attachments to objects (APA, 2013). The stereotyped behaviours include repetitive, self-stimulatory behaviours, also

known as SIMS, that are speech and/or motor related such as hand flapping or repeating certain words (APA, 2013). Individuals with ASD have described these self-stimulatory behaviours as a calming mechanism to certain sensory stimuli (Grandin, 2011).

Included in Criterion B is a hyper- or hypo- reactivity to certain sensory stimuli. An example would be an individual having an adverse reaction to certain sounds or tactile sensations or having an indifference to temperature (APA, 2013). This abnormal reactivity to sensory stimuli also includes an overreliance on the senses – visual, auditory, tactile and olfactory – to assist the ASD individual to accurately perceive their surroundings (Grandin et al., 2010).

2.2.1.3 Factors influencing impairment presentation

The nature and severity of these impairments are unique in each individual. A child's chronological age in part influences the uniqueness of their symptom presentation (Gotham et al., 2012). The changing behaviour of an individual throughout their development influences the presentation of their symptoms (Gotham et al., 2012). Their social and communicative impairments and their restricted and repetitive behaviours remain present throughout their lives. However, the presentation of these symptoms may change significantly with age (Gotham et al., 2012). A child with ASD fixated interest may remain with them throughout their lifetime. However, the nature of their fixated interests may change as the child grows up.

2.2.1.4 Co-morbidities

Many children with ASD, in addition to presenting with the criterion symptoms, may have one or more co-morbid psychiatric disorders and/or physical disabilities or conditions. The co-morbidity of these disorders and conditions further contributes to the child's unique presentation of symptoms (Gotham et al., 2012). Commonly co-morbid psychiatric disorders include anxiety, depression, attention-deficit disorder, obsessive-compulsive features, language impairments and oppositional-defiant disorder (APA, 2013; Gotham et al., 2012). Physical disabilities or conditions that are commonly co-morbid include blindness, deafness, motor coordination impairments, neurological disorders like tics and seizures, epilepsy and sleep problems (APA, 2013; Gabriels et al., 2015; Gotham et al., 2012).

2.2.2 Process of diagnosis

The presence of the criterion impairments are evaluated in the diagnostic process. This section will describe how a diagnosis of ASD is made, the time period taken to diagnose ASD and factors complicating the diagnostic process. ASD has no diagnostically relevant physical

markers, therefore there is no medical test to confirm an ASD diagnosis (Grandin et al., 2010). A diagnosis of ASD rather relies on a professional's observation and interpretation of the child's behaviour in various settings, and their developmental and medical history (Van Rooyen, 2016).

In order to evaluate a child's behaviour in various settings and diagnose them with ASD, a multidisciplinary team of professionals and family members – medical doctor, occupational therapist, speech therapist, clinician, parents, psychologist and teachers – are required (Levy, Mandell, & Schultz, 2009; Mitchell & Holdt, 2014). In addition to this multidisciplinary team, multiple steps and assessment tools are also required for professionals to either diagnose ASD or to rule out other physical or psychiatric disorders as a cause for the child's behaviour (Levy et al., 2009). The role of each professional, the steps taken and assessment tools used in the diagnostic process will be discussed in the following sections.

2.2.2.1 Step one: Physical rule-out

First, the parent takes the child they suspect has ASD to a medical doctor. The doctor completes a developmental and family history of the child to assess the risk of various medical conditions that may explain the child's behaviour (Manning-Courtney et al., 2013). The doctor then conducts various medical tests for the possible conditions that were identified in the child's history. This is done to rule out a medical condition as possible cause of the child's behaviour (Manning-Courtney et al., 2013). These medical tests include genetic screening, investigating vitamin and heavy metal levels, allergies and immunologic abnormalities (Manning-Courtney et al., 2013). If there is no evidence of abnormalities a possible diagnosis of ASD may be considered and the child's behaviour is further evaluated by other professionals.

2.2.2.2 Step two: Assessing the criterion symptoms

The second step of the diagnostic process involves a psychologist or psychiatrist who will evaluate the child's behaviour using various assessment tools that evaluate the presence of the criterion symptoms (Manning-Courtney et al., 2013). These assessment tools include various questionnaires, interviews and observational measures (Gotham et al., 2012; Manning-Courtney et al., 2013). These tools provide the psychologist with information about the child's behaviour in a variety of settings from various informants (Gotham et al., 2012).

2.2.2.2.1 Assessment tools

Questionnaires are used by the relevant professional to gain information about the child from multiple informants including parents, teachers, day-care workers and siblings (Gotham et

al., 2012). These questionnaires inquire about and assess the presence of the ASD criterion symptoms. These questionnaires include the Autism Behaviour Checklist (ABC), Gilliam Autism Rating Scale (GARS), Social Communication Questionnaire (SCQ) and the Autism Spectrum Screening Questionnaire (ASSQ) (Gotham et al., 2012). These questionnaires are further coupled with diagnostic standardised structured interviews conducted with the parents. The diagnostic interviews often used are the Autism Diagnostic Interview-Revised (ADI-R) and the Diagnostic Interview for Social and Communication Disorders (DISCO) (Gotham et al., 2012).

The relevant professional further needs to observe and interact with the relevant child before making an accurate diagnosis of ASD (Gotham et al., 2012). The psychologist observes and interprets the child's behaviour by using standardised observational tools such as the Childhood Rating Scale (CARS) and the Autism Diagnostic Observation Schedule (ADOS) (Gotham et al., 2012). All these assessment tools (the questionnaires, interview schedules and observation tools) are used as a set to fully evaluate, interpret and diagnose ASD. Using either one of them in isolation does not provide the relevant professional with enough information to diagnose a child with ASD. The measures thus need to be used in conjunction with each other (Gotham et al., 2012).

An occupational and speech therapist may also be involved in the diagnostic team. Their role is to assess the child's sensory concerns and fine motor difficulties and to evaluate the child's speech and language difficulties (Manning-Courtney et al., 2013).

2.2.2.3 Time period of the diagnosis

Given the multiple steps, tools and professionals needed, a substantial amount of time and financial resources are required in order to make an accurate diagnosis of ASD. According to Mitchell and Holdt (2014), it is possible to make a diagnosis within 2 years. However, research indicates that parents wait approximately 3 years for a diagnosis during which time they see about four professionals before the diagnosis of ASD is given (Mitchell & Holdt, 2014). Parents start to raise concern about their child when the child is around 2 years old, but they often only receive a diagnosis when the child is 3–4 years old (Mitchell & Holdt, 2014).

2.2.2.4 Factors complicating the diagnosis

This delay in diagnosis may be attributed to a variety of factors that complicate the diagnostic process. These factors are associated with the psychologist or doctor, the complexity

of ASD and financial barriers. Practitioners, for example, may fear that a diagnosis will lead to additional stress on the family. Practitioners also may lack information on ASD, be unfamiliar with the assessment tools and have no time to screen the child for ASD, given the lengthy process (Mitchell & Holdt, 2014). Not only do some practitioners lack understanding of ASD, but in South Africa there are too few specialised practitioners who are able to make an accurate diagnosis (Mitchell & Holdt, 2014).

The complex nature of ASD demands the practitioner to take into account the presentation of the various symptoms that could be affected by other possible comorbid disorders and the chronological age of the child (Gotham et al., 2012). Given the practitioners' lack of information, this may lengthen the diagnostic process in which the practitioners may misdiagnose the child (Mitchell & Holdt, 2014). Financial barriers also prolong the diagnostic process because multiple appointments with various professionals are needed and many tests need to be done. Parents may spend a considerable amount of money in trying to get a proper diagnosis for their child (Mitchell & Holdt, 2014). Parents with insufficient financial means may therefore not receive a diagnosis for their child, despite their concerns.

This delay in diagnosis plays an integral role in the prognosis of the child as multiple studies have indicated that an early diagnosis and intervention lead to a better prognosis for the child (Levy et al., 2009; Mitchell & Holdt, 2014). A delay in diagnosis therefore is detrimental to the prognosis of the child. The importance of an early intervention will be further substantiated in Section 2.2.6.1.

2.2.3 Prevalence

The prevalence statistics of ASD globally and within South Africa varies. According to Elsabbagh et al. (2012) and Bakare and Munir (2011), who respectively reviewed global and African prevalence studies of ASD and PDD, the prevalence of both these disorders is difficult to establish. This is due to different methodologies and samples used in the prevalence studies (Elsabbagh et al., 2012). The definitions and understandings of ASD and PDD have also changed over time. This is evident in the multiple diagnostic changes and changing diagnostic tools of PDD and autism as well as an increased awareness of these disorders over time (Elsabbagh et al., 2012; Van Rooyen, 2016). This changing understanding of ASD and PDD influenced who was diagnosed with ASD or with PDD in a given study, causing variations in prevalence statistics.

In Africa specifically, prevalence studies are lacking. Elsabbagh et al. (2012) could not locate any studies conducted in Africa and Bakare and Munir (2011) only found two. The two studies identified by Bakare and Munir (2011), however, only address the prevalence of ASD in their respective countries, Egypt and Tunisia, and not Africa as a continent or South Africa. Egypt had a 33.6% and Tunisia had an 11.5 % prevalence rate of ASD (Bakare & Munir, 2011).

Although there is a lack of prevalence studies conducted in Africa, ASD and PDD have been identified throughout central and southern Africa since 1978 (Elsabbagh et al., 2012). Since African countries, excluding South Africa, are predominately low-income countries, this lack of prevalence studies could be attributed to the lack of financial resources to conduct the studies, lack of validation of diagnostic criteria in an African context or too few health professionals (The World Bank, n.d.; World Health Organisation (WHO), 2013). The lack of prevalence studies in South Africa could possibly be attributed to the latter two factors.

Although no comprehensive South African statistics could be located, a few possible indications of the prevalence of ASD in South Africa were found. As noted in Chapter 1, approximately 10 children per week are collectively diagnosed with ASD at the Red Cross Children's Hospital, Lentegeur Hospital and Tygerberg Hospital (Bateman, 2013). This statistic indicates a substantial number of families and children are affected by ASD in the Western Cape. Although this statistic gives an indication of the prevalence in South Africa, it cannot be indicative of the national prevalence of ASD in South Africa. It does not give an indication of the prevalence of ASD in the other provinces of South Africa and it does not include children diagnosed by private physicians (Bateman, 2013).

The South African Government and a South African doctor who specialised in ASD both provided estimates of the prevalence of ASD in South Africa. The South African government estimated a 2% prevalence rate and the ASD specialist estimated a 1:88 national prevalence (Lidenberg, 2013; South African Government, 2015). The variance of these estimates further highlights the uncertainty of the prevalence of ASD in South Africa.

Although statistics are unclear globally and within South Africa, research has indicated that ASD and PDD had substantially increased since the 1960s and 2000s. It was estimated that 0.69% of children had a PDD disorder and 1:68 children had ASD globally (CDC, 2014; Elsabbagh et al., 2012). According to Mitchell and Holdt (2014), the prevalence rate of ASD increased to such an extent that ASD has occasionally been labelled an epidemic.

Even though prevalence rates of ASD and PDD are difficult to establish, a few demographics categories of ASD and PDD have remained constant throughout global epidemiological studies and the few African epidemiological studies conducted (Elsabbagh et al., 2012). ASD appears to be predominant in males, with a global estimate of 80% of affected children being male (CDC, 2014). Furthermore, ASD and PDD occur across all socioeconomic, ethnic and racial boundaries (Elsabbagh et al., 2012).

In order to understand the existing high prevalence rates of ASD and PDD, the cause of the disorders needs to be identified. Then preventative, curative or symptomatic treatments may be designed. Extensive research has been done to identify the causes of ASD. Genetic, environmental, lifestyle and autoimmune causes \were proposed as possible causes. However, according to Happé, Ronald and Plomin (2006), the definitive cause of ASD remained a mystery.

2.2.4 Aetiology

Neither of the proposed causes – genetic, environmental, lifestyle and autoimmune factors – are suggested to solely account for ASD. It is rather proposed that ASD resulted from a complex interaction between environmental, genetic, autoimmune and lifestyle factors leading to neurological changes (Gentile et al., 2013; Gialloreti, Benvenuto, Benassi, & Curatolo, 2014; Muhle, Trentacoste, & Rapin, 2004).

2.2.4.1 Genetic factors

It has been well established throughout research that genetic factors play a key role in the development of ASD (Gentile et al., 2013). Twin studies have revealed that if one monozygotic or identical twin had ASD there was a 60–90% probability that the other twin will have ASD (Hallmayer et al., 2011; Levy et al., 2009). Parents with a child with ASD also had a 20–50 times increased chance of having a second child with ASD (Levy et al., 2009). Furthermore, illustrating the genetic basis of ASD, parents and siblings of a child with ASD may often have mild subsyndromal manifestations of ASD, such as difficulties with social language, absence of close friendships and a rigid personality style (Levy et al., 2009).

Multiple genes – as many as 2193 – rather than one specific gene are more commonly implicated in the development of ASD (Gentile et al., 2013; Muhle et al., 2004). Since ASD is predominant found among males, it may indicate that ASD is an X-linked disorder (Muhle et al., 2004). Two studies that used genome-screening found evidence of an ASD associated gene that

is linked to the X chromosome (Liu et al., 2001; Shao et al., 2002). However, according to Muhle et al. (2004), evidence supporting this claim has been inconsistent.

Further complicating the role of genetic factors is that different genes or gene combinations in different families and individuals may contribute to the development of ASD (Muhle et al., 2004). These genes are required to act together in combination to produce ASD (Muhle et al., 2004). The expression of these genes is further altered through their interaction with environmental factors (Gentile et al., 2013).

The genes associated with ASD are particularly responsible for the development of brain structures and neurotransmitters associated with ASD (Muhle et al., 2004). However, genetics is only one aspect of ASD; the others are environmental factors and neurological changes.

2.2.4.2 Environmental factors

Environmental factors implicated in ASD include specific aspects of the physical environment. Examples include exposure to certain chemicals like pesticides; various pregnancy and birth complications; various infections and autoimmune diseases (Gentile et al., 2013; Gialloreti et al., 2014; Landrigan, 2010).

According to Gentile et al. (2013), pregnancy is a crucial phase in the possible development of ASD, as ASD has a perinatal or very early postnatal origin. Exposure to specific environmental factors, like certain chemicals, during pregnancy may trigger the interplay between genetic and environmental factors that cause early embryonic developmental defects associated with the development of ASD (Gentile et al., 2013).

2.2.4.3 Neurological changes

These specific environmental factors modulate the expression of genetic factors (Gentile et al., 2013). The result is a physical, organic influence on brain development, which is the basis of the development of ASD (Van Rooyen, 2016). ASD may therefore be attributed to organic causes as opposed to psychological causes. The resulting physical neurological changes in people with ASD were evident in Magnetic Resonance imaging (MRI) and post-mortem examinations (Van Rooyen, 2016).

According to Gentile et al. (2013), Amaral, Schumann and Nordahl (2008), and Levy et al. (2009), neurological changes include grey and white matter abnormalities, overgrowth of cortical white matter, changes in the cerebral cortex and cerebellum and abnormal patterns of growth in the frontal and temporal lobe, and in the limbic system structures and the amygdala.

These brain regions are implicated in the social, communication and motor deficits of individuals with ASD (Gentile et al., 2013; Levy et al., 2009)

2.2.4.4 Auto-immune conditions, infections and lifestyle factors

Gentile et al. (2013) further proposed that autoimmune conditions, various infections and lifestyle changes contribute to the development of ASD. Similar to the genetic and environmental factors these factors do not cause ASD in isolation but rather interact with genetic and environmental factors in such a way that they contribute to the development of ASD (Gentile et al., 2013).

Multiple autoimmune conditions are proposed to be associated with ASD. First, the frequency of autoimmune disease appears to be higher in families with a child with ASD, especially when the mother had a disease like Type 1 diabetes or Hashimoto's Thyroiditis (Gentile et al., 2013). Second, there is an increased two-fold risk of having a child with ASD if the mother was diagnosed with asthma or allergies during the pregnancy (Gentile et al., 2013). Third, a significant association exists between maternal histories of rheumatoid arthritis or celiac disease – both autoimmune conditions – and ASD (Gentile et al., 2013). The significant association between these autoimmune conditions and ASD indicates that they are linked and that autoimmune conditions may play a role in the development of ASD.

Infections that have been significantly associated with ASD include congenital infections, congenital rubella syndrome, herpes simplex virus (HSV) and mumps (Gentile et al., 2013). If these infections occur during the early stages of pregnancy they could possibly modify the normal development of the embryo and interfere with the differentiation of neural networks that control the behavioural, cognitive and learning processes implicated in ASD (Gentile et al., 2013).

Lifestyle changes that lead to a vitamin D deficiency have also been implicated in ASD. Vitamin D is a steroid vitamin that promotes intestinal absorption, metabolism of calcium and assists in bone structure (Bhatia, Gupta, Arora, Saxena, & Sikka, 2014) . It is primarily provided by sunlight and found in fish-liver oils, egg yolk and milk (Merriam-Webster's, 2017). The prevalence of vitamin D deficiency is increasing; probably because people are increasingly working and living in closed rooms and not open spaces (Gentile et al., 2013). A vitamin D deficiency can affect the neural process of neuronal differentiation and axonal connectivity and thereby affect brain development and function (Gentile et al., 2013).

Individuals with ASD have lower levels of vitamin D, leading to a vitamin D deficiency (Gentile et al., 2013). The possible role of vitamin D deficiencies in ASD is further illustrated by the differing vitamin D levels in females and males in the general population that correlates with the gender ratio of individuals with ASD. According to Gentile et al. (2013), males are more susceptible to a vitamin D deficiency than females. This is because the high oestrogen levels in females shield them from a vitamin D deficiency, whereas high testosterone in males makes them susceptible to a vitamin D deficiency (Gentile et al., 2013).

2.2.4.5 Integrating the factors

To integrate the factors, vitamin D deficiency, autoimmune conditions and infections, into the possible cause of ASD, Gentile et al. (2013) proposed a hypothesis. He and his colleagues proposed that ASD may be considered an immune deregulation disorder which causes neurological damage in one or more areas of the brain during the early stages of embryonic brain development (Gentile et al., 2013). A specific infection during pregnancy could trigger the immune deregulation (Gentile et al., 2013). This reactivation can, however, only occur if certain genetic and environmental predispositions are present. They suggested that the environmental predisposition could be a vitamin D deficiency (Gentile et al., 2013).

The complex interaction between genetic and environmental factors is proposed to account for the variety in severity and presentation amongst individuals with ASD (Gentile et al., 2013). The uniqueness of each ASD individual's symptom presentation is therefore influenced by a unique and complex interaction between an individual's combination of genetic, environmental and other proposed factors.

2.2.5 Prognosis

Before the treatments for ASD are discussed, the prognosis of individuals with ASD will be discussed. ASD is a pervasive developmental disorder, and thus remains with an individual throughout their lifetime. Because of its debilitating nature and effect on their functioning, individuals with ASD need constant care (Seltzer, Shuttuck, Abbeduto, & Greenberg, 2004). Individuals with ASD therefore often remain dependent on their parents or caregivers throughout their lives. However, this is not the case with all individuals with ASD (Howlin, Goode, Hutton, & Rutter, 2004). Individuals' with ASD prognosis are variable and depend on a variety of factors (Howlin & Moss, 2012).

According to Howlin et al. (2004), some individuals with ASD have made progress since childhood. Through living independently, being employed, obtaining qualifications and developing social relationships. However, the majority of individuals with ASD do not become independent but rather remain partly dependent on their parents throughout their lifetime (Seltzer et al., 2004). This is because even if individuals with ASD gain employment they remain dependent on their parents because the salaries of the jobs they are able to acquire are often inadequate for them to live independently (Howlin et al., 2004).

The symptoms of individuals' with ASD may improve over time or due to an intervention. However, it is usually only one or a few symptoms that may improve and not all the symptoms (Levy & Perry, 2011; Seltzer et al., 2004). The symptoms also do not improve to such an extent that the individual can function independently (Seltzer et al., 2004). Therefore, although their symptoms may improve, individuals with ASD still often remain dependent on their parents for support.

Many factors influence individuals' with ASD level of independence. The main influencing factors that have been proposed include the severity of their ASD, their level of IQ, level of speech and their degree of support – treatments, family and employment (Darrou et al., 2010; Howlin et al., 2004). These factors only influence their prognosis and do not guarantee a good (independence) or bad (dependence) prognosis for the ASD individual. This is because the presentation of ASD is highly variable and each individual with ASD is unique. Therefore, each factor influences them differently or may not have an effect on them at all. Although treatments do not guarantee a good prognosis, they do, to some extent, address the impairments and so improve the functioning of individual's with ASD (Howlin et al., 2004; Kasari, Shire, Factor, & McCracken, 2014). Thus, the different treatments need to be explored.

2.2.6 Treatments

Identifying the cause of ASD could assist professionals to provide effective preventative treatment for individuals with ASD by targeting the underlying causes through various means. The complex underlying causes of ASD are, however, not yet confirmed. The development of interventions to target the underlying causes, therefore, remains a goal to pursue. Instead of targeting the underlying cause and curing the child of ASD, treatments rather focus on improving the functioning of the child by alleviating the child's core and comorbid deficits in various

manners, like teaching them various skills (Levy et al., 2009). The treatments are thus symptomatic rather than curative (Grandin et al., 2010).

The predominant treatments for ASD are behavioural, educational and medical approaches, body-based treatments, mind-based therapies and HAI interventions (Levy et al., 2009). Before each of these treatments are discussed, key aspects of the child's treatment plan need to be discussed.

2.2.6.1 Key aspects of the treatment plan

Key aspects of the treatment plan include the need for early treatment, multiple therapies and the parent's crucial role in the treatments. An early diagnosis is crucial for the child, as stated in Section 2.2.2. An early diagnosis enhances the probability of an early intervention, which has been linked to a better prognosis for the child (Mitchell & Holdt, 2014). An early intervention plays a substantial role in the prognosis for the child with ASD by facilitating a variety of skills which fosters their growth and furthers their development (Bass et al., 2009; Gabriels et al., 2015; Grandin et al., 2010). Given the difficulties in getting a diagnosis, as discussed in section 2.2.2.3, an early treatment plan for a child with ASD is often not possible, which undermines the child's prognosis.

Furthermore, because of the variety of symptoms, professionals often recommend multiple treatments for children with ASD (Woodgate, Ateah, & Secco, 2008). Each treatment complements the other and addresses the child with ASD specific impairments (Matson & Goldin, 2013). Given each child with ASD unique symptom presentation, there is no specific combination of treatments suitable for all children with ASD. A unique combination of treatments is rather required for each specific child (Matson & Williams, 2015).

The last aspect that needs to be discussed is the important role parents play in the treatment of their child with ASD. According to Levy et al. (2009) and Stephens (2005), behavioural changes are more than likely to be maintained and generalised to the child's other settings if the parents were trained in the same methods used in their child's treatment.

2.2.6.2 Behavioural approaches

Intensive behavioural approaches are well established as one of the most effective forms of treatment for children with ASD (Cauffield, 2013; Manning-Courtney et al., 2013). This approach predominately consists of interventions using Applied Behavioural Analysis (ABA) principals. ABA-focused interventions teach the child desired behaviours through positive

reinforcement (Tews, 2007). During a session of ABA a specific task, focusing on developing a specific skill, is broken up into smaller components or steps and presented to the child as a trial. It is through positive reinforcement, rewarding the child's desired response or behaviour in a trial, that their skills develop and their behaviour improves (Tews, 2007). Throughout the course of ABA problem or target behaviours are objectively defined and measured (Tews, 2007). Targeted behaviours may include social skills that need to be increased or excessive problem behaviours that need to be decreased.

Peters-Scheffer, Didden, Korzilius and Sturkey (2011) and Granpeesch, Tarbox and Dixon (2009) concluded that ABA is an effective treatment for children with ASD. In comparison with children with ASD who receive other forms of treatment, those who do ABA outperform the other children in IQ and adaptive measures (Peters-Scheffer et al., 2011). ABA was found to effectively improve children with ASD's language, academic and social functioning. Challenging behaviours also decreased and their ability to live more independently increased as a result of ABA (Granpeesch et al., 2009). These benefits of ABA are proposed to be enhanced if the child starts the treatment before the age of 5 years old, gets treatment for 30–40 hours per week for at least 2 years and it is done in a one-on-one setting (Granpeesch et al., 2009).

Although interventions based on ABA principles have a proven efficacy, there are, however, some negative aspects of the approach. The interventions are highly structured and intensive and require many hours of one-on-one therapy sessions, which is costly (Levy et al., 2009). The expense of the intervention decreases its availability to many parents. As a result of the highly structured nature of the interventions the children often have difficulty transferring the skills acquired during the intervention to a less-structured setting, such as at home or in a community setting (Levy et al., 2009).

Because of the restricted means of parents to fund an ABA programme for their child with ASD and the highly structured nature of the treatment, parents often prefer a more naturalistic behavioural intervention for their child (Levy et al., 2009). These interventions include educational, communication- and relationship-based approaches as well as sensory-motor integration and occupational therapy.

A prominent educational approach is the Treatment and Education of Autistic and Related Communication Handicapped Children (TEEACH) approach (Eikeseth, 2009).

TEEACH involves creating a structured environment for the child and using visual schedules, predictable sequences of activities, structured activity systems and visually structured activities (Myers & Johnson, 2007). This is done to both improve their skills and to modify the environment to accommodate their impairments (Landa, 2007; Myers & Johnson, 2007). It focuses on their communication, cognition, perception, imitation and motor skills (Eikeseth, 2009). TEEACH is conducted in multiple settings – from segregated to integrated classrooms – and involves several teachers as well as the children’s parents (Eikeseth, 2009). Research has indicated that TEEACH may be effective. However, according to Myers and Johnson (2007) evidence of its efficacy is limited.

Communication approaches that are used include speech and language therapy and the Picture-Exchange Communication System (PECS). The former is specifically used to address children with ASD’s social-communication deficits. Its effectiveness is enhanced when it is done in collaboration with teachers, family, peers and other support networks of the child (Myers & Johnson, 2007). PECS respectively is a widely used communication system that uses pictures in books to assist the child in communicating with others (Levy et al., 2009). There is, however, scant evidence that PECS and speech and language therapy effectively improves children with ASD’s communication (Myers & Johnson, 2007).

Relationship-based treatment approaches predominantly address the social impairments of children with ASD by encouraging and assisting the children to interact and develop social relationships with their peers (Myers & Johnson, 2007). Two prominent relationship-based approaches are the floor-time approach and the relationship-development intervention (RDI). However, there is limited evidence of the effectiveness of these approaches (Myers & Johnson, 2007).

Occupational and sensory integration therapies are also used. Occupational therapy promotes self-care, academic and play skills, and focuses on routine to improve the children’s attention (Myers & Johnson, 2007). Sensory integration therapy is used either in isolation or in conjunction with occupational therapy (Myers & Johnson, 2007). It aims to remediate children with ASD’s sensory-integration difficulties by assisting the children to integrate sensory information easier (Myers & Johnson, 2007). Both these approaches have limited evidence supporting their effectiveness (Myers & Johnson, 2007).

2.2.6.3 Educational approaches

In addition to incorporating one or more of the above treatments into the child's treatment plan, the education and schooling options for the child with ASD also need to be considered. Educational approaches include providing full-time special educational classes in either a specialised or a mainstream school. It may also entail providing part-time educational support in which the children are in a mainstream class with an added extra-specialised class that can attend to their individual needs (Levy et al., 2009).

It is within these educational settings that several behavioural-based treatments like TEEACH and relationship-based treatments are used to address the child's impaired social skills, language, maladaptive behaviours and possible comorbid conditions (Levy et al., 2009). Occupational therapy, sensory-integration therapy and speech and language therapy are occasionally provided by specialised schools to assist the children with ASD with their difficulties.

Children with ASD thus attend either a mainstream school with the required level of support or a specialised school. Various schooling options are available for children with ASD. These options are, however, limited by the parents' and schools' lack of resources (De Vries, 2016). In South Africa this is particularly true (De Vries, 2016). The schooling of a child with ASD therefore, depends on what is most appropriate for them and more importantly, what is available to them (De Vries, 2016).

2.2.6.3.1 The Specialised Needs Adapted Programme (SNAP)

A prominent ASD specialised school and programme in the Western Cape is the Specialised Needs Adapted Programme (SNAP). SNAP is a well-established special needs school that has been running for 18 years. It provides skill training and therapy for children with ASD as well as children with developmental and language delays, learning difficulties, and behavioural, emotional or social interaction problems (SNAP, 2017a). SNAP offers a mainstream curriculum, which is adapted to the learners, from Grade 0-7 in classes of eight to ten children. It additionally offers one-on-one interventions, including ABA and PECS, and tutoring for the child as well as a socially based intervention to help the children cope in various social settings (SNAP, 2017a, 2017b, 2017c). It further offers support for the parents through various support groups which assist them in coping and teaches them about various aspects of ASD (SNAP, 2017b).

2.2.6.4 Medical and pharmaceutical approaches

Medical approaches are often used in conjunction with the aforementioned treatment approaches. Despite the biological basis of ASD, no medication exists that improves the core impairments of ASD (Cauffield, 2013; Levy et al., 2009). Medications are instead used to target the child's comorbid conditions (Manning-Courtney et al., 2013).

According to Levy et al. (2009), comorbid conditions that medication has successfully improved in children with ASD include attention difficulties, hyperactivity, anxiety, depression, irritability, sleep problems and aggression. Atypical anti-psychotics such as risperidone are used to treat irritability in children with ASD (Levy et al., 2009). Owing to the abnormal serotonin function of the ASD individual, selective serotonin reuptake inhibitors have been used to treat their anxiety and rigid or repetitive behaviours (Levy et al., 2009). Other medical problems associated with ASD, such as tics or seizures, are also treated medically with the appropriate medication.

However, given the absence of medical treatments for criterion impairments and the variation in ASD symptomology, various complementary and alternative medical treatments have increasingly been used by families (Levy et al., 2009). These include various biologically based treatments, like supplements, specialised diets and immune therapies as well as non-biological treatments like sensory-integration therapy, auditory integration and yoga (Levy et al., 2009). However, the safety and effectiveness of these complementary medical approaches have not sufficiently been established (Matson & Goldin, 2013; Levy et al., 2009).

A relatively recent treatment approach for children with ASD that has shown promising results is HAI interventions, in which an animal is brought into a therapeutic setting to facilitate possible therapeutic change (Grandin, 2011).

2.3 HUMAN-ANIMAL INTERACTION (HAI) INTERVENTIONS

The incorporation of animals into a treatment like HAI interventions has throughout history been beneficial for the various therapeutic effects aimed at – like relieving stress – and the skills that it facilitated (Gabriels et al., 2015). HAI interventions have reduced problem behaviours and subsequently improved functioning in a variety of populations in a variety of settings (Gabriels et al., 2015).

2.3.1 History of human-animal interaction

Throughout history animals have played a variety of functional and emotional roles for humans. It is through the emotional role they play that they have been used throughout history to increase humans' well-being (Fine & Beck, 2010; Serpell, 2010). The first recorded therapeutic use of animals was by John Locke in 1699. He encouraged the use of dogs and birds as pets in order to establish responsibility in children (Parshall, 2003). Since then animals were used in a mental asylum in England in 1790 and a residential treatment centre for epileptics in Germany in 1867 (Thompson, 2013).

Florence Nightingale and Boris Levinsion wrote about the benefits of animals in 1860 and in 1961 respectively (Altschiller, 2011). Florence Nightingale, a nurse, detailed the benefits of having animals as companions and pets. Doctor Boris Levinsion detailed the benefits of using a dog in a counselling setting for disturbed children (Altschiller, 2011). Doctor Levinsion's paper increased interest in HAI interventions as a possible treatment, which subsequently gave rise to the creation of more HAI interventions in a variety of settings (Altschiller, 2011).

The creation and increase of HAI interventions consequently led to the development of HAI intervention focused societies, foundations, certifications and research (Hines, 2003). The research on HAI interventions explored the benefits of various types of animals, in various settings and for a variety of populations. In addition to establishing the benefits of HAI interventions, research in this field has begun to focus on what makes these interventions effective (Thompson, 2013).

2.3.2 Human-animal interaction (HAI) interventions

HAI interventions prominently include AAT (animal-assisted therapy), EFP (equine-facilitated psychotherapy), THR (therapeutic horseback riding), HT (hippotherapy) and EAL (equine-assisted learning). The focus of the current study is EAL and THR. HAI interventions as field will be discussed first and thereafter EAL and THR will be discussed in more detail.

2.3.2.1 Animals used in human-animal (HAI) interaction interventions

Animals used for HAI interventions include dogs, horses, small domesticated animals (like cats and guinea pigs), farm animals (like goats, sheep, and donkeys), wild animals (like dolphins, elephants and snakes) and aquarium animals (Nimer & Lundahl, 2007). Dogs and horses are used predominantly (McCune et al., 2014; O' Haire, 2017). Dogs are used as they are accessible and easily available, trained and transported (Nimer & Lundahl, 2007). Horses,

although not as accessible as dogs, have also widely been used because they are easily trained and they provide a unique dimension to therapy sessions (Thompson, 2013). Unlike other animals, horses are able to mirror and give feedback on a person's behaviour during a therapy session, which increases the person's awareness of their own behaviour and emotions (Thompson, 2013). Aquarium animals and wild animals are rarely used. Aquarium animals only provide a relaxing and calming environment and wild animals pose a challenge because of safety and ethical concerns (Beetz et al., 2012; Thompson, 2013). It is because of the unique dimension of horses that they are the focus of this study.

