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A STUDY TO EXPLORE HOW CHILDREN WITH ADDITIONAL NEEDS EXPERIENCE ANIMAL INTERACTION

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**A STUDY TO EXPLORE HOW CHILDREN WITH ADDITIONAL  
NEEDS EXPERIENCE ANIMAL INTERACTION**

**ROSIE MORROW**

A thesis submitted to the University of Huddersfield in partial fulfilment of the requirements for the degree of Doctor of Philosophy

The University of Huddersfield

July 2018

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## Abstract

This research project explored how children with additional needs experience interaction with animals. The value of animals in therapy, and related 'green care' approaches in health, is gathering evidence in the literature, however the use of qualitative methods is lacking. Exploring this phenomenon by gathering data directly from the children participating, rather than parents or healthcare providers, offers insight into how these practices can be adapted to suit children, especially those with additional needs. A descriptive phenomenological approach was adopted, and the project used observations to collect data. Colaizzi's seven step process of analysis was used, in keeping with the methodological stance.

Twenty-three parents and thirty-one children participated in the study, which comprised four animal encounter experiences. Sessions were audio recorded and later transcribed, with observation notes included to add further context. The participant group was recruited from a local charity offering outdoor activities for children with additional needs. Husserl's descriptive phenomenology was the approach used, which enabled the researcher to delve into the lived experience of the children participating and describe the phenomena in detail, as perceived by the children under study. The findings showed the children were inspired by the animal interaction to ask questions, communicate with each other and the session leader. The animals provided a sensory experience and encouraged bonding with parents. Some children experienced some difficulties with following rules and becoming distracted at times. Excitement about the animals attending was a prominent feature of the day, although some children also presented some anxiety about some of the creatures. Sharing knowledge and previous experiences, and opinions on their favourite animals, highlighted the social element of the interaction.

This research provided a useful opportunity to explore what it is about contact with animals that, according to the literature, can offer therapeutic benefits for children with additional needs. Previous research in this area has found improvements in social behaviours, communication and positive social interaction. Some physical improvements have also been found such as improved motor skills. The current study built on these findings; similar improvements were noted in the social domain, with additional findings including shows of empathic behaviour, the importance of a varied sensory experience and how including the family and others to provide a 'shared experience' alters the dynamic for the children participating. Using qualitative methods and exploring the phenomena predominantly from the children's perspective is unique in this area of research and offers a valuable contribution to substantive and methodological knowledge in this field.

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# Chapter 1 Introduction & Background

## 1.1 Chapter Overview

This chapter provides an introduction to the research. A summary of my personal interest in the research is given, and an overview of the thesis structure and aims of the research follow. Then I provide a back-drop for the current study, in which I aim to understand how children with additional needs experience interaction with animals. It is important to understand the key concepts of additional needs and autism to provide context for this research. Definitions of additional needs and autism are given, and a description of the current diagnosis procedure, support and types of interventions available to people with a diagnosis of autism in the United Kingdom are outlined. Alternative views of autism as ‘difference’ rather than ‘disorder’ are discussed before the chapter concludes.

### Personal Interest

The aim of this research is to describe how children with additional needs experience interaction with animals. Although the phenomenon of interaction with animals for therapeutic benefit has been studied before, it is rare to use a qualitative approach and to gain an insight into how it is perceived from the children’s perspectives. By using qualitative methods, I hope to make a unique contribution to the knowledge in this area by focusing on finding new ways of exploring how this interaction can be beneficial to the health and wellbeing of this population.

My interest in the phenomenon under study was piqued when my husband Rob took on a franchise offering animal handling experiences. Helping here and there with paperwork soon escalated into becoming his assistant at shows and events, where I had the opportunity to meet people and see the way they interacted with these familiar and more exotic creatures. One day, we attended a Christmas party which was being held for children with additional needs and Life Limiting Conditions. Seeing the reactions of the children and the parents as they held each animal and focused intently on Rob's talk led me to consider the impact of animal encounters for these children. On speaking to some of the parents, I listened as they explained the children's fascination with the creatures and how they had been looking forward to the event. It was a rare opportunity to meet the animals without the pressure of pet ownership; indeed, many of these parents had enough to consider with their children's needs without the commitment of a pet too. That said, they explained how valuable this experience was for the whole family. This led me to scope the literature to see what was currently known about how children with additional needs in particular experienced interaction with animals, and from there this study evolved.

## Thesis Overview

This thesis begins with a background chapter, which explains additional needs, diagnosis procedures and current interventions. There is a particular focus on autism, as this is the most prevalent condition both in the literature and the participants in this research. The literature review follows, and outlines the relevant theory and research relating to green exercise and exploring the overlap into animal interaction. Chapter three offers more detail about animal interaction; different types of 'interaction' are

explained and the findings in relation to health and wellbeing are detailed. A narrative synthesis is carried out to collate the research around animal interaction for children with additional needs. The findings from this synthesis help to form a rationale for the current study. In chapter four, the methodology is outlined. The key concepts of descriptive phenomenology are detailed, and the critiques of the methodology are discussed. I introduce the chosen analysis process, Colaizzi's (1978) seven step method, and explain its relevance both to the methodology and the current study. Chapter five details the method used to collect data, including an introduction to the participant group. 'Sprout' are part of the larger charity 'Growing Works' and deliver outdoor activities to children with additional needs. It is from this group that the participants in this study were recruited. Participating children and parents took part in the animal handling experience, which involved introducing the children to a range of five familiar and exotic animals, with the opportunity to handle them if they chose to. Further details of the animal interaction are also given in this chapter. The ethical considerations that were necessary for the current study are also included in this chapter. I relate descriptive phenomenology to the current study and explain how it will be used in practice. The analysis is outlined in chapter six, which explains the seven steps in the analysis process and provides the findings of the current study. This process sees the data transformed from transcripts to a fundamental structure of the phenomena under study. Chapter seven discusses the findings in relation to the earlier reviewed research and theory by taking each part of the fundamental structure in turn. This chapter also features a discussion of quality in the current study, implications of the findings on current policy and suggestions for further areas of study. Chapter eight concludes the study and summarises what has been established.