2.3.2.2 Populations and settings of HAI interventions

The animals described above are used in HAI interventions, in a variety of settings for a diverse array of populations. HAI interventions are predominantly used for people with a mental disorder like ASD, a physical disease or disability like cerebral palsy or an intellectual disability and for people with emotional and behavioural problems (Barker, Pandurangi, Best, 2003; Lima, Silva, Amaral, de Sousa, 2012; Naidoo, 2009; Nimer & Lundahl, 2007; Sprinkle, 2008; White et al., 2015). HAI interventions are further used with people of various ages, from toddlers to the elderly amongst the general population.

However, it must be noted that there are populations in which HAI interventions may be potentially harmful to both the client and the animal. These include those who may actively be a threat either to themselves or to others, like suicidal or aggressive individuals (PATH Intl., 2017). Dissociative and/or psychotic individuals may also pose a threat and those with a weakened immune system who are medically unstable may be at risk (PATH Intl., 2017; Thompson, 2013).

HAI interventions are additionally used in educational and institutional settings, psychotherapy sessions, and in the context of a specialised HAI intervention organisation. In an educational setting a dog or small domesticated animal may be brought into a classroom for the children to look after as a pet. This is done mainly to enhance the children's learning, through encouraging them to concentrate, focus and be motivated to learn (Thompson, 2013). Institutional settings where HAI interventions are used include prisons, hospitals, elderly-care facilities, mental health facilities and rehabilitation centres (Connor & Miller, 2000; Lubbe & Scholtz, 2013; Thompson, 2013). The current study will particularly focus on children with ASD within the context of a specialised HAI intervention organisation.

2.3.3 HAI interventions for individuals with autism spectrum disorder

HAI interventions are increasingly being used for individuals with ASD because of the psychological, social, cognitive and physical benefits they provide to individuals with ASD and because these interventions decrease individuals with ASD core and comorbid impairments (Gabriels et al., 2015; Grandin et al., 2010; O' Haire, 2017). The animals predominantly used for individuals with ASD are dogs and horses. A few interventions make use of guinea pigs and dolphins (Breitenbach, Stumpf, Fersen, & Erbert, 2009; O'Haire, 2017; O'Haire, McKenzie, & Slaughter, 2014).

By means of EAI, horses in particular benefit individuals with ASD. This is because a horse's inherent qualities correspond to and counteract the specific impairments of individuals with ASD (Erdman, Miller, & Jacobson, 2015). Horses can easily detect emotions in humans. They have a clear communication system and understand their social role-skills which individuals with ASD lack (Erdman et al., 2015). It is thus through the horse that individuals with ASD can potentially develop these skills that they lack. Individuals with ASD benefit psychologically, socially, cognitively, physically and behaviourally from horses (Erdman et al., 2015).

2.3.3.1 Types of equine-assisted interventions for individuals with ASD

EAI that are used for individuals with ASD include therapeutic horseback riding (THR), EAL, hippotherapy (HT) and equine-facilitated psychotherapy (EFP). In addition to being used for individuals with ASD, these EAI are also used for the physically and mentally disabled population and a variety of other populations. With each of these EAI the unique communication system and mirror ability of a horse and/or the physical qualities of a horse are used in a different manner to increase the client's well-being (Hallberg, 2008).

EFP uses the mirroring and communication system of a horse to assist the psychologist in facilitating therapeutic change in an individual through a variety of ground based activities, such as catching or leading a horse (Klontz et al., 2007). EFP is facilitated by both an equine and a mental health professional. Although used for individuals with ASD, EFP is predominantly used for other populations such as those with a mental disorder, behavioural and attentional issues and at-risk youth (Selby & Smith-Osborne, 2013; Simmons, 2011)

HT uses the movement of a horse to target physical and movement-based outcomes such as balance, coordination, walking ability and posture in the client (Lanning, Matyastik Baier,

Ivey-Hatz, Krenek, & Tubbs, 2014). HT is facilitated by an occupational therapist, a physical therapist or speech therapist (Serpell, 2010). Although only targeting physical outcomes, HT has proved to have additional psychological benefits for the client, such as increased self-esteem (Boyd, 2015; Petitto, 2010).

THR, conversely, is aimed at teaching clients how to ride a horse in order to assist them to develop a variety of skills, including various life, social, communication and vocational skills. It also creates a sense of work ethic and improves their quality of life (Hallberg, 2008). THR involves doing mounted based activities with the horse like steering the horse through obstacles and other physical activities on the horse. THR and HT can be differentiated by their focus. THR focuses on facilitating social and psychological benefits whereas HT focuses exclusively on facilitating physical benefits for a particular population.

EAL focuses on teaching the same variety of skills as THR to the client. However, unlike THR, this is done through predominantly ground based activities with the horse, like tacking and grooming the horse and teaching the client about horses (Hallberg, 2008; Lanning et al., 2014). Both EAL and THR are facilitated by a certified horse professional and are predominantly used in conjunction with school programmes and with the client's other treatments (Hallberg, 2008). EAL and THR are also both used for the disabled and special needs populations, like those with cerebral palsy, a learning, intellectual, speech or language disability and with children with foetal alcohol syndrome (FAS) (Boyd, 2015; Gabriels et al., 2015; Hallberg, 2008; Ketola, 2012; Lima et al., 2012; Naidoo, 2009).

Although the emphasis of EAL and THR slightly differs as the one is mounted based and the other ground based, it is clear that they have similar goals, do similar activities and are used for the same populations. Thus, the benefits of EAL for children with ASD may be inferred from studies using THR for children with ASD. The benefits of both these interventions further need to be described because the organisation involved in the current study uses a mixture of THR and EAL in their sessions.

2.3.3.2 EAI organisations in South Africa

Various organisations in South Africa provide either THR, EAL or EFP sessions. These include the South African Riding for the Disabled Association (SARDA), Amado (Western Cape), Equine Assisted Psychotherapy Institute of South Africa (EAPISA) (Gauteng), Leap

equine (Gauteng), Equuslink (Gauteng), Shumbashaba (Gauteng), Equivalence (Western Cape) and Angel House (Western Cape).

SARDA and Amado are widely recognised THR centres that provide free THR sessions to the physically and mentally disabled population (Amado, n.d.; South African Riding for the Disabled Association (SARDA), n.d.). Leap equine, EAPISA and Angel House provide EFP sessions to a variety of clients, including but not limited to those with eating disorders, depression, and those experiencing a life change and crisis (Angel House, n.d; Equine Assisted Psychotherapy Institute of South Africa (EAPISA), 2017; Leap equine, 2014). Shumbashaba and Equuslink both provide EFP, THR and EAL sessions for those with learning disabilities, those who have experienced trauma and for a wide variety of youth, adults, parents and families (Equine Therapy Registry, 2017; Shumbashaba, n.d.). Equivalence provides THR and EAL sessions for a variety of children with disabilities and behavioural problems (Equivalence, 2017).

2.3.3.3 Benefits of EAL on individuals with autism spectrum disorder

This section will discuss the benefits that EAL or THR has for children with ASD alone. Research in South Africa that focused on EAL for different populations will be discussed separately in section 2.3.4. Research that focused on EAL and/or THR for children with ASD revealed that EAL both reduced children with ASD's social-communication impairments, sensory processing difficulties and their repetitive behaviour. It also reduced their comorbid impairments, for example their anxiety (Bass et al., 2009; Gabriels et al., 2015). These studies further concluded that THR and EAL may hold psychological, cognitive, behavioural, physical and family benefits for children with ASD.

The perceptions of the people involved in the child with ASD's life, their treatment/s and THR or EAL programme shed light on the benefits of these programmes. Parents are crucial in reflecting on the benefits as they know their children and are able to note improvements in their children in multiple contexts (Achenbach & Ruffle, 2000). They are also able to provide feedback on the respective programmes. This section will describe the benefits of EAL and/or THR for children with ASD. Explanations will be provided as to why these changes occurred based on feedback from the parents, facilitators and volunteers as well as researchers in the EAL and/or THR field.

2.3.3.3.1 Social-communication benefits

The increase of children with ASD's social behaviour is one of the most noted benefits of EAL and THR. EAL has proved to significantly improve children with ASD's social competence. Their social-emotional responsiveness, reciprocity and skills, communication, social motivation and engagement, adaptive social behaviour and eye contact also improved (Bass et al., 2009; Gabriels et al., 2015; Grandin et al., 2010; Nelson et al., 2011; Scialli, 2002; Ward et al., 2013). The children with ASD number of social interactions and friends additionally increased. They also became increasingly aware of the effect of their behaviour on others (Erdman et al., 2015; Stickney, 2010).

According to Stickney (2010), the children's number of friends increased because they developed relationships with other riders as well as with the facilitators and the volunteers. The children's social interactions increased, not only because they developed these friendships, but also increasingly talked to neighbours and peers about their horse riding sessions and their horse (Erdman et al., 2015; Stickney, 2010). The facilitators in Stickney's (2010) study credited this to the children's developing a passion for horse riding and being proud of their riding ability, therefore wanting to talk about it to others.

Parents and facilitators credited the children's increased social skills and competence to the fact that the children had an opportunity to practise their social skills (Stickney, 2010). The children regarded the programme as socially safe. It was a place where they could practise their social skills with other people without being teased as they were at school (Stickney, 2010). Furthermore, according to facilitators, it was through the horse that the children learnt how their behaviour might affect the others (Erdman et al., 2015; Stickney, 2010).

The communication of the children with ASD also improved. Not only did they talk more; their social communication and their ability to express themselves improved (Bass et al., 2009; Gabriels et al., 2015). Many of those who did not speak started talking during the EAL sessions (Erdman et al., 2015; Stickney, 2010). According to Scialli (2002) and Petitto (2010), the communication benefits may be attributed to the verbal and communicative gestures the children were encouraged to make to the horse during a session, like whoa or walk on.

2.3.3.3.2 Psychological benefits

EAL and THR hold further psychological benefits for the children with ASD. Their self-confidence, self-esteem and efficacy improve (Scialli, 2002). They experience happiness and

contentment and they feel more motivated (Erdman et al., 2015; Stickney, 2010). Their patience and courage improve and their irritability decreases (Bass et al., 2009; Gabriels et al., 2015).

Parents and facilitators credited the children's increase in self-confidence, independence and pride to the increase in their self-esteem during the respective programmes (Erdman et al., 2015; Stickney, 2010). According to the parents, their children's self-confidence increased because of their achievements during a session and mastering a skill such as horse riding (Erdman et al., 2015; Stickney, 2010).

The parents reported this self-confidence transferred to other areas of the children's lives, such as school. They became more confident that they could do anything that they put their mind to (Stickney, 2010). Their independence increased because during the sessions they were encouraged to think independently and take control of the horse (Scialli, 2002). Their independence also increased because they were able to do certain activities in the sessions they had previously not been able to do (Erdman et al., 2015; Stickney, 2010).

These newly acquired skills further increased their pride and self-confidence. They were proud of their horse riding ability and that they were excelling in an activity their able-bodied peers or siblings did not participate in (Stickney, 2010). This pride also initiated social interactions with their peers, as they wanted to tell everyone at school and in their community about their riding (Erdman et al., 2015).

It is due to their increased pride, self-confidence and independence that the children also became empowered in their ability to control a large animal such as a horse (Stickney, 2010). The parents also reported their children enjoyed their EAL sessions (Erdman et al., 2015; Stickney, 2010). The children were always excited to go to the lessons. They wanted to ride and were always willing to return to the programme. According to Erdman et al. (2015) and Stickney (2010), the children were more motivated to go to a session because of the horse.

2.3.3.3 Cognitive benefits

Cognitive benefits of THR and EAL for children with ASD are also apparent. These include an increase in the children's attentiveness, their concentration, attention span and skills and their ability to follow directions (Erdman et al., 2015; Scialli, 2002). Their sense of responsibility and their overall cognitive functioning improved (Gabriels et al., 2015; Stickney, 2010).

The parents and facilitators credited these cognitive benefits to the fact that the children constantly had to process how to control the horse through their speech and actions in the EAL sessions (Stickney, 2010). In order to ride and complete various activities on the horse, the children had to listen to the instructions, needed to sit upright, get the horse to move and focus where they were going simultaneously (Stickney, 2010). It is partly as a result of this constant and multiple processing while riding that the children's motor planning, focus, concentration, ability to follow directions and problem solving ability improved (Erdman et al., 2015; Stickney, 2010). In particular with regards to following directions, the parents discussed how their children were more likely to pay attention and follow instructions while riding than in other settings (Erdman et al., 2015; Stickney, 2010). The volunteers were of the opinion that the children were more interested in the horse and therefore they were more encouraged to focus and follow directions (Stickney, 2010).

2.3.3.3.4 Physical benefits

Physical benefits are amongst the most noted benefits of THR. Physical benefits include improved fine and gross motor skills, balance, motor coordination and planning, body awareness, flexibility, posture, muscle tone and strength and endurance (De Milander, Bradley, & Fourie, 2016; Hyman, 2012; Miller & Alston, 2004; Scialli, 2002; Stickney, 2010). Parents mentioned that these physical benefits contributed to their children's increased self-confidence (Stickney, 2010).

The gross and fine motor skills that increased include increased flexibility, co-ordination, hand-eye coordination and increased writing and grasping (Stickney, 2010). According to Miller and Alston (2004) and Scialli (2002), it is the movement of the horse, a three-dimensional rhythmic movement consisting of a forward, backwards and rotatory motion-that encourages the child to constantly adjust themselves as the direction and speed of the horse changes. In so doing their posture, balance, coordination and attention develop and improve. Parents and the volunteers further described how these motor skills transferred to other settings, such as the children's increased ability to dress themselves (Stickney, 2010).

According to De Milander et al. (2016), the physical benefits of increased balance, coordination and muscle strength were also evident in a South African context. De Milander et al. (2016), specifically focused on the benefit of THR on the motor proficiency of two children with ASD; one male and one female, aged 9 and 8 years respectively. Naidoo et al. (2014)

conducted another South African study that focused on the effects of THR on the heart rate variability of children with ASD in a THR session. Five children, aged 6-17 years with ASD participated in the study. Naidoo et al. (2014) concluded that the children with ASD's heart rates were not influenced by the THR.

2.3.3.3.5 Behavioural, calming and sensory benefits

Behavioural, calming and sensory benefits were also reported. These benefits include improvements in the children's sensory integration and their restricted tolerance of change in routine as well as decreasing their stereotypic behaviours (Bass et al., 2009; Erdman et al., 2015; Gabriels et al., 2015; Stickney, 2010). EAL and THR further significantly decreased their stress, irritability, inattention and hyperactivity (Gabriels et al., 2015).

According to THR research, children with ASD's need for sameness and routine decreased and their tolerance for change increased, as they were significantly more open to try new things and break away from their routines (Bass et al., 2009; Gabriels et al., 2015). The horse as a novel stimulus was credited with encouraging and motivating the children with ASD to break away from their routine (Bass et al., 2009). Furthermore, during the EAL session the children were taught to deal with unexpected changes in routine and to gain confidence in the new surroundings of the sessions (Stickney, 2010).

The sensory difficulties of children with ASD decreased. Their sensory sensitivities were reduced and their sensory integration and tolerance to various sensory stimuli increased (Bass et al., 2009; Gabriels et al., 2015). The texture of the horses' skin and the warmth of their bodies in particular assisted the children to regulate and reduce their sensory processing difficulties – whether over- or undersensitivity – and to integrate various sensory stimuli (Gabriels et al., 2015; Grandin et al., 2010).

The severity of their stereotypic and stimming behaviour, like arm flapping and instances of emotional outbursts, also decreased and their self-regulation increased (Bass et al., 2009; Gabriels et al., 2015). Volunteers credited the motion of the horse to directly contribute to the children's decreased stimming behaviour and emotional outbursts (Stickney, 2010). The volunteers further explained that the repetitive movement and sensory input the movement of the horse provided allowed the child to be still, as they did not need to move to get sensory input – the horse provided it. The volunteers suggested that the horse's movement mimicked the

stimming behaviour of the child, thus allowing them to be calm and still on the horse (Stickney, 2010).

Volunteers additionally credited the children's decreased emotional outbursts and increased self-regulation to the calming nature of the horse's movement. The children had to regulate their behaviour while they were on the horse, otherwise the horse would respond negatively towards them (Stickney, 2010). It is a result of the various sensory experiences from the horse and the surroundings while riding that the children became desensitised and their sensory integration increased (Erdman et al., 2015; Stickney, 2010).

The parents and volunteers in the studies by Erdman et al. (2015) and Stickney (2010) also noted the calming effect of the EAL. They discussed the immediate calming and relaxation effect that the THR and EAL had for the children, even if they had had a bad day before their session. According to the volunteers the movement and warmth of the horse contributed to this calming effect (Stickney, 2010).

2.3.3.6 Family and academic benefits

Parents further reported that these social, cognitive, physical, behavioural and psychological benefits of THR and EAL transferred to other areas of their children's lives, including their family and academic life. According to parents in the study by Stickney (2010), the EAL and THR provided a basis for the children's other functional skills to develop. It increased their motivation to participate in other physical activities, as a result of their proficiency in riding (Stickney, 2010).

Family benefits include increased progress in toilet training, reduced sibling issues and less difficulty doing chores (Bass et al., 2009; Gabriels et al., 2015; Lanning et al., 2014; Stickney, 2010). Parents credited their children's progress in toilet training to their increased awareness of their body as a result of the EAL (Stickney, 2010). The reduced sibling issues were credited to the fact that their child with ASD had their own activities. This helped their child with ASD cope with the disparity between them and their 'normal' siblings (Stickney, 2010). The THR also increased their attentiveness in school.

2.3.4. Research on EAL and THR for different populations in a South African context

Given that research on children with ASD in an EAL or a THR programme in South Africa is limited, it is useful to discuss the context and results of a few South African studies that focused on a THR or EAL programme. These studies need to be discussed separately from the

above section as they focused on a variety of physical and intellectual disabilities within the context of an EAL or THR programme and not exclusively on children with ASD. Although the focus of these studies was not children with ASD, it is useful to discuss it since it could provide insight into the context and results of EAL or THR programmes in South Africa.

The results of these studies will be discussed according to the disability they focused on. Even though it becomes evident throughout the discussion of these results that THR has similar benefits for various disabilities, it is useful to discuss the benefits THR has for each disability. This will be done in order to properly contextualise the results of these studies, and to provide an indication of who has been using THR programmes in South Africa and how the programmes benefitted each disability respectively. The studies will additionally be described according to their methodology and participants.

2.3.4.1 South African studies.

Five South African studies focused on an EAL or a THR programme. These studies focused on the effect of THR on physical disabilities (Helper, 2006; Weideman, 2007), intellectual disabilities (Surujlal & Rufus, 2011), cerebral palsy (Naidoo, 2009) and a variety of disabilities (Boyd, 2015).

Helper (2006), gained her data from interviewing five primary school children with physical disabilities. Four of those children had spina bifida and one had cerebral palsy. Interviews were also done with various key team players in the children's THR, such as their physiotherapists and the riding instructors. Weideman (2007), focused on adolescents with physical disabilities whom she interviewed. Her participants consisted of adolescents with head injuries, cerebral palsy and spinal cord injuries. Unlike Helper (2006) and Weideman (2007), Naidoo (2009) specifically focused on children with cerebral palsy in a THR programme. She interviewed various people involved in the children's lives including their parents, occupational therapists, speech therapists and their teachers.

According to Helper (2006), Weideman, (2007) and Naidoo (2009), THR has social, psychological and physical benefits for the children and adolescents with cerebral palsy, spina bifida, and head and spinal cord injuries. The self-esteem, calmness, happiness, pride, positive sense of self and social interactions of the children with cerebral palsy increased (Helper, 2006; Naidoo, 2009; Weideman, 2007).

These children with cerebral palsy also benefitted physically from the THR programme. Weideman (2007), found the THR helped their muscles to relax, improved their balance and provided them with physical exercise. According to Weideman (2007), THR provided these children with cerebral palsy with an opportunity to exercise their muscles, particularly their legs, because the horses' movements both gave them the sensation of walking and their feet and legs were moving while they rode.

However, it must be noted that only Weideman (2007) reported physical benefits of THR for children with cerebral palsy. Helper (2006) did not find any physical benefits. Naidoo (2009) concluded that the physical benefits were short-lived because she found that the physical benefits, like the muscle relaxation, were restricted to the duration of the THR session.

The children with spina bifida in the study by Helpers (2006) benefited socially and psychologically from the THR programme. The number of friends they had and their self-confidence increased. They also began to open up emotionally (Helper, 2006). Like the children with cerebral palsy, those with spina bifida also became proud of their ability to ride, which benefitted them socially (Helper, 2006). They wanted to tell their peers about their riding. The social skills of those children with spinal cord and head injuries in the THR programme increased (Helper, 2006). They became happier, more relaxed and they physically benefitted from the physical exercise the programme provided (Helper, 2006).

The last two South African studies that will be discussed focused on a variety of disabilities. The researchers did not specify which results applied to which disability included in their respective studies. Boyd (2015) focused on the parents' perceptions of children aged 6-18 years with varying disabilities in a THR programme. These varying disabilities included children with cerebral palsy, autism, Down's syndrome, Prader-Willi syndrome, tuberous sclerosis, intellectual disability, left hemiplegia and Cockayne syndrome.

Like Boyd (2015), Surujlal and Rufus (2011) focused on the parents' perception of THR for their children. Surujlal and Rufus (2011) interviewed parents with children with intellectual disabilities aged 7 to 13 years. These children were predominantly autistic. Three had epilepsy and one had brain damage. Both Surujlal and Rufus (2011) and Boyd (2015), reported that THR had benefits for the children in their respective studies. These benefits included physical benefits like increased posture, walking ability, balance, muscle strength and body awareness; social benefits like increased social interactions, expressiveness and social engagement; calming,

cognitive benefits like increased focus, planning and following of instructions; and psychological benefits like increased self-esteem, emotional and behavioural control, pride and confidence.

However, although Surujlal and Rufus (2011) did report social benefits, the majority of the parents in their study expressed that the THR had a minor social effect on their children. THR additionally provided the children with an opportunity to escape the daily confines of their disability and provided the children with a sense of freedom, which parents linked to the children's improved quality of life (Surujlal & Rufus, 2011; Boyd, 2015; Weideman, 2007).

According to Boyd (2015), THR programmes benefit children socially by providing them with an opportunity to learn and practise their social skills with the facilitators, volunteers and other children in the programme, as they perceive the facility as socially safe. Furthermore, social interactions are facilitated because the horse becomes a topic they can talk about to others (Boyd, 2015). The children's emotional and behavioural control increased because they had to concentrate, be calm, and control their emotions and behaviour in order to communicate clearly with the horse and complete the assigned activities (Boyd, 2015). The children's increased self-image was credited to not only their ability to ride but also their ability to ride while their able-bodied peers and siblings could not (Boyd, 2015).

2.4 THE PARENTS' EXPERIENCES OF THE PROGRAMMES

According to Boyd (2015), Stickney (2010), and Scialli (2002), the parents also reported their personal experiences and feedback on the programme and provided reasons for their children's improvement. The facilitators in these studies only discussed the benefits of EAL and provided explanations for the children's improvements. No international or South African research could be found that investigated the experiences of the facilitators or volunteers in a THR or EAL programme. Research has been done that focused on the experience of being an EFP facilitator (Simmons, 2011). The EFP facilitators in these studies, however, only reflected on their experience of self-development and awareness throughout conducting EFP programmes and their experience of working with horses throughout their lives (Hallberg, 2008; Simmons, 2011). Therefore this section will only describe the parents' experiences of the programmes.

Parents in the studies by both Boyd (2015) and Stickney (2010) reflected on their personal experience of the programmes. They described how the programme provided them with personal time through giving them a break from dealing with the daily challenges of their children (Boyd, 2015). This personal time was enhanced by the calming nature of the outdoor

premises where the programmes were presented (Boyd, 2015; Stickney, 2010). Parents described their increasing feelings of pride and happiness watching their children's growth during the course of the programmes and their happiness about their children's growing pride and enjoyment of the programme (Boyd, 2015; Stickney, 2010). The parents in the study by Stickney (2010) further described how the sessions were a bonding activity for their families, as it was an activity the parents and the children's siblings could enjoy together. Both parents and siblings could be involved in the sessions and watch their children's and siblings' enjoyment of the sessions.

The parents further provided feedback on the specific THR or EAL programmes. The parents commented on the structure of the sessions and the cost of the programmes. They described the limiting nature of group classes because the classes were either too advanced or not advanced enough. The long waiting time for their children to ride and the unreliable scheduling of their children's sessions were also challenging (Boyd, 2015; Stickney, 2010). The parents further reported that the sessions were expensive and their insurance did not provide coverage (Stickney, 2010). However, the parents in the study by Boyd (2015) expressed their appreciation of the free sessions during the programme. The parents also expressed their overall gratitude for the programme – the benefits it had for their children and the added quality of life it provided for them and their children (Boyd, 2015; Stickney, 2010).

The parents also reflected on experiences with the people at the facility, which included other parents, the facilitators and volunteers. The parents commented that the facilitators were competent because they were knowledgeable about their children's disabilities and about horses (Scialli, 2002). The parents in the study by Stickney (2010) described the volunteers as good people. However, they also described them as unqualified and mentioned that there were too few volunteers (Stickney, 2010). The parents also formed relationships with the other parents in the programme as they were all going through similar experiences with their disabled children (Boyd, 2015). The parents further formed a support system amongst themselves and experienced the people in the programme as an accepting community.

The parents in the studies by Stickney (2010), Scialli (2002) and Boyd (2015) lastly commented on the environment of the sessions. The parents commented on the calming and tranquil environment of the sessions (Boyd, 2015). Other parents reported that the rain, heat and wind interrupted their children's sessions and that the environment of the sessions was not a

good place for them to watch their children during a session because of the bees, flies and dirt. They also felt the sun was too bright (Stickney, 2010; Scialli, 2002).

Parents also discussed reasons for their children's improvements. Some of the parents explained how the improvements they perceived were due to a combination of factors. They mentioned the complementary nature of the children's treatments, including THR, their work with their children and the children's level of maturity (Boyd, 2015). Other parents solely credited THR with the improvements they perceived in their children, because either the child had no other treatment or they credited it to a "feeling" (Boyd, 2015, p. 105).

2.5 CHAPTER SUMMARY AND CONCLUSION

The literature reviewed above revealed that not only is ASD a debilitating and multifaceted disorder, but that the treatment regime of ASD is complicated. A unique combination of interventions is often required to treat and manage the unique presentation of symptoms of an ASD individual. One proposed type of intervention that is making headway with regards to treating children with ASD is HAI interventions; more specifically EAL and THR. It is through EAL and THR that not only are the majority of the children with ASD's criterion and comorbid symptoms reduced, but these interventions are psychologically, cognitively, physically and behaviourally beneficial for the child. Although research has shown that both EAL and THR are beneficial for a variety of other populations, it is through skills horses have, which children with ASD lack, that horses are particularly beneficial for the children with ASD.

In Chapter 3 the theoretical basis of this study will be discussed.

CHAPTER 3

THEORETICAL FRAMEWORK

3.1 INTRODUCTION

In an attempt to understand the parents' and facilitators' perceptions of children with ASD in an EAL programme, the ecological-systems theory of Bronfenbrenner (1977) will be used. The ecological theory states that in order to understand an individual's behaviours, perceptions and experiences, the interactions between their various social contexts need to be taken into account (Bronfenbrenner, 1977, 2009; Tudge, Mokrova, Hatfield, & Karnik, 2009). This social context consists of the microsystem, mesosystem, exosystem and macrosystem. A person's interaction with their social contexts influences their behaviour and the perceptions that they form (Bronfenbrenner, 1977).

For the purposes of the current study this theory depicts the formation of participants' perceptions on multiple levels. The theory also depicts the influence that various aspects of the parents' and facilitators' multiple systems may have on their perceptions of the EAL programme. This chapter will discuss the basis and essential definitions of this theory, the systems mentioned and the limitations of using this theory in the context of the study.

3.2 ECOLOGICAL SYSTEMS THEORY

The ecological systems theory will be used to understand the parents' and facilitators' perceptions and experiences of an EAL programme for children with ASD. Thus, both the parents' and facilitators' social contexts, which comprise various systems, need to be reflected upon. The various systems, the microsystem, mesosystem, exosystem and macrosystem, will be defined and discussed within the context of the perceptions of the parents and facilitators. First, the essential definitions and the underlying assumptions of this theory in relation to those perceptions will be discussed.

From its first conception in 1974 this theory has been constantly altered and reworked (Tudge et al., 2009). For the purposes of the current study the 1977 conception of the theory was used. It will be described below. According to Bronfenbrenner (1977), in order to understand a person's development as well as their perceptions one needs to examine the multiple interactions a person has within their multiple settings and systems. These systems that make up one's social context, are a series of nested systems contained within each other, similar to a Russian doll set

(see Figure 2.1). Each system is multidimensional. It includes multiple settings and contexts, which are interdependent, interrelated and constantly interact with the other systems (Grzywacz & Fuqua, 2000). In the context of this theory setting refers to, “any place which a person engages in particular activities in particular roles for particular periods of time” (Bronfenbrenner, 1977, p. 514). Factors of place, time, physical features, the activity and the role of the person thus encompass the setting.

According to Bronfenbrenner (1977) and Tudge et al. (2009), a person’s perceptions and knowledge is constructed through their interaction within their different systems. By interacting and engaging in various activities in their various contexts, individuals may “come to make sense of their world”, thus both gaining knowledge and forming a perception of an activity (Tudge et al., 2009, p. 200). However, their perceptions are not only influenced by their interactions with that specific activity, but are also influenced by other systems they interact in (Tudge et al., 2009). For example, a person’s cultural beliefs, situated in the person’s macrosystem, about horses or equine-assisted therapy may influence how they perceive the equine-assisted therapy that their children participate in – situated in the person’s microsystem.

Each system will now be described in the context of the current study.

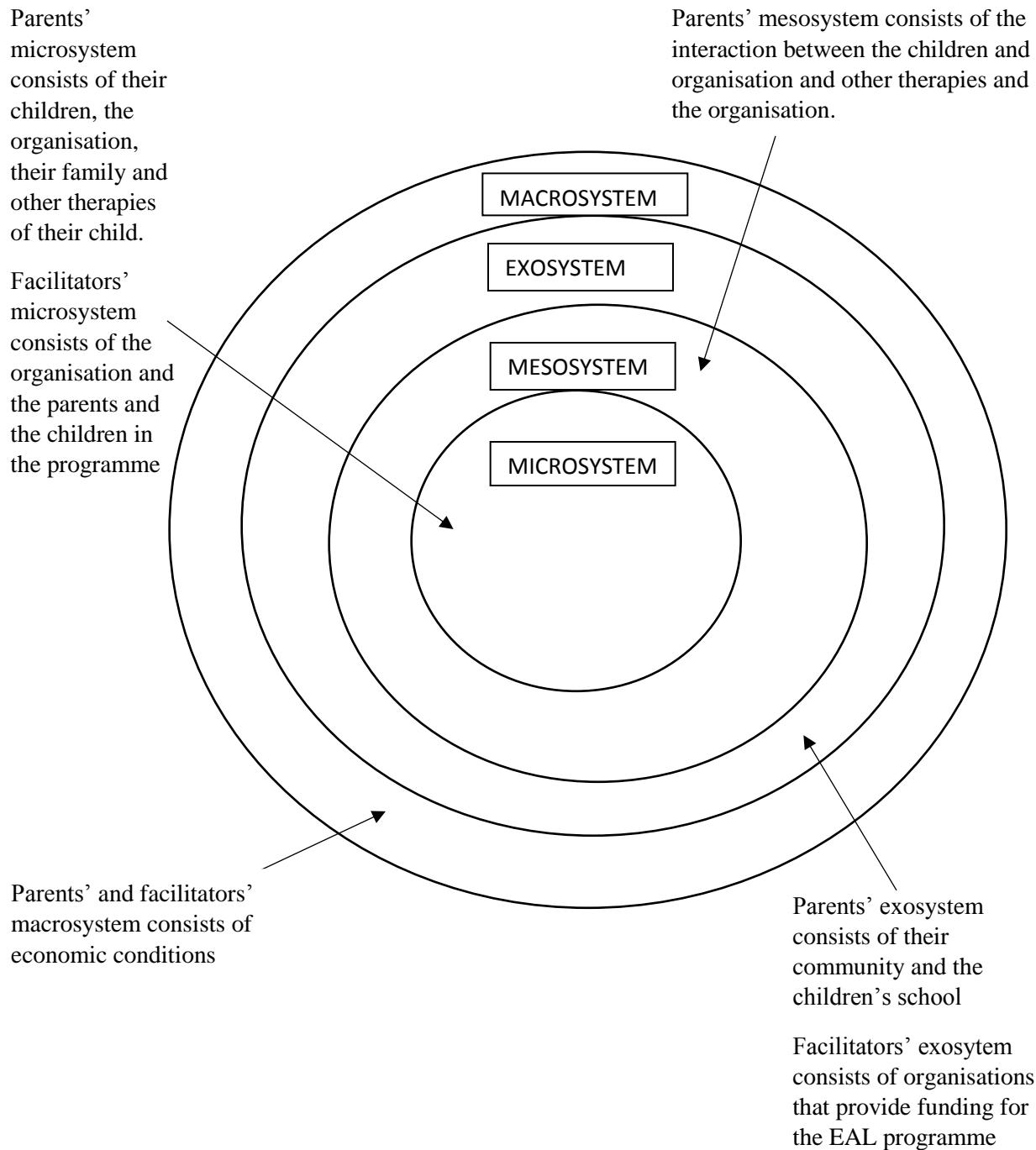


Figure 2.1: Bronfenbrenner's ecological model showing the four systems that influence parents' and facilitators' perceptions of equine-assisted learning for children with Autism Spectrum Disorder. Adapted from "Community psychology: A common sense approach to mental health" by J. A. Scileppi, E. L. Teed and R. D. Torres, 2000, p. 46. Copyright 2000 by Prentice-Hall.