It is important to note that the structure of the thesis is not reflective of the order in which the project was conducted. The following chapter on autism and current interventions was written after data collection and analysis, as only then did it become apparent that many of the children participating had been diagnosed with autism. Although I knew that the children participating had additional needs, my decision to remain unaware of specific diagnoses was in-keeping with the descriptive phenomenological stance and assisted with the bracketing process.

### Research Aims and Objectives

*Aim:* To explore how children with additional needs experience animal interaction within a green care setting.

### Objectives

*Objective 1:* To observe the nature of children's interaction with animals, each other and their environment.

*Objective 2:* To collect individual experiences of children.

*Objective 3:* To examine what it is about the experience of the natural world and animals that contribute to the experience.

## **1.2 Introduction to Additional Needs**

This is not a thesis focused on additional needs, or indeed autism. It is not aiming to explore what autism is, how it is diagnosed or even how best to help children with autism. This is a thesis exploring the experience of animal interaction. However, the

thesis does explore this experience in the context of children with additional needs, and many of those attending the project which is the focus of this work had a diagnosis of autism or related spectrum conditions. Additionally, what limited research does exist exploring animal interaction which has been carried out with children with additional needs tends to focus heavily on children with a diagnosis of autism (Nimer & Lundahl, 2007; Burrows, Adams & Spiers, 2008). It is therefore relevant to include some information on autism to contextualise the work undertaken here, including what autism is understood to be, and how it is managed in relation to current policy and practice. First, I will consider and define the term ‘additional needs’ before moving on, in the rest of this chapter, to consider the condition of autism specifically.

### **1.2.1 *Defining Additional Needs***

Throughout this thesis, I have referred to the study participants as “children with ‘additional needs’”. I came across the term ‘additional needs’ when researching the participant group, and decided to use it throughout this thesis as it is the term both they and their families choose to use themselves. There are alternative terms, including ‘special educational needs and disabilities’, a term which is most often used by the government and education system in the United Kingdom (Department for Education, 2014). Given my usage of the term ‘additional needs’ it is important to unpick what exactly this term refers to here.

Additional needs encompass several conditions that children and adults can be diagnosed with. Garner (2009) explains how such conditions fall into four categories:

1. Conditions associated with problems in relation to communication and interaction
2. Conditions associated with problems in relation to cognition and learning
3. Conditions associated with problems in relation to behaviour, and emotional and social development
4. Conditions associated with sensory and physical needs

Autism, which I will move on to discuss in more detail shortly, is broadly identified by Garner (2009) as falling into the first category, along with speech and language disorders including selective mutism. The second category includes dyslexia and dyscalculia. The third category includes eating disorders, Attention Deficit Hyperactivity Disorder (ADHD) and Emotional and Behavioural Difficulties (EBD). The fourth category includes brain damage, epilepsy and visual impairment (Garner, 2009).

The UK government also define additional needs using similar categorisations, explaining that additional needs can affect:

1. Communicating and interacting
2. Cognition and learning
3. Social, emotional and mental health
4. Sensory and/or physical needs

(Department for Education, 2014).

The disability charity Scope (online) have identified areas in which children with special educational needs may require additional help with issues they face, or different assistance to that needed by their peers. They state that children may need help with:

1. Thinking and understanding
2. Physical and/or sensory difficulties
3. Emotional and/or behavioural difficulties
4. Speech and language difficulties
5. Relating to others

(Scope, online).

Whilst not a complete match, it is clear to see that some of these categories overlap. All three sets of guidelines outlined above (Garner (2009); Department for Education (2014) & Scope (online)) include difficulty with emotional health, and all three identify difficulty with sensory development. Garner's (2009) categorisation and the Department for Health's (2014) guidelines also overlap, with both including difficulty with communication/interaction and cognition/learning. One of the key differences I noticed between the guidelines was that Scope's areas of need identify speech and language difficulties directly; with the other two, speech and language difficulties may be encompassed within the broad communication category, but are not specifically identified. I also noticed Scope's guidelines are perhaps easier to relate to: as they are aimed more towards the public than academics or policy makers, their choice of terminology is slightly different and more accessible. Ultimately, the guidelines do appear to cover similar content, for example where the Department for Education state

'cognition', Scope says 'thinking and understanding' or where the government says 'communicating and interacting', Scope says 'relating to others'. It is an advantage that the guidelines are congruent because it provides consistency between sources. To have a loose core of ideas which are agreed on reduces confusion when reading from different sources. Peripheral ideas may be slightly different, but if the core maintains congruency this can impact who is affected and how they are treated.

### **1.3 Autism**

As noted above, the majority of the children involved in the project described in this thesis had a diagnosis of autism or related spectrum conditions. Additionally, on scoping the literature relevant to this research, autism was most prevalent in terms of research exploring alternative therapeutic approaches to additional needs (e.g. O'Haire 2013; Solomon, 2010).

Autism is a complex, lifelong condition, and the diagnosis encapsulates a wide range of behaviours and impairments (Mitchell & Ziegler, 2007). It is a spectrum condition, which means that different people are affected in different ways by autism; NICE (2011) define it as "qualitative differences and impairments in reciprocal social interaction and social communication, combined with restricted interests and rigid and repetitive behaviours" (p. 5). The term 'Autism Spectrum Disorder' (ASD) refers to a group of disorders including autism, Asperger's Syndrome and Pervasive Developmental Disorder- Not Otherwise Specified (PDD-NOS) (NICE, 2011). The prevalence of ASD has reportedly increased from around four in ten thousand to more than one in a hundred from 1965 to



2012 (Williams et al, 2014). This report is from Australia, though Williams et al (2014) acknowledge that the reported prevalence of diagnoses constitutes an international epidemic. Symon (2005) estimates one in two hundred and fifty children are diagnosed with autism in the United States, while figures in the UK are estimated at around one in a hundred (Office of National Statistics, 2005).

Typical symptoms of autism include difficulties with communicating and judging whether actions are socially appropriate (Garner, 2009). Individuals with autism can find relating to other people difficult as they struggle to understand and show awareness of other's emotions and feelings (National Autistic Society, online). This can leave them feeling alone. Some people with autism also have repetitive patterns of thought and behaviour and become upset when their routines are changed (Williams et al, 2014). Asperger's Syndrome is one of several 'sub-types' of autism and was incorporated into the single diagnosis ASD in the most recent definition in Diagnostic and Statistical Manual (DSM5: APA, 2013). Asperger's is generally considered to be a 'High Functioning' form of autism, and although symptoms can appear similar (repetitive speech and routines, difficulty in understanding others emotions), individuals with Asperger's do not experience delays with cognitive and language development; instead, intelligence or cognitive ability is in the typical or even 'gifted' range (Williams et al, 2014).