3.2.1 Microsystem

The microsystem consists of activities, roles, interpersonal relations and physical and material features that a person directly and constantly interacts with and which directly influence that person (Bronfenbrenner, 1977, 2009; Sontag, 1996). According to Sontag (1996), the manner in which a person perceives and the amount of meaning a person attaches to various aspects in their microsystem, will determine to what extent that particular property – a specific interaction or activity – of a setting will influence them. The properties that hold the most meaning for the person will influence them more than a property that holds little meaning for them (Sontag, 1996). In the context of the current study, if the EAL programme is meaningful to the parents of the programme it will influence their perception.

The parents' microsystem consists of their children, the organisation, their family environment and their children's school and other treatments. It is through their constant interaction with their child in multiple contexts and knowing their child's personality, impairments, and behaviours that they are able to notice any changes in their child (Achenbach & Ruffle, 2000). The parents are also able to reflect on their child's experience of their various treatments (Achenbach & Ruffle, 2000). They are therefore valuable sources of information on changes in their child and their child's experience of the programme.

The organisation is also part of the parents' microsystem. The parents interact with the facilitator and the organisation's environment during their child's sessions. It is through interacting directly with various facets of the organisation, that the parents are able to give feedback and reflect on their personal experience of the organisation. Their experience, perception and feedback on the organisation are useful to express their appreciation of the programme or to inform the organisation on aspects that may need improvement (Boyd, 2015).

The facilitator's microsystem consists of the EAL programme, the organisation and the children and parents in the EAL programme. Through interacting with the children they are able to note the children's improvement and form a perception of each child. Additionally, based on their experience of EAL programmes and horses, they are able to provide explanations as to why the changes occurred (Stickney, 2010). It is through conveying these explanations to the parents that the facilitators interact with the parents and are thus able to form a perception of them.

3.2.2 Mesosystem

The mesosystem is the interaction and links that are formed between the various microsystems (Bronfenbrenner, 1977, 2009). A person is influenced by the relationship between two of their microsystems. The person is negatively influenced if two of their microsystems contrast each other and positively influenced if the microsystems correlate. (Bronfenbrenner, 1977, 2009). This system specifically emphasises that multiple events may influence a person.

In the context of the current study, if the programme has a good influence on the child, it is likely that the parent's perceptions will be positive. The programme may also have a good influence on the parents by increasing their feelings of pride and enjoyment (Scialli, 2002; Stickney, 2010). Similarly, if the parents have a good experience with the facilitators and the environment of the programme they are likely to have a positive perception of the organisation.

3.2.3 Exosystem

The exosystem is an extension of the meso-system that includes settings and social structures that an individual has no direct contact with. These settings and social structures have an influence on the person's life, behaviour, perceptions and settings in the microsystem and mesosystems (Bronfenbrenner, 1977, 2009). These settings and social structures include the mass media, the government, neighbourhoods and communities, social networks and the distribution of goods and services (Bronfenbrenner, 1977).

In the current study the parent's exosystem would consist of their community and the children's school. Their community may lack understanding of the behaviour of their child with ASD. This lack of understanding may determine the level of support and guidance they receive from their community regarding their child's diagnosis and what paths to explore to assist their child (Boyd, 2015). This level of support and guidance further influences the parents' perception of their communities' understanding and support regarding their child with ASD. The children's school may influence the schedule and number of sessions the child may attend (Boyd, 2015). The schedule of the sessions needs to fit into the child's schedule at school. Whether a child will be limited to one lesson or allowed multiple lessons per week will depend on the school the child attends (Boyd, 2015).

The facilitator's exosystem mainly consists of the various organisations that provide them with funding. Funding is one of many ways that EAL or THR organisations rely on for the continuance of their programmes. The amount of funding may determine the financial status of

their organisation and thus determine the number of lessons and to what extent they can maintain both their horses and the premises of the organisation (Boyd, 2015). The amount of funding the facilitators are able to receive could influence their perception of the organisation funding their EAL programme.

3.2.4 Macrosystem

The macrosystem differs from the other systems as it does not refer to the specific context, interactions or settings affecting a person. This system rather refers to overarching societal factors such as ideologies, economic and educational conditions, laws, governmental policies, cultures and subcultures (Bronfenbrenner, 1977). These societal factors are conceptualised as “blueprints” because they structure the activities within the various systems and settings of a person’s life (Bronfenbrenner, 1977, p. 515).

In the context of the current study, the economic conditions affect both the parents and the facilitators. The facilitators are affected by the level of funding they are able to acquire for their organisation. The economic conditions influence the level of financial support the parents are able to provide for their child. The parents’ financial position may determine how many treatments their child is able to receive (for example how many EAL lessons their child can attend per week), which subsequently influences the child’s skills development (Boyd, 2015).

3.2.5 Limitations of the ecological systems theory

The comprehensive nature of the ecological systems theory is useful to gain an understanding of the parents’ and facilitators’ perceptions and the environmental context of the sessions. However, because of its comprehensive nature, it is difficult to practically explore all the various systems and interactions within these systems comprehensively (Grzywacz & Fuqua, 2000). To overcome this limitation, the current study will specifically focus on prominent interactions within specific systems and briefly explore the influence of the elements of the other systems.

3.3 CHAPTER SUMMARY AND CONCLUSION

This chapter provided a description and discussion of Bronfenbrenner’s (1977) ecological systems theory that will be used in this study as a theoretical framework. The general basis and essential definitions of the theory and a person’s social context and/or systems according to this theory were discussed. The theory was further discussed in relation to the formation of a person’s perceptions and was situated within the specific context of the current study. The limitations of

using this theory and how these limitations will be overcome in the current study were also described.

In Chapter 4, the research methodology, the specifics of how the research was conducted will be outlined. This includes information about the participants, the research design, data collection and analysis and the ethical considerations.

CHAPTER 4

RESEARCH METHODOLOGY

4.1 INTRODUCTION

The aim of the current research study was to explore and therefore increase the knowledge of parents' and facilitators' perceptions and experiences of an equine-assisted learning (EAL) programme for children with autism spectrum disorder (ASD). This is a developing field internationally but is limited within a South African context. By exploring the parents' and facilitators' perceptions and experiences the current study aimed to explore EAL as a means to assist with and improve children with ASD's functioning and behaviour as well as gain insight to how they (the parents and facilitators) experienced the programme. The barriers that hinder the effectiveness of the EAL sessions in a South African context were additionally explored.

This chapter will serve to describe how this topic was explored by describing the methods that were used to both gain the data and to ensure its quality. The research design of the study, the participants, organisation of the study, data collection, analysis procedures and ethical considerations all encompass the methodology that was used. Each of the aforementioned will be described in detail in this chapter.

4.2 RESEARCH DESIGN

A qualitative and exploratory approach was used to freely explore and gain a broad understanding of the parents' and facilitators' perceptions of an EAL programme (Bless, Higson-Smith, & Sithole, 2013). The reason for using these two methodologies will be discussed in the following sections.

4.2.1 Qualitative methodology

With qualitative methodology people's subjective experiences, perceptions and attitudes are explored in an in-depth manner by means of methods such as, interviews and focus groups (Bless et al., 2013). It is because of the subjective and personal nature of people's experiences and the unique meaning they attach to those experiences that people's experiences and perceptions are difficult to be quantified (McIntyre, 2005). The current study explored the

subjective perceptions and experiences of participants. A qualitative research design was therefore necessary.

The qualitative nature of the research design not only provided the researcher with an opportunity to explore the participants' experiences and perceptions, but allowed the researcher to gain vivid, complex and meaningful descriptions of the participants' experiences (Terreblanche, Kelly, & Durrheim, 2006). By interpreting the participant's experiences and perceptions this qualitative study aimed to provide an in-depth understanding of parents' and facilitators' perceptions of children with ASD in an EAL programme (Merriam, 2002).

4.2.2 Exploratory research design

An exploratory research design was used in addition to a qualitative research design. An exploratory research design aims to gain a broad understanding and overview of a given phenomenon of which little is known (Bless et al., 2013). An exploration of various aspects of the particular phenomenon is therefore required. This methodology is used when the researcher is unsure what they will find. Therefore, exploration of the phenomena is required. This methodology was regarded as appropriate for the current study because literature regarding children with ASD in an EAL programme in a South African context is limited.

The available literature did, however, provide the researcher with a guideline of what aspects of the topic to focus on and explore in the current study. With this guideline as basis the current study explored the parents' experience of the EAL programme, the benefits it had for their children and how they experienced these benefits. The researcher also explored the experiences and perceptions of the facilitators to understand how the organisation functions, the facilitators' experience of children with ASD and why EAL benefits children with ASD.

The experiences and perceptions of both the parents and facilitators were explored in semi-structured interviews, conducted with each participant. The use and nature of the semi-structured interviews will be substantiated and described in Section 4.5.1. The exploratory and qualitative nature of the research enabled the researcher to gain an in-depth understanding of the participants' experiences and perceptions.

4.3 RESEARCH PARTICIPANTS

4.3.1 Selection of participants

Participants in the study were parents and facilitators involved in an EAL programme. The parents who were eligible to participate in the study were required to have a child with ASD

participating in the specific EAL programme. The facilitators chosen were the facilitators of that specific EAL programme. Two facilitators gave permission to use their branches of the EAL programme for the study. The selection of parents was limited to these two branches.

The EAL programme was provided by an organisation situated in the Western Cape. The organisation assists children with a variety of disabilities, including general developmental delays, attention deficit disorder, autism/ASD, mental disability, sensory processing disorders and cerebral palsy (E█'s & Special needs, n.d.)³. The organisation and programme were established in 2010 and currently consists of four branches situated in the Western Cape. The four branches are facilitated and managed separately by their respective managers. The organisation and the EAL programme will be discussed comprehensively in Section 4.4.

A purposive sampling technique was used to select the parents as they were chosen according to specific criteria (Bless et al., 2013). The inclusion criteria of parents consisted of two conditions. First, the parents needed to have a child formally diagnosed with ASD or with ASD traits. Second, their child needed to have been participating in the specific EAL programme for at least 6 months at one of the EAL programme branches. Both parents were invited to participate, but each parent was interviewed separately.

The first inclusion criterion, detailing that the parents needed to have a child diagnosed with ASD, also included parents of children who had been diagnosed with or with traits of a pervasive developmental disorder (PDD). PDD was the previous diagnosis category in which Asperger's syndrome and autism were included in the DSM-IV (APA, 2000). These two diagnoses as well as other diagnoses included in the PDD diagnostic category are now included in the ASD diagnosis in the DSM-5. The PDD diagnostic category included Asperger's syndrome, autism disorder, childhood disintegrative disorder (CDD), Rett syndrome and pervasive developmental disorder-not otherwise specified (PDD-NOS) (APA, 2000). A demographic description of the parents that participated and the children are in Table 4.1 and 4.2 respectively.

Each branch manager of the organisation doing the EAL programmes is also the facilitator for that specific branch. The researcher will refer to the mangers as facilitators

³ This reference is partially blacked out as the name of the organisation of this study is revealed in the reference. Thus, for confidentiality reasons the name of the organisation is partially blocked out.

hereafter. The facilitators' identities were already known to the researcher prior to data collection. Therefore there was no need to use a sampling method to select them. All the facilitators had provided EAL sessions to children with ASD as well as other children with special needs before the research started. All the facilitators that gave permission for their respective branches to be used in the study participated in the study.

4.3.2 Parent information

This section will describe the parents who were participants in the study. The parents, their children and the facilitators were all given pseudonyms to protect their identity. The names of siblings and horses are also pseudonyms. All names describing and referring to participants in the following sections and throughout this paper, are pseudonyms.

A total number of 10 children diagnosed with ASD or with traits of ASD attended the EAL sessions at the EAL session branches for at least 6 months. Each of these 10 children's parents were therefore eligible to participate in the study. Eight parents agreed to participate of which seven were mothers and one a father (see Table 4.1). Three parents did not agree to participate in the study. Only one mother and father of a child agreed to participate as a couple, both of whom were interviewed separately.

Table 4.1

Demographic Information of Parents and Children

Parent Details			Children's Details						
Parent's Name ¹	Race ²	Language	Sex ³	Child's Name ¹	Age	Sex ³	Race	Siblings ⁴	Diagnosis ⁵
Angie	W	Afrikaans	F	Matt	5	M	W	M (6)	PDD-NOS
Estee	C	English	F	David	6	M	C	M (9)	AU
Arleen	W	Afrikaans and English	F	Ryan	10	M	W	M (13)	AS with Sensory Processing Disorder
Jessie	W	Afrikaans and English	F	Anja	10	F	W	M (7)	AS
Ian	W	Afrikaans	M	Liam	9	M	W	None	AS traits
Kamira	W	Afrikaans and English	F						
Susan	W	English	F	Sarah	11	F	W	F (9)	AS
Lauren	C	English	F	Amir	7	M	C	F (19) and M (15)	ASD traits

Note: ¹ The names are all pseudonyms. ² W=White; C=Coloured. ³ M=Male; F= Female. ⁴ Sibling details are reported in relation to their sex and age in years. ⁵ ASD =Autism Spectrum Disorder; AS = Asperger's Syndrome; AU= Autism; PDD-NOS= Pervasive Developmental Disorder- Not Otherwise Specified.

4.3.3 Facilitator information

Two facilitators and one trainee facilitator agreed to participate. The two facilitators and the trainee facilitator had different backgrounds of experience and therefore each had a different perception of children with ASD in an EAL programme. Paula, a facilitator, founded the organization and has been working with horses to help people with their various mental health issues since she was 16 years old (Paula, Personal Communication, February 28, 2017). Since then she had explored various equine-assisted learning models and became formally certified with the Equine Assisted Growth and Learning Association (EAGALA) in 2012. She received her certificate for the advanced EAGALA module in 2016 (Paula, Personal Communication, February 28, 2017).

Beth, the other facilitator, was trained by Paula and on the completion of her training in 2014 Beth opened her own EAL branch under the name of the organisation Paula founded. She has had 4 to 5 years of experience with EAL programmes (Beth, Personal Communication, February 28, 2017). The trainee facilitator, Anelise, has been training with Paula for approximately a year. The two facilitators and the trainee facilitator were all white, female and all of them spoke both English and Afrikaans. For confidentiality reasons the trainee facilitator will also be described as a facilitator throughout this paper.

4.3.4 Description of the children

Given the uniqueness of each child diagnosed with ASD and to contextualise the results, a description of each child as well as the details of their participation in the EAL programme needs to be described (see Table 4.2).

Table 4.2

Details of the Children's Participation in the Equine-Assisted Learning (EAL) Programme

Child's Name¹	Parent's Name¹	Reason for participation²	Duration of EAL (months)	No. of sessions per week
Matt	Angie	All	12	1
David	Estee	All	24	2
Ryan	Arleen	Ph and Emo	24	1
Anja	Jessie	Emo, Behav, Social	30	1
Liam	Ian and Kamira	All	24	1
Sarah	Susan	Ph, Emo, Behav, Social, OT	36	1
Amir	Lauren	All	6	1

Note: ¹ The parents' and the children's names are pseudonyms. ² All = Physical, Emotional, Behavioural Modification, Social, Occupational Therapy and for recreation; Ph = Physical; Behav = Behavioural Modification; Social = Social; OT = Occupational Therapy; Medical ref. = Medical referral.

According to Table 4.2, the children in the current study have been attending EAL sessions for an average of 22 months with the shortest duration being 6 months (Amir) and the longest being 36 months (Sarah). All the children except David attended lessons once a week. David attended sessions twice a week.

The parents also provided information on how they learned about the EAL sessions. The majority of the parents learned about EAL through word of mouth ($n = 5$). One parent learnt about EAL through word of mouth and through a school referral. The other two parents learnt about EAL through an advertisement and a medical referral respectively.

Each child will now be described according to the ASD traits they presented with as well as other treatments they had been receiving. The descriptions of the children are based on their parent's verbal and demographic description of them.

4.3.4.1 Matt

Matt is a 5 year old boy who was diagnosed with PDD-NOS at 2 years of age. His mother, Angie, described his diagnosis: *He's not completely like 100% autistic but he's got definite sensory issues, he's got a vocabulary of about 14 words and his impairments overlap*

with autism but he's not. In other words, she said he has certain things that are autistic but he's not completely autistic, where there's no social skills, where he can't communicate at all he is very tactile ... he loves to hug where normally that is not the case with autistic children ... they don't like to be touched ... that's where he's different.

She described him as having a fantastic sense of humour and is the busiest child in the world. His passion is that he loves building things and taking them apart ... He wants to see inside, how it (a toy) works and then put it back together ... The movement of marbles on something that rolls down ... it's fascinating to him. He wants to understand how things work yes, but the mechanical part of how it works, that's what fascinates him.

Angie described his sensory difficulties as auditory: ... he is very sensitive to noise, like going to a Pick 'n Pay, I've got like 20 minutes, I can see when it starts getting too much, he starts touching his ears, he pulls his hoody down and immediately it's too much for him, he gets sensory overload and that's when he will start acting out. She also mentioned another example, we will be playing at the park and the cars are driving past ... it's too much for him ... flashing lights and it's the sound then Matt will get down or he crawls.

Matt has been attending EAL sessions for a year. Previously, Angie said, he did do speech therapy and at the beginning of the year he did occupational therapy.

4.3.4.2 David

David is a 6 year old boy who was diagnosed with autism at 3 years of age. His mother, Estee, described him as really something different (happy smiling). She said even before David was 3 years old, he has always been the chancer and joker, seeing where he can take a gap and then simply enjoys having us have to run after him when he either grabs something he is not allowed, or something fragile he loves running. She said, for him life is all fun and games ... he has an adventurous nature. Although I am almost always in panic mode, I enjoy his zest for life, his belly laughs and his gorgeous smile.

He is also really attracted to water, love[s] electronics, he can work a TV without a remote ... he loves his iPad ... he loves being outside, um ... listening obviously to the birds and he loves to climb. He has social, communication and sensory difficulties.

According to Estee, his social and communication difficulties included, he didn't even make eye contact ... you could get no words ... it was a lot of screaming ... not following instructions, you could ask him to do something, he wouldn't know, you would ask him to lift his

hand and he wouldn't know what is it that you want him to do. When giving him instructions, Estee said, you have to be specific, you have to be in point in terms of what you want. If you ask him for something in the incorrect way, you always going to get the incorrect thing. He also would have no fear, he wouldn't show any signs of fear ... no sense of danger.

Estee described his social life: he doesn't really have friends ... you know in the class that they alongside each other ... but he doesn't have a connection or bond with someone his same age. Even his cousins, he will play with them or be in a swimming pool with them. I would say he is playing alongside them not really playing with them. Estee said socially he selects who he wants to connect with ... if he doesn't connect ... you can't force it.

David has one elder brother, Jason, who is 9 years old. Estee said: *they have their moments where they do play together but otherwise David will just go solo ... and Jason's', the same on another level. David keeps himself busy with lots of Lego and ... only plays with things that are for one person. If they do play together like if he's in a swimming pool or they go jumping on a trampoline ... then they play together and they have fun. If David wants ... experiences something fun he wants it over and over again so obviously Jason's going to get to a point where he gets tired (amused laughing). David will ask him to do it over and over but then Jason gets tired and he retreats back to his bedroom.*

David also has auditory and tactile sensory difficulties. His mother, Estee, described his sensory difficulties: *he has quite a bit of sensory issues he does close his ears sometimes, close his eyes. Um, obviously if there's a lot of noises, a lot of mixed types of noises ... You know, sometimes it's the sound of a fan or the sound of running water. Estee said before the EAL she couldn't sing certain things to him, certain things he didn't want to touch, didn't want you to touch him ... didn't want anything on his head. She says that he is also always with his feet in the air but that's also some type of a sensory thing when they always want to be elevated.*

Besides his EAL sessions that he has been attending for 2 years, he also attends the SNAP academy and gets speech therapy.

4.3.4.3 Ryan

Ryan is an 11 year old boy who was diagnosed at 9 years old with Asperger's syndrome and sensory processing disorder. Arleen, his mother, said: *he loves the outdoors ... give him a thing and he'll go fiddle in the garden and also animals as well, he loves animals and he's found*

a liking to the horses. He presents with social and sensory difficulties and also has an inflexible adherence to routine and insistence on sameness.

Arleen described his inflexible adherence to routine: ... *he's into his routine, he needs to know exactly what's going on ... you have to prepare him, you know, don't just spin something on him.* She said he is also very particular and insistent on sameness as *he has to put things very straight and in a line ... It has to be put in proper like if the chair is skew it has to be right, or he has to walk on this way he's not going to walk this around the chair.*

Arleen recalled when Ryan was younger other people would note his social difficulties. They would ask, *Why is he not sociable, why does he look down when you speak to him? His speech as well as other milestones was a bit delayed so he would not walk at ... um ... a year old, it would be 18 months. He would not sit at 6 months, like my other one did ... So his speech developed a bit later and things.* He also *read[s] and write[s] at a slower pace.*

She described his sensory difficulties as tactile. Arleen remembered: *When he was a baby and you do the transition from milk over to solids and I remember the purity, he would hate the ones with vegetables in and the spaghetti pieces, he would always spit it out.* Ryan also can't tolerate clothes on him, *you know like the labels...and certain clothes ... I can't cut his hair, I can't cut his nails, I...do it when he is sleeping.*

She also noticed his tolerance of certain sensory aspects fluctuates from day to day. *He will tolerate something now and then maybe in a day or two he won't ... it's not the same ... every day.* For example, she said: *One morning he will wake up and he will be smiling, ready to go to school, ready in the car, happy. Or he can wake up for no reason at all, nobody's even spoken to him and he'll be in a mood of some sort ... everything irritates him. The clothes that he's worn for the past week suddenly is irritating ... So like everything is different he'll be like in a class situation now and everything will be fine and somebody can be doing something he'll be irritated and it just changes ... the way he expresses himself. You know if you look at him in a strange way all of a sudden.*

Ryan has been attending EAL sessions for 2 years and does not get any *other therapy.* Besides the sessions, *he does home schooling and is at a learning centre.*

4.3.4.4 Anja

Anja is a 10 year old girl who was diagnosed with Asperger's Syndrome at the age of 3 years old. Her mother, Jessie, described her as a *very loving child* with social and sensory processing difficulties.

Jessie described her social difficulties before the EAL sessions as being *like almost like an only child. You know, just play on her own, sit and read a book, didn't have to mingle to be happy. She's also sometimes very unobservant of what's going on around her and still goes much into her own world.*

Jessie further described her tactile and taste sensory processing difficulties. Jessie said: *She doesn't eat egg at all, or anything that's egg based, like she'll taste that egg and no ... And still doesn't like certain materials ... she can't touch my pants ... And also there's some fleece materials that she'll pick and wouldn't want to wear.*

Her treatments include therapy at the SNAP academy, the EAL sessions and deep pressure brushing her mother does for her daily. She has been attending EAL sessions for 2 ½ years.

4.3.4.5 Liam

Liam is a 9-year-old boy who has not been formally diagnosed with ASD. When he was 3½ years old a psychologist stated to his parents that he presented with traits of Asperger's syndrome. However, he has too few traits to be formally diagnosed with ASD. Both his mother and father, Kamira and Ian, were interviewed separately. Ian said: *At the moment Liam's not diagnosed with Asperger's but he gets really close to that ... the paediatrician that we now currently at he also mentioned certain symptoms, but then again there's a lot of symptoms that's not typical to Asperger's.* His mother, Kamira, further described: *He's got the same type of symptoms but he's not very big into the spectrum, there's a little bit of ... its things like ... everything must be perfect.* He predominantly has social and sensory difficulties.

Kamira described him as *a very outgoing child ... he's not shy about anything.* She said: *He will go up to anybody and start playing with anybody however, he doesn't have the social skills ... to deal with when things doesn't go his way, emotionally that will not work for him, it will be an emotional wreck.* She mentioned another example of his social difficulties: *So he will go to any person and start talking and playing with people, when two people play with a ball, he'll go ask can I play with and that's fine as soon as they stop and he wants to play on, or as*

soon as they don't play by the rules, as he knows what the rules of the game are, then he gets very frustrated and then, then he can't handle himself to say listen, he can't say so why must he do it like this way and not the other way, do it my way ... he will just start screaming.

He also has tactile sensory difficulties. Kamira said: *It's like he doesn't like a lot of people touching him all the time ... and sticky stuff on his hands.* Liam is home schooled by a hired tutor, he also attends *occupational therapy, then he has some speech therapy* and does therapy at the SNAP academy. He had been attending EAL sessions for 2 years.

4.3.4.6 Sarah

Sarah is an 11-year-old girl who was diagnosed with Asperger's syndrome at 8 years old. Her mother Susan described her as *extremely high functioning* and *she is not sort of like an Asperger's that they would write a book about.* She has social, sensory, focusing and praxis difficulties as well as abnormal preoccupations with unusual objects.

Susan said Sarah *ha[s] very little idea of body language ... so understanding what somebody ... turn[ing] their back means. She would also be very ... socially inappropriate ... inappropriate behaviour like ... saying inappropriate things and not understanding sarcasm ... I also found that that also, in that way she just didn't fit into the world around her and connect in terms of understanding social norms and appropriate behaviour.*

Susan described her sensory difficulties as tactile and auditory. *She doesn't like the feel of certain things on her ... she's so conscious about this feeling on her body and she's quite fussy about, about the type of clothes she wears.* Sarah constantly feels like, *there's something on her skin and her brain doesn't filter it out properly so she feel[s] the clothes on her all the time.* Susan also said: *She's quite auditory sensitive as well. If she's focused on something, she can't shut out the background noise. So her brain can't distinguish between the important noises of the teacher talking and someone writing or scratching or crinkling a paper behind her.* She is also *extremely stubborn and ha[s] like odd little things, like, like collect phones and then you couldn't touch her stones.*

As a parent Susan further described how Sarah was in the family setting. She said: *From little she was an exhausting child because everything was a challenge and everything was a fight and I found it very difficult to discipline her because nothing seems to work she just doesn't care about, you know, being deprived of TV ... Um, and I really, my heart broke for her in terms of the social side of things where it's terrible as a parent if your child is so definitely excluded, you*

know. Susan said Sarah only attended the EAL sessions and has been attending EAL sessions for 3 years. Sarah previously attended *occupational therapy and we went to a psychologist and the whole toots.*

4.3.4.7 Amir

Amir is a 7 year old boy who has not been formally diagnosed with ASD. However, his mother, Lauren, reported that an educational psychologist had told her that he ... *display[s] some markers in the autistic field, in the spectrum ... but it's not so much markers that there he's now ADHD (Attention-deficit/hyperactivity disorder) or he's now Asperger's or he's now that. It is very broad, it's too few, to be able to group them together into one.* Lauren said these markers are his social and communication difficulties, his rigid adherence to rules, routine and planning, fixated interests to particular objects and focusing and sensory processing difficulties. Physically, he also *has low muscular tone.*

Besides the above difficulties, Lauren described him as *not hectically busy and perceptive. He is in tune with his emotions and he's in tune with other's emotions ... he would be able to be attuned and say in his own way, okay that person wants whatever or he'll be able to say a situation as it is, he seems sometimes sounds ... years more matures than what he is.* Lauren also said: *He motivates himself ... but he needs to see it in other children.*

Lauren described his social difficulties as ... *it's not where, he will just sit one side. He has this eagerness to interact but he does not know how to bridge it, there's an ineptness sort of there ... because of that ineptness with regarding the social skills ... depending on the situation, he will go like to the extreme to get the attention ... if it means he has to pull down his pants, if it means he has to ah* (Lauren imitating Amir screaming) *and run around like crazy but he's getting the attention be it negative attention, he's getting ... still getting the attention.*

She described his communication difficulties. He often does not make *eye contact ... I say please go and you must greet the aunty, oh okay, bye then, that's it then ... it's like sort of minimum eye contact ... he doesn't look at you directly.*

Regarding rigid adherence to rules and his need for routine and planning, Lauren said: *He's very do with rules but he's also convenient, in that if it suits him, he will break the rules but like the other ones aren't allowed to. He also needs to be aware, what is going on.* Lauren also described him as *exceptionally particular.*

In order for him to understand you, she said he needs *a logical explanation. If it's not, then, huh, what are you talking about.* Also *he's kinetic so he moves the more he concentrates but he is focusing, he is listening to you ... so the more he concentrates, the more he moves, the more he will be stirring, when he focuses, he doesn't look at you, he looks somewhere else, but he's listening.*

Lastly, his sensory processing difficulties are tactile related. Lauren described them. *He does not like crisp, you know the crisp packets things, he can't stand that, he can't eat it, he doesn't like anything on his hands and he doesn't like anything on his feet ... If he eats his food now, he has a nice chicken and things, he will eat, go and wash his hands, come back and eat with a fork.* Besides attending EAL sessions for 6 months, he also attended the SNAP academy.

4.4 DESCRIPTION OF THE EAL ORGANISATION

4.4.1 Description of the organisation

The organisation and the EAL programme that will be focused on is situated in the Western Cape. They provide treatment for children with a variety of disabilities, which include “ADHD, autism/ASD, mental disability, sensory processing disorder[s] and cerebral palsy” (E [REDACTED] s & Special needs, n.d. para 1). The aim of the organisation is to aid these children with their “physical... cognitive and sensory, emotional, social and psychological development” using horses (E [REDACTED] s Home Page, n.d. para 4). The basis of sessions is to provide the child with a, “joyful and positive experience ” that they can learn and develop from (Founder, personal communication, March 15, 2016).

The organisation was established in 2010 and consists of four branches situated in the Western Cape. The four branches are facilitated and managed separately by their respective managers. Each branch accepts the same variety of special needs children as described above (Founder, personal communication, March 15, 2016). The manager of the branch, is also the facilitator who facilitates the session with the child, unaided. Each facilitator is required to be qualified. They become qualified by completing an adequate number of service hours; the number of which is determined by the extent of their experience with EAL and horses. These service hours take place with a fellow qualified facilitator present (Founder, personal communication, March 15, 2016). On becoming qualified, they are permitted to open their own branch, under the name of the organisation and provide sessions to their own clients with their own horses.

A total of about 110 children go for sessions at the four branches. Approximately 15 have an ASD or a PDD disorder (Founder, personal communication, March 15, 2016). Altogether 28 horses are at the branches. There are 11 horses in total at the branches that participated in the study (Founder, personal communication, March 15, 2016). The EAL sessions for each child are by appointment, which is the particular child's weekly time slot in which their session takes place. The facilitator provides sessions throughout the day and during the week in accordance with the children's respective time slots. Sessions are, however, only provided according to the dates of the school terms. Sessions are not provided during the school holidays. This provides a space for the facilitators, horses and children to relax and recuperate from the sessions during the term. The cost of a session is calculated by the number of sessions per week a child attends during the given school term.

The horses are an integral part of their programme and are required to be well mannered (Founder, personal communication, March 15, 2016). In order for the horses to be well mannered they are treated well through regular feeding, proper veterinary and foot care and providing sufficient space where they can exercise and be physically well developed. The horses are also only used for a reasonable number of hours per day – no more than 3 hours. Decent fitting tack, such as saddles and bridles, are also used (Founder, personal communication, March 15, 2016).

4.4.2 Description of the EAL sessions

Each EAL session is 30 minutes in length. The child interacts with one horse while one facilitator facilitates the process. No other people are involved in the session, except the trainee facilitators. Each session is holistic in nature and combines therapy, education and recreation in a unique manner, which is adapted to the specific child (Founder, personal communication, March 15, 2016). The EAL sessions are a form of therapy or treatment that aids the children in their physical, cognitive, sensory, emotional, social and psychological development. The sessions are also educational as they aim to teach the child skills. By making the sessions fun and joyful for the children, it also has a recreational aspect. The routine and activities of the first session of the EAL programme and the following sessions will now be described.

Although each session is planned according to the child, there is a particular routine that the facilitator attempts to follow in each session with each child (Founder, personal communication, March 15, 2016). The child's first session begins with the facilitator greeting the child with the horse. This is done to introduce the horse to the child and see their reaction to the

horse. The facilitator then encourages the child to touch the horse and explains to them where it is safe to touch the horse. Depending on the child's response to the horse, the child is asked to help the facilitator lead the horse. This can range from the children just touching the lead rope to leading the horse while the facilitator walks along. If they are afraid to lead the horse, the facilitator may bring the child's parent into the session by asking the parent to lead the horse while the child holds their hand. This is done to give the child the sense that they are leading the horse and to establish the connection between the child and the horse.

If the facilitator thinks the child is ready, the child will get on the horse (Founder, personal communication, March 15, 2016). The facilitator reassures them of the strange feeling of being on the horse. The facilitator will then let the horse move around and do various activities or exercises with the child on its back. These activities can involve making the horse turn while they are riding, teaching the child about the horse or making the child do physical exercises on the horse (Founder, personal communication, March 15, 2016). The activities focus on teaching the child various life skills through the horse, such as control, focus and social skills to enhance the child's development.

However, the child rarely rides the horse in their first session. If the child does not ride during the first session the facilitator makes them interact with the horse in another manner. This can be done at the grooming station where a variety of brushes for the horses are. These brushes have different textures and are used for different purposes. The child then brushes the horse. This is done to allow the child to establish a connection with the horse. Other ground based activities the child may be asked to do include leading the horse through obstacles such as a gate or through traffic cones set up in a particular pattern. The facilitator then concludes the session.

The child's subsequent sessions follow the same routine as the first session but throughout the EAL programme each session is also adapted according to the particular child's development at a specific time. Throughout the session the facilitator provides a space that is safe enough for the child to explore and observe the environment and the horse. It is through this exploration and safe space that the child develops a connection or bond with the horse, which is crucial for the desired development and learning to take place.