Autism as a diagnostic condition was first identified in the 1940's. Early definitions of autism and Asperger's, put forward by Kanner and Asperger respectively in 1943 and 1944 are explored by Frith (2003). Kanner's early work with children he believed to have autism led him to define some features of the condition which are still recognisable

today: autistic aloneness, desire for sameness and islets of ability. Autistic aloneness is defined as the inability to relate to others and the child shutting out anything from the outside. According to Kanner (in Frith, 2003) the child has a connection to objects but not people. The desire for sameness refers to repetitive behaviour and speech, coupled with an anxiety to maintain the routine. Islets of ability refers to the child's implied intelligence through recollection of complex information and, with the verbal children, their excellent vocabulary. Whilst Frith (2003) acknowledges that there are some variations and additional issues to consider, the similarities between Kanner's description of key condition features and modern definitions are perceptible.

There has been an increase in the number of individuals diagnosed with autism, and the frequency of autism diagnoses rose rapidly in the 1990's in the UK. Jick and Kaye (2003) conducted a literature review involving data from over two hundred and fifty general practices to explore the possible causes behind this increase in frequency of autism diagnoses. Medical and vaccination history were compared, as well as pregnancy and drug therapy, in autistic and non-autistic boys. No significant differences were found, and the researchers concluded that the increase in autism diagnosis was due to changes in diagnostic practices (Jick & Kaye, 2003).

There are, at present, no identified causes of autism, though there have been several, now widely disputed and generally discredited causal theories, including medical interventions such as the MMR vaccine, as well as environmental factors such as exposure to mercury (Davidson, 2017). It is suggested that genetics may have a role to play in the development of ASD, as exploratory research has shown 'high-risk' autism

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genes and genetic abnormalities, though the condition has not yet been linked to a specific gene (Williams et al, 2014). Exposure to certain environmental triggers, such as the use of certain drugs when in the womb and premature birth, are suggested to increase an already genetically vulnerable individual's chances of developing the condition, but no conclusive evidence has yet been found (NICE, 2011). Currently, there is no known definitive cause of autism (Williams et al, 2014), although it is expected that a biological explanation may become apparent in the future: Mitchell and Ziegler (2007) consider the possibility that multiple biological causes will be found.

As no biological cause has yet been identified or understood, autism spectrum disorders are currently diagnosed solely according to psychological profiling. In current mainstream psychology, the Diagnostic and Statistical Manual is used to define and diagnose mental health disorders, and often includes a symptom 'checklist'. For autism, the checklist focuses on deficits in social communication and interaction and behaviour, which the child may currently or historically be experiencing and displaying (APA, 2013). The social deficits identified cover three broad areas:

- Social and emotional difficulties (for example, difficulty in maintaining conversation; reduced emotions; difficulty or failure to engage with social interactions)
- Verbal and non-verbal communication difficulties (for example, inability to read body language and make eye-contact; lacking facial expressions and non-verbal communication)
- Difficulties in developing relationships (for example, struggling to make friends, take part in imaginative play or take an interest in peers)

Further criteria put forward by the DSM-5 (APA, 2013) outline particular behaviours associated with autism, which can include repetitive motor movements or use of speech, inflexible adherence to routines, fixation on specific interests, ritualised behaviour and sensory impairment. The DSM-5 also states that symptoms must be present early in development and cause significant impairment to functioning and that before an autism diagnosis is made, the possibility of other intellectual disabilities and developmental delays should be ruled out. The DSM-5 notes that individuals who meet the social criteria for autism, but not others, should be evaluated for social communication disorder, as these symptoms can overlap.

## **1.4 Children with Autism in the UK: Current Standard Practice**

This section outlines the current diagnostic guidelines for autism in the UK, and an overview of the support available for children with autism in terms of Policy.

### **1.4.1 *Diagnosis***

The Institute for Health and Care Excellence (NICE) explain the diagnostic procedure used in the United Kingdom for under nineteens with suspected autism in more detail in their guidelines (2011). It is recommended that a child under the age of three is referred to an autism team “if there is regression in language or social skills” (NICE, 2011:16).

Children older than three years are recommended to see a paediatrician in the case of regression in language, and children of any age are recommended for referral if there is a regression in motor skills. Healthcare professionals are encouraged to gather evidence from a variety of people and settings during the diagnostic process, and to establish any concerns on the part of parents or guardians (NICE, 2011). There are

many considerations that must be taken into account before referral to an autism team including: severity and duration of symptoms, when symptoms present, impact of the symptoms on the child and family, and factors associated with an increased chance of autism. Premature birth (before thirty-five weeks), a sibling with autism and birth defects associated with the central nervous system are all currently associated with an increased likelihood of autism. NICE (2011) list seventeen alternative diagnoses that could be misdiagnosed as autism, and reiterate the importance of considering these before referral. They include neurodevelopmental disorders, mental and behavioural disorders and conditions associated with developmental regression. It is noted that any of these could also present as a coexisting condition, alongside autism.

Though diagnostic testing can be a worrying time, the National Autistic Society (a UK charity for people with autism and their families, providing information about the support and services available) reports that parents often feel relieved upon receiving a diagnosis for their child. This echoes the findings of Midence and O'Neill (1999), who explored the experience of parents during diagnostic testing for autism. Parents in this study struggled to understand their child's behaviour, and often experienced extensive difficulties in obtaining a correct diagnosis. Once this was obtained, parents reported considerable relief which they attributed to the diagnosis of autism providing them with an understanding of and explanation for the difficulties their child has been facing (Midence & O'Neill, 1999). Once a diagnosis has been received, this can additionally facilitate access to services and support.

### **1.4.2 What Support is Available?**

The 2009 Autism Act put a duty on the UK government to create a strategy for adults with a diagnosis of autism and provide guidance at a local level for implementing the strategy. It ensures adults with a diagnosis of autism are given the help that they need with issues like finding employment or accessing help in the home, and ensures councils know what is expected of them in terms of supporting adults with a diagnosis of autism. The Act does not currently include children, as it is recognised that children with a diagnosis of autism (and their families) have different support needs to those of adults.