Because each child has varying difficulties, the specific activities during a session are determined and designed towards their individual needs, abilities, difficulties, how the child feels

on that day and age of the child (Founder, personal communication, March 15, 2016). During the session, the children are not forced to do any activity.

4.5 PROCEDURE AND DATA COLLECTION

In order to explore the parents' and facilitators' experience and perceptions of children with ASD in an EAL programme, in-depth semi-structured interviews were conducted with each participant. Prior to conducting these interviews, the researcher attained ethical clearance, located willing participants and discussed the terms of their consent with the participants.

The researcher first attained ethical clearance and institutional permission from the organisation providing the EAL programme (see Appendix 1.1-1.2). Second, ethical clearance was attained from the Department of Psychology Ethics Screening Committee (DESC) and the Research Ethics Committee (REC) at Stellenbosch University (SU-HSD-002609) (see Appendix 2). After attaining the required ethical clearance and institutional permission, data collection commenced. This gave the researcher access to the parents and facilitators eligible for the study. The ethical procedures that were upheld to get ethical clearance is further discussed in Section 4.7.

In order to locate willing parents, the facilitators sent a brief information letter about the study to eligible parents via handing out paper copies. The information letter was in English and Afrikaans (see Appendix 3.1-3.2). This letter informed the parents about the study as well as the risks involved and invited them to participate. If the parents were willing to participate in the study, they were prompted to contact the researcher either by email at 16539753@sun.ac.za or by telephone at 0769043190 or to hand their form in at their respective EAL programme branches. The researcher subsequently collected these forms.

The researcher contacted those parents who indicated that they were willing to participate and organised an interview date and location with them according to their convenience. The interviews with the facilitators were also organised according to their convenience.

Four parents were interviewed at the premises of the EAL programme. Three of these parents were interviewed during their child's EAL session and the other parent was interviewed prior to the EAL session. Three parents were interviewed at their homes at times that were convenient for them. One parent was interviewed in a secluded room. There was only one mother and father of a child who agreed to participate. They were interviewed separately. The

facilitators were interviewed at different locations. They were interviewed at a time convenient for them, either at a coffee shop, the EAL premise or at home.

Prior to conducting the interview, the participants were asked if they consented to the interview being recorded. They were then asked to sign a consent form (see Appendix 4.1- 5.2). Every parent and facilitator that indicated they were willing to participate gave permission for their interviews to be recorded and signed a consent form, after which their interview proceeded accordingly.

4.5.1 Interviews

Semi-structured interviews were conducted with the participants. This structure allowed the researcher to ask the participants a set of open-ended questions and then explore their responses by asking them spontaneous probing questions (Turner III, 2010). In so doing the researcher gained further clarification, insight and understanding into the participant's perceptions and lived experiences. This structure allowed the researcher to explore the participant's lived experiences within the specific context of the research questions. The semi-structured interviews further encouraged the participants to freely express their experiences and perceptions in as much depth and detail as they were able to (DiCocco-Bloom & Crabtree, 2006; Turner III, 2010; Willig, 2008).

The interviews were between 30 and 60 minutes and conducted in English, as the researcher is not fluent in Afrikaans. Prior to the interview the researcher asked the Afrikaans-speaking participants if they were comfortable doing the interview in English. Only if they were comfortable with speaking English did the interview proceed (Bless et al., 2013). A translator could have been used for the Afrikaans participants, but this would have reduced the quality of the data gathered (Bless et al., 2013). Therefore, Afrikaans participants who were comfortable speaking English were included. However, it must be noted that Afrikaans-speaking participants were not intentionally excluded. All participants were comfortable doing the interview in English; consequently no translator was needed and no participant withdrew from the study because of language reasons.

To guide the course of the interviews, interview guides were developed by the researcher for the parents and facilitators respectively (see Appendix 6.1- 6.2). Two different guides were developed for the parents and facilitators, because the role and relationship of the parents and facilitators were different in relation to the child with ASD in the EAL programme. These

interview guides were thus adapted according to their different roles and therefore focused on different areas concerning the children with ASD in the programme.

The parents' interview guide centred on their own experience and their perception of their child's experience in the EAL programme. This included how they as parents experienced the EAL sessions, the organisation and the changes in their child throughout the programme, if any. They were further asked what changes, if any, they perceived in their child because of the EAL programme and if those changes had transferred to other areas of their child's life, such as their school and/or family (see Appendix 6.1). The interviews conducted with the parents additionally were used to get a description of their child so that the researcher could both familiarise herself with the child and gain an understanding of the context of their children's changes, if any (see Section 4.4.4).

The facilitators' interview guide, centred on their experience of children with ASD in an EAL programme in general. Their interview thus was not based on their experience with the specific children with ASD involved in the study, but on all children with ASD they had experienced in the context of EAL sessions. However, during the interviews the facilitators did illustrate a particular aspect with reference to a child that was involved in the study. Their interviews focused on exploring their experience of children with ASD in an EAL programme, in particular with relation to changes they observed in the children during the programme and explanations of why these changes occurred. The researcher also explored with them the influence of the environment on the child's session, if any (see Appendix 6.2).

4.5.1.1 Transcription

After the interviews, the recordings of the interviews were transcribed by the researcher and analysed using thematic analysis. The interviews were transcribed verbatim and the nonverbal behaviour of the participant during the interview indicated.

Transcriptions attempt to capture the social interaction between the researcher and participant during an interview on a printed page (Edwards, 2007). According to Lapadat (2000), it is through transcribing the data that the data is preserved as a more permanent and retrievable source, as compared to the recorded interview. The process of transcription further allows the researcher to gain familiarity with the data which leads to "methodological and theoretical thinking essential to interpretation" of the data (Lapadat, 2000, p. 204).

Although transcribing the interviews helps the researcher, it may be problematic, because the researcher needs to make decisions concerning the contextual information to include (Lapadat, 2000). Decisions must be made about what sounds, like laughs or coughs, need to be included. The way these sounds, interruptions, overlaps and pauses should be represented also needs to be considered (Lapadat, 2000). These decisions affect how the interview is represented and understood and thus how it is interpreted (Davidson, 2009). The researcher is responsible to make the decisions that will most accurately depict the context of the interview, therefore leading to a more accurate data set (Davidson, 2009). It is imperative that the researcher acknowledges their own role in creation of the transcription through explaining their transcription process and what decisions were made throughout the course of transcribing (Davidson, 2009).

The researcher in this study attempted to capture verbatim all words spoken in the interview, indicated in italics. If certain words could not be heard they were marked by the word inaudible with the timestamp of the unclear words. Laughing and the nature of the laughter as well as coughing and the length of pauses were indicated in round brackets throughout the interview transcripts. Where there were overlaps between the researcher and participant, the researchers' words were indicated within the participant's speech paragraph, however, not italicised. These overlapped words consisted of short agreement phrases from the researcher such as, oh, okay or I understand.

4.5.2 Demographic questionnaires

Demographic data was additionally gathered from the parents and facilitators at the end of their interviews. Demographic data gathered from the parents focused on details of their child, like their gender, age of diagnosis, length of participation in programme, and details of the parents themselves (see Appendix 7.1). Information regarding the facilitators' language, race and gender was also gathered (see Appendix 7.2). This demographic data of the participants and children provided the researcher with further information of them.

4.5.3 Field and reflective notes

The researcher took field notes prior to, during and after the interviews. These notes described the context of the interview locations, observational notes of the children's sessions and the premises of the EAL programme. The purpose of these field notes was to provide additional context to the interviews and the research. The researcher further wrote down

reflective notes during the course of the research process, before and after interviews. The nature of these reflective notes are described in Section 4.6.3.

4.6 DATA ANALYSIS

4.6.1 Thematic analysis

A thematic analysis was done to comprehend and report the parents' and facilitators' experience and perceptions of a child with ASD in an EAL programme. A thematic analysis allowed the researcher to identify, analyse and report any relevant ideas, patterns or themes that appeared in the data set that was gathered throughout the qualitative interviews (Braun & Clarke, 2006). It further ensures the findings are detailed and that an overview of the complexity of the data is provided (Braun & Clarke, 2006). The process of thematic analysis was conducted in accordance to the six step process specified by Braun and Clarke (2006).

4.6.1.1 Step one

The first step of thematic analysis is to immerse and familiarise oneself with the data set (Braun & Clarke, 2006). To do this, the researcher conducted and transcribed all the interviews verbatim (Braun & Clarke, 2006). Doing the transcriptions assisted the researcher to gain an initial broad understanding of the participant's experience. These transcriptions were then read and re-read in order to increase the researcher's understanding of the participants' experience and to assist the researcher in beginning to identify preliminary themes, patterns and codes (Braun & Clarke, 2006).

4.6.1.2 Step two

After this immersion, codes were generated within the data set (Braun & Clarke, 2006). These codes represent "the most basic segment or element of the raw data that can be assessed in a meaningful way regarding the phenomenon" (Braun & Clarke, 2006, p. 88). The salient codes were then identified and subsequently organised into categories to form initial overarching themes (Braun & Clarke, 2006).

The researcher identified these codes by highlighting and making notes of all the aspects in each interview that addressed the research question, such as aspects relating to the participant's experiences, changes in their child and their perceptions of the EAL sessions. The interviews of the parents and facilitators were analysed separately, due to their slightly different focus and then integrated at later steps of the thematic analysis process.

4.6.1.3 Step three

The organisation of these codes into categories to establish overarching themes occurred in this step. The researcher did this by combining codes that discussed similar aspects from each interview into different categories, which represented the common aspects of these codes. These categories subsequently formed the themes. The themes of benefits, experiences and feedback, and role of the EAL in producing the benefits were identified as possible overarching themes.

4.6.1.4 Step four

In step 4, it was ensured that all coded extracts and their respective overarching themes were correlated (Braun & Clarke, 2006). The researcher read each theme and the supporting quotations from the interviews in order to ensure that each quotation was relevant to the respective theme. Additionally, the researcher ensured that all the supporting quotations in a particular theme formed a coherent pattern and that they discussed similar aspects that could be grouped together.

4.6.1.5 Step five

Step 5 involved refining the established overarching themes and further delineating and defining the subthemes (Braun & Clarke, 2006). This was done by the researcher by carefully considering the relevance of each quotation to its respective theme and then further categorising each quotation through the common aspect they described. The further categorisation of each quotation in each theme formed the subthemes in their respective themes. The established themes and the subthemes were then arranged in a hierarchy, according to the extent they were mentioned by participants. Throughout all the steps of the thematic analysis, the research aims and research questions were kept in mind in establishing themes and subthemes. This was to ensure that the established themes and subthemes were relevant and salient to the research.

4.6.1.6 Step six

The final step involved reporting the themes and subthemes with their supporting quotations (Braun & Clarke, 2006). The quotations were stated as both evidence of the respective theme and subtheme and to personalise the quotation without identifying the individual (Jelsma & Clow, 2005). The themes and subthemes will be reported in Chapter 5.

4.6.2 Ensuring quality of research: Trustworthiness

The extent to which any data is useful depends on the quality of and confidence in the data collected, and subsequently the knowledge produced by that research study (Thomas & Magilvy, 2011). The quality and confidence of the data set in qualitative research can be guaranteed by ensuring the trustworthiness of the study (Shenton, 2004). The trustworthiness of a qualitative study is ensured and enhanced by ensuring the study's' credibility, transferability, dependability and confirmability (Shenton, 2004). Each of these aspects will be defined and the manner in which the researcher attempted to enhance each of these aspects in the current study, will be discussed.

4.6.2.1 Credibility

Credibility firstly, ensures that the depiction of a given phenomenon is recorded and reported accurately and is in congruence with reality (Shenton, 2004). This is done by demonstrating the overall logic of the research question and the proposed methodology to address it, relevant to current literature in the field.

To ensure this, the manner in which the researcher formulated the current research questions was substantiated through the discussion of the relevant literature in Chapter 2. The research on perceptions of parents and facilitators of children with ASD in an EAL programme is limited. Therefore, qualitative and exploratory methodologies were necessary. These methodologies assisted the researcher in attempting to encapsulate and explore the participants' experience by encouraging them to reflect openly and freely on their experiences (Bless et al., 2013).

The data collection and analysis process was also constantly revised and reformulated, if necessary, through peer debriefing throughout the research process (Shenton, 2004). Peer debriefing involved consultation with professional colleagues who had experience in the field of study (Nastasi & Schensul, 2005). This assisted the researcher in further defining and improving aspects in the research and guided the researcher in the research process by acting as a sounding board to develop ideas and interpretations of the research (Shenton, 2004). Peer debriefing was extensively done with the researchers' supervisor in all aspects of the data collection, analysis and research processes.

4.6.2.1.1 Triangulation

Triangulation was used in the research to enhance the credibility of the study. In triangulation different data sources and perspectives are used in order to obtain a complete and complex description and understanding of the topic of study (Johnson & Waterfield, 2004). In the current study, this was enhanced by interviewing both the parents and facilitators on their experience of the EAL sessions for children with ASD, each of whom had differing perspectives of the topic of study. This effect was further enriched by the diversity of experience the facilitators had in the EAL field, as well as the range of the children's difficulties and varying length of their attendance of the EAL sessions. By means of triangulation, particularly using the children's section of the demographic questionnaire, the researcher gained further information and an understanding of the children's diagnosis and their EAL participation.

4.6.2.2 Dependability

Dependability is the extent to which the study can be replicated and similar results be obtained (Shenton, 2004). This is achieved through detailing each step taken throughout the research process – from initial thoughts and ideas to data analysis and dissemination of results (Shenton, 2004). This provides the reader with the researcher's pathway of reasoning and decision making throughout the data collection and analysis. This is done so that the study can be replicated (Johnson & Waterfeild, 2004).

The reader is also provided with an understanding of the study methods and their effectiveness (Shenton, 2004). In the current study this was done by providing an extensive description of the research design and data collection methods, detailing what methods were used, why they were used, who was used as participants and why, and how the data was collected.

4.6.2.3 Transferability

Transferability is another key aspect of trustworthiness. It involves ensuring that the results from the research can be applicable to other similar contexts (Shenton, 2004). To establish a particular study's similarity to other contexts, the researcher must provide extensive descriptive information of their results, their methodology, research location and participants (Shenton, 2004). Through this extensive description of the study, other researchers can determine to what extent the study is applicable to similar contexts.

To increase the transferability of the current study, the researcher situated the study in relation to other similar settings by discussing the context of EAL programmes and ASD within international and national contexts. ASD was also situated within the context of human-animal interaction (HAI) and equine-assisted interventions (EAI). Through this description, a basis was formed to interpret and compare the findings of the current study. By interpreting the results in the context of similar situations, the researcher determined to what extent the research would be applicable to other similar situations.

The researcher also ensured transferability through providing extensive descriptions of the context of the study, which included the participants, methods and place of study.

4.6.2.4 Confirmability

Confirmability is the final aspect of trustworthiness. Confirmability involves ensuring that the expressed experiences and subsequent results are a reflection of the respective participants as opposed to reflecting the characteristics of the researcher (Shenton, 2004). To ensure this, the researcher attempted to reduce her subjective bias in the interviews and attempted to avoid leading the participant in any direction during the interviews (Kelly, 2006; Shenton, 2004). Through attempting to reduce subjective bias, the researcher attempted to understand the participants' experience (Shenton, 2004).

4.6.3 Reflexivity

However, although researchers may attempt to reduce their subjective bias, their personal history and values cannot be completely set aside and thus, to some extent, affect their objectivity. In qualitative methodology, the researcher is the data collection instrument and therefore any subjective bias can influence the data collected (Bless et al., 2013). Therefore, it is important to reflect on the researcher's personal experience that may have influenced their subjective bias in the data collection process. This reflection will outline the possible strengths and limitations of using the current researcher as the data collection instrument.

4.6.3.1 Children with ASD

I have had little personal experience either with people with disabilities or children with ASD. Based on literature I do have a theoretical understanding of children with ASD in general and in relation to animal-based treatment programmes. This theoretical understanding, however, only provided me with a surface understanding of children with ASD and not a deeper understanding that would be based on personal experience with children with ASD. As a result

of my theoretical understanding, I did have preconceived notions of what to expect regarding benefits of the EAL programme that would most likely be reported. However, throughout the interviews I attempted to not lead the participants to report on what I expected, but instead allowed them to speak freely. This was done to ensure that I did not encourage participants to report on what I wanted to hear.

Furthermore, I also attempted to set aside my theoretical understanding of children with ASD while interpreting the data. This was done to make sure that I did not look in the interview transcripts for specific parts of the participant's experience that confirmed my preconceived notions of ASD. In other words, I attempted to not see what I wanted to see when I was analysing the transcripts.

As a result of my lack of personal experience and subsequent lack of a deeper understanding of children with ASD, there was a chance that I would become more empathetic towards the stories of the parents and facilitator. This empathy could cause me to become more emotionally involved throughout the data collection process and subsequently become biased in towards the data. However, this did not occur throughout the data collection process and thus I formed no biases, as a result of becoming emotionally involved, that impacted the data collection process.

4.6.3.2 Horses

The second aspect that could have potentially influenced me to form a bias, was my experience with horses. I have experience with and love horses. This experience is based on 10 years of western horse riding at a local farm 10 minutes from where I lived. In addition to horse riding on this farm, I also learnt how to train horses and developed many friendships based on my love for horses. It was this passion that originally sparked my interest to research a horse-based therapy programme. I have witnessed, heard of and personally experienced various incidents from friends whereby a horse had assisted a person to overcome their emotional, psychological or social difficulties. It is because of my personal experience with horses and their influence on people's well-being that I had already believed in the benefit they can have for people.

However, this experience did not include experience of horse-based therapy programmes or children with ASD in a horse-based therapy programme. Thus, my belief in the benefit horses have for people was not situated in the specific context of children with ASD in a horse-based

therapy programme. This lack of experience in horse-based treatments and children with ASD within horse-based treatment programmes reduced the likelihood that I would form any biases in this area.

4.6.3.3 Data collection process

In order to ensure that any biases did not influence the data collection process, I constantly reflected before and after each interview. These reflections discussed my own role in the interview, regarding leading the interview in a certain direction or making note of an interesting aspect that was mentioned in the interview.

I could have potentially lead the interview into a specific direction based on my theoretical understanding of children with ASD and my experience with horses. However, during the course of the interviews I attempted to remain constantly aware of my role and whether I was leading or influencing the interviewee or not. Although it is possible I could have unknowingly led some interviewees based on preconceived notions, I believe that I did not. To further ensure lessen any bias in the data collection process, the process was constantly revised and discussed with my supervisor to ensure its accuracy.

4.6.3.4 Relationship with participants

My connection to the participants is another aspect that could have influenced the data collected through influencing the participants' responses. First, I was a white female outsider, which could have influenced what the participants decided to share with me. Because I was an outsider and not involved in the programme, the participants could have just described what they thought I wanted to hear. This could have restricted them from speaking about the unfavourable effects, if any, of the programme. They may have thought I only wanted to hear the good things about the programme. However, my role as an outsider could on the contrary, have encouraged the participants to describe both the good and bad aspects of the programme.

Second, I was the same race and gender of the majority of the participants, but I was much younger than them. This could have potentially limited the extent to which they could relate and trust me with personal information; thereby, potentially limiting the amount of information they were willing to disclose to me.

However, being female could have also increased the willingness of participants to share personal information with me, regardless of their gender. According to Davis, Couper, Janz, Caldwell and Resnicow (2010), participants from both genders disclosed more personal

information to female interviewers as opposed to male interviewers. Participants may feel more comfortable disclosing personal information to female interviewers.

I did not experience that my role or connection with the participants influenced the participants' responses. However, measures were still taken to ensure that my role did not influence the participants' responses. In order to avoid any influence my role could have in the participants' responses, I constantly encouraged them to discuss favourable and unfavourable aspects of the programme and reassured them that their interviews were confidential.

4.7. ETHICAL CONSIDERATIONS AND PROCEDURES

Ethics is an essential part of qualitative research. This is due to the use of human participants in order to gather data through investigating potentially sensitive details of their lives, experiences, perceptions and attitudes (Jelsma & Clow, 2005). The potentially sensitive nature of the data often gathered by qualitative research, requires to not only protect the participants that provided the information, but to inform them of the study, so that they know what to expect and can make an informed decision regarding their participation (DiCocco-Bloom & Crabtree, 2006).

The protection of participants includes reducing their risk of being harmed during the study, protecting their information and identity, and protecting them from exploitation (DiCocco-Bloom & Crabtree, 2006). The protection of the participants and informing them are at the core of ethical standards (Bless et al., 2013).

4.7.1 Permission from gatekeepers⁴

To ensure the researcher upheld ethical standards, the following measures were taken. Ethical permission was attained from ethical boards. These boards evaluate the extent to which ethical standards are upheld in the particular study. Institutional permission and ethical clearance were respectively attained from the EAL organisation and from two ethical review boards at Stellenbosch University (see Appendix 1-2). The ethical reviews were done by the Department of Psychology Ethics Screening Committee (DESC) and the Research Ethics Committee (REC) (SU-HSD-002609) (see Appendix 2). The participants also gave their consent prior to their interviews.

⁴ Gatekeeper: A person who controls access to a participant/s due to their personal or work relationship with the participants. Therefore, the data collector requires the gatekeeper's permission to have access to potential participants (Keesling, 2008).

4.7.2 Participants

The researcher further ensured the participants were informed through the informed consent process. This process ensured that the participants were informed to which extent they had autonomy over their decision to either agree or disagree to participate (Orb, Eisenhauer, & Wynaden, 2001). To ensure their decision was informed, the participants signed a consent form stipulating details of the study, the purpose and why they were invited to participate, the risks, details of their participation and their rights in the study.

However, before participants were asked to sign this consent form, the aforementioned aspects were discussed with them. Any ethical queries the participants had were answered by the researcher at this point and throughout the research process. The informed consent forms were in English and Afrikaans, due to the prevalence of these languages in the Western Cape (see Appendix 4.1-5.2).

4.7.3 Informed consent process

The consent form also detailed measures taken by the researcher to protect the participants. This included how the participants' identities and information would be protected, how the risks to the participants would be minimised and how their rights would be protected. These aspects were stipulated in the consent form (see Appendix 4.1-5.2).

Prior to conducting the interview, the researcher discussed the terms of consent with the participant and asked the participant if they were comfortable with the interview being audio recorded for data collection and transcription purposes. The researcher assured the participants that the recorded interview and their personal information would be kept confidential.

It was further stated to them that if they were not comfortable with being audio recorded they had a right to decline to be interviewed. No participant declined to be interviewed. Once the above described process of consent was completed and the participant signed the consent form, the interview was conducted.

4.7.4 Ensuring anonymity and confidentiality

The participants' rights and how they would be protected in the study were also discussed with them. Their rights included their right to confidentiality and anonymity regarding their personal details and the information they discussed in the interview, their right to discontinue their participation at any time with no consequence or explanation required, and their right to be treated fairly and with dignity.

At the beginning of the interview each participant was asked to choose a pseudonym to ensure anonymity and confidentiality. If they did not one would be allocated to them by the researcher. None of the participants provided pseudonyms, therefore the researcher allocated pseudonyms to all participants. The researcher will refer to each participant by these pseudonyms when reporting the data in the following chapter.

The recordings and transcriptions of the participants' interviews were stored on the researcher's password-protected computer and were only viewed by the researcher and her supervisor. Therefore, each facilitator, parent and child's identity would remain anonymous and confidential. The data will be stored for 5 years and then destroyed.

4.7.5 Minimising potential risks and discomforts

During the course of the interview, no deliberate deception must take place. This was ensured by asking the participants open-ended questions and allowing them to lead the conversation (see Appendix 6.1-6.2). In order to protect them from any risks and harm during the course of the study, it was explained to the participants that there were no foreseeable risks to their participation. However, the researcher put measures into place in the event that any participant became distressed during the course of the interview. The name of a registered clinical psychologist was made available to them and they had the right to stop the interview or postpone it in case they became too distressed to continue with the interview. No participant became distressed to the extent they stopped or postponed their interview or that they needed to be referred to a clinical psychologist.

This study was a low risk study, as the participants were not a vulnerable research group. Additionally, the information gathered was not regarded as sensitive, as it was their perceptions of the EAL programme that would be explored and not personal or sensitive information relating to the parents' experience of having a child with ASD.

4.8 CHAPTER SUMMARY AND CONCLUSION

This chapter provided a detailed description of the methodology used for this study. This included a description of the research design, data collection procedures and procedures done to ensure that the data gathered was both trustworthy and ethical. The participants and place of study were also described in order to provide further context to the study and the results. In Chapter 5, the results of the study will be given.

CHAPTER 5

RESULTS

5.1. INTRODUCTION

The aim of the study was to explore parents' and facilitators' experience and their perceptions of children diagnosed with autistic spectrum disorder (ASD) in an equine-assisted learning programme (EAL). The parents and facilitators reported various aspects concerning their and their children's experience of the EAL programme. The main themes identified were the benefits of EAL, the parents' and facilitators' feedback and experience of the programme, and the perceived role of EAL in producing the benefits (see Table 5.1).

Table 5.1

Themes and Subthemes that Emerged from the Data

Theme	Subtheme
Benefits of EAL	Social-communication benefits
	Psychological benefits
	Behavioural benefits
	Calming benefits
	Benefits for other behavioural traits of children with ASD
	Family benefits
Feedback and experience of the EAL programme	Parents' feedback of the EAL programme
	Parents' personal experience of the EAL programme
	Children's experience of the EAL programme as perceived by their parents
	Facilitators' experience of the parents and children
	Facilitators' experience of the physical environment
Perceived role of EAL in producing the benefits	Parents' belief about the role of EAL
	A team approach

Note: EAL = Equine-Assisted Learning; ASD = Autism Spectrum Disorder

5.2. BENEFITS OF EAL

Parents and facilitators predominantly perceived various benefits of the EAL programme. In addition to describing the benefits they perceived, the facilitators also provided explanations of how particular benefits were produced within the EAL sessions. The subthemes of the benefits main theme include social-communication, psychological, behavioural, calming and family benefits as well as benefits for other behavioural traits of children with ASD.

5.2.1 Social-communication benefits

Five parents reported several social benefits that the EAL programme has for their children. They stated that their children's social understanding, social communication and social interaction increased since attending the programme. One parent stated that her child's social understanding increased, as her child can better understand the effect of her behaviour on others. This parent believed it was through making her child aware of the effect of her behaviour on the horse that EAL increased her child's social understanding.

She ... understand[s] the world around her a little bit more. She can ... connect the dots with the horses ... She's better able to read other people's moods and understand that what she's doing is affecting the people around her and making them react in a particular way ... So with the riding the facilitator focus is very much on you know what is the horse doing now, what are you doing that is making the horse react in the way that they are, etc. So Sarah's connection between herself and her body language and her thought pattern and how it affects the world around her, has really started to make that connection (Susan).

Beth, a facilitator, supported Susan's statement regarding how EAL increases children's, not specifically children with ASD's, social understanding. Beth further explained how this is done in the sessions. It is done by teaching the children how to read a horse's body language, specifically the horse's facial expression. Through reading the horse's body language, the children develop an understanding of how their behaviour affects the horse and consequently how their behaviour affects others.

The expression of the horse's face is for me important because they need to learn how to read horses and because if they can...see differences in horses and that what you do has an influence on the horse. On the long term you will establish that that what I do has an influence on someone else and what someone else does, has an influence on me (Beth).

Two parents and a facilitator also noticed an increase in the children's social communication. One of the parents described how her non-verbal autistic son started talking during the EAL sessions. The other parent, observed an improvement in her child's speech. A facilitator reported two social communication improvements in a child with ASD. First the child

started talking to the facilitators. Previously the child had only talked to her parents. Second, the child's communication improved.

He's 2 years down the line and his vocabulary is just falling into place ... And now I'm even getting a mom which is something I never thought (happy laughing) (Estee).

It's helped with his speech as well to a certain extent. Like he's picking up words easier (Angie).

The day she went on the horse, was the first day that she got verbal with us as an instructor. You can ask her, hi, how are you? And she will tell you I'm good thanks, you know, and looking me in the eye and like actually communicating with you ... it's a complete turn head from before the EAL ... you know, where... she came in ... not, you know, making eye contact with you, not really communicating with you (Anelise).

Both Estee and Anelise, a facilitator, further provided explanations to the reason why the children started talking during the EAL sessions. Estee attributed it to her son's connection to the horse. Anelise reasoned that her child started talking with the facilitators while riding because the child felt afraid on the horse and verbalised how she felt.

The connection that you picking up between the animal and the child ... that David... is talking (Estee).

I think it (the riding) put her (the child with ASD) in like a vulnerable, more vulnerable position and state of mind and also like it was ... a different feel ... and you walk like on a horse, something that moves, you know, something out of my control. Instead of acting out and crying [the child] she was tense ... and verbally ... for me I think that what triggered the verbal communication (Anelise).

In addition to the above two social benefits, two parents reported that their children interacted socially more with their peers than previously. This was reflected in the way Jessie described her child, Anja's, increased interest in socialising with her peers, her improved social skills and how she was more interactive in the classroom. Susan described how her child, Sarah, had more friends.

She used to be ... like almost, like an only child ... she didn't have to mingle to be happy ... Now she's starting to get more sociable and wanting friends to come play over and things like that ... She makes friends easier now than what she used to ... you know the expressionless child to one that's now more interactive with the class (Jessie).

She ... was never invited for play dates ... She didn't have friends at school, people at school were mean to her ... The social side of things was improving. Like she's got like 2 or 3 friends but ... she'll never be a huge social, a social butterfly (Susan).

5.2.2. Psychological benefits

Parents and the facilitators also reported numerous psychological benefits of the EAL programme, particularly relating to the children's increased positive self-image. Five parents reported an increase in their children's self-confidence, independence, pride and/or contentment and happiness.

Three parents and a facilitator reported an increase in their respective children's self-confidence. The facilitator mentioned Ryan's increase in self-confidence. He now had enough self-confidence to catch his own horse. Two parents further described what it was in the EAL sessions that contributed to their children's increased self-confidence. Susan expressed that it was because the EAL sessions was her child's special place. Lauren felt it was because her son, Amir, achieved goals during the session. The last parent described a general increase in self-confidence in her daughter.

I'm so extremely proud of him (Ryan). He can now go and catch his own horse and, um, bring it in if I'm busy with a session ... He will have the confidence to go and take the halter and go (Beth).

Her self-confidence in having this special place that she gets to go ... and to be in a position where she feels like she's achieving something really special (Susan).

It's increased his confidence in himself because they set certain goals for him, he needs to sit upright, he needs to hold, he needs to do that ... This horse, this big horse will go where he tells him to ... now that builds his confidence (Lauren).

She's gotten much more confident since she's here (in the EAL programme) (Jessie).

Two parents further reported that the increase in their children's self-confidence had transferred to other areas of their children's lives. Lauren expressed that it gave her son, Amir, the self-confidence to formulate goals and work towards achieving them in his academic and social life. She further provided two examples of the transferral of his self-confidence. Susan also reported that the increased self-confidence of her child, Sarah, subsequently improved Sarah's social behaviour. Susan further believed it was because Sarah achieved something during a session that her self-confidence increased.

It has sort of also helped him, given the strength, to if I can do that, I can also do this, I can also do that ... that I'm riding a horse and ... doing this ... gives me more strength to do the others. Which was already there, but just more ... It helps him to identify goals and work towards that if he's overcome his fear, for this big animal he's sort for me like internalised it and ... help[ed] him to overcome his fear with a friend ... And he has sort of set[s] himself goals, he will tell himself, he will tell me, he wants to get 10 out of 10 (in a English test), he wants to get that ... and then he will get it. For me that is when he's confident, that goal, he's identified a goal, he sees that he reaches that goal, and it's giving him confidence in himself (Lauren).

The facilitator has allowed her (Sarah) to ... to use the connection with the horse as a mechanism to, um, to feel positive about herself...the facilitator focuses very much with Sarah on but you know you did really well at reading the horse's moods today and so on. So that kind of threads through onto the improvement in Sarah's social behaviour that I've seen (Susan).

In addition to an increase in self-confidence, two parents reported an increase in their child's level of independence. Angie observed how her child, Matt, is more independent and experiences less separation anxiety and Jessie noticed that her child, Anja, started to study more independently.

It helps him to learn, yes ... it's okay if Mommy is not standing right next to you, so he's become more independent, walking to school... In the past he wouldn't walk without me, now he runs there (Angie).

She studies more independently now where before I had to always check up and see what she's doing and help her and everything (Jessie).

According to their parents, two children also became proud of their ability to ride horses while their peers could not. This feeling of pride, according to Kamira, filtered through into the social life of her son, Liam. She noticed how his pride of his riding ability was used in his social interactions with his peers.

So she feels proud of the fact that she can deal with the horses, that other kids maybe can't (Susan).

It's like his thing, it's something that he does that's not all of his friends are on ... and it's something that he can, not brag about, but it's something that he can talk ... be proud of (Kamira).

In addition to becoming more confident, independent and proud, three children also became more content and happy. Two of these parents noticed their children's happiness increase when they are at their EAL sessions. These parents further described what aspects of the EAL sessions contributed to their children's increased happiness. Angie attributed the increased happiness of her son to having a place where he felt he belonged. Estee credited her son, David's, increased happiness to the sessions being an escape from the constant routine of his daily life. She also believed David's love of nature and because the sessions took place outdoors made him happy. The other parent, Jessie, reported that her child, Anja, became more content and happy outside the sessions, in particular with the decisions that she made.

It's a step outside of everyday ... It's a step away from, every day he goes to school, that routine that, um, yes this is also a therapy but it's also a fun form of therapy, um, something that he can enjoy ... he just loves being outside, after all the rain ... For him just to lift the spirits and to change his mood. Um, just to make it a bit better for him because it's such an atmosphere change (Estee).