There is in fact no autism specific legislation in the UK relating to children but in England, the Children and Families Act (2014) is intended to ensure that children with special educational needs are provided for in terms of education, health and social care. Special education is provided for children over two years old, and is often different, or in addition to, the provision for those of the same age without special educational needs. Children undergo an Education and Health Care Plan assessment (EHCP) which is prepared and maintained by the Local Authority (Children and Families Act, 2014). The EHCP specifies the child's individual needs for education, health and, if under eighteen, social care requirements from local services, and for school age children, to access assistance from the Special Educational Needs Coordinator (SENCO) within school.

Available support for both children and adults with autism in the UK varies regionally and depends on a number of factors including finances and other children (Autism

Speaks, online). Support from the local authority can include behaviour management advice, home-based respite care, youth clubs, centre-based respite care and residential schools. Some families may also be able to claim certain benefits to help support their child. As each case is so different, the potential support varies and some local authorities will carry out assessments. It is important to note that although the above interventions are the stated ideal, anecdotally it seems it is not always what happens in practice and some families struggle to get an EHCP assessment.

## **1.5 Approaches to Managing Autism**

### **1.5.1 *Types of Interventions Available and Supporting Evidence***

There is no 'cure' for autism and notions of 'treatment' usually refer to particular interventions to help manage symptoms and ensure that the individual with autism is able to function optimally. In a review of the efficacy of interventions available to children with autism, Francis (2005) categorises three types of approach: (1) psychoeducational and behavioural approaches; (2) psychopharmacological interventions; and (3) less traditional complementary and alternative medical approaches (Francis, 2005). Although this research is relatively dated, given the advances made in autism research over the last decade, it still provides a useful indicator as to what are perceived as the most efficacious interventions.

Psychoeducational and behavioural approaches often involve parents, who are encouraged to undertake training to help their children and ensure their treatment is consistent and ongoing within the home, as well as social skills training for the child (Francis, 2005). Psychopharmacological interventions refer to medications - some of these, such as antipsychotics, can come with severe side effects, but medication can be of use to some individuals experiencing symptoms such as aggression, anxiety and hyperactivity (Francis (2005) suggests there is some evidence to support the use of beta-blockers, selective serotonin reuptake inhibitors and naltrexone respectively for these symptoms). Less traditional approaches include vitamin therapy, which has been claimed to help with hyperactivity, although Francis (2005) found no adequate support for this. Gluten free diets are also considered a complementary approach, anecdotally reported to reduce aggression and self-injurious behaviour. Francis (2005) states that the support for a gluten free diet can show improvements in as little as ten days, however there are several limitations with this intervention. Firstly, it is reportedly more successful for younger children who have a family history of allergies, and the results can take months to present. Also, the diet can be difficult to maintain, and accidental ingestion of gluten can cause a dramatic deterioration. Francis (2005) concludes that evidence-based recommendations cannot be made until the gluten free diet has been rigorously tested and more recent research suggests a lack of evidence supporting this approach. For example, Hyman et al (2016) found no statistically significant difference in physiological functioning, behavioural problems or autism symptoms in their study which tested a gluten- and gluten/casein-free diet on fourteen children with autism. Further, Mari-Bauset et al (2014) completed a systematic review of the literature on gluten-free and casein-free diets for children with autism, concluding that the evidence



on this subject is limited and weak; stating small sample sizes and methodological flaws. Sensory and auditory integration therapy are also mentioned as less traditional approaches, though Francis (2005) finds little support for their efficacy. Having reviewed the evidence base, Francis (2005) concludes that the most effective interventions for autism are behavioural techniques and structured teaching – though it is acknowledged that autism cases are highly individual and treatment must be tailored for the individual.

Seida et al (2009) conducted a systematic review of psychosocial interventions for autism, Asperger's and related spectrum disorders. Thirty studies were included in this review and interventions included communication-focused approaches, behavioural interventions, sensory and motor interventions and social skills development. The researchers found that there was *some* evidence of positive outcomes for many of the interventions, however there were flaws in the review. Due to the individualised nature of treatment plans for people with autism, it is difficult to standardise interventions and therefore data for review (Seida et al, 2009). Consequently, there is little robust evidence of the efficacy of these interventions: although findings appear positive, they should be interpreted cautiously due to lack of high quality evidence (Seida et al, 2009).

The literature and existing evidence thus far highlight that there is a range of approaches to managing autism, and that this is in part because individual cases of autism can differ substantially so effective management needs to be appropriate and individualised. As a lifelong condition of unknown cause, autism cannot be thought of in terms of 'cure' but rather in terms of support and management. How this support and

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management is best undertaken, and whether or not approaches to the condition are conceptualised as ‘treatment’ can depend on how the condition and its associated symptoms are understood.

### **1.5.2 *Alternative Interventions***

Mainstream interventions for autism seem to focus on therapeutic interventions such as Cognitive Behavioural Therapy (CBT) which aims to help individuals with autism regulate their emotions and behaviour. Training is offered to parents to help ensure interventions are consistent, and medication is offered to help control treatable symptoms of autism such as anxiety and hyperactivity (Autism Speaks, online).

Biomedical interventions, as outlined in section 1.6, explore nutritional deficiencies and immune dysfunction as potentially triggering or worsening autism symptoms. For example, as discussed, some research explores the use of following a gluten free or casein free diet to improve their child’s behaviour (Hyman et al, 2016; Mari-Bauset et al (2014)).

Alternatives to mainstream and biomedical interventions for health and wellbeing in general are increasingly diversifying. Broader views of health - acknowledging the relationship between biological, social, cultural, economic, environmental and psychological factors – can take into account the role that different approaches and activities may contribute to well-being. Complementary and Alternative Medicine (CAM) for symptoms of autism are also varied. Some brief examples of alternative approaches being taken to promote health and wellbeing are provided below, with discussion around those used in relation to autism.

## Sensory Activities

Linking Environment And Farming (LEAF) introduced the 'Let Nature Feed Your Senses' program, which aimed to open farms, city farms and nature reserves, inviting children and adults with disabilities and from disadvantaged areas to enjoy a sensory experience (Bragg et al, 2012). The project ran across a network of farms and nature reserves across the UK. A further aim of Let Nature Feed Your Senses was to learn about food production- seeing the plants grow, learning about harvest and processing to eating. Evaluation of the programs found a positive impact on participants, including better access to and understanding of care farms, potentially leading to healthier lifestyles (Bragg et al, 2012)

Research Autism (online) explains sensory activities as a potentially beneficial Complementary or Alternative therapy, suggesting many different interventions for children with autism. Targeting different senses such as touch, smell and taste, suggestions include aromatherapy, weighted clothing and manipulation interventions such as acupuncture and massage. Interestingly, physical activities are also suggested interventions such as martial arts, yoga and creative therapies like dance (Research Autism, online).

Francis (2005) explored the use of sensory activities, as did Seida (et al, 2009) for children with autism, with the latter finding some positive outcomes for these types of interventions though efficacy is limited.

## Natural Craft

Defining the therapeutic uses of craft poses a problem to researchers as there is little empirical research into what the benefits are and why they are gained from crafting (Pollanen, 2009). Pollanen (2009) argues that 'Craft can help clients realise that through the design process, or process of taking raw materials or minimally prepared substances and processing, assembling and forming them, the clients can do the same with their lives' (Pollanen, 2009:44). Craft therapies also draw comparisons with art and music therapies. The participant group in the current study draw upon craft and cooking weekly; encouraging the children to grow, harvest, prepare and cook their own food as well as experimenting with different natural craft activities.

Several interventions and activities exist in Complementary and Alternative Medicine which utilise, or can utilise the natural environment; sensory activities in particular link well with nature. However, empirical research into such alternative approaches is limited, and given their radical and varying methods, there is no one-size-fits-all approach in any of these interventions. There are though some useful theories from the field of environmental psychology which seek to better elucidate human-nature interaction, and I will move on to describe these in the next chapter.

### **1.5.3 *Autism as a "Difference", Not a "Disorder": Implications for Management***

According to Lee (2016), the ways in which mainstream society currently responds to autism are driven by a medical model of disability. Early intervention therapies are often the first port of call, where the children are encouraged to play, communicate and develop 'typically'. However, it has been argued by (amongst others) Oliver (1990) that

this approach represents an inappropriate medicalisation of disability. According to Oliver (1990), disability is a social state rather than a medical condition: he argues that illness and disability are different; that doctors treat illness and not social conditions. Although Oliver (1990) does not deny the existence of disability, nor the requirement of doctors to help stabilise disability (or treat additional or secondary illness), he maintains that it is important to distinguish between illness and disability. Locating the problem within society as opposed to the individual, Oliver suggests that society imposes barriers that create problems for individuals with disabilities. As medical and rehabilitation programmes are founded on concepts of 'normality', treatment ideas tend to focus on getting individuals as close to 'normal' as is feasibly possible. Oliver (1990) adds that doctors are not necessarily to blame for the aspiration to normality- "The ideology of normality rules"- however he suggests that doctors and disabled people need to work together, with even distribution of power, to move forward (Oliver, 1990:5). This social model of disability highlights the difference between illness and disability, and how society could change to reduce barriers for those with disabilities.

The neurodiversity paradigm ('neurodiversity' referring to the infinite variation in the human mind [Walker, 2014]) suggests that the concept of a 'right' way of cognitive functioning is a culturally created one. It has been suggested that autism and ASD could more helpfully be thought of in terms of difference rather than disorder. From this perspective, psychologists and therapists should try to help autistic people, or those with other conditions, thrive, as opposed to make any attempts at a 'cure' (Walker, 2014). In line with the neurodiversity paradigm, Lee (2016) rejects the notion of a 'normal' way of developing, arguing rather that each developing person should be

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accepted and valued for who they are. Lee proposes that social and physical environments should be targeted by interventions so that “Autistic children are supported in families and communities to develop as unique and valued human beings, without conforming to the developmental trajectory of their neurotypical peers” (Lee, 2016). Specifically, in relation to Asperger’s, Elliman (2011) similarly suggests that, whilst a medical model conceptualises the condition in terms of an individual deficit requiring change, social models of the condition are accepting of individual difference and instead perceive any onus for change as falling on society more generally (Elliman, 2011). A social model, as opposed to a medical model, puts the onus to change on society rather than the individual; it acknowledges the strengths of an individual, such as one with Asperger’s (Elliman, 2011), and rather than trying to change the person, it provides solutions to break down social barriers. The social model is also politically successful, bringing about change to policy to help create an environment for people with disabilities to flourish (Elliman, 2011). One example of this change is the introduction of the TEACCH approach (Treatment and Education of Autistic and Related Handicapped Children) which recommends the use of visual cues in the learning environment to assist with communication (Elliman, 2011).

Interventions based on the social model aim to help individuals with disabilities live successfully in their own world, which is congruent with the neurodiversity approach. Symon (2005) explored the impact of a week-long parent education programme, which aimed to teach parents effective strategies for interacting with their child, which they could then teach others in the child’s life. Results indicated that parents were able to

teach others, and therefore children were able to communicate more effectively with other caregivers (Symon, 2005).

Following on, research carried out by Hall et al (2016) explored how the dynamic between parent and child changed on the introduction of a service dog. Twenty two parents reported on their experience of having a service dog using standardised self-report measures. The intervention group showed significantly improved family functioning compared to the control group with no dog. Though both groups experienced a reduction in family stress, this difference was more notable in the intervention group with twenty percent of parents moving from clinically high levels to normal levels of stress. Only in the intervention group were reductions in parent-child dysfunctional interactions observed, highlighting the impact a service dog can have on the parent-child relationship (Hall et al, 2016).

When viewed through the lens of a social model, therapeutic practices such as pet therapy can be thought of as a particular way of creating an environment which enables these children to thrive. Indeed, there are noted benefits of animal interaction in this area: these will be considered in greater depth in the following chapter where I review the existing evidence contributing to this field.