He's so happy when he's here (the EAL premises).... It's just like he fits in and its somewhere he can be himself. He does not have to pretend for anything (Angie).

She was never happy with anything, you know she wants a doll for her birthday and then you buy her a doll ... she'll pick it and whatever and then it won't be the right doll, ...

And it's like since she's been coming here ... she seems to be more happy with what she gets and realising that ... it's my decision and I chose it, maybe I'll be happy with it (Jessie).

5.2.3. Behavioural benefits

Five parents also observed that the EAL sessions had changed their children's behaviour. The benefits they described were with particular reference to their children's outbursts that decreased. They attributed these decreased outbursts to the increased self-control their children had, which they linked to their children's becoming more aware of their own emotions.

Two parents reported that their children became more aware of their own emotions. Lauren explained that her son, Amir, had become more aware of himself. She believed the horse reflected his emotions, which made him realise that how he behaved and felt influenced the horse. Estee mentioned her child's increased self-awareness and described in what manner her child, David, had become more self-aware. She described a particular instance in which David started to become fearful. Previously he had no fear or sense of danger.

The facilitator explain[ed] to him whatever he feels, the horse will feel it too. So if he feels anxious, the horse will feel anxious ... Then the horse will start trotting, and that had made an awareness ... It's creating an awareness in him of how he needs to be and I think more with the horse, the horse being an extension of him; extension in the sense that giving him a notion of what it would be if he feels the emotions and also the awareness of himself (Lauren).

He's very aware of himself now, we use the term 'with it' and he's much more 'with it' now as opposed to in the beginning ... if you look at the videos (previous videos) ... he would have no fear, he wouldn't show any signs of fear ... as time went on we noticed that he was starting to feel those emotions ... because we would go on these outrides and the facilitator would take him down a bit of an incline, and he would start to scream and show fear ... which for us is not a good thing to see that (happy, brief laughing) but it's a good thing to know that he's experiencing, that those doors are opening up (Estee).

One parent said her child had a better ability to control and manage her emotions subsequent to an increased awareness of her own emotions, such as anger and irritation, and her

ability to verbalise them. This parent further described how the EAL had contributed to her child's increased self-awareness and self-control.

She's better able to control her moods so she would get super angry super quickly and then she would get like snap. Whereas now, she's able to verbalise and she is able to say to me, Mom, I can feel my anger levels building up, I think I need to go and have a timeout ... I see that being a result of the, the experience of the horses where she's able to internalise a little bit focus on what she's feeling and then do something about it externally (Susan).

Three parents lastly reported that their children's outbursts decreased, which they attributed to their children's ability to verbalise and manage their emotions. One other parent and a facilitator also expressed a decrease in the children's outbursts. However, they did not attribute the decreased outbursts to the children's increased self-control and awareness. Anelise, a facilitator, observed this decrease in a child with ASD (identity unknown).

I think ... she is being able to control her emotions a little bit better because she really used to get completely out of hand and throw these massive temper tantrums and that doesn't happen anymore (Susan).

I think his panic attacks has definitely decreased but I think generally he deals better with himself ... They teach them a skill to help them able them like he knows if it's getting sensory too much, he crawls underneath something ... It's amazing and its inspired him cause he's 5 years old. He realises that there's something wrong and ... he can go out of his way to try control that (Angie).

So definitely just in terms of controlling himself and controlling the horse, in that respect he's very good with that (Estee).

Before she would get very upset and scream and now, she still gets very upset but its far and few ... that she'll have an outburst (Jessie).

We now at a point where it's like completely can finish a session like on her own, without outbursts (Anelise).

5.2.4. Calming benefits

Four parents also reported that EAL has had a relaxing and calming effect on their children. A facilitator additionally expressed this in terms of a child with ASD (identity unknown).

So in general I think the facilitator is helping him become calmer and more relaxed (Angie).

Um, she's learnt to calm down a lot ... especially if she struggles with something she will always just say it's difficult, and leave it, or just, I can't (Jessie).

She's ... just this calm person now (Anelise).

It has a calming effect on him most definitely (Estee).

Two parents described what they perceived to contribute to the calming effect of the sessions. Angie contributed the calming effect to the movement and acceptance of the horses, whereas Arleen credited it to the sessions that allowed her child to be in his own space.

I think working with the horses calms him down, the movement on the horses to a certain extent, um, and just the acceptance of the horses (Angie).

This is his... his own space and his time with the horse and just that calming that it has...It calms as well to do this brushing (Arleen).

A facilitator, Anelise, additionally explained the importance of a child's being calm around horses. She contextualised it with particular reference to the child with ASD she was working with at the time. She made an observation that as the child became calmer during the course of the programme, the horse became calmer around the child.

How to be around the horse, you know you must be calm 'cause she couldn't, she didn't understand that the concept of calm. It was just like, you can see it's all like haywire in

her head ... And so we needed to like establish ... that calmness, the mood ... In the beginning, it was ... when she walks in ... he's (the horse) already nervous ... Like now it's like he's relaxed and everything ... He's so much calmer around her (Anelise).

5.2.5. Benefits for the other behavioural traits of children with ASD

The parents reported that the EAL also improved their children's other behavioural traits that are typical of ASD. These traits include inflexible adherence to routines, insistence on sameness, having an abnormal preoccupation with unusual objects and sensory processing difficulties (APA, 2013). Four parents observed an improvement in some of these traits in their children.

Two parents reported how their child had become more open to change and flexible in their routine. Jessie observed that with the horses her child, Anja, was more inclined to try new things and outside the sessions she accepted changes more easily. Kamira explained that her son was more comfortable around something new.

With the horses she's more willing to try new things than with anything else ... Now it's like we had to teach her it's okay to stop at the shop first ... where before ... it used be a huge ... if we made a detour. Where now it's like, listen, we going there, we might stop somewhere else first and it's ... not a total meltdown anymore (Jessie).

For me ... he's comfortable around something new because we don't have horses because he's around a horse (Kamira).

Beth, a facilitator, stressed the importance of using routine in the EAL sessions – especially when working with children with ASD. However, she also stressed the importance of using an unplanned activity that deviates from the routine.

The routine is very important, it's set, you get the pony, brush the pony, ride the pony ... that is when I realised, that boundaries and routines for ... all spectrum children ... They do not like ... variation or things that can disrupt what they expect ... But I do feel it's important sometimes to throw in something that is not part of the routine. ... because it is, life isn't like that and, and equine-assisted learning you try to teach life skills through the help of the horse ... And breaking the routine sometimes, like if you see something that is really working and you just bring that in, and it does, can make a little bit better for the child (Beth).

Regarding abnormal preoccupations with unusual objects, one parent mentioned that her child previously had a preoccupation with picking up rocks. This parent reported that during the course of the EAL her child's preoccupations had decreased.

No, she doesn't have any of those (abnormal preoccupations) oh, every now and again she'll have a thing about like her, her Lego ... Um, but it's not nearly as bad as it used to be (Susan).

Three parents noticed improvements in their children's sensory processing difficulties and tactile defensiveness. Two of these parents observed a decrease in their children's sensory processing difficulties in the sessions in particular. Jessie mentioned her child's improvement with the sensory tactile aspects of the horse and Estee described the positive sensory experience her son had during the sessions. The other parent, Susan, described a general decrease in her child's tactile defensiveness. Susan and Arleen further described how the EAL sessions contributed to the decrease in their children's tactile defensiveness and sensory difficulties.

Interaction with horses help challenge all those sensory issues through odd smells, mixing food, hair, flies buzzing and getting those hands dirty (Arleen).

So she's got a little bit of tactile defensiveness although ... it's been much better over time ... So she does have sensory issues. Interestingly enough though, from a tactile perspective, the horse riding has really helped with that I think, because of the fact that the facilitator makes them groom and does a lot of touching and stuff with her hand (Susan).

In the beginning she would love the horses ... but she didn't want to brush and stroke ... She does it but she doesn't like it. Now she seems to be fine with it (Jessie).

So he's not that bad when it comes to sensory ... um ... processing, he has his moments. But it's improved a lot ... Still has quite a bit of sensory issues. He does close his ears sometimes, close his eyes. ... if there's a lot of mixed types of noises. Out here (at EAL session premises) he's fine, he loves being outside (Estee).

5.2.6. Family benefits

Three parents also reported that EAL benefitted their family life. These family benefits arose from the child's improvements due to the EAL reported above. One parent described that her child was easier to discipline due to the child's increased self-control.

I don't, don't constantly feel like I'm in a battle ... she was an exhausting child, because everything was a challenge and everything was a fight and I found it very difficult to discipline her ... I used to go away for work and she wouldn't speak to me for like a week. Whereas she's much better able to kind of control her emotions which is, for me a huge weight off my shoulders and I don't, don't constantly feel like I'm in a battle (Susan).

Another parent Jessie reported that the family routine and dynamic does not revolve around her child, Anja, anymore due to her becoming more compliant and open to change. Jessie furthermore described how her daughter's relationship with her brother had changed. Her daughter had become more tolerant and caring, but also more dominant in their relationship. She associated this change in their relationship with Anja's increased self-confidence. The other parent noticed a change in her son's relationship with his brother, due to her son (the child in the programme) becoming calmer as his sessions had progressed.

Well, it doesn't revolve around keeping her happy anymore. She's... now starting to accept that other people's happiness can come before hers. (Jessie).

Um, yes um, she seems more um, tolerating of Josh (brothers name) ... she's very caring (towards him) but she can sometimes become very dominant... if... he does something wrong I would tell him, like, Josh (brothers name) stop that and then she would carry on as if she's the mother ... So she would sometimes just take over and not realise that she's overstepping the boundaries ... I think she's got more confidence now so its escalated a bit (Jessie).

Matt's mood in general is better. Than he's calmer and then their relationship (with his brother) would work better. See, so indirectly it does influence (Angie).

Even though the facilitator Anelise was not aware of the family changes that occurred in the family home, she did make an observation of a change in family dynamics during the

programme. Anelise reported how the child's relationship with her mother and sibling changed due to the change in the mother's behaviour during the course of the EAL programme.

It made a big difference, in the family dynamic as well, 'cause mom usually, like clutches a lot, you know, handbag ... and stuff and then mom would always be like, you know, worked up and stuff. When they come in now, as a family, mom is happy, the little one (sibling of the child with ASD), is happy, like walking slowly, calm ... in the ... sibling as well, you can see, just a different relationship that's starting, because you can see obviously the sibling does not have autism. He's younger (the sibling), but he's more independent already because... she's (the child with ASD) is the one that needs the more attention, you know, and even that has changed and even more like getting along ... Or calmer, it's like completely different (Anelise).

5.3. FEEDBACK ON AND EXPERIENCE OF THE EAL PROGRAMME

Parents and facilitators also gave feedback on and their personal experience of the EAL programme. The subthemes of this main theme are, the parents' feedback of the programme; their personal experience of the programme; their account of how their children experienced the programme; the facilitators' experience of the parents and the children; and the facilitators' experience of the environment of the sessions.

5.3.1 Parents' feedback of the programme

Seven parents expressed their satisfaction with the EAL programme and the facilitators. The reasons for their satisfaction, however, varied. Parents commented on the effectiveness of the programme, the suitability of the programme for special needs children and expressed their general satisfaction with the programme.

Three parents expressed their satisfaction with the effectiveness of the programme. Two of these parents mentioned the value of the programme, because of the benefits it had had for their children's development and because EAL incorporates various treatments. Another parent said she is satisfied with the programme because of its suitability for special needs children.

It's just been such a godsend. It really really has seen such a difference in that child ... and it's definitely helped her to be, to get to the point where she she's able to function (Susan).

Even the teachers are saying that it's (the EAL) having such a good effect on him ... I mean he's progressed so much, even in the last year ... In terms of David's diagnosis, his doctors said he will benefit from various forms of therapy and then she mentions all the different types of therapies and stuff but this incorporates all of it ... equine assisted therapy sort of screams to various disciplines, OT, physio all of that (Estee).

I think about the kids it is amazing what this programme is doing for them, you know there's not a lot of programmes like this out there, where the child can be alone with a horse, obviously with the facilitator as well... I think it (the EAL programme) has more effect on kids you know that is just a bit different to others (ASD and special needs children) ... They've got their things, their sports (not special needs children) ... For our kids (ASD and special needs children) it's more the quieter kind of things ... they want to be calm, they wanna be... relaxed and in an environment where they feel they['re] in control (Arleen).

Two parents provided feedback on the facilities and the cost of the programme. These parents reported that the location of the sessions was convenient and satisfactory and the programme was cost effective. One of these parents additionally commented on the cost effectiveness of the programme in relation to other suggested treatments for her child.

So it was close and here it looked very nice and things like that ... So it was just convenient and where it was ... it didn't break the bank that much (Kamira).

Definitely more cost effective, cost effective compared to, um, OT and, um, swimming (Lauren).

In addition to providing feedback on the programme, four parents provided feedback on the facilitators. Their feedback focused on the effectiveness and capability of the facilitators and the manner in which the facilitators integrated them into the sessions. Although feedback on all the facilitators was given, which facilitator the respective parent referred to in the feedback will not be mentioned.

One parent described how the facilitator provided clear instructions, was informed about her child's difficulties, provided a sense of calmness and was friendly. Another parent commented that the facilitator was effective in not only giving instructions, but also in getting

her child to listen and follow the instructions. This parent additionally said she had difficulty with giving her daughter instructions and he daughter following them.

The facilitator's sessions are good because ...she gives clear instructions.... Also given the facilitator a while ago a clinical psychologist report on Ryan, so she knows ... She's very good with the kids, this is really her passion and Ryan loves her as well. She assists and she's friendly and she's always here never mind what (Arleen).

I've been telling and explaining whatever to her (her child) for the past 6 months and it hasn't sunk in and then the facilitator while busy with the horses ... explains ... to her then it's just ah, okay (Jessie).

Two parents, Arleen and Estee, additionally described the willingness of the facilitator to adapt to their children's mood and provide a sense of safety in the sessions. Estee further provided an example of how the facilitator provided a sense of safety in a potentially dangerous situation when her child was riding a horse.

If I tell her he is tired, he's had a long day that she knows as well to, you know, just not push too much ... just take it easy (Arleen).

Blue spun around with David on her back and the facilitator controlled the whole situation (Estee).

Two parents provided feedback on the manner in which the facilitators integrated them into the sessions. Susan commented that after Sarah's session was completed, the facilitator would give her feedback on what happened during the session and why. Estee mentioned the capability of the facilitator to provide this feedback.

The little things I love about the facilitator is she, she almost does the therapy as a family kind of thing. So what I mean by that is, so she'll focus on Sarah, but then after the session she'll come and give me a debriefing of what happened and why certain things happened ... and then she would suggest things that I could do at home as well ... So I've always felt very included in the sessions, um, and understanding, you know... what was going on (Susan).

Working very closely with the facilitator, the way she explains certain things that I just see through (Estee).

5.3.2 Parents' personal experience of the programme

Six parents further described their personal experience of the EAL programme. They described their recognition of the distinctiveness of their experience, the benefits the EAL programme had for them and feeling proud of their children.

Two parents described their recognition of the distinctiveness of their experience. Each provided a different reason why they had different experiences. Susan reported that her experience of EAL was distinct because her child, Sarah, was not as severely impaired compared to other children in the programme. Estee attributed the distinctiveness of her experience of her child and his treatment process to her comparing her own family with another family who had a child with autism.

For us it's been amazing in the sense that ... that we are experiencing something totally different to maybe another family who's dealing with a family member with autism (Estee).

I think my experience with Sarah would be significantly different to a more severely ASD-affected child's parent. Sarah can talk to me about what's going on (Susan).

Estee further described how the EAL was beneficial for herself through her experiencing her son's journey and growth throughout the programme. This experience had a calming effect on her (Estee).

Um, so for me it's therapeutic as well just being here and being amongst the horses but it's seeing [his] journey ... it's therapeutic for me to see his growth and results of it here. So that's why I say it (EAL) has a calming effect ... You go home to, you know, meltdown and the noncompliance and the screaming and the banging and the all of it and here you just, it's just the calming effect (Estee).

Two parents reported how they experienced EAL differently. Kamira felt proud to provide her child with an activity such as the EAL that he enjoyed. Angie experienced the sessions as a bonding opportunity for her and her son.

I experienced it that he enjoyed it so I felt proud of actually giving the opportunity to do it (Kamira).

It's my and his time doing something that he likes (Angie).

5.3.3 Children's experience of the EAL programme as perceived by their parents

Five parents described their children's experience of the EAL programme. All of these parents described their children's enjoyment of EAL and provided reasons for their children's enjoyment. These reasons included the child's having a place where they feel safe and where they fit in, the outdoor nature of the EAL programme, and the horses. The parents further reported how their children expressed their enjoyment of the EAL programme at home and how they compared it to their child's previous treatments.

Two parents reported how their children enjoyed the EAL programme because they were in their own space and they felt safe. Angie additionally described her child's excitement towards his EAL sessions. Arleen further associated her child's enjoyment of the sessions to the sessions being outdoors, which was a passion of his.

Wohoo (clapping with excitement), like that. I think happier, like I said, he feels he fits in ... I think he feels safe (Angie).

It's just amazing for him to be outside in his own space, nobody around him telling him what to do, him and Nebz and he's brushing and it just, it does wonders. He loves it ... I [found] the EAL 2 years ago and he loves it he, he loves like I say, being outdoors ... he never says once ah, he doesn't feel like horse riding now ... he's always willing and he's never said once that he doesn't want to come or he's tired ... Ryan loves his lessons with the facilitator and Nebz (Arleen).

Two other parents reported that their child expressed their enjoyment and enthusiasm through talking about the horses. Lauren described her son's excitement after his first session and his enthusiasm about working with the horse he had during the sessions. Kamira described her son's enthusiasm about his EAL sessions.

After that (his first session) he was really, he was excited and he was happy ... he said, this is what he wants to do ... When he speaks about the horse, then it's his horse because the facilitator said this is your horse (Lauren).

The EAL programme at that stage and he loves it. So every Monday they go there and so he loves going there and he loves working with horses. Um, so his experiences is every Monday, he can't wait to go, it's ... it's positive for him (Kamira).

Two parents described their children's expression of enjoyment of the EAL programme when they were at home. Estee reported how her son constantly wanted to ride his dad like a horse. Arleen described how her son had pictures on his laptop at home of Nebz, the horse that he worked with in the session.

He tries to ride his dad all the time (happy laughing), his daddy must now be a real horse, he gets on and says whoa and all of that (Estee).

He loves his lessons, he likes to come here, he likes the horses, he's got a picture of Nebz onto his laptop (Arleen).

Arleen and a facilitator, Beth, further reported that the children with ASD enjoyed the EAL programme more compared to their previous treatments. Beth received this feedback from a parent (identity unknown).

One of my parents always say that of all the therapies, the horse riding is the one that he enjoys the most, that they always want to come to (Beth).

I know this is the only outlet that he has, that he enjoys and that he's been going to for so long ... The others lasted like a couple of months, like the jujitsu and other things, but this is something that he really likes (Arleen).

5.3.4 Facilitators' experience of the parents and children

The facilitators described their experience of the parents and the children with ASD in the programme. Paula described her experience with all the parents in the EAL programme, including parents who were part of the study. She reported how the parents were often not suitable for the EAL programme but the child was. She described this referring in particular to parents who may have specific expectations for their children in the EAL programme that she may not be able to meet. Parents may want their child to ride, which the child may not be ready for yet.

I want to take pictures ... that my child is riding today (amused laughing) you understand, so if you cannot meet those expectations for the parents, then often the parent isn't suitable to bring the child to an equine assisted session ... That's an observation that often parents limit their own kids (Paula).

Paula further explained that the parents of autistic children often had a narrow view and understanding of their child. She attempted to widen their view by involving them in the sessions.

Often they (the parents) have a certain very narrow view of the child and what he wants and then I try to respect that, respect their views and sort of work them into the process, you know, what happened there ... and give them a wider understanding of what's all in that phenomenal child with autism (Paula).

Paula and Beth also reported their experience of the children with ASD in the programme. Beth firstly described how the children with ASD, specifically children with autism often got easily distracted by the activities in the immediate environment of the session, like a plane flying above them. She further explained how important it is to acknowledge what they are distracted by. The aim then is to keep them focused and engaged in the session. She described how she achieved this in a session.

The difficult thing ... with a child with autism, its having the attention, because ... especially in an environment where there's outside, everything is like whoa, this is so nice, I want to go there and then there. So to keep them engaged is, is a process ... if I see the child's looking at something else ... I will not deny what he sees ... I will acknowledge what he's seeing or wants to do. Oh, I see he wants to go there. Okay but let's just first do this, then we can go and do that ... That is important, just to be there in the moment, with the child, um, acknowledge them, while teaching them (Beth).

Paula further described the importance of acknowledging a child with autism in the sessions. She reasoned that because it is difficult for a children with autism to connect socially with others, it is important to acknowledge them. She referred to a particular EAL session she had with a child with ASD to illustrate this.

In the autistic world often they are just there and not really, because it's difficult to give them a hug. It's difficult to say hi ... or make eye contact ... So being acknowledged, I believe, was quite a big part in that session, you know, for the child. The horses could have gone anywhere, there was food out. They could have preferred the food, but they left the food. One by one came over, nudged him, walked away again, ate more food (Paula).

Paula expressed the importance of holding a safe space for the child to explore and develop a curiosity about the horse. By allowing them to explore and develop a curiosity about the horse she teaches them skills.

Within just about all children with autism ... it is important to hold the space safe so that they can explore what this horse is all about ... let them explore the things that the horse does and develop a curiosity ... And with that curiosity about that thing, you can use that curiosity to teach skill ... I am there to ensure that the space that they are using with the horse in it, is safe and beneficial for their learning ... it's not a journey of instructing, it's a journey of exploring (Paula).

Beth and Paula also described how they experienced children with autism versus children with Asperger's syndrome in the programme. Beth described how she was more able to teach the concept of riding to the children with Asperger's syndrome compared to the children with autism. She reasoned that the children with autism were very busy and had little focus.

I've managed to teach the concept of riding, for example, much more to the Asperger children ... Where with the 2 autistic children, that that I've got ... Their (the autistic children) attention is just so everywhere and that the focus on what we need to do is just not there yet, and arms are everywhere. You just have to like concentrate that they keep their arms there (Beth).

Paula experienced children with Asperger's syndrome and children with autism in a different manner. She experienced that the children with autism could be viewed as non-aggressive whereas the children with Asperger's syndrome could be viewed as aggressive towards the horse. She described the children with autism as non-aggressive as they were very busy around the horse, for example running around them. They consequently did not have many demands or expectations of the horse. The children with Asperger's syndrome, however, had

expectations of the horse, which they can become very intense about and then act aggressively towards the horse.

Generally the autistic child doesn't have a lot of demands on the horse. They may be busy ... they may be running for the tail but they have no expectations ... They don't act like predators ... Whereby the Asperger's child ... they can quite narrow down on something, you know, they're very intense ... Intensely focused, um, they can get hung up on things and it doesn't work for the horse. They become predators. When the horse then doesn't perform the way they want it to, they can get quite angry or give up, stupid! ... so that frustration takes over and they can become a bit unfair, you know (towards the horse) (Paula).

5.3.5 Facilitators' experience of the physical environment

All the facilitators described their experiences of the environment of the sessions. They described the influence of rain and wind on the sessions and said the traffic and heat had no effect on the sessions. These environmental aspects influenced the horses, the children, parents and facilitators in the sessions. The facilitators also reported how they used and minimised the effect of the environmental aspects in the sessions.

Both Paula and Anelise mentioned the unique atmosphere which rain can create in a session. Anelise described the atmosphere as more intimate and said the rain brings a sense of calmness to a session.

Rain doesn't cause a problem. We go in the stable and we stand with the horses. Then you stand there and you don't need to do a lot, you know with the steam that comes off the horse, standing in the dry now, and those things you know they create the atmosphere for a session. Um, and you can do so much on rainy days, you know, so much good things, going through water puddles with the horse, stuff like that. I have brilliant sessions in bad weather (Paula).

So you're not like in the rain ... actually those sessions are very cool ... because ... you're in a confined space but it's also sort of like an open, you know, I think you ha[ve] seen the EAL premises stables, quite open ... And for me that is like a very intimate session, you know like, seriously, like one for one and you can really observe, close by, okay so

the space is calm now with things he's licking you know ... it's just like a different form of session for me ... and like, the calmness and almost the comfiness (Anelise).

Both Paula and Anelise spoke about the effect that the wind has on a session. According to them, it negatively affects the child, the parent, the horses and the facilitator during a session. Paula described the effect of the wind on the child and the parent. Anelise described the influence of the wind on the horses and on the interaction between the child and the horse and between the child and the facilitator.

Horses are more irritable because the wind is blowing ... with the wind going, they can't hear each other, they can't hear very well, um, there's a lot of movement, the trees and the stuff ... It (the wind) affects the clients, if the wind is well like there's a lot. I think it's with the movement of the stuff that and the noise it seems like very irritating for me as well, I mean. Me (Anelise) and the facilitator can't even hear each other during sessions and the wind is like that hectic. So imagine for them, I can just imagine for them like it irritates (Anelise).

Wind is starting and they all, very affected by the wind, all of them, Asperger, autism, everybody ... even the mothers (amused laughing) ... it's also transferred, transferred reaction from the mother, with the mother being so irritable, they (the children) are more irritable (Paula).

Paula further mentioned that heat and traffic had no effect on the horses during the sessions because they were habituated to the traffic.

Heat doesn't bother, doesn't seem to bother at all. Heat just seems to be fine. The horses are docile ... seems to never ... cause a problem ... They're (the horse) ... habituated to traffic, they don't show much response to cars. It would have to be a car that explodes for them to react to that. So I've never really had much impact with cars, weird noises (Paula).

The facilitators described how the environmental aspects, including the wind, rain, traffic and heat, were managed and used in the sessions. Beth described how the environmental aspects of the sessions challenged the facilitator and the children because of the children's sensory processing difficulties. She further described how the activities occurring in the vicinity of the

sessions may distract the child from what was occurring in the session and how that was managed. Anelise described how she may adapt a session because of the wind.

So I think the outside environment definitely brings something, um, towards the session ... definitely. If they have sensory issues or tactile issues or anything like that, hearing, seeing that definitely brings a challenge to what we want to achieve depending on how the child is and what their thing is ... If you have a much quieter controlled thing...then it's much better ... like the traffic. Oh, there goes a car. Yes, there goes a car, or there goes an aeroplane, yep there goes an aeroplane, let's go focus on what we doing now (amused laughter) (Beth).

The wind to me is very irritating as well, like I said, it's just irritating....But ya, normally ... we don't tend ... to put a client on a horse ... it's only the grooming or maybe discussing some feelings or emotions and stuff like that (Anelise).

Both Beth and Paula emphasised the importance of being prepared – knowing the session's immediate environment, knowing what to expect from it and knowing what environmental aspects may cause a problem in a session. Paula provided a specific example whereby a trainee facilitator (identity unknown) was not prepared that a dog might jump on a gate where they were passing by during a session. She described the consequence of the trainee facilitators' unpreparedness. Beth expressed the importance of knowing what environmental aspects may cause a problem in the session and how the risks of these aspects were minimised during a session.

Knowing your environment and that for me, um, that ... the boundaries is that you need to be familiar with your environment to facilitate successfully ... you have a good idea of what you can expect. When you go past gates you always prepare that a dog comes to the gate, you prepare and that facilitator wasn't prepared. So they themselves (the facilitator) got a fright when the dog suddenly jumped on the gate and because ... the person got a fright, the horse got a fright and because the horse got a fright, the client got a fright (Paula).

I always try to, um, it's not always possible but I think I try to see anything that might be a problem. Let's move away from that. Um, I try to control, I think, the environment in that sense (Beth).

5.4. PERCEIVED ROLE OF EAL IN PRODUCING THE BENEFITS

Parents and facilitators also described what they perceived to be the overall role that the EAL programme played in producing the changes they observed in the children. The parents each described how they were either certain or uncertain that EAL contributed to the changes they perceived. Parents and one facilitator also expressed how they do not solely attribute the changes they perceived to EAL, but rather that EAL formed part of a treatment team. The team as a whole produced the changes they observed.

5.4.1 Parents' belief about the role of EAL

The parents were divided about what role the EAL played in contributing to the various changes they perceived. The parents who were certain will be reported first and thereafter the parents who were uncertain.

Susan stated that she was certain EAL contributed to the benefits she perceived, as she had never observed any changes with other treatments her daughter had attended. However, with the EAL programme she not only observed changes in her child, but these changes were immediate. Jessie also reported that she observed immediate changes in her child. Angie was confident that the EAL contributed to the changes she observed in her child.

We did so much, um, before the EAL and nothing really seemed to make a difference ...

We did so much occupational therapy and we went to a psychologist and the whole toots... None of what they did there seem to have as much of an impact as the EAL that hour a week ... like the occupational therapy ... I never saw what I would have considered an improvement ... Whereas with the horse riding it was almost immediate, in terms of her connecting in a more positive way with ... the people around her (Susan).

And it just helped her so much in that 2 months that we carried on and how much she's learned (initial 2 months of EAL sessions) (Jessie).

Matt has had a fantastic year so, yes so I'm sure the EAL does contribute to that (Angie).

Three other parents stated they were unsure if the EAL programme contributed to the changes. It was difficult for them to see if there were any changes in their child during the course of their EAL attendance. Ryan's fluctuation in mood and tolerance of sensory aspects made it difficult for his mother, Arleen, to identify any changes that she attributed to EAL, apart from putting him in a good mood for the day and providing him with a sense of calmness. She additionally described the manner in which he fluctuated. No other parent reported that their children's mood and tolerance fluctuated.

It's very difficult to say because being on the spectrum they fluctuate ... Um, it's basically like the tolerance they have. Like he would tolerate something now and then maybe in a day or two he won't ... it's not the same, it's not always every day ... he can wake up for no reason at all, nobody's even spoken to him and he'll be in a mood of some sort ... it (the EAL programme) does play a difference because I tell him usually on a Thursday, tomorrow's Friday and it's a short day and you're going to see Blue. And that just sets it, ya, it's going to be a good day ... So ya, it does help a lot but change wise, like I say, it's very difficult to say (Arleen).

Kamira said she was unsure of the changes that EAL had brought for her child. She reported that the EAL made a difference. However, she was unsure of what these changes were at the time.

The things that they do, the balancing on the horse ... I know he's enjoying it. Um, what big benefits there is at this stage, I don't know. All I know is that at this stage for him for me, it's ... I don't know ... if his speech improved out of that. If his social skills improved out of that because I can't, I don't know ... if it's directly related to ... the horse riding therapy (Kamira).

Ian said he was unsure if the EAL had contributed to any changes in his son. This was because his son had multiple treatments and it was difficult for him to tell if the EAL was the reason behind benefits that he perceived.

So I can't tell you only the EAL because there's a lot of input in his day to day, basically step by step trying to sort him out ... So it's difficult to say (Ian).

5.4.2 A team approach

Two parents credited a team of supporting treatments and contexts with the changes that they perceived in their children. They perceived the EAL programme as an integral part of this treatment team. A facilitator further emphasised the importance of the collaboration between members or treatments in the child's supporting treatment team in order for the EAL to have a lasting effect on the child. This supporting team may consist of other treatments, such as speech and occupational therapies, physiotherapy, input from psychologists, doctors, the specialised school that the child attends and the child's family.

Lauren specifically described how the EAL had contributed to the changes that she observed in her child. She regarded EAL, however, as only a part of a variety of aspects which jointly produced the changes she perceived. These aspects include her child's social, academic and family life. She specifically referred to her child's increased awareness during the course of the EAL to illustrate this. Angie also described that the EAL was part of a treatment team that helped her child. She further illustrated how this team as a whole had contributed to and reinforced the changes she perceived. Her child's supporting team consisted of his doctor and the specialised school that he attends.

Now that awareness might not have been there, if the awareness of the other things didn't fit in together. So I can't say that it's the EAL that is doing that, all I can say is ... it's like a puzzle, and it adds on and it fits in (Lauren).

I think 'cause my son is in a better place now than he was in the beginning of the year. We've sorted out the communication. I think it's everything together with that, it just helps reinforce behaviour ... I think the best thing is to have a very strong team supporting, like I've got the facilitator I've got a fantastic paediatrician, honestly fantastic, I've got him in the right school (Angie).

Beth, a facilitator, supported Angie's statement regarding the importance of having a supporting treatment team for the child. She further expressed the importance of not only having a supporting team for particularly children with ASD and special needs, but also the necessity of collaboration between the various members in this team.

I think with special needs, autistic children ... it's really important to have a network of people working together, on the child...and that the parents communicate that to the therapist, the facilitators and all of that ... that everyone knows, okay like, this is what we focusing on. This is what we working on, so that it's a group effort. I think the, um, I really value a holistic approach towards therapy extremely and the therapists in general do not see each other as, um, competition or as a threat or at all but we rather see that we helping this child and that we working together on that (Beth).

Beth further described what the effect could be if the child's supporting team are not collaborating with each other or oppose each other. She referred to the collaboration between the family and the EAL programme to illustrate this. She mentioned that this collaboration could affect the extent to which the EAL can produce a lasting benefit for the child and transfer to other areas of their lives. She mentioned this with particular reference to the importance of having the same consistent and clear boundaries at the EAL programme and the family. She further noted that inconsistent boundaries in the child's supporting team, for example between the family and the EAL programme, could reduce the extent to which certain benefits will transfer to other areas of the child's life.

If we have clear boundaries here (at the EAL sessions) and they don't have clear boundaries at home ... the struggle to get this is gonna be much more difficult, to get that pattern or to get them listening or to get them engaged in ... I feel that that here it will be here, it will not necessarily transfer into other aspects ... If the parents have their own clear boundaries ... this will support what is happening there and visa versa (Beth).