## **1.6 Conclusion**

In relation to the current study, both the social model of health and the neurodiversity movement make a lot of sense. Aspects of the social model are already being

addressed by some current health policy; issues with individual lifestyle could be seen to be managed by biomedical approaches, as symptoms of autism are treated with appropriate medication where possible. Educationally speaking, classrooms and school environments are geared towards assisting students with additional needs develop to their full potential, with the support of the school SENCO under the Children and Families Act (2014). For adults with autism, the Autism Act (2014) ensures individuals have access to housing and health care services. Traditional treatment options are beginning to acknowledge the importance of social and community networks in relation to health, and it is indeed applicable to autism, as parents are encouraged to access appropriate training to develop strategies to manage behavioural issues. I feel that this needs to be explored more closely; linking in to neurodiversity, how can we adapt and provide an environment or situation that helps a child with autism, without the medicalisation? Although traditional treatment options clearly have their place and do help people where possible, there is still work to be done and looking to the individual's direct environment and relationships could be useful in providing more holistic treatment. It seems that current policy and interventions aim to manage the symptoms of autism to help the individual live a fulfilling life, rather than exploring how the environment can also be utilised to help individuals.

Currently, pets for therapeutic purposes are advocated as a complementary or alternative therapy and involve the family taking on a pet to have at home, as with assistance dogs, or visiting an animal such as a horse to have therapeutic sessions. The research around the benefits of contact with animals for children with autism is on the increase, and the purpose of the current study is to explore this and contribute to the



field. The primary aim of this research is to explore how children with additional needs, including autism, experience animal interaction. By taking a qualitative approach, it will be possible to uncover more details about how the experience is received, and perhaps uncover what it is about contact with animals which may be beneficial. This could help inform policy and practice around therapeutic interventions for these children and their families. As the research base increases, it may be necessary to make changes to current policy and make animal contact more easily accessible to children with additional needs, including autism.

## **Chapter 2 Overview of Human/Nature Interaction**

### **2.1 Chapter Overview**

In the previous chapter, I described the background to the current study with a particular focus on the condition of autism. I explained how conceptualising the diagnosis as one of social difference might lead to alternative intervention strategies. In this chapter, I move on to consider the potential therapeutic use and impact of both natural environments and interaction with animals. I first introduce key psychological theories which have been used to account for and to assess the potential benefits of human-nature interaction and review some of the empirical work undertaken in this area. I then move on to describe activities in the natural environment and how these have been used therapeutically before introducing those which incorporate the presence of animals. Finally, I explain how the research reviewed so far in this chapter supports a rationale for undertaking the work reported in this thesis.

### **2.2 Psychology of Human-Nature Interaction**

The interaction between humans and their natural surroundings has been a topic explored in some depth in the field of environmental psychology. Research topics pertinent to this thesis include how people interact with nature; the perceived benefits of interaction with nature and why it might be that some people feel drawn to natural environments. A growing body of evidence suggests that time spent in the presence of nature and feeling connected to nature improves psychological health and well-being. For example, Cox et al (2017) found positive relationships between nature dose

(frequency/duration/intensity of contact with nature) and mental and social health, increased physical activity and nature orientation; Martyn and Brymer (2016) found that a feeling of being connected to nature was significantly related to lower levels of anxiety specifically. Key psychological theories that have been drawn on to explain how human-nature interaction might be beneficial include Ulrich's (1984) stress reduction theory and Kaplan and Kaplan's Attention Restoration Theory (1989) which sought to establish the perceived benefits of nature to health and well-being. Wilson's (1984) Biophilia hypothesis describes the connection between humans and nature in terms of an evolved innate affiliation to the natural world. Below, I explain each theory and critically evaluate the key empirical research.

### **2.2.1 *Attention Restoration Theory***

Kaplan and Kaplan's (1989) Attention Restoration Theory (ART) builds on the existing premise in cognitive psychology that individuals have a limit on their capacity to concentrate. This theory builds on work carried out by James (1892) which established and explored the difference between 'voluntary' and 'involuntary' attention; that is, what is 'important' and what is 'interesting'. After long periods of concentration, the capacity to direct attention, or use 'voluntary' attention, depletes and requires restoration. Kaplan (1995) found that though sleep provided effective restoration to some degree, there was an alternative method which also worked. Kaplan and Kaplan (1989) proposed the following four criteria that needed to be met in order to successfully restore the capacity to concentrate. Firstly, it is necessary to be 'away' - emotionally, mentally or physically, from the drain on your concentration and/or usual environment. Secondly, you need to

engage in an activity that does not require direct attention or focus- something you can engage with on a level typical of involuntary attention. Kaplan (1995) termed this 'fascination'. Thirdly, the activity chosen must keep your attention- there should be enough to experience in order to keep your interest, but not so much that it requires direct focus. Finally, the chosen environment or task needs to be compatible with the individual- it needs to be facilitative of the chosen activity and suited to the individual (Kaplan & Kaplan, 1989).

The term 'fascination' was coined to replace involuntary attention (Kaplan, 1995). It is a level of engagement which requires no effort, to allow directed attention to rest and rebuild. Kaplan (1995) explains there are many forms of fascination; 'process' fascination which is usually associated with activities such as reading, and 'content' fascination, which splits into 'hard' and 'soft'. Hard content fascination includes things which are distracting but require following; watching motor racing is suggested as an example (Kaplan, 1995). Soft fascination includes walks in natural settings, which have the added benefit of providing an opportunity for reflection. Opportunities which provide the resting of directed attention are referred to as 'restorative experiences' or a 'restorative environment' (Kaplan, 1995).

Fascination was a central part of Kaplan's (1995) notion of a restorative experience; the idea being that the chosen activity has sufficient interest to keep the individual engaged, but not so much so that it depletes the capacity of concentration. That said, the other parts of the theory are vital; fascination alone is not sufficient to rest the fatigued directed attention. Kaplan (1995) argues that natural environments have enough

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interest to acquire and maintain fascination, without voluntary attention. Many modern urban and suburban environments demand voluntary attention much of the time; walking in towns and cities requires concentration so as not to bump into people or get lost, and crossing roads require focus to avoid being hit by a car or a cyclist. It is not just navigating the modern world which requires voluntary attention; concentrating during work meetings, communicating with others or using the computer also deplete the capacity to concentrate. This demand on voluntary attention leads to fatigue, which may make it difficult to concentrate properly throughout the day.

Kaplan and Kaplan's (1989) ART can be linked with elements of green exercise in that 'green' environments often meet the criteria set out for attention restoration; it is feasible for most to move away from the office or home to a local green environment, there is often enough to see in the changing landscape and nature to remain engaged; yet the level of concentration required to experience this is low. The final consideration, regarding compatibility, will be down to the individual and their preferences, though to introduce Wilson's (1984) Biophilia hypothesis, individuals may feel an innate affinity with the natural environment, thus meeting Kaplan's four recommendations. The Biophilia hypothesis will be explained in further detail later in this chapter.

Now the key concepts of Kaplan and Kaplan's theory have been outlined, I will explore some of the current literature exploring the efficacy of the theory in practice. Starting with Ohly et al's (2016) systematic review, I will discuss the current state of knowledge and explore the critical issues in carrying out and synthesizing this kind of research. I

will also discuss other studies which have explored more specific outcomes in relation to exposure to nature and the effect on aspects of health and wellbeing.

In Ohly et al's (2016) systematic review, thirty-one studies reported in twenty-four articles were located by searching seven databases to review the literature on the restorative effect of exposure to nature on attention. Inclusion and exclusion criteria were applied to the results of each result to determine if studies were appropriate. Studies from 1989 were included, as this was when investigations into Attention Restoration Theory began. Included studies used an objective measure of attention, recorded 'before' and 'after' and compared natural and non-natural environments. Natural environments included forests, parks and wilderness areas, and non-natural environments included city centres and residential settings. Virtual versions of each environment were also included. Duration of exposure to nature varied across the studies; from 1 hour in a virtual natural environment right through to weeks and months in 'real' natural environments. Active exposure (such as walking/running in nature) and passive engagement (such as resting outside or observing a view) were included. Research used a variety of participants; male and female; children 'students; adults with varying needs (depression, schizophrenia) and those in circumstances which may affect cognition (breast cancer patients) and those with 'normal' cognitive functioning. Some support was found for Attention Restoration Theory; three measures reported statistically significant positive effects on attention (digit span forward, digit span backward and trail making test). However, meta-analyses for ten other attention outcomes using seven different measures showed no significant difference between conditions; with search and memory task scores being significantly better for the non-

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natural setting participants. The researchers acknowledge the limitations of their review; one of which is inherent in reviewing literature in this area. Due to the range of outcome measures used in this field, the results are difficult to synthesize and quantify which makes it difficult to claim significant support for the theory. The range of populations included, though offering a broad perspective of how nature can impact on different age ranges, makes it difficult to consider how nature affects people differently (Ohly et al, 2016). The researchers conclude that it is as yet unclear which aspects of attention are restored by exposure to nature and further trials are needed using measures which have been agreed (Ohly et al, 2016).

More specifically, in their study Berman et al (2012) explored the impact of walking in nature for individuals with major depressive disorder. Mood and short-term memory were assessed for twenty participants at baseline and again after a walk in either a natural or urban setting using the Backward Digit Span test and the Positive and Negative Affect Schedule. Memory increased significantly for those who participated in the nature walk compared to the urban walk. This demonstrates support for Kaplan and Kaplan's (1989) theory; time spent in natural environments can improve cognitive functioning. The effect on mood was also notable; positive affect increased significantly on the nature walk compared to the urban walk. The researchers highlight that the improvements in memory did not drive the improvements in mood as no correlation was found, suggesting different mechanisms underlie the cognitive effects of interacting with nature (Berman et al, 2012).

Further supportive empirical research linking with Kaplan and Kaplan's (1989) ART includes a study of over four thousand participants by White et al (2013) which aimed to discover which types of natural environment could provide the most restorative experience. Face-to-face surveys were conducted throughout the UK over the course of a year to prevent geographical and seasonal incongruity. The range of respondents provided a representative sample; male to female ratio was almost an equal split (forty-six percent male to fifty-four per cent female) and the age range (from sixteen to over sixty-five) was evenly spread. Participants of the study were asked about their time spent outdoors in the last week, including a variety of locations (parks, woodland, hills and the coast) but excluding time spent in their own gardens. Restoration was assessed using 'recalled feelings of restoration'; this was measured by participants rating their agreement with their visit to nature 'made me feel calm and relaxed' and 'made me feel refreshed and revitalised'. Overall, recalled restoration was high. Coastal locations came top for feelings of restoration, with urban parks at the bottom; restorative but not as effective as the alternatives. They also examined forest and mountainous environments, finding the latter two shared similar levels of restoration.

The above studies and reviews offer some support for Kaplan and Kaplan's (1989) Attention Restoration Theory, though it is clear that more specific measures are required to assess restoration empirically and issues around definition of 'restoration' make this difficult. Whilst support is shown, the research varies from measuring cognitive functioning to mood and levels of calmness. This makes it problematic to draw accurate conclusions regarding the restorative effects of nature.



### **2.2.2 *The Biophilia Hypothesis and Ulrich's Stress Reduction Model***

Wilson's (1984) Biophilia hypothesis suggests how nature might benefit individual well-being. Wilson (1984) proposed that individuals were predisposed to positively respond to non-threatening natural environments and living things. The Biophilia hypothesis suggests an innate attraction between humans and the natural world, harking back to our ancestral heritage of being and living with nature. This psycho-evolutionary model suggests that a restorative response to the natural world would be a valuable asset to the evolving human. Though not always an immediate response, Wilson (1984) suggests that humans have a biological predisposition to find restoration in the natural environment, ready to be accessed. Ulrich's Stress Reduction model builds on Wilson's (1984) Biophilia hypothesis in that it considers the stress-reducing impact of contact with nature; tapping into the idea that humans have an innate positive response to natural environments (Ulrich et al, 1991).

Now the theories have been outlined, I will explore some of the empirical evidence available. In terms of exposure to nature having a positive effect on health and wellbeing and Ulrich's theory, Bowler et al (2010) conducted a systematic review of the research in this area. They included research with a range of outcomes to give a broad overview of the impact of exposure to nature on a variety of physical and mental health measures.