5.5 CHAPTER SUMMARY AND CONCLUSION

Through exploring the parents' and facilitators' experiences and perceptions of children with ASD in an EAL programme, three prominent main themes arose, namely the benefits that EAL has for children with ASD; the parents' and facilitators' feedback and experience of the programme; and the perceived role of EAL in producing the benefits. The subthemes of the first main theme were the social, psychological, behavioural, calming and family benefits. Also included in the first main theme are the benefits of EAL to the other behavioural traits of children with ASD. The facilitators further provided insight into the manner in which these benefits were produced in a session.

The second theme described the feedback of the parents and facilitators on the EAL programme. The subthemes of this theme were the parents' feedback on the programme, their personal experience of the EAL programme, their perception of their children's experience of the EAL programme, and the facilitators' experience of the parents, the children and the environment.

The final theme described and provided insight into what the parents perceived the role of EAL was in producing the various perceived benefits. The subthemes of this theme were the parents' belief about the role of EAL and their belief about the EAL programme as an integral part of the support team of their child. This team as a whole produced the changes they perceived.

In Chapter 6 the results of the current research will be discussed.

CHAPTER 6

DISCUSSION

6.1 INTRODUCTION

This chapter will discuss the results presented in Chapter 5 by situating the results within current literature. In order to gain an understanding of these results, they will be further interpreted through the lens of the theoretical framework of Bronfenbrenner (1977). However, before the results are discussed an overview of this study will be given. A discussion of the limitations of this study and proposed recommendations for future studies on the subject will conclude this chapter.

6.2 OVERVIEW OF STUDY

This current study explored the experiences and perceptions of parents and facilitators involved in an EAL programme for children with autism spectrum disorder (ASD). In order to participate in this study, parents had to have a child diagnosed with ASD or a pervasive developmental disorder (PDD) who had been participating in the relevant EAL programme for at least 6 months. The facilitators had to be a facilitator or a trainee facilitator associated with one of the respective EAL programme branches involved in the study. Data was collected through conducting semi-structured interviews with the parents and facilitators. These interviews were audio-recorded with the permission of the parents and facilitators. The interviews were further transcribed and analysed using thematic analysis.

Following the analysis of the data, three main themes emerged, namely the benefits of EAL, feedback and experiences of the EAL programme and the perceived role of EAL in producing the benefits. Each of these themes and their respective subthemes will be discussed in relation to current literature and the theoretical framework of this study. However, before this can be done, the participants and the children in the current study will be discussed.

6.3 DESCRIPTION OF THE PARTICIPANTS

The parents who participated in the current study were mostly white females ($n = 5$). Two were coloured females and there was one white male. The children were predominantly male ($n = 5$). The male children were white ($n = 3$) and coloured ($n = 2$). The white male children were diagnosed with Asperger's syndrome ($n = 2$) and pervasive

developmental disorder not otherwise specified (PDD-NOS) ($n = 1$). The two coloured male children were diagnosed with autism and with ASD traits respectively. Only two female children participated in the study, both of whom were white and diagnosed with Asperger's syndrome.

The children were predominantly aged 7–11 years old ($n = 5$). The other two children were 5 and 6 years old. The children furthermore had been participating in the programme for 6–36 months. Three children had been in the programme for 24 months. The other children had been participating for 6, 12, 30 or 36 months respectively. The facilitators were respectively all white and female. The benefits of the programme will be discussed in the following section.

6.4 BENEFITS OF EAL

The first theme that was established was the benefits of EAL. Parents and facilitators in the current study perceived that EAL had social-communication, psychological, behavioural, calming and family benefits as well as benefits to the other behavioural traits of children with ASD. These six benefits arose as subthemes of the main theme, benefits of EAL. According to Gabriels et al. (2015) and Stickney (2010), these are common benefits of EAL. In addition to these benefits, EAL and THR were reported to have physical and cognitive benefits (Stickney, 2010). The current study, however, found no cognitive and physical benefits.

It is through the parents' and facilitators' direct interaction with them that the children with ASD were part of both their respective microsystems (Bronfenbrenner, 1977). Therefore, the parents and facilitators were able to reflect on the benefits EAL had for the children with ASD as described below. However, it must be noted that the parents and facilitators interacted with the children with ASD in different settings and contexts. The facilitators directly interact with the child in the EAL sessions and the parents interact with their child in multiple contexts that include the EAL sessions. It is through interacting with the child in different settings that the parents and facilitators were able to provide distinctive perceptions of the benefits of EAL for children with ASD.

6.4.1 Social-communication benefits

Parents in the current study reported that EAL had social-communication benefits for their child with ASD. These benefits included an increase in the children's social understanding, communication and interaction. They reported that the children's social understanding increased as they became more aware of the effect of their own behaviour on others. This result supported those of Stickney (2010) and Erdman et al. (2015). However, contrary to the social

understanding finding of the current study, Bass et al. (2009) concluded that children with ASD's social cognition and awareness did not improve following a 12 week THR intervention.

The verbal and non-verbal communication of the children with ASD in the current study also improved. The children started talking and increasing their eye contact with others. A child with ASD who had not spoken in the past started talking. Another child's speech improved as he was able to pick up words easier. These non-verbal and verbal communication improvements supported research done by Stickney (2010), Boyd (2015), Erdman et al. (2015) and Gabriels et al. (2015). Results from a 10-week THR intervention with children with ASD in particular indicated that over the course of the intervention the children's total number of words as well as the number of new and different words increased (Gabriels et al., 2015). These verbal and nonverbal communication benefits were furthermore evident in interventions that used dolphins, guinea pigs or dogs with children with ASD (Breitenbach et al., 2009; Hawkridge, 2017; Kršková, Talarovičová, & Olexová, 2010; O'Haire, et al., 2014). The improvement in non-verbal communication may be credited to the constant efforts of the facilitators and volunteers in the programme to make eye contact with the child with ASD.

One of the parents in the current study attributed her child's verbal communication improvements to the child's connection with the horse. According to Boyd (2015) and Scialli (2002), the children in their respective studies formed a bond with the horse, which led to an increase in the children's communication, self-confidence, affection and quality of life. Grandin et al. (2010) additionally found that the presence of an animal in a child's environment encouraged them to interact more and be more comfortable in their immediate environment; thereby encouraging them to communicate more. Scialli (2002) and Petitto (2010) further suggested that communication improvements may be credited to encouraging the child to verbally communicate with the horse throughout a session. Explanations of the communication improvement given by the parents in the current study supported findings by Scialli (2002), Petitto (2010), Boyd (2015) and Grandin et al. (2010).

Parents furthermore reported an increase in their children's social interaction, motivation and social skills. These social benefits correlated with research done by Gabriels et al. (2015), Scialli (2002), Erdman et al. (2015), Boyd (2015), Surujlal and Rufus (2011) and Stickney (2010). This result was also evident in interventions that used dogs and guinea pigs for children with ASD. Hawkridge (2017) used dogs and found an increase in children with ASD's social

interaction. According to Kršková, et al. (2010), who used guinea pigs, the frequency and quality of children with ASD's social interactions increased. The increase in social interactions of children in the current study was credited to their becoming proud of their horse riding ability and wanting to talk about it with their peers. This result confirmed those of Stickney (2010) and Boyd (2015) as well as results of studies involving the use of dogs for children with ASD (Hawkridge, 2017).

The children's increase in social skills in the current study confirmed the results of Stickney (2010), Erdman et al. (2015), Boyd (2015) and Weideman (2007). The EAL or THR sessions provide the children with an opportunity to practice their social skills in a space that they perceive as socially safe and where they would not be mocked (Boyd, 2015). Dogs are also socially beneficial for children with ASD. Dogs can assist children with ASD to overcome social challenges by providing them with an external focus (Hawkridge, 2017). It is because of the child's external focus on the dog and not on themselves or others, that social interactions become less intense for them, which gives them an opportunity to practice their social skills (Hawkridge, 2017).

6.4.2 Psychological benefits

Psychological benefits, relating to the child's increased self-image were reported by parents and facilitators in the current study. They reported an increase in the children's self-esteem, self-confidence, independence, pride and happiness, and contentment. All these psychological benefits correlated with those found by Bass et al. (2009), Gabriels et al. (2015), Erdman et al. (2015), Scialli (2002), Surujlal and Rufus (2011), Boyd (2015) and Stickney (2010). These psychological benefits were further reflected in interventions using other animals, like dogs, dolphins and guinea pigs, for children with ASD (Breitenbach et al., 2009; Hawkridge, 2017; Krskova et al., 2010; O' Haire et al., 2014).

In the current study the children's increased self-confidence was attributed to their ability to achieve goals and master skills during the sessions. The increased self-confidence was also attributed to a sense of belonging they experienced in the sessions. This increase in confidence supported the findings by Bass et al. (2009), Erdman et al. (2015), Stickney (2010), Surujlal and Rufus (2011) and Boyd (2015). The act of riding was credited for the children's increase in self-confidence through serving as a rewarding stimulus (Bass et al., 2009).

Parents in the current study reported that the children's increased self-confidence had filtered through into their children's social and academic life. They described how their children had the self-confidence to formulate and achieve academic goals and to overcome social fears. This transferral of self-confidence supported research by Stickney (2010), Erdman et al. (2015) and Grandin et al. (2010) and may be attributed to the animal that acts as a transitional object for the child. Through the animal, a horse in the context of the current study, the child learns a skill. This learnt skill is then transferred to other areas of the child's life (Erdman et al., 2015; Grandin et al., 2010).

Parents in the current study also noted an increase in their children's level of independence. The children experienced less separation anxiety and studied more independently. This result confirmed findings by Erdman et al. (2015), Stickney (2010), Surujlal and Rufus (2011) and Boyd (2015). This increased independence of the children may be attributed to the encouragement they received to think independently and take control of the horse (Stickney, 2010). They were also encouraged by their ability to do activities they had previously not been able to do (Boyd, 2015; Erdman et al., 2015).

In the current study, the children's pride also increased as a result of their ability to ride whereas their peers could not. According to the parents in the current study, this increased pride encouraged their children to socialise with their peers. The horse had become a topic they could talk about. This finding supported the findings of Erdman et al. (2015), Boyd (2015), Surujlal and Rufus (2011) and Stickney (2010).

According to Stickney (2010), Boyd (2015) and Surujlal and Rufus (2011), the children with ASD increased self-confidence, pride and independence contributed to their improved self-esteem and their sense of being empowered. The children became more empowered through their ability to control a large animal such as a horse (Stickney, 2010). Not only were they able to control this large animal but they were able to control a component of their lives, which they often did not have the opportunity to do (Stickney, 2010).

In addition to the increased pride, self-confidence and independence of the children, in the current study, their happiness and contentment also increased. These results corresponded with the findings of Boyd (2015), Surujlal and Rufus (2011) and Weideman (2007) and with findings in interventions that had used dogs, dolphins and guinea pigs for children with ASD (Breitenbach et al., 2009; Hawkridge, 2017, O' Haire et al., 2014). The increased happiness of

the children in the current study was linked to the sense of belonging they experienced in the sessions. In the sessions they could further escape from their daily life of constant routine and enjoy the recreational nature of the treatment. The two latter explanations are supported by Boyd (2015), Surujlal and Rufus (2011) and Weideman (2007).

6.4.3 Behavioural benefits

Parents and facilitators in the current study also reported that EAL improved the behaviour of their children. The children's increased self-awareness and emotional self-control resulted in a decrease in their outbursts. The finding that EAL decreased the outbursts of children with ASD supported the research of Erdman et al. (2015), Stickney (2010), Scialli (2002) and Gabriels et al. (2015).

The children in the current study become more aware of their emotions. One of these children started to develop a fear of certain activities in the EAL session, whereas previously they had no sense of danger or fear. Although not described with reference to children with ASD, an individual's increased self-awareness and consequent increased self-control was identified as a benefit of activities with horses in other populations (Hauge et al., 2013; Klontz et al., 2007; Selby & Smith-Osborne, 2013). By mirroring the person's emotions, the horse assists the person to gain awareness of their emotions and develop strategies to control their emotions within the context of an equine-facilitated psychotherapy (EFP) programme (Hauge et al., 2013; Klontz et al., 2007; Selby & Smith-Osborne, 2013). Parents in the current study reported the specific effect this mirroring ability of horses had on the children with ASD's self-awareness and behaviour.

In the current study the parents linked their children's increased self-awareness with the children's increased emotional self-control. The finding of increased self-control corresponded with findings by Stickney (2010), Boyd (2015) and Helfer (2006). These researchers concluded that the children's self-control increased because they were required to regulate their behaviour on the horse in order to communicate clearly with the horse. The clear communication was needed to complete their assigned activities. This self-regulation was also required so that the horse would not respond negatively towards the child (Boyd, 2015).

This increased self-control was also reflected in a South African study using dogs in an educational setting for children with ASD. According to Hawkridge (2017), the children with ASD in her study were encouraged to modulate their behaviour when they were interacting with

the dog, otherwise the dog would behave negatively towards them. Hawkridge's (2017) result highlighted the importance of animals in assisting children with ASD to modulate and control their behaviour and emotions. According to parents in the current study the children's increased ability to control their own emotions subsequently reduced their children's outbursts.

6.4.4 Calming benefits

Parents in the current study reported that EAL had a calming benefit for their children. This result supported those of Erdman et al. (2015), Gabriels et al. (2012) and Stickney (2010), who reported the immediate relaxing and calming effect that THR and EAL had, even if the child had a bad day. Gabriels et al. (2012) reported that on the days of the children with ASD sessions the children were calm, their anxiety reduced and their mood improved. These benefits were sustained after the session in multiple contexts. In addition to horses, interventions using dogs and guinea pigs have also been reported to have a calming effect on children with ASD through reducing their anxiety and encouraging the children to relax (Hawkridge, 2017; Krskova et al., 2010; O' Haire et al., 2014).

The parents in the current study attributed the calming benefit of the horses to the movement of the horses, their acceptance, the grooming activity, and the opportunity for the children to be in their own space. The explanation of the role of the horse's movement and the effect of grooming the horse was in correspondence with findings by Stickney (2010).

Stickney (2010) also found that the movement of the horse was calming for the children, which contributed to decreased outbursts in children with ASD. The repetitive movement and sensory input of the horses mimicked the children with ASD's stimming and calmed them down, allowing the children with ASD to be still on the horse (Stickney, 2010). The likelihood of an emotional outburst was subsequently decreased. A facilitator in the current study stressed how important it is for the child to be calm around the horse. If the child is calm, the horse will become calm.

6.4.5 Benefits to the other behavioural traits of children with ASD

Parents in the current study reported that their children became more open to change and flexible in their routine. They were also more inclined to try new things and their abnormal preoccupations and sensory difficulties decreased. All these benefits, with the exception of decreased abnormal preoccupations, corresponded with research done by Gabriels et al. (2015), Bass et al. (2009), Stickney (2010), Scialli (2002) and Erdman et al. (2015). However, unlike

these studies, the current study did not find that EAL reduced any of the children with ASD's stimming or stereotypic behaviour.

The children with ASD's increased openness to change and increased flexibility in their routine was attributed by parents in the current study as well as by Bass et al. (2009) and Gabriels et al. (2015) to the horse as a motivating factor. The horse encouraged the children with ASD to break away from their routine and to try new things with the horse. Further facilitating this benefit, the children with ASD in the current study and in the study by Stickney (2010) were taught to adapt to unexpected changes in their routine.

The sensory processing difficulties of the children in the current study also decreased both in and outside the sessions. This result confirmed those by Bass et al. (2009) and Gabriels et al. (2015), who reported that children with ASD's sensory integration and tolerance increased while their sensory sensitivities decreased.

The parents in the current study as well as Bass et al. (2009) and Gabriels et al. (2015) attributed the children's reduced sensory difficulties to the opportunity the child had to feel the texture and warmth of the horses. The children felt the texture and warmth of the horses through touching, grooming, brushing and stroking the horse. The parents additionally credited other environmental aspects of the sessions, such as the flies, smells and mixing the horses' food, to contribute to their children's decreased sensory processing difficulties. The environmental aspects they described challenged their children's sensory difficulties and decreased their sensory sensitivities.

6.4.6 Family benefits

The parents in the current study also reported the benefit EAL had had on their family. They attributed it to their children's respective improvements as a result of the EAL programme. The children became easier to discipline. The family routine did not revolve around them anymore and their relationships with their siblings and parents improved. The parents credited these family benefits to their children's better self-control, increased self-confidence and calmness, and to the children's improved ability to be open to changes in their environment.

Stickney (2010) and Lanning et al. (2014), also reported family benefits of THR. The parents in the current study however, reported different family benefits compared to what Stickney (2010) and Lanning et al. (2014) reported. The family benefits those researchers reported were increased ease in toilet training of the children with ASD, reduced sibling issues

and fewer difficulties doing chores. These family benefits were credited to the children's increased awareness of their body, the sibling with ASD having their own activity and the child's increased attentiveness (Lanning et al., 2014; Stickney 2010).

6.5 FEEDBACK ON AND EXPERIENCE OF THE EAL PROGRAMME

The parents and facilitators also reported their experience and provided feedback on the EAL programme. The parents provided feedback on the programme and described their personal and their children's experience of the programme. The facilitators discussed their experience with the children, the parents and the environment of the sessions.

The parents' and facilitators' interaction with the organisation, situated within both their microsystems, enabled them to describe their respective perceptions of varying aspects of the organisation.

6.5.1 Parents' feedback

The parents in the current study provided favourable feedback on the overall effectiveness of the programme, the cost and premises of the EAL sessions as well as on the facilitators. They were satisfied with the EAL programme due to EAL incorporating various treatments, such as occupational and physical therapy. The parents were also satisfied with the suitability of the EAL programme for special needs children.

The overall effectiveness of and satisfaction with EAL and THR programmes were also reported by parents in the studies done by Stickney (2010), Surujal and Rufus (2011) and Boyd (2015). Those parents expressed their willingness to recommend the EAL or THR programme because of their satisfaction and appreciation of the programme.

The effectiveness of EAL due to its incorporation of various treatments is confirmed in literature. Research in the THR and EAL fields have consistently demonstrated the physical, communication, social, sensory, educational and behavioural benefits EAL and THR may have for multiple populations, including children with ASD (Bass et al., 2009; Boyd, 2015; Gabriels et al., 2012; Hallberg, 2008; Helfer, 2006; Surujal & Rufus, 2011; Ward et al., 2013). Each of these benefits are also addressed by other disciplines in treatments for children with ASD. These treatment disciplines include occupational therapy, speech therapy, behavioural therapy, sensory integration and physical therapy and educational treatments (Eikeseth, 2009; Levy et al., 2009). Incorporating multiple treatments EAL provides the same benefits as the other treatments, which was supported by the parents' explanations of why EAL is effective.

A parent reasoned that EAL was effective because of its suitability for ASD and special needs children. The suitability of THR or EAL or other human-animal interventions (HAI) for children with ASD or special needs has not been discussed in literature. However, studies indicated the importance of a calm and relaxed environment for children with ASD. The potential of animals to provide this calm environment was emphasised. According to Sánchez, Vázquez and Serrano (2011), a calm environment for children with ASD reduces the likelihood of them being overstimulated. This calm environment becomes a place where they can withdraw to and be calm if they do get overstimulated. The calming effect of horses and animals was discussed in section 6.4.4.

Parents in the current study reported that the premises of the EAL programme were satisfactory and the sessions were cost effective in comparison with other suggested treatments for their children. Parents in the studies by Boyd (2015) and Stickney (2010) also provided feedback on the premises of their respective programmes and the cost of the sessions. However, the structure of the sessions and payment for the sessions discussed in the current study were different in comparison with the programmes Boyd (2015) and Stickney (2010) focused on. In the study by Boyd (2015) the children participated in free group sessions. In the study by Stickney (2015) the children's sessions were unscheduled, took place either in groups or individually and were paid for by the parents.

The parents' reflection on the cost of the sessions revealed the influence that economic conditions, situated in their macrosystem, had on their perceptions. Parents often struggle financially to get the appropriate treatment for their child with ASD. Not only are multiple treatments recommended for children with ASD, but these treatments are often expensive (Goin-Kochel & Mackintosh, 2009; Levy et al., 2009; Thompson, 2014; Woodgate et al., 2008). Thus, a treatment that is cost-effective in comparison to other suggested treatments would play a role in parents' perception of the EAL programme.

The parents provided feedback on the capability of the facilitators to facilitate a session. The parents regarded the facilitators as knowledgeable about the horses and their children's disabilities. Parents in the study by Sciallis (2002) provided the same feedback on the facilitators. The parents in the current study additionally reported how the facilitators integrated them into sessions, were able to adapt to their children's mood on a specific day and ensured their children's safety in sessions.

6.5.2 Parents' personal experiences

Parents in the current study also described their personal experience of the programme and how the programme was beneficial to them. The programme increased their happiness, and pride. It was also calming and provided them with a bonding opportunity with their children.

Through the interaction between their child and the organisation, which formed part of their mesosystems, they were able to reflect on their personal experience of the programme. The synergy and correlation between these two microsystems, the organisation and the children, enhanced the likelihood that the parents would have a favourable perception of the programme and that the programme would be beneficial to them too (Bronfenbrenner, 1977, 2009). The positive effect and perceptions the parents described in the current study were thus evidence of the synergy between two of their microsystems, namely the child and the organisation.

The beneficial nature of the programme for the parents in the current study was attributed to the calming environment of the programme and through experiencing their child's growth throughout the programme. One parent experienced the sessions as calming because the horses and her child were calm in the sessions compared to the child's noncompliance at home. This finding supported those by Boyd (2015) and Stickney (2010). Those researchers reasoned that the sessions, enhanced by the calming nature of the outdoor setting, gave the parents a break from dealing with the daily challenges their child posed.

Both the parents in the studies by Boyd (2015) and Stickney (2010) and the parents in the current study reported that the EAL programme was beneficial to them. They reported being happy and proud watching their child's growth and how they enjoyed the sessions. The sessions additionally provided the parents in the current study a bonding activity with their child. Parents in the study by Stickney (2010) also described the sessions as a bonding activity for them, their child and the family as it was an activity they could enjoy together.

The parents in the current study furthermore described their experience with their child in the programme as distinctive. They credited the distinctiveness of their experience to the uniqueness of their children's impairments and treatments. Although this finding has not previously been reported within HAI or THR research, it was confirmed by research on ASD. According to Mitchell and Holdt (2014) and Matson and Williams (2015), the nature and severity of the impairments of each child with ASD are unique. Therefore, each child requires a unique treatment plan.

6.5.3 Children's experience of the EAL programme as perceived by their parents

The parents in the current study reported their children's enjoyment, excitement and enthusiasm about the EAL programme. They were able to describe their children's experience of the EAL programme because the parents knew their children and their child was part of their parents' microsystem.

According to the parents in the current study, their children always enjoyed their EAL sessions because they were in their own space, in an environment they were passionate about. The children's enjoyment and the reasons for enjoyment supported findings in research done by Erdman et al. (2015), Scialli (2002), Stickney (2010) and Boyd (2015).

The children in the current study expressed their enjoyment through expressing their love of the horses and by working with them. They expressed their love of the horses by talking about their sessions and in various manners in their home environment. Scialli (2002), Stickney (2010) and Erdman et al. (2015) also attributed the children's enjoyment of EAL, to their passion for the horses. The horse was seen as a motivating factor for the children to return to a session (Erdman et al., 2015; Scialli, 2002; Stickney, 2010).

A parent and a facilitator in the current study furthermore reported that the children enjoyed the EAL programme more compared to other treatments. According to Scialli (2002), EAL may be seen as a more recreational treatment compared to conventional treatments such as occupational or speech therapy. By integrating an animal like a horse in a therapeutic session and facilitating the session outdoors, the EAL sessions become recreational and thus enhance the children's enjoyment of the sessions (Scialli, 2002).

6.5.4 Facilitators' experience of the children and their parents

In addition to commenting on the benefits of EAL for children with ASD, the facilitators in the current study also reported on their experience with the children and parents in the EAL programme. In existing literature facilitators only focused on the benefits of EAL. No literature on facilitators' perception of other aspects of an EAL or THR programme could be located – like the parents or the environment of the sessions (see section 2.4)

The facilitators in the current study reported that the parents often limited their children in the sessions by having high expectations. Surujlal and Rufus (2011) had the same result. They concluded that parents had high expectations of the THR sessions for their children and these

high expectations were seldom met. These expectations were, however, not reported as a limiting influence in the children's sessions (Surujlal & Rufus, 2011).

The importance of acknowledging children with ASD in the EAL session was emphasised by the facilitators in the current study. They stated that due to the social-communication impairments of children with ASD's they often do not connect with people, which makes it difficult to acknowledge them.

Facilitators additionally emphasised the importance of providing a safe space for the child during a session so that the child becomes curious of the horse. Using the curiosity they attempt to teach the child a skill. Although the use of curiosity and a safe space have not previously been discussed in ASD or EAL literature, the development of curiosity was described as a motivational force for children's knowledge acquisition (Chak, 2002). Through encouraging a child's curiosity, the facilitator indirectly motivates the child to learn new skills.

The facilitators in the current study compared the behaviour of children with Asperger's syndrome and those with autism. According to the facilitators, children with autism are less focused, more busy and non-aggressive towards the horse. Children with Asperger's syndrome, however, are more focused and aggressive towards the horse. The facilitator stated she therefore could teach the concept of riding much better to the children with Asperger's syndrome than to the children with autism. According to Klin (2012), children with autism can be differentiated from children with Asperger's syndrome as the latter are more focused and less busy.

6.5 Facilitators' experience of the physical environment

The facilitators also reported on their experience of factors that influenced the physical environment of the sessions. The facilitators in the current study reported how the rain, wind, traffic and heat respectively created a unique atmosphere, and either limited the sessions or had no effect on the sessions. Parents in the studies by Scialli (2002) and Stickney (2010) described the influence of these environmental factors. The findings of the current study, however, contradicted the findings of those two studies. In contrast to describing the rain and heat as either enhancing or having no effect on the sessions, the parents in the studies by Scialli (2002) and Stickney (2010) described how these factors interrupted the sessions. The parents in all three studies, however, described the undesirable effect of the wind.

The facilitators in the current study described their management of the environmental factors and the importance of knowing one's environment. The facilitators described how they

would focus on groundwork, such as grooming, when it was windy because of the negative effect the wind had on the child, the horse, the parents and the facilitators themselves. The importance of being prepared and knowing the session's environment, in order to not compromise the session was also emphasised by the facilitators.

6.6 PERCEIVED ROLE OF EAL IN PRODUCING THE BENEFITS

Alongside discussing the benefits that EAL had for both them and their children, parents also discussed the role they perceived the EAL programme to play in producing these benefits. Parents in the current study were either certain or uncertain that EAL contributed to the changes in their child. The parents further credited the changes to a combination of factors, which included the EAL programme. The subthemes of this main theme were thus the parents' beliefs about the role of EAL and a team approach.

6.6.1 Parents' belief about the role of EAL

Some parents in the current study were certain that EAL contributed to the changes they perceived in their child. They reported that EAL had immediately benefitted their child. These parents additionally reported that EAL was comparably more beneficial for their child compared to other treatments.

Solely crediting EAL for the changes in their children was reflected by parents in the study by Boyd (2015). Those parents credited the THR as the sole reason behind their children's improvements because either their children had had no other treatments or they credited it to a feeling. Although Boyd (2015) concluded that the parents had solely credited EAL, the reasons she found for it, however, differed from the reasons stated by parents in the current study.

The perception that EAL and/or THR is beneficial for children with ASD was supported by a range of quantitative studies (Bass et al., 2009; Gabriels et al., 2012; Gabriels et al., 2015; Scialli, 2002; Ward et al., 2013) and qualitative studies (Boyd, 2015; Erdaman et al., 2015; Lanning et al., 2014; Miller & Alston, 2004; Stickney, 2010; Surujlal & Rufus, 2011). These studies collectively found that EAL was socially, psychologically, behaviourally, cognitively and physically beneficial for children with ASD. The quantitative studies measured the effectiveness of THR and/or EAL through various measurements and the qualitative studies explored whether THR and/or EAL was an effective treatment from the parent's and facilitator's perspectives.

Alongside the parents that solely credited EAL for the improvements, some of the other parents were, however, uncertain if the EAL programme had contributed to the changes in their

children. These parents described that they were unsure whether EAL contributed to the changes because either their child had multiple treatments or their child's mood and tolerance of sensory aspects fluctuated.

According to Levy et al. (2009), children with ASD often have multiple treatments to address specific unique impairments and comorbidities that they present with. The benefits and focus of these treatments often overlap, as the behavioural, communication, relationship-based and educational treatments all address the child's social impairments (Eikeseth, 2009; Levy et al., 2009; Myers & Johnson, 2007). This overlap in treatment focus and benefits may explain why a parent in the current study could not attribute the benefits to EAL.

6.6.2 A team approach

The parents and one facilitator credited a team of supporting contexts and treatments to contribute to the children's changes. This team included the EAL programme. This result supported the research done by Boyd (2015). The parents in her study perceived the benefits that THR had for their child as due to a combination of factors, which included the parents' work, the complementary nature of the child's other treatments and the child's maturity. The parents in the current study, like those in the study by Boyd (2015), also discussed the complementary nature of the child's other treatments.

The parents and facilitators in the current study further reported the necessity of collaboration between different supporting contexts and treatments within this team. The need for multiple treatments for a child with ASD was echoed by Woodgate et al. (2008), Matson and Goldin (2013) and Matson and Williams (2015). They reasoned that multiple treatments are necessary because of the child's varying impairments, which can often not be treated by one treatment methodology. According to Selby and Smith-Osborne (2013), EAI may be considered a complementary intervention alongside conventional therapies for ASD and special needs children.

This collaboration, a facilitator in the current study reported, is necessary to ensure that EAL can produce lasting benefits for the child. The facilitator contextualised the need for the necessary collaboration by emphasising the boundaries established at the child's home and at the EAL programme. This emphasis on the effects of collaboration between the family and the child with ASD treatments supported the findings of Levy et al. (2009) and Stephens (2005). The

positive effects of collaboration in the team further illustrate the importance of two microsystems being in synergy within the mesosystem.

Although both these microsystems, the home environment and the EAL programme, are within the children's mesosystem and not the parents' or facilitators', it is still useful to describe. It illustrates the importance of the synergy between two microsystems within the context of EAL. The effect of the synergy occurring between the family and the EAL, regarding establishing the same boundaries, was described by a facilitator as crucial for the benefits of EAL to be sustained and transferred to multiple contexts within the child's life.

Conversely, if there is no synergy or collaboration between two of the child's microsystems, the extent to which the benefits of the EAL will be long-lasting, is reduced. Levy et al. (2009) and Stephens (2005), emphasised the importance of the synergy between the family and the treatment. According to their research, the behavioural changes in a child with ASD are more likely to be maintained if the parents are trained in the same methods. These methods could refer to the establishment of the same boundaries at home and the relevant treatment environment (Levy et al., 2009; Stephens, 2005).

6.7 LIMITATIONS AND RECOMMENDATIONS

6.7.1 Limitations

Following the discussion of the results, the following limitations were identified:

- A limited number of participants qualified to participate in the study because only one organisation and one programme were included in the study.
- The inclusion criterion of only including children who had been participating in the programme for at least 6 months further limited the number of children included in the study.
- The sample consisting of parents, children and facilitators were homogenous. The parents were mostly white and female. Only one coloured mother and one father participated. Furthermore, the children did not represent all the PDD disorders. They only had Asperger's syndrome, autism or PDD-NOS. None of the children had Rett syndrome or childhood disintegrative disorder (CDD). Only 3 facilitators participated, – all white and female. The demographics of the parents, children and facilitators limited the diversity of perceptions of EAL that could be obtained.

- The focus of the study (children with ASD) also limited the number of children included in the study and therefore limited the number of perceptions that could be gained.
- The small size of the organisation further limited the number of participants that could be interviewed and thus, included in the study.
- Language was also a limiting factor because the interviews were conducted in English. Although all parents and facilitators were comfortable to do the interviews in English, some did have the occasional difficulty to express themselves in English – to find the English equivalent of an Afrikaans phrase or word. This limitation could have limited the richness of the data.
- One interview was conducted in a coffee shop.
- The qualitative nature of the study could have limited the study due to the constant presence of researcher bias.
- Time constraints did not permit interviews with the facilitators on each individual child. This limited the amount of information that could be gained about each child in the study.

6.7.2 Recommendations

In consideration of the above limitations and literature in the field, the following recommendations are suggested for future studies:

- More parents and facilitators from different organisations should be invited to participate in order to ensure a larger and more heterogeneous sample. In this manner a diversity of perceptions may be gained.
- All the PDD disorders should be represented in the study.
- No inclusion criterion referring to the duration of participation should be used. This will potentially increase the number of children able to participate in a study.
- In order to increase the diversity of perceptions further, children with other disabilities and disorders, like cerebral palsy, Down syndrome, spina bifida and attention deficit disorder should be included in the study.
- Future studies should use a mixed-methods methodology (for example a one-shot case study or intact group comparison design, coupled with qualitative interviews).

Through this methodology, benefits of the study could be measured and qualitative interviews could be conducted with the parents, facilitators and volunteers. The qualitative interviews would provide further insight into the benefits that were measured.

- It is also recommended that the facilitators be interviewed about each child individually.
- In order to further establish the benefits of EAL and expand the diversity of perceptions of EAL the children's respective therapists, family members, doctors and teachers should also be interviewed. These additional interviews could also be used to gain a deeper understanding of the child, their difficulties in varying settings and the benefits EAL had for them.
- The interviews should be conducted in the participant's home-language. If this is not possible, a translator should be used in the interviews.
- All interviews should be conducted in a private location.
- A longitudinal study could be conducted to gain an understanding of the progression of the benefits of EAL.

6.8 CHAPTER SUMMARY

This chapter provided a description of the participants and a discussion of the results presented in Chapter 5 in accordance with existing literature and the chosen theoretical framework of Bronfenbrenner (1977). The chapter included a discussion of the benefits of EAL for children with ASD as well as the parents' and facilitators' experience and perception of the EAL programme. Both these aspects were discussed in relation to international literature on children with ASD in an EAL programme and national literature on THR programmes for other disabilities. The chapter thus gave an indication of what findings supported literature and what findings were new to research. The limitations of the study and recommendations for future studies concluded the chapter.

6.9 CONCLUSION

The current study concluded that EAL improved both the parents' and children with ASD's lives through the social-communication, psychological, calming, sensory, behavioural and family benefits it facilitated. All the children and parents enjoyed the programme. These

benefits mostly coincided with benefits reported in existing literature. In comparison with other treatments, EAL was perceived as more effective because the changes were more immediate, it incorporated various treatments and it was more enjoyable for the children.

Contrary to literature, no physical or cognitive benefits were reported. However, many of the explanations and findings concerning the behavioural, family, calming and ASD trait benefits have not yet been covered in existing literature. These explanations were thus new findings. The new findings included an increase in the children's self-awareness and a decrease in their abnormal preoccupations. It also included family benefits. The family routine did not revolve around the child anymore. The children became easier to discipline and the relationship between the child with ASD and the other family members improved.

In addition to the new finding of the children's increased self-awareness, the study further concluded that the children's increased self-awareness was linked directly to their better self-control and subsequent decreased outbursts. The effect of the children being calm around the horses, as discussed by the facilitators, was also a new finding.

The study added a new dimension to ASD and EAL research by exploring the facilitators' perceptions of the programme. These perceptions included the limiting role of expectations the parents might have and the importance of acknowledging the child with ASD. The facilitators shed light on the differential behaviour of children with autism and children with Asperger's syndrome within the context of HAI interventions. They emphasised how important the management of the environment was. None of these perceptions could be located in literature on either HAI or ASD.

By interpreting the results through the lens of Bronfenbrenner (1977) one gained an insight into what influenced the parents' and facilitators' perceptions. In this study, it was clear that the cost as well as the effectiveness of the EAL programme influenced their perception of it.

REFERENCES

- Achenbach, T. M., & Ruffle, T. M. (2000). The child behaviour checklist and related forms for assessing behavioural/emotional problems and competencies. *Paediatrics in Review*, 21, 265-271. doi: 10.1542/pir.21-8-265
- Altschiller, D. (2011). *Animal-assisted therapy*. Santa Barbara, CA: Greenwood.
- American Psychiatric Association. (2007). *American psychiatric association (APA) dictionary of psychology* (2nd printing). Washington, DC: Author.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.
- Angel House. (n.d.). *Home*. Retrieved from
http://www.angelhouse.co.za/index_files/Page1516.html
- Amado. (n.d.). *On amados yard*. Retrieved from <https://www.amado.co.za/yard.html>
- Amaral, D. G., Schumann, C. M., & Nordahl, C. W. (2008). Neuroanatomy of autism. *Trends in Neurosciences*, 31, 137-145. doi: 0.1016/j.tins.2007.12.005
- Bakare, M., & Munir, K. (2011). Autism spectrum disorders (ASD) in Africa: A perspective. *African Journal of Psychiatry*, 14, 208-210. doi: 10.4314/ajpsy.v14i3.3
- Barker, S. B., Pandurangi, A. K., & Best, A. M. (2003). Effects of animal-assisted therapy on patients' anxiety, fear, and depression before ECT. *The Journal of Electroconvulsive Therapy*, 19, 38-44. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/12621276>
- Bass, M. M., Duchowny, C. A., & Llabre, M. M. (2009). The effect of therapeutic horseback riding on social functioning in children with autism. *Journal of Autism and Developmental Disorders*, 39, 1261-1267. doi: 10.1007/s10803-009-0734-3
- Bateman, C. (2013). Autism-mitigating a global epidemic. *South African Medical Journal*, 103, 276-278. doi: 10.7196/samj.6915

- Beetz, A., Uvnäs-Moberg, K., Julius, H., & Kotrschal, K. (2012). Psychosocial and psychophysiological effects of human-animal interactions: The possible role of oxytocin. *Frontiers in Psychology*, 3, 1-15. doi: 10.3389/fpsyg.2012.00234
- Bhatia, G., Gupta, S., Arora, A., Saxena, S., & Sikka, N, (2014). Nutrition in oral health and disease. *Journal of Advanced Medical and Dental Sciences Research*, 2(2). Retrieved from
https://www.researchgate.net/publication/264554388_Bhatia_G_Gupta_S_Arora_A_Saxena_S_Sikka_N_Nutrition_in_Oral_Health_and_Disease_J_Adv_Med_Dent_Scie_2014274-85
- Bless, C., Higson-Smith, C., & Sithole, S. L. (2013). *The fundamentals of social research methods: A African perspective* (5th ed.). Cape Town, South Africa: Juta & Company Ltd.
- Boyd, L. (2015). “When he’s up there he’s just happy and content”: Parents’ perceptions of therapeutic horseback riding (Unpublished master’s thesis). Stellenbosch University, South Africa. Retrieved from <http://hdl.handle.net/10019.1/96745>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77-101. doi:10.1191/1478088706qp063oa
- Breitenbach, E., Stumpf, E., Fersen, L. V., & Erbert, H. (2009). Dolphin-assisted therapy: Changes in interaction and communication between children with severe disabilities and their caregivers. *Anthrozoos*, 22, 277-289. doi: 10.2752/175303709X457612
- Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist*, 32, 513-531. doi: 10.1037/0003-066X.32.7.513
- Bronfenbrenner, U. (2009). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press
- Cauffield, J. S. (2013). Medication use in autism spectrum disorders: What is the evidence? *Formulary*, 48, 161-168. Retrieved from
<http://formularyjournal.modernmedicine.com/formulary-journal/content/tags/antipsychotics/infographic-medication-use-autism-spectrum-disorders-w>

- Center for Disease Control and Prevention (CDC). (2014, March 28). Prevalence of autism spectrum disorder among children aged 8 years-Autism and developmental disabilities monitoring network, 11 sites, United States, 2010. *Morbidity and Mortality Weekly Reports Surveillance Summaries*, 63(2), 1-21. Retrieved from <http://www.cdc.gov/mmwr/preview/mmwrhtml/ss6302a1.htm>
- Chak, A. (2002). Understanding children's curiosity and exploration through the lenses of Lewin's field theory: On developing an appraisal framework. *Early Child Development and Care*, 172, 77-87. doi: 10.1080/03004430210874
- Chardonnens, E. (2009). The use of animals as co-therapists on a farm: The child-horse bond in person-centred equine-assisted psychotherapy. *Person-Centred and Experiential Psychotherapies*, 8, 319-332. doi: 10.1080/14779757.2009.9688496
- Connor, K., & Miller, J. (2000). Animal-assisted therapy: An in-depth look. *Dimensions of Critical Care Nursing*, 19(3), 20-28. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/11998003>
- Darrou, C., Pry, R., Pernon, E., Michelon, C., Aussilloux, C., & Baghdadli, A. (2010). Outcome of young children with autism: Does the amount of intervention influence developmental trajectories? *Autism*, 14, 663-677. doi: 10.1177/1362361310374156
- Davidson, C. (2009). Transcription: Imperatives for qualitative research. *International Journal of Qualitative Methods*, 8(2), 35-52. doi: 10.1177/160940690900800206
- Davis, R. E., Couper, M.P., Janz, N. K., Caldwell, C. H., & Resnicow, K. (2010). Interviewer effects in public health surveys. *Health Education Research*, 25, 14-26. doi: 10.1093/her/cyp046
- De Milander, M., Bradley, S., & Fourie, R. (2016). Equine-assisted therapy as intervention for motor proficiency in children with autism spectrum disorder: Case studies. *South African Journal for Research in Sport, Physical Education and Recreation*, 38(3), 37-49. Retrieved from <http://hdl.handle.net/10520/EJC199894>
- De Vries, P. J. (2016). Thinking globally to meet local needs: Autism spectrum disorders in Africa and other low-resource environments. *Current Opinion in Neurology*, 29, 130-136. doi: 10.1097/WCO.0000000000000297

- DiCicco-Bloom, B., & Crabtree, B. F. (2006). The qualitative research interview. *Medical Education*, 40, 314-321. doi: 10.1111/j.1365-2929.2006.02418.x
- Edwards, J. A. (2007). The transcription of discourse. In D. Schiffrin, D. Tannen & H. E. Hamilton (Eds.), *The Handbook of Discourse Analysis* (pp. 321-349). Malden, MA: Blackwell Publishers Inc.
- Eikeseth, S. (2009). Outcome of comprehensive psycho-educational interventions for young children with autism. *Research in Developmental Disabilities*, 30(1) 158-178. doi: 10.1016/j.ridd.2008.02.003
- Elsabbagh, M., Divan, G., Koh, Y-J., Kim, Y. S., Kauchali, S., Marcín, C., ... Fombonne, E. (2012). Global prevalence of autism and other pervasive developmental disorders. *Autism Research*, 5, 160-179. doi: 10.1002/aur.239
- Erdman, P., Miller, D., & Jacobson, S. (2015). The impact of an equine facilitated learning program on youth with autism spectrum disorder. *Human Animal Interaction Bulletin*, 3(2), 21-36. Retrieved from <http://www.apa-hai.org/human-animal-interaction/haib/2015/autism-spectrum-disorder/>
- Equine Assisted Psychotherapy Institute of South Africa (EAPISA). (2017). *Home*. Retrieved from <http://www.eapisa.co.za/web/index.asp>
- Equine Therapy Registry. (2017). *EquusLink*. Retrieved from <http://equinetherapyregistry.org/index.php/equuslink>
- E [REDACTED] s. (n.d.). *E [REDACTED] ts and special needs*. Retrieved from [https://e \[REDACTED\] s.wordpress.com/benefits/](https://e [REDACTED] s.wordpress.com/benefits/)
- E [REDACTED] s. (n.d.). *Home page*. Retrieved from [http://www.e \[REDACTED\] s.com/](http://www.e [REDACTED] s.com/)
- Equivalence. (2017). *Home page*. Retrieved from <http://equivalence.co.za/#>
- Fine, A. H., & Beck, A. (2010). Understanding our kinship with animals: Input for health care professionals interested in the human/animal bond. In A. H. Fine (Ed.), *Handbook on animal-assisted therapy: Theoretical foundations and guidelines for practice* (3rd ed., pp. 3-15). London, UK: Elsevier.

- Gabriels, R. L., Agnew, J. A., Holt, K. D., Shoffner, A., Zhaoxing, P., Ruzzano, S., ... Mesibov, G. (2012). Pilot study measuring the effects of therapeutic horseback riding on school-age children and adolescents with autism spectrum disorders. *Research in Autism Spectrum Disorders*, 6, 578-588. doi: 10.106/j.rasd.2011.09.007
- Gabriels, R. L., Pan, Z., Dechant, B., Agnew, J. A., Brim, N., & Mesibov, G. (2015). Randomized controlled trial of therapeutic horseback riding in children and adolescents with autism spectrum disorder. *Journal of the American Academy of Child and Adolescent Psychiatry*, 54, 541-549. doi: 10.1016/j.jaac.2015.04.007
- Gentile, I., Zappulo, E., Militerni, R., Pascotto, A., Borgia, G., & Bravaccio, C. (2013). Etiopathogenesis of autism spectrum disorders: Fitting the pieces of the puzzle together. *Medical Hypotheses*, 81, 26-35. doi: 10.1016/j.mehy.2013.04.002
- Gialloreti, L. E., Benvenuto, A., Benassi, F., & Curatolo, P. (2014). Are caesarean sections, induced labor and oxytocin regulation linked to autism spectrum disorders? *Medical Hypotheses*, 82, 713-718. doi: 10.1016/j.mehy.2014.03.011
- Goin-Kochel, R., & Mackintosh, V. H. (2009). Parental reports on the efficacy of treatments and therapies for their children with autism spectrum disorders. *Research in Autism Spectrum Disorders*, 3(2), 528-537. doi: 10.1016/j.rasd.2008.11.001
- Gotham, K., Bishop, S. L., & Lord, C. (2012). Diagnosis of autism spectrum disorders. In D. G. Amaral., G. Dawson., & D. H. Geschwind (Eds.), *Autism spectrum disorders* (pp. 17-43). New York, NY: Oxford University Press.
- Grandin, T. (2011). *The way I see it: A personal look at autism & asperger's*. Arlington, TX: Future Horizons.
- Grandin, T., Fine, A. H., & Bouwers, C. M. (2010). The use of therapy animals with individuals with autism spectrum disorders. In A. H. Fine (Ed.), *Handbook on animal-assisted therapy: Theoretical foundations and guidelines for practice* (3rd ed., pp. 247-264). London, UK: Elsevier.

- Granpeesch, D., Tarbox, J., & Dixon, D. R. (2009). Applied behaviour analytic interventions for children with autism: A description and review of treatment research. *Annals of Clinical Psychiatry*, 21, 162-173. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/19758537>
- Grzywacz, J. G., & Fuqua, J. (2000). The social ecology of health: Leverage points and linkages. *Behavioural Medicine*, 26, 101-115. doi: 10.1080/08964280009595758
- Hallberg, L. (2008). *Walking the way of the horse: Exploring the power of the horse-human relationship*. Bloomington, IN: iUniverse.
- Hallmayer, J., Cleveland, S., Torres, A., Phillips, J., Cohen, B., Torigoe, T., ... Risch, N. (2011). Genetic heritability and shared environmental factors among twin pairs with autism. *Archives of General Psychiatry*, 68, 1095-1102. doi: 10.1001/archgenpsychiatry.2011.76
- Happé, F., Ronald, A., & Plomin, R. (2006). Time to give up on a single explanation for autism. *Nature Neuroscience*, 9(10), 1218-1220. doi: 10.1038/nn1770
- Hauge, H., Kvalem, I. L., Pedersen, I., & Braastad, B. O. (2013). Equine-assisted activities for adolescents: Ethogram-based behavioural analysis of persistence during horse-related tasks and communication patterns with the horse. *Human-Animal Interaction Bulletin*, 1(2), 57-81. Retrieved from <https://www.fylkesmannen.no/Documents/Dokument%20FMAA/Landbruk-og-mat/N%C3%A6ringsutvikling/2014/Artikkelen%20hest%20Hauge%20Kvalem%20Pederessen%20og%20Braastad.pdf>
- Hawkridge, C. (2017). *Animal-assisted activities for adolescents with autism spectrum disorder: Teachers' and parents' perceptions* (Unpublished master's thesis). Stellenbosch University, South Africa. Retrieved from <http://hdl.handle.net/10019.1/100851>
- Helfer, A. (2006). *Equine-assisted therapy for primary school children with physical disabilities: A psychosocial view* (Unpublished master's thesis). Stellenbosch University, South Africa. Retrieved from <http://hdl.handle.net/10019.1/2792>
- Hines, L. M. (2003). Historical perspectives on the human-animal bond. *American Behavioural Scientist*, 47, 7-15. doi: 10.1177/0002764203255206

- Holen, R. (2012). The effects of animal interaction on happiness. *The University of Minnesota Undergraduate Journal of Psychology*, 7, 5-8. Retrieved from <https://sites.google.com/a/umn.edu/sentience/>
- Howlin, P., Goode, S., Hutton, J., & Rutter, M. (2004). Adult outcome for children with autism. *Journal of Child Psychology and Psychiatry*, 45, 212-229. doi: 10.1111/j.1469-7610.2004.00215.x
- Howlin, P., & Moss, P. (2012). Adults with autism spectrum disorders. *The Canadian Journal of Psychiatry*, 57, 275-283. doi: 10.1177/070674371205700502
- Hyman, S. R. (2012). *An experimental analysis of the effects of therapeutic horseback riding on the behaviour of children with autism* (Unpublished master's thesis). University of Kansas, Lawrence, KS. Retrieved from https://kuscholarworks.ku.edu/bitstream/handle/1808/10866/Hyman_ku_0099M_12452_DATA_1.pdf?sequence=1
- Jelsma, J., & Clow, S. (2005). Ethical issues relating to qualitative research. *South African Journal of Physiotherapy*, 61, 3-6. Retrieved from <http://www.sajp.co.za/index.php/sajp>
- Johnson, R., & Waterfield, J. (2004). Making words count: The value of qualitative research. *Physiotherapy Research International*, 9, 121-131. doi: 10.1002/pri.312
- Kanner, L. (1943). Autistic disturbances of affective contact. *Nervous Child*, 2, 217-250. Retrieved from http://neurodiversity.com/library_kanner_1943.pdf
- Kasari, C., Shire, S., Factor, R., & McCracken, C. (2014). Psychosocial treatments for individuals with autism spectrum disorder across the lifespan: New developments and underlying mechanisms. *Current Psychiatry Reports*, 16, 1-12. doi: 10.1007/s11920-014-0512-6
- Keesling, R. (2008). Gatekeeper. In P. L. Lavrakas (Ed.), *Encyclopedia of survey research methods* (pp. 299-300). Thousand Oaks, CA: Sage Publications, Inc.
- Kelly, K. (2006). From encounter to text: Collecting data in qualitative research. In M. Terreblanche., K. Durrheim., & D. Painter (Eds.), *Research in practice: Applied methods for the social science* (2nd ed., pp. 285-320). Cape Town, South Africa: University of Cape Town Press (Pty) Ltd.

- Ketola, J. R. (2012). *Equine-assisted psychotherapy: Can it improve self-regulation and social skills in children diagnosed with foetal alcohol spectrum disorder?* (Unpublished master's thesis). Adler Graduate School, Richfield, MN. Retrieved from http://alfredadler.edu/sites/default/files/Ketola%20MP%202012_0.pdf
- Klin, A. (2012). Aspergers syndrome: From asperger to modern day. In D. G. Amaral., G. Dawson., & Geschwind. D. H (Eds.), *Autism spectrum disorders* (pp. 44-59). New York, NY: Oxford University Press.
- Klontz, B. T., Bivens, A., Leinart, D., & Klontz, T. (2007). The effectiveness of equine-assisted experiential therapy: Results of an open clinical trial. *Society and Animals*, 15, 257-267. doi: 10.1163/156853007X217195
- Kršková, L., Talarovičová, A., & Olexová, L. (2010). Guinea pigs- The “small great” therapist for autistic children, or: Do guinea pigs have positive effects on autistic child social behavior? *Society and Animals*, 18, 139-151. doi:10.1163/156853010X491999
- Kruger, K. A., & Serpell, J. A. (2010). Animal assisted interventions in mental health: Definitions and theoretical foundations. In A. H. Fine (Ed.), *Handbook on animal-assisted therapy: Theoretical foundations and guidelines for practice* (3rd ed., pp. 33-48). London, UK: Elsevier.
- Lapadat, J. C. (2000). Problematizing transcription: Purpose, paradigm and quality. *International Journal of Social Research Methodology*, 3, 203-219. doi: 10.1080/13645570050083698
- Landa, R. (2007). Early communication development and intervention for children with autism. *Mental Retardation and Developmental Disabilities Research Reviews*, 13, 16-25. doi: 10.1002/mrdd.20134
- Lanning, B. A., Matyastik Baier, M. E., Ivey-Hatz, J., Krenek, N., & Tubbs, J. D. (2014). Effects of equine assisted activities on autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 44, 1897-1907. doi: 10.1007/s10803-014-2062-5
- Landigan, P. J. (2010). What causes autism? Exploring the environmental contribution. *Current Opinion in Paediatrics*, 22, 219-225. doi:10.1097/MOP.0b013e328336eb9a
- Leap equine. (2014). *Home*. Retrieved from <http://www.leapequine.com/>

Levy, S. E., Mandell, D. S., & Schultz, R. T. (2009). Autism. *The Lancet*, 374, 1627-1638. doi: 10.1016/S0140-6736(09)61376-3

Levy, A., & Perry, A. (2011). Outcomes in adolescents and adults with autism: A review of the literature. *Research in Autism Spectrum Disorders*, 5, 1271-1282. doi:10.1016/j.rasd.2011.01.023

Lima, M., Silva, K., Amaral, I., & de Sousa, L. (2012). Finding an ally: Can dogs help therapists promote communication in individuals with profound intellectual and multiple disabilities? *The Journal of Alternative and Complementary Medicine*, 18, 2-3. doi: 10.1089/acm.2011.0461

Lidenberg, L. (2013). *Home page*. Retrieved from <https://www.autismdoctor.co.za/>

Liu, J., Nyholt, D. R., Magnussen, P., Magnussen, P., Parano, P., Geschwind, D., ... Gilliam, T. C. (2001). A genome wide screen for autism susceptibility loci. *The American Journal of Human Genetics*, 69, 327-340. doi: 10.1086/321980

Lubbe, C., & Scholtz, S. (2013). The application of animal-assisted therapy in the South African context: A case study. *South African Journal of Psychology*, 43, 116-129. doi: 10.1177/0081246312474405.

Manning-Courtney, P., Murray, D., Currans, K., Johnson, H., Bing, N., Kroeger-Geoppinger, K., ... Messerschmidt, T. (2013). Autism spectrum disorders. *Current Problems in Paediatric and Adolescent Health Care*, 43, 2-11. doi: 10.1016/j.cppeds.2012.08.001

Mash, E. J., & Wolfe, D. A. (2013). *Abnormal child psychology* (5th ed.). Belmont, CA: Wadsworth Cengage Learning.

Matson, J. L., & Goldin, R. L. (2013). What is the future of assessment for autism spectrum disorders: Short and long term. *Research in Autism Spectrum Disorders*, 8, 209-213. doi: 10.1016/j.rasd.2013.01.007

Matson, J. L., & Williams, L. W. (2015). The curious selection process of treatments for autism spectrum disorders. *Research in Autism Spectrum Disorders*, 9, 21-25. doi:10.1016/j.rasd.2014.10.004

- McCune, S., Kruger, K. A., Griffin, J. A., Esposito, L., Freund, L. S., Hurley, K. J., & Bures, R. (2014). Evolution of research into the mutual benefits of human–animal interaction. *Animal Frontiers*, 4(3), 49-58. doi :10.2527/af.2014-0022
- McIntyre, L. J. (2005). *Need to know: Social science research methods*. New York, NY: McGraw-Hill.
- Merriam, S. B. (2002). Introduction to qualitative research. In S. B. Merriam (Ed.), *Qualitative research in practice: Examples for discussion and analysis* (pp. 1-17). San Francisco, CA: Jossey-Bass.
- Miller, J. H., & Alston, A. J. (2004). Therapeutic riding: An educational tool for children with disabilities as viewed by parents. *Journal of Southern Agricultural Educational Research*, 54, 113-123. Retrieved from <http://www.jsaer.org/pdf/Vol54/54-01-113.pdf>
- Mitchell, C., & Holdt, N. (2014). The search for a timely diagnosis: Parents' experiences of their child being diagnosed with an autistic spectrum disorder. *Journal of Child and Adolescent Mental Health*, 26, 49-62. doi: 10.2989/17280583.2013.849606
- Muhle, R., Trentacoste, S. V., & Rapin, I. (2004). The genetics of autism. *Paediatrics*, 113(5), e472-e486. doi: 10.1542/peds.113.5.e472
- Myers, S. M., & Johnson, C. P. (2007). Management of children with autism spectrum disorders. *Paediatrics*, 120(5), 1162-1182. doi: 10.1542/peds.2007-2362
- Naidoo, P. (2009). *An analysis of the experiences of children with cerebral palsy in therapeutic horse riding* (Unpublished doctoral dissertation). University of Kwa-Zulu Natal, Durban, South Africa. Retrieved from <http://hdl.handle.net/10413/7739>
- Naidoo, R., Nqwena, Z. Z., Reimers, L., Peters, K., Sookan, T., & McKune, A. J. (2014). Acute heart rate variability responses to a therapeutic horseback riding session in children with autism spectrum disorders: A pilot study. *Scientific and Educational Journal of Therapeutic Riding*, 19, 10-24. Retrieved from <http://www.frdi.net/journals/2014/Article%201.pdf>
- Nastasi, B. K., & Schensul, S. L. (2005). Contributions of qualitative research to the validity of intervention research. *Journal of School Psychology*, 43, 177-195. doi: 10.1016/j.jsp.2005.04.003

- Nelson, K., Axtell, J., Derby, M., Moug, R., Berrera, S., & McLaughlin, T. F. (2011). A preliminary analysis of therapeutic horseback riding. *International Journal of Social Sciences and Education, 1*, 644-656. Retrieved from <http://www.ijsse.com/sites/default/files/issues/2011/v1i4/paper%2027/paper%2027.pdf>
- Nimer, J., & Lundahl, B. (2007). Animal-assisted therapy: A meta-analysis. *Anthrozoös, 20*, 225-238. doi: 10.2752/089279307X224773
- O'Haire, M. E. (2017). Research on animal-assisted intervention and autism spectrum disorder, 2012-2015. *Applied Developmental Science, 21*, 200-216. doi: 10.1080/10888691.2016.1243988
- O'Haire, M. E., McKenzie, S. J., McCune, S., & Slaughter, V. (2014). Effects of classroom animal-assisted activities on social functioning in children with autism spectrum disorder. *The Journal of Alternative and Complementary Medicine 20*, 162-168. doi: 10.1089/acm.2013.0165
- Orb, A., Eisenhauer, L., & Wynaden, D. (2001). Ethics in qualitative research. *Journal of Nursing Scholarship, 33*, 93-96. doi: 10.1111/j.1547-5069.2001.00093.x
- Parshall, D. P. (2003). Research and reflection: Animal-assisted therapy in mental health settings. *Counselling and Values, 48*, 47-56. doi: 10.1002/j.2161-007X.2003.tb00274.
- Peters-Scheffer, N., Didden, R., Korzilius, H., & Sturkey, P. (2011). A meta-analytic study on the effectiveness of comprehensive ABA-based early intervention programs for children with autism spectrum disorders. *Research in Autism Spectrum Disorders, 5*, 60-69. doi: 10.1016/j.rasd.2010.03.011
- Petitto, C. C. (2010). *Equine-assisted activities and therapies*. Morgantown, WV: West Virginia University.
- Professional Association of Therapeutic Horsemanship International (PATH Intl.). (2016). *Learn about EAAT: EAAT definitions*. Retrieved from <http://www.pathintl.org/resources-education/resources/eaat/27-resources/general/193-eaat-definitions>

- Sánchez, P. A., Vázquez, F. S., & Serrano, L. A. (2011). Autism and the built environment. In T. Williams (Ed.), *Autism spectrum disorders- From genes to the environment* (pp. 363-381). Rijeka, Croatia: Intech.
- Schultz, R. T. (2005). Developmental deficits in social perception in autism: The role of the amygdala and fusiform face area. *International Journal of Developmental Neuroscience*, 23(2-3), 125-141. doi: 10.1016/j.ijdevneu.2004.12.012
- Scialli, A. L. (2002). *Parent perceptions of the effectiveness of therapeutic horseback riding for children with varying disabilities* (Unpublished doctoral dissertation). Retrieved from <http://ez.sun.ac.za/login?url=http://search.proquest.com/docview/305454609?accountid=14049>
- Scileppi, J. A., Teed, E. L., & Torres, R. D. (2000). *Community psychology: A common sense approach to mental health*. Upper Saddle River, NJ: Prentice-Hall.
- Selby, A., & Smith-Osborne, A. (2012). A systematic review of effectiveness of complementary and adjunct therapies and interventions involving equines. *Health Psychology*, 42, 418-432. doi: 10.1037/a0029188
- Seltzer, M. M., Shattuck, P., Abbeduto, L., & Greenberg, J. S. (2004). Trajectory of development in adolescents and adults with autism. *Mental Retardation and Developmental Disabilities Research Reviews*, 10, 234-247. doi:10.1002/mrdd.20038
- Serpell, J. A. (2010). Animal-assisted interventions in historical perspective. In A. H. Fine (Ed.), *Handbook on animal-assisted therapy: Theoretical foundations and guidelines for practice* (3rd ed., pp. 17-32). London, UK: Elsevier.
- Shao, Y., Wolpert, C. M, Raiford, K. L., Menold, M. M., Donnelly, S. L., Ravan, S. A., ... Pericak-Vance, M. A. (2002). Genomic screen and follow-up analysis for autistic disorder. *American Journal of Medical Genetics*, 114, 99-105. doi: 10.1002/ajmg.10153
- Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, 22, 63-75. Retrieved from <http://ptarpp2.uitm.edu.my/silibus/strategiesforensuring.pdf>
- Shumbashaba. (n.d.). *Home*. Retrieved from <http://www.shumbashaba.co.za/>

- Simmons, W. B. (2011). *The effects of equine therapy on the therapist* (Unpublished master's thesis). Smith College School for Social Work, Northampton, MA. Retrieved from <http://scholarworks.smith.edu/cgi/viewcontent.cgi?article=2094&context=theses>
- Sontag, J. C. (1996). Toward a comprehensive theoretical framework for disability research: Bronfenbrenner revisited. *The Journal of Special Education*, 30, 319-344. doi: 10.1177/002246699603000306
- Special Needs Adapted Program (SNAP). (2017a). *Autism*. Retrieved from <http://snap.org.za/snap/autism/>
- Special Needs Adapted Program (SNAP). (2017b). *SNAP education*. Retrieved from <http://snap.org.za/snap/snap-education/>
- Special Needs Adapted Program (SNAP). (2017c). *Home*. Retrieved from <http://snap.org.za/snap/>
- Special Needs Adapted Program (SNAP). (2017d). *SNAP Academy*. Retrieved from <http://snap.org.za/snap/snap-academy/>
- Sprinkle, J. E. (2008). Animals, empathy, and violence: Can animals be used to convey principles of prosocial behavior to children? *Youth Violence and Juvenile Justice*, 6, 47-58. doi: 10.1177/1541204007305525
- South African Government. (2015). *World autism awareness day 2015*. Retrieved from <http://www.gov.za/world-autism-awareness-day-2015>
- South African Riding for the Disabled Association (SARDA). (n.d.). *Home*. <https://sardacapeTown.co.za/>
- Stephens, C. E. (2005). Overcoming challenges and identifying a consensus about autism intervention programming. *International Journal of Special Education*, 20(1), 35-49. Retrieved from <http://files.eric.ed.gov/fulltext/EJ846507.pdf>
- Stevenson, A. (Ed.). (2010). *Oxford dictionary of English*. New York, NY: Oxford University Press.

- Stickney, M. A. (2010). *A qualitative study of the perceived health benefits of a therapeutic riding program for children with autism spectrum disorders* (Unpublished doctoral dissertation). University of Kentucky, Lexington, KY. Retrieved from http://uknowledge.uky.edu/gradschool_diss/40
- Surujlal, J., & Rufus, S. (2011). Perceptions of parents about equine therapy for children with intellectual disabilities. *African Journal for Physical, Health, Education, Recreation and Dance*, 17, 372-385. Retrieved from http://reference.sabinet.co.za/sa_epublication_article/ajpherd_v17_supp2_a27
- Terreblanche, M., Kelly, K., & Durrheim, K. (2006). Why qualitative research? In M.Terreblanche., K. Durrheim., & D. Painter. (Eds.), *Research in practice: Applied methods for the social sciences* (2nd ed., pp. 271-285). Cape Town, South Africa: University of Cape Town Press (Pty) Ltd.
- Tews, L. (2007). Early intervention for children with autism: Methodologies critique. *Developmental Disabilities Bulletin*, 35(1-2), 148-168. Retrieved from <https://eric.ed.gov/?id=EJ812650>
- The World Bank. (n.d.). *World bank country and lending groups*. Retrieved from <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>
- Thomas, E., & Magilvy, J. K. (2011). Qualitative rigor or research validity in qualitative research. *Journal for Specialists in Pediatric Nursing*, 16, 151-155. doi: 10.1111/j.1744-6155.2011.00283.x
- Thompson, C. C. (2014). *What do parents of children with autism spectrum disorders think?* (Unpublished doctoral dissertation). George Mason University, Fairfax, VA. Retrieved from <https://search-proquest-om.ez.sun.ac.za/docview/1553000984/accountid=14049>
- Thompson, J. A. (2013). *Exploring best practices in animal-assisted therapy with children in the Western Cape* (Unpublished master's thesis). North-West University, Potchefstroom, South Africa. Retrieved from: https://dspace.nwu.ac.za/bitstream/handle/10394/9706/Thompson_JA.pdf?sequence=1&isAllowed=y

- Tudge, J. R. H., Mokrova, I., Hatfield, B. E., & Karnik, R. B. (2009). Uses and misuses of Bronfenbrenner's bioecological theory of human development. *Journal of Family Theory and Review*, 1, 198-210. doi: 10.1111/j.1756-2589.2009.00026.x
- Turner, D. W., III. (2010). Qualitative interview design: A practical guide for novice investigators. *The Qualitative Report*, 15, 754-760. Retrieved from <http://go.galegroup.com.ez.sun.ac.za/ps/i.do?id=GALE%7CA231310633&v=2.1&u=27u0s&it=r&p=AONE&sw=w&asid=340a5b6802f5a05b889b426cfb1fa945>
- Van Rooyen, M. (2016). *The father's experience: A South African perspective on caring for a child with autism spectrum disorder* (Unpublished master's thesis). Stellenbosch University, South Africa. Retrieved from <http://hdl.handle.net/10019.1/98394>
- Ward, S. C., Whalon, K., Rusnak, K., Wendell, K., & Paschall, N. (2013). The association between therapeutic horseback riding and the social communication and sensory reactions of children with autism. *Journal of Autism Developmental Disorders*, 43, 2190-2198. doi: 10.1007/s10803-013-1773-3
- Weideman, S. (2007). *Physically disabled adolescents experience of therapeutic riding: A phenomenological investigation* (Unpublished master's thesis). North West University, Potchefstroom, South Africa. Retrieved from <http://hdl.handle.net/10394/9>
- White, J. H., Quinn, M., Garland, S., Dirkse, D., Weibe, P., Hermann, M., & Carlson, L. E. (2015). Animal-assisted therapy and counselling support for women with breast cancer: An exploration of patient's perceptions. *Integrative Cancer Therapies*, 14, 460-467. doi: 10.1177/1534735415580678
- Willig, C. (2008). *Introducing qualitative research in psychology: Adventures in theory and method* (2nd ed.). Maidenhead, United Kingdom: Open University Press.
- Woodgate, R. L., Ateah, C., & Secco, L. (2008). Living in a world of our own: The experience of parents who have a child with autism. *Qualitative Health Research*, 18, 1075-1083. doi: 10.1177/1049732308320112

World Health Organization (WHO). (2013). *Autism spectrum disorders & other developmental disorders: From raising awareness to building capacity*. Geneva, Switzerland: WHO Document Production. Retrieved from Services. http://apps.who.int/iris/bitstream/10665/103312/1/9789241506618_eng.pdf

APPENDIX 1.1

INSTITUTIONAL PERMISSION LETTER FOR FACILITY 1



To whom it may concern

I, C. Weitzel (name), Owner... (Position at E [redacted]) hereby give permission for Megan Butt, US number 16539753, to conduct research at E [redacted] (Klipheuwel) (relevant branch). She has my permission to have access to parents and relevant branches of children enrolled in the program contact details and to contact them directly for the purpose of her research.

Kind Regards

CLAUDIA EVA-MARIA (EMMA) WEITZEL
..... (Name in print)



(Signature)

Contact details

Phone: 079 527 1440

Fax:

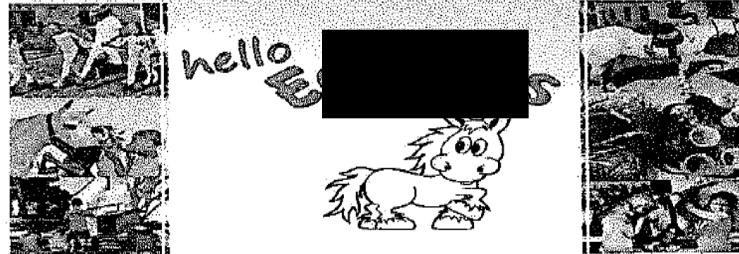
Email address: emma@econet.s. com [redacted]

Address: 28 WILD PLUM STREET
MIKPUNT / KLIPEHUEWEL
7303 DURBANVILLE

Postal → PO Box 79
Address! 7551 DURBANVILLE

APPENDIX 1.2

INSTITUTIONAL PERMISSION LETTER FOR FACILITY 2



To whom it may concern

I, Annette Joubert (name), ... (Position at E[REDACTED]s) hereby give permission for Megan Butt, US number 16539753, to conduct research at E[REDACTED]s (E[REDACTED]s) (relevant branch). She has my permission to have access to parents of children enrolled in the program contact details and to contact them directly for the purpose of her research.

Kind Regards

Annette Joubert (Name in print)

(Signature)

Contact details

Phone: 083 635 4243

Fax: —

Email address: annette.v.d@mvweb.co.za

Address: —

APPENDIX 2

STELLENBOSCH UNIVERSITY INSTITUTIONAL ETHICAL CLEARANCE



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jou kennisvennoot • your knowledge partner

Approval Notice New Application

27-Jul-2016

Butt, Megan MP

Proposal #: SU-HSD-002609

Title: Parents' and facilitators' perceptions of autism spectrum disorder children in an equine learning program

Dear Ms Megan Butt,

Your **New Application** received on **07-Jul-2016**, was reviewed

Please note the following information about your approved research proposal:

Proposal Approval Period: **22-Jul-2016 -21-Jul-2019**

Please take note of the general Investigator Responsibilities attached to this letter. You may commence with your research after complying fully with these guidelines.

Please remember to use your **proposal number (SU-HSD-002609)** on any documents or correspondence with the REC concerning your research proposal.

Please note that the REC has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

Also note that a progress report should be submitted to the Committee before the approval period has expired if a continuation is required. The Committee will then consider the continuation of the project for a further year (if necessary).

This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki and the Guidelines for Ethical Research: Principles Structures and

Processes 2004 (Department of Health). Annually a number of projects may be selected randomly for an external audit.

National Health Research Ethics Committee (NHREC) registration number REC-050411-032.

We wish you the best as you conduct your research.

If you have any questions or need further help, please contact the REC office at 218089183.

Included Documents:

DESC Report

REC: Humanities New Application

Sincerely,

Clarissa Graham

REC Coordinator

Research Ethics Committee: Human Research (Humanities)

Investigator Responsibilities

Protection of Human Research Participants

Some of the general responsibilities investigators have when conducting research involving human participants are listed below:

1. Conducting the Research. You are responsible for making sure that the research is conducted according to the REC approved research protocol. You are also responsible for the actions of all your co-investigators and research staff involved with this research. You must also ensure that the research is conducted within the standards of your field of research.
2. Participant Enrollment. You may not recruit or enroll participants prior to the REC approval date or after the expiration date of REC approval. All recruitment materials for any form of media must be approved by the REC prior to their use. If you need to recruit more participants than was noted in your REC approval letter, you must submit an amendment requesting an increase in the number of participants.
3. Informed Consent. You are responsible for obtaining and documenting effective informed consent using **only** the REC-approved consent documents, and for ensuring that no human participants are involved in research prior to obtaining their informed consent. Please give all participants copies of the signed informed consent documents. Keep the originals in your secured research files for at least five (5) years.
4. Continuing Review. The REC must review and approve all REC-approved research proposals at intervals appropriate to the degree of risk but not less than once per year. There is **no grace period**. Prior to the date on which the REC approval of the research expires, **it is your responsibility to submit the continuing review report in a timely fashion to ensure a lapse in REC approval does not occur**. If REC approval of your research lapses, you must stop new participant enrollment, and contact the REC office immediately.
5. Amendments and Changes. If you wish to amend or change any aspect of your research (such as research design, interventions or procedures, number of participants, participant population, informed consent document, instruments, surveys or recruiting material), you must submit the amendment to the REC for review using the current Amendment Form. You **may not initiate** any amendments or changes to your research without first obtaining written REC review and approval. The **only exception** is when it is necessary to eliminate apparent immediate hazards to participants and the REC should be immediately informed of this necessity.
6. Adverse or Unanticipated Events. Any serious adverse events, participant complaints, and all unanticipated problems that involve risks to participants or others, as well as any research related injuries, occurring at this institution or at other performance sites must be reported to Malene Fouch within **five (5) days** of discovery of the incident. You must also report any instances of serious or continuing problems, or non-compliance with the RECs requirements for protecting human research participants. The only exception to this policy is that the death of a research participant must be reported in accordance with the Stellenbosch Universtiy Research Ethics Committee Standard

Operating Procedures. All reportable events should be submitted to the REC using the Serious Adverse Event Report Form.

7.Research Record Keeping. You must keep the following research related records, at a minimum, in a secure location for a minimum of five years: the REC approved research proposal and all amendments; all informed consent documents; recruiting materials; continuing review reports; adverse or unanticipated events; and all correspondence from the REC

8.Provision of Counselling or emergency support. When a dedicated counsellor or psychologist provides support to a participant without prior REC review and approval, to the extent permitted by law, such activities will not be recognised as research nor the data used in support of research. Such cases should be indicated in the progress report or final report.

9.Final reports. When you have completed (no further participant enrollment, interactions, interventions or data analysis) or stopped work on your research, you must submit a Final Report to the REC.

10.On-Site Evaluations, Inspections, or Audits. If you are notified that your research will be reviewed or audited by the sponsor or any other external agency or any internal group, you must inform the REC immediately of the impending audit/evaluation.

APPENDIX 3.1
INFORMATION LETTER DISTRIBUTED TO PARENTS (ENGLISH)



STELLENBOSCH UNIVERSITY

To whomever it may concern.

I am Megan Butt, a current Masters student in the Department of Psychology at Stellenbosch University.

I am currently conducting research on parents' and facilitators' perception of the impact that an equine-assisted learning programme for children with autism spectrum disorder. To conduct this research, I would like to interview and speak to parents regarding their views, opinions and experience of the impact of an equine-assisted learning programme for their autism spectrum disorder child.

An interview with me will only consist of a 45-90 minutes open-ended conversation and will take place at your convenience.

If you are able and willing to assist me, please tick the following box and include your contact details in the space provided.

Yes		No	
Contact Details			

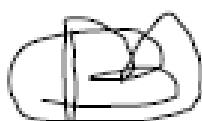
If you are willing to assist me, please return this form to your relevant E [REDACTED] s branch or contact me directly:

My email address is 16539753@sun.ac.za or contact me on 076 904 3190.

Please contact me for more information or any questions regarding my research or your participation.

Your participation in my research will be invaluable and greatly appreciated.

Hope to hear from you soon,



Megan Butt

A handwritten signature of Dr Marieanna Le Roux.

Dr Marieanna Le Roux, Supervisor

APPENDIX 3.2**INFORMATION LETTER DISTRIBUTED TO PARENTS (AFRIKAANS)**

UNIVERSITEIT STELLENBOSCH

Aan wie dit mag aangaan

Ek is Megan Butt, 'n huidige Meesters student in die Departement Sielkunde aan die Universiteit Stellenbosch.

Ek is tans besig met navorsing oor die ouers en fasiliteerders se persepsie van die impak wat 'n perdry-ondersteunde leerprogram vir kinders met autisme spektrum versteuring. Om hierdie navorsing uit te voer, wil ek graag 'n onderhoud en gesprekke voer met ouers aangaande hul menings, opinies en ervarings van die impak van 'n perdry-ondersteunde leerprogram vir hul autisme spektrum versteuring kind.

'n Onderhoud met my sal slegs bestaan uit 'n 45 tot 90 minute openlike gesprek en sal plaasvind waar u gemaklik is.

As u in staat en bereid is om my te help dui asseblief u belangstelling aan in die volgende blokkies en sluit u kontakbesonderhede in die ruimte wat voorsien is.

JA		NEE	
Kontak Besonderhede			

Besorg hierdie vorm terug aan u relevante E_____s tak of kontak my direk indien u belangstel om my te help:

My e-pos is 16539753@sun.ac.za of u kan my kontak by 076 904 3190.

U kan my gerus kontak vir meer inligting of enige vrae oor my navorsing of u deelname.

U deelname aan my navorsing sal van onskatbare waarde wees en sal waardeer word.

Hoop om binnekort van u te hoor,



Megan Butt

Dr Marieanna Le Roux, Supervisor

APPENDIX 4.1.

CONSENT FORM: PARENT/ CAREGIVER (ENGLISH)



STELLENBOSCH UNIVERSITY

CONSENT TO PARTICIPATE IN RESEARCH

Parents' and facilitators' perceptions of children with autism spectrum disorder in an equine-assisted learning programme

You are asked to participate in a research study conducted by Megan Butt, completing her MA in Psychology from the Psychology Department Stellenbosch University. The results of this study will contribute to a thesis, as part of fulfillment of a MA (Psychology) degree. You were selected as a possible participant in this study because you currently have a child with an ASD diagnosis participating at the E [REDACTED] s programme.

1. PURPOSE OF THE STUDY

The purpose of study is to explore the influence of an equine-assisted learning programme on children with an autistic spectrum disorder. In addition, I will be exploring any environmental factors that influence the effectiveness of the equine-assisted learning sessions.

2. PROCEDURES

If you volunteer to participate in this study, we would ask you to do the following things:

1. Give consent to participate in this study
2. To engage in an interview with the researcher
3. Participate in the interview for at least 45-90 minutes
4. The interview will take place anywhere you feel most comfortable
5. Allow the interview to be audio-recorded
6. Complete a short biographical questionnaire (of you and your child)

3. POTENTIAL RISKS AND DISCOMFORTS

There are no foreseeable risks in participating in this research. However, if any emotional harm or distress occurs as a result of participating you will be allowed to withdraw from the study with no consequence. Additionally, a name of a clinical psychologist will be given to you.

4. POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

You will receive no personal benefits in participating in this study. However, information gained in the study will give vital insight to understanding the role equine-assisted learning plays in improving functioning of autism spectrum affected children.

5. PAYMENT FOR PARTICIPATION

No payment will be received in participating in this study.

6. CONFIDENTIALITY

Any information that is obtained in connection with this study will remain confidential and will be disclosed only with the participant's permission. Confidentiality will be maintained by means of storing the recorded interviews on the researcher's personal password protected computer to which the researcher and her supervisor will only have access to.

Personal information gained from the participants and the recorded interviews will be used to write a thesis to fulfill a MA (Psychology) degree. The written report will not reveal any personal or identifiable information. Pseudonyms will be used in the written report. All interviews will be transcribed by the researcher and only the researcher and her supervisor will have access to the transcriptions. All the data that were collected during the research will only serve the purpose of a written research report and will not be used for any other purposes

The final research report will be made available to each E█████'s branch.

7. PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study.

8. IDENTIFICATION OF INVESTIGATORS

If you have any questions or concerns about the research, please feel free to contact Megan Butt, the researcher on 0769043190 or at 16539753@sun.ac.za or the researcher's supervisor Dr Marieanna Le Roux on (021) 808 3444 or at mclr@sun.ac.za

9. RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a participant, contact Ms Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development.

SIGNATURE OF RESEARCH SUBJECT OR LEGAL REPRESENTATIVE

The information above was described to by *Megan Butt* in English and I was given the opportunity to ask questions and these questions were answered to my satisfaction.

I hereby consent voluntarily to participate in this study and I have been given a copy of this form.

Name of Subject/Participant

Name of Legal Representative (if applicable)

Signature of Subject/Participant or Legal Representative

Date

SIGNATURE OF INVESTIGATOR

I declare that I explained the information given in this document to _____ [name of the subject/participant] and/or [his/her] representative _____ [name of the representative]. [He/she] was encouraged and given ample time to ask me any questions. This conversation was conducted in English and no translator was used/this conversation was translated into _____ by _____].

Signature of Investigator

APPENDIX 4.2.

CONSENT FORM: PARENT/ CAREGIVER (AFRIKAANS)



UNIVERSITEIT•STELLENBOSCH•UNIVERSITY
jou kennisvennoot • your knowledge partner

UNIVERSITEIT STELLENBOSCH

TOESTEMMING OM DEEL TE NEEM IN NAVORSING

Ouers en fasiliteerders se persepsies van kinders met outisme spektrum versteuring in ‘n perdry-ondersteunde leerprogram.

U word gevra om deel te neem aan ’n navorsingstudie wat deur Megan Butt geleid word vir die voltooiing van haar MA in Sielkunde van die Departement Sielkunde aan Stellenbosch Universiteit. Die resultate van hierdie studies al bydra tot ’n tesis as deel van die vervulling van ’n MA (Sielkunde) grad. U is gekies as ’n moontlike deelnemer aan hierdie studie omdat u tans ’n kind met ’n OSV diagnose deelnemende by die E█████’s program.

1. DOEL VAN DIE STUDIE

Die doel van die studie is om die invloed van ‘n perdry-ondersteunde leerprogram op kinders verken met ’n outistiese spektrum versteuring. Daarbenewens sal ek ondersoek instel oor enige omgewingsfaktore wat die doeltreffendheid van die perdry-ondersteunde leerprogram sessies beïnvloed.

2. PROSEDURES

As u deelneem aan hierdie studie, sal die volgende gevra word van u:

1. Toestemming te verleen om deel te neem aan hierdie studie
2. Om betrokke te raak in ’n onderhoud met die navorsing
3. Neem deel aan die gesprek vir 45-90 minute
4. Die onderhoud sal plaasvind waar u die gemaklikste voel
5. Toestemming te verleen om die onderhoud op te neem
6. Die voltooiing van ’n kort biografiese vraelys (oor jou en jou kind).

3. POTENSIËLE RISIKO’S EN ONGEMAK

Daar is geen voorsienbare risiko’s en ongemak in die deelname aan hierdie navorsing nie. Indien enige emosionele nadelighed of angs na vore kom as gevolg van deelname sal u toegelaat word om te ontrek

van die studie met geen nagevolge. Addisioneel sal die naam van 'n kliniese sielkundige aan u verskaf word.

4. POTENSIËLE VOORDELE VIR PERSONE EN/OF VIR DIE SAMELEWING

Jy sal geen persoonlike voordele ontvang om deel te neem aan hierdie studie nie. Die inligting wat verkry word in hierdie studies al belangrike insig verskaf om te verstaan wat die rol van perdry-ondersteunde leerprogram onderrig in die verbetering van funksionering van outisme spektrum geaffekteerde kinders speel.

5. BETALING VIR DEELNAME

Geen betaling sal verskaf word om deel te neem aan hierdie studie nie.

6. VERTROULIKHEID

Enige inligting wat verkry word in verband met hierdie studie sal vertroulik bly en sal geopenbaar word slegs met die toestemming van die deelnemer. Vertroulikheid van opgetekende onderhoude sal gehandhaaf word deur dit te stoor op die navorser se persoonlike wagwoord-beskermde rekenaar. Slegs die navorser en haar toesighouer sal toegang hê tot hierdie inligting.

Persoonlike inligting wat verkry is van die deelnemer en die aangetekende onderhoude sal gebruik word om 'n tesis te skryf vir die voldoening van 'n MA (Sielkunde). Die skriftelike verslag sal geen persoonlike of identifiseerbare inligting openbaar nie. Skuilname sal gebruik word in die geskrewe verslag. Alle onderhoude sal getranskribeer word deur die navorser en slegs die navorser en haar toesighouer sal toegang tot die transkripsies hê. Al die data wat ingesamel is tydens die navorsing sal slegs die doel van 'n skriftelike navorsingsverslag dien en sal nie gebruik word vir enige ander doeleinades nie. Die finale navorsingsverslag sal beskikbaar gemaak word by elke E █'s tak.

7. DEELNAME EN ONTREKKING

U kan kies om deel te neem aan hierdie studie of nie. Indien u deelneem aan hierdie studie kan u ten enige tyd onttrek sonder gevolge van enige aard. Jy kan weier om enige vrae te beantwoord en nogsteeds in die studie bly.

8. IDENTIFIKASIE VAN NAVORSER

Indien u enige vrae of bekommernisse oor die navorsing, voel asseblief vry om ons te kontak: Megan Butt (die navorser) by 076 904 3190 of by 16539753@sun.ac.za of die navorser se toesighouer dr. Marieanna Le Roux by (021) 808 3444 of by mclr@sun.ac.za.

9. REGTE VAN NAVORSINGS PERSOON

U kan u toestemming onttrek enige tyd gedurende die onderhoud of studie en deelname staak sonder enige nagevolge. Indien u enige navrae het oor u regte as 'n navorsings persoon, kontak gerus Me Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] by die Afdeling vir Navorsing Ontwikkeling.

HANDTEKENING	VAN	NAVORSINGS	PERSOON	OF
REGSVERTEENWOORDIGER				

Die bostaande inligting is aan my beskryf deur *Megan Butt* in Engels en ek is geleentheid aangebied om vrae te vra oor die betrokke onderwerp en my vrae is beantwoord tot my bevrediging.
Ek stem hiermee vrywillig in om deel te neem in hierdie studie en ek het 'n afskrif van hierdie vorm ontvang.

Name van deelnemer

Name of regsverteenwoordiger

Handtekening van deelnemer/regsvereenwoordiger

Datum

HANDTEKENING VAN NAVORSER

Hiermee verklaar ek dat ek die inligting in hierdie dokument verduidelik aan _____ en/of sy/haar verteenwoordiger _____. Hy/sy is aangemoedig en heelwat tyd gegee om my enige vrae te vra. Die gesprek is in Afrikaans of Engels en geen vertaler is benodig nie.

Handtekening van navorser

Datum

APPENDIX 5.1.

CONSENT FORM: FACILITATORS (ENGLISH)



UNIVERSITEIT•STELLENBOSCH•UNIVERSITY
jou kennisvennoot • your knowledge partner

STELLENBOSCH UNIVERSITY

CONSENT TO PARTICIPATE IN RESEARCH

Parents' and facilitators' perceptions of children with autism spectrum disorder in an equine-assisted learning programme

You are asked to participate in a research study conducted by Megan Butt, completing her MA in Psychology from the Psychology Department Stellenbosch University. The results of this study will contribute to a thesis, as part of fulfilment of a MA (Psychology) degree. You were selected as a possible participant in this study because you facilitate an equine-assisted learning programme with children diagnosed with ASD.

1. PURPOSE OF THE STUDY

The purpose of study is to explore the influence of an equine-assisted learning programme on children with an autistic spectrum disorder. In addition, I will be exploring any environmental factors that influence the effectiveness of the equine-assisted learning sessions.

2. PROCEDURES

If you volunteer to participate in this study, we would ask you to do the following things:

1. Give consent to participate in this study
2. To engage in an interview with the researcher
3. Participate in the interview for at least 45-90 minutes
4. The interview will take place anywhere you feel most comfortable
5. Allow the interview to be audio-recorded
6. Complete a short biographical questionnaire (of you)

3. POTENTIAL RISKS AND DISCOMFORTS

There are no foreseeable risks in participating in this research. However, if any emotional harm or distress occurs as a result of participating. You will be allowed to withdraw from the study with no consequence. Additionally, a name of a clinical psychologist will be given to you

4. POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

You will receive no personal benefits in participating in this study. However, information gained in the study will give vital insight to understanding the role equine-assisted learning plays in improving functioning of autism spectrum affected children.

5. PAYMENT FOR PARTICIPATION

No payment will be received in participating in this study.

6. CONFIDENTIALITY

Any information that is obtained in connection with this study will remain confidential and will be disclosed only with the participant's permission. Confidentiality will be maintained by means of storing the recorded interviews on the researcher's personal password protected computer to which the researcher and her supervisor will only have access to.

Personal information gained from the participant's and the recorded interviews will be used to write a thesis to fulfil a MA (Psychology) degree. The written report will not reveal any personal or identifiable information. Pseudonyms will be used in the written report. All interviews will be transcribed by the researcher and only the researcher and her supervisor will have access to the transcriptions. All the data that were collected during the research will only serve the purpose of a written research report and will not be used for any other purposes

The final research report will be made available to each E█████'s branch.

7. PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study. The researcher may withdraw you from this research if circumstances arise which warrant doing so.

8. IDENTIFICATION OF INVESTIGATORS

If you have any questions or concerns about the research, please feel free to contact Megan Butt, the researcher on 0769043190 or at 16539753@sun.ac.za or the researcher's supervisor Dr Marieanna Le Roux on (021) 808 3444 or at mclr@sun.ac.za

9. RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a participant, contact Ms Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development.

SIGNATURE OF RESEARCH SUBJECT OR LEGAL REPRESENTATIVE

The information above was described to by *Megan Butt* in English and I was given the opportunity to ask questions and these questions were answered to my satisfaction.

I hereby consent voluntarily to participate in this study and I have been given a copy of this form.

Name of Subject/Participant

Name of Legal Representative (if applicable)

Signature of Subject/Participant or Legal Representative

Date

SIGNATURE OF INVESTIGATOR

I declare that I explained the information given in this document to _____ [*name of the subject/participant*] and/or [his/her] representative _____ [*name of the representative*]. [*He/she*] was encouraged and given ample time to ask me any questions. This conversation was conducted in English and *no translator was used/this conversation was translated into _____ by _____*].

Signature of Investigator

Date

APPENDIX 5.2.

CONSENT FORM: FACILITATORS (AFRIKAANS)



UNIVERSITEIT•STELLENBOSCH•UNIVERSITY
jou kennisvennoot • your knowledge partner

UNIVERSITEIT STELLENBOSCH TOESTEMMING OM DEEL TE NEEM IN NAVORSING

Ouers en fasiliteerders se persepsies van kinders met outisme spektrum versteuring in 'n perdry-ondersteunde leerprogram.

U word gevra om deel te neem aan 'n navorsingstudie wat deur Megan Butt geleei word vir die voltooiing van haar MA in Sielkunde van die Departement Sielkunde aan Stellenbosch Universiteit. Die resultate van hierdie studies al bydra tot 'n tesis as deel van die vervulling van 'n MA (Sielkunde) graad. U is gekies as 'n moontlike deelnemer aan hierdie studie omdat u 'n perdry-ondersteunde leerprogram met kinders wat gediagnoseer is met OSV fasiliteer.

1. DOEL VAN DIE STUDIE

Die doel van die studie is om die invloed van 'n perdry-ondersteunde leerprogram op kinders verken met 'n outistiese spektrum versteuring. Daarbenewens sal ek onderzoek instel oor enige omgewingsfaktore wat die doeltreffendheid van die perdry-ondersteunde leer sessies beïnvloed.

2. PROSEDURES

As u deelneem aan hierdie studie, sal die volgende gevra word van u:

1. Toestemming te verleen om deel te neem aan hierdie studie
2. Om betrokke te raak in 'n onderhou met die navorser
3. Neem deel aan die gesprek vir 45-90 minute
4. Die onderhou sal plaasvind waar u die gemaklikste voel
5. Toestemming te verleen om die onderhou op te neem
6. Die voltooiing van 'n kort biografiese vraelys (oor jou en jou kind)

3. POTENSIËLE RISIKO'S EN ONGEMAK

Daar is geen voorsienbare risiko's en ongemak in die deelname aan hierdie navorsing nie. Indien enige emosionele nadeligheid of angs na vore kom as gevolg van deelname sal u toegelaat word om te ontrek van die studie met geen nagevolge. Addisioneel sal die naam van 'n kliniese sielkundige aan u verskaf word.

4. POTENSIËLE VOORDELE VIR PERSONE EN/OF VIR DIE SAMELEWING

Jy sal geen persoonlike voordele ontvang om deel te neem aan hierdie studie nie. Die inligting wat verkry word in hierdie studies al belangrike insig verskaf om te verstaan wat die rol van perdry-ondersteunde onderrig in die verbetering van funksionering van outisme spektrum geaffekteerde kinders speel.

5. BETALING VIR DEELNAME

Geen betaling sal verskaf word om deel te neem aan hierdie studie nie.

6. VERTROULIKHEID

Enige inligting wat verkry word in verband met hierdie studie sal vertroulik bly en sal geopenbaar word slegs met die toestemming van die deelnemer. Vertroulikheid van opgetekende onderhoude sal gehandhaaf word deur dit te stoor op die navorser se persoonlike wagwoord-beskermde rekenaar. Slegs die navorser en haar toesighouer sal toegang hê tot hierdie inligting.

Persoonlike inligting wat verkry is van die deelnemer en die aangetekende onderhoude sal gebruik word om 'n tesis te skryf vir die voldoening van 'n MA (Sielkunde). Die skriftelike verslag sal geen persoonlike of identifiseerbare inligting openbaar nie. Skuilname sal gebruik word in die geskrewe verslag. Alle onderhoude sal getranskribeer word deur die navorser en slegs die navorser en haar toesighouer sal toegang tot die transkripsies hê. Al die data wat ingesamel is tydens die navorsing sal slegs die doel van 'n skriftelike navorsingsverslag dien en sal nie gebruik word vir enige ander doeleinades nie. Die finale navorsingsverslag sal beskikbaar gemaak word by elke E█'s tak.

7. DEELNAME EN ONTREKKING

U kan kies om deel te neem aan hierdie studie of nie. Indien u deelneem aan hierdie studie kan u ten enige tyd onttrek sonder gevolge van enige aard. Jy kan weier om enige vrae te beantwoord en nog steeds in die studie bly.

8. IDENTIFIKASIE VAN NAVORSER

Indien u enige vrae of bekommernisse oor die navorsing, voel asseblief vry om ons te kontak: Megan Butt (die navorser) by 076 904 3190 of by 16539753@sun.ac.za of die navorser se toesighouer dr. Marieanna le Roux by (021) 808 3444 of by mclr@sun.ac.za.

9. REGTE VAN NAVORSINGS PERSOON

U kan u toestemming onttrek enige tyd gedurende die onderhoud of studie en deelname staak sonder enige nagevolge. Indien u enige navrae het oor u regte as 'n navorsings persoon, kontak gerus Me Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] by die Afdeling vir Navorsing Ontwikkeling.

HANDTEKENING VAN NAVORSINGS PERSOON OF REGSVERTEENWOORDIGER

Die bostaande inligting is aan my beskryf deur *Megan Butt* in Engels en ek is geleentheid aangebied om vrae te vra oor die betrokke onderwerp en my vrae is beantwoord tot my bevrediging.

Ek stem hiermee vrywillig in om deel te neem in hierdie studie en ek het 'n afskrif van hierdie vorm ontvang.

Name van deelnemer

Name of regsverteenwoordiger

Handtekening van deelnemer/regsvereenwoordiger

Datum

HANDTEKENING VAN NAVORSER

Hiermee verklaar ek dat ek die inligting in hierdie dokument verduidelik aan _____ en/of sy/haar verteenwoordiger _____. Hy/sy is aangemoedig en heelwat tyd gegee om my enige vrae te vra. Die gesprek is in Afrikaans of Engels en geen vertaler is benodig nie.

Handtekening van navorser

Datum

APPENDIX 6.1

INTERVIEW SCHEDULE: PARENTS'

1. As you know I'm interested in your perception of the impact of equine-assisted learning for your ASD child, can you tell me more about your and your child's experience of EAL programme so far?

- What made you choose equine-assisted learning for your child?
- Would you recommend EAL and why?
- Are they participating in other therapies, if so what are they?

2. Have you seen any changes in your child throughout the programme, if so how?

- Can you reflect on your child before they started EAL sessions and during the programme?
- How do you know the changes are due to the EAL programme?

3. Have you noticed any changes outside the programme, e.g. at home, with siblings, with you or at school?

- What has been the most noticeable effect?
- Have there been any changes in your child's social and repetitive and restrictive behaviour, their communication and their sensory difficulties?

4. Have you watched any sessions, if so what happened in the session?

- How did you experience the sessions?

5. What's your child's attitude to the EAL programme /horses and how do you know this is their attitude?

E.g. If they excited to go to a session, how do you know they excited?

6. Is there anything further you would like to discuss or add or feel is important?

APPENDIX 6.2

INTERVIEW SCHEDULE: FACILITATORS'

1. As you know I am interested in the impact that the EAL programme has for autistic children. How have you, as a facilitator, experienced the children in general throughout the programme?

2. Were there any changes (if any) in the children throughout the programme (reflect on the Children with ASD in general), if so what were they?

- What has been the most noticeable change?
- Do have any explanations for these changes?

3. Are there any environmental factors which impacts/ed the sessions or children's progress, if so what are they?

E.g. The horses' behaviour, various sounds in the environment or distractions

4. Were there any issues/problems you had with Children with ASD during the programme or in the past?

5. Are there any interesting observations you made in regards to the children throughout the programme, which you think are relevant?

APPENDIX 7.1**BIOGRAPHICAL QUESTIONNAIRE: PARENTS'**

Directions: Please respond to *every* question,

PARENT'S (YOUR) BIOGRAPHICAL DETAILS:

Pseudonym: _____

Race

Black	
White	
Coloured	
Other(Please Specify)	

Language (Please tick all the languages you can speak)

English	
Afrikaans	
IsiXhosa	
Other(Please Specify)	

Gender

Male	
Female	

CHILDS DETAILS:

1. What is your child's: Age _____ Sex _____ Race _____

2. Do they have any siblings?

Yes	
No	

3. If yes, please specify ALL their siblings' ages and genders?

DIAGNOSIS OF CHILD:

4. At what age was your child diagnosed? _____

5. What is your child diagnosed with (**Please tick**)

Autism	
Asperger's	
Pervasive developmental disorder not otherwise specified (PDD-NOS)	
Childhood disintegrative disorder	
Rett Syndrome	

6. Please specify type or variant of autism/Asperger's they are diagnosed with (**if known**)

7. Are there any other health impairments or disabilities your child has?

Yes	
No	

8. If yes, please specify.

CHILDS PARTICIPATION IN PROGRAMME:

9. Reason for participation at E [REDACTED]s

Please **tick** all the reason(s) your child attends E [REDACTED]ts:

Physical	
Emotional	
Behaviour Modification	
Social	
Occupational therapy	
Recreational	
Other	

10. If other, please specify.

11. What is the primary way you learned about E█'s?

Please **tick** the relevant response below:

School Referral	<input type="checkbox"/>
Newspaper or Advertisement	<input type="checkbox"/>
Drive by	<input type="checkbox"/>
Medical or Health Referral	<input type="checkbox"/>
Word of Mouth	<input type="checkbox"/>
Attended an event	<input type="checkbox"/>

12. If there are other ways you learned about the programme, please specify:

13. How many months has your child been attending E█'s?

14. How often does your child attend E█'s sessions in a week?

1	<input type="checkbox"/>
2	<input type="checkbox"/>
3	<input type="checkbox"/>
4	<input type="checkbox"/>
5	<input type="checkbox"/>

15. Please rate your child's interest in participating in the horseback riding programme by assigning a rating between 0 and 100, where 0 = no interest at all and 100 = the highest possible interest:

APPENDIX 7.2

BIOGRAPHICAL QUESTIONNAIRE: FACILITATORS'

Directions: Please respond to *every* question,

FACILITATORS (YOUR) BIOGRAPHICAL DETAILS:

Pseudonym: _____

Race

Black	
White	
Coloured	
Other(Please Specify)	

Language (Please tick all the languages you can speak)

English	
Afrikaans	
IsiXhosa	
Other(Please Specify)	

Gender

Male	
Female	