In Bowler et al's (2010) systematic review, twenty-five studies were included in the exploration of the impact of nature on individual health and well-being. The majority of

the studies included measured the effects of short-term exposure to nature, which included public parks and 'green' campuses. Seventeen of the studies involved reporting on an emotion, whilst eight looked specifically at concentration or attention (Bowler et al, 2010). Health and wellbeing outcomes were defined by the researchers as a 'measure of an individual's emotions'; seventeen of the included studies reported on at least one emotion, with many measuring more depending on which psychological score was used. Overall, there is some suggestion that the natural environment can have a positive influence on elements of well-being, with significant improvements found in energy, anxiety, anger, fatigue and sadness. The researchers acknowledge the limitations of the study, stating that the variety of outcomes measured in the original studies could not all be included in this, a quantitative synthesis, and therefore potential improvements could be missed. Further, male college students dominate the participant profile which provides a limited representation. Finally, a number of the studies included did not specifically set out to test whether nature is beneficial to well-being, which led the researchers to question if the included environments were 'green enough' to be included as 'nature' and could have impacted the results (Bowler et al, 2010).

More historically, Ulrich (1984) carried out several research projects to explore the beneficial effects nature can have on physical and mental health and wellbeing. One such project involved comparing medical notes of patients who had recently had gall-bladder removal surgery. Ulrich (1984) compared patients matched for medical history, age and weight. He compared factors such as pain relief, length of hospital stay and complications. Patients who had a view of nature, specifically trees in foliage, from their hospital rooms were compared to those with a view of a wall. He found that the group

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with a natural view had a shorter hospital stay, fewer complications and less prolonged use of strong pain relief than the group without a view of a natural setting. Furthermore, the nature group had more positive comments in the medical notes, suggesting good spirits. It was concluded that the stress-reducing impact of the nature view enabled speedier recovery and a more pleasant hospital stay (Ulrich, 1984). It would be interesting to consider if the restorative effect would have been even greater if the patients had direct contact with nature, rather than simply viewing it through a window, such as access to a hospital garden. Clearly, there are many other factors that could influence the length of hospital stay that may not have been accounted for in the matched pairs design; the 'rooms with a view' could have been more modern or have had better facilities leading to a more pleasant hospital stay. The experimental group could have had more visitors or a better support network; this would need to be taken into account.

Research was also carried out on a sample of students to explore Ulrich's (1984) theory of nature producing stress reducing benefits, and involved showing all participants a work safety video, depicting some serious injuries caused by carelessness in the workplace (Ulrich et al, 1991). Participants were then split into six groups, each shown different videos; two involving nature (no people or animals) and the other four showing urban environments. Measures were mainly physiological, including heart rate and blood pressure, but also included a self-report scale of feelings such as anger and fear. They found that both mentally and physically the nature videos had more of a restorative influence on the participants (Ulrich et al, 1991). Again, direct exposure to

the natural world instead of videos would be an interesting additional experiment to repeat here.

In terms of the Biophilia hypothesis, Grinde and Patil (2009) considered how visual contact with nature can impact on health and wellbeing. They examined some fifty studies with the aim of verifying the Biophilia hypothesis and considering the impact of plants on the human mind. The researchers also aimed to assess the extent to which adding elements of nature can compensate for visiting the natural environment. They reached the conclusion that an environment in which there is no evidence of nature may create a 'discord'; that is, a potentially negative effect on individual health and wellbeing (Grinde & Patil, 2009). The researchers advocate that a lack of nature can have a negative effect, though these effects are described as 'not overwhelming'. Further, Park and Mattson (2009) carried out similar research to explore whether the presence of plants in hospital rooms could aid patient recovery from minor surgery. Using various measures, they sought to evaluate the therapeutic influence of plants. They found that the patients with plants in their recovery rooms experienced significant benefits; lower blood pressure, less anxiety and fatigue as well as evaluated their rooms more positively than those in the control group with no plants. This positive response to aspects of the natural environment supports Wilson's Biophilic concept.

Heerwagen (2009) explains the growing success of Biophilic design, brought about by the positive findings of research exploring how key concepts of Biophilia may be incorporated into everyday life. Biophilic design takes ideas from the Biophilia hypothesis, which shows the positive effect of natural environments on health and

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wellbeing, and expresses them in the design of constructions. This concept was previously supported by Ulrich (2002) who found that hospital gardens could assist with recovery from ill health.

### **2.2.3 Comparing the Theories**

Ulrich (1984) and Wilson (1984) both explore the relationship between humans and nature in terms of innate or biological tendencies. Wilson (1984) considers the positive response to a non-threatening natural environment as an almost instinctive affinity; going back to a time when humans lived 'at one' with nature. Ulrich (1984) views the positive response from time in the natural world, with stress reducing benefits, in biological terms. The stress reduction model considers time spent visiting, or viewing, nature can promote physiological recovery and relaxation after stressful events (de Vries et al, 2014). This potential positive predisposition to nature links the two theories. Kaplan and Kaplan's (1989) ART does consider the impact on well-being in terms of improving the capacity to concentrate, but instead focuses more cognitively on how exposure to nature can achieve this. Ulrich and Kaplan's theories differ in their focus; Kaplan's on 'restoring attention' and Ulrich's on 'reducing stress' and each have their own arguments on the impact of nature. Kaplan's (1995) work to produce an integrative framework acknowledged the disagreements between the researchers. Kaplan explained that Ulrich questioned the necessity of the inclusion of the 'attention' element, instead arguing that attention fatigue is a result of overall stress, which would therefore reduce with contact with nature. Kaplan disagreed; whilst acknowledging the similarities between their theories in that nature produces a positive effect, the researchers contrast

in their opinions on the role of information processing in stress and restoration, with Ulrich not acknowledging the role of cognition in the stress process (Kaplan, 1995).

As seen in the literature, both attention restoration and stress reduction theories have been utilised in empirical research. Berto (2014) considers both attention restoration and stress reduction in her review and notes that the evidence for each is strong, stating that “the stress reduction from exposure to nature agrees with both SRT [stress reduction theory] and ART [attention restoration theory]” (Berto, 2014: 402). Whether attention restoration does fall under the umbrella of general stress reduction is still a matter of debate, however both theories come to the same conclusion; that exposure to nature can have a positive impact on a variety of health and wellbeing outcomes. Having reviewed some of the current literature, the variation in outcome measures and methodological flaws cast the strength of this evidence into doubt; further research is required to clarify this impact.

### **2.3 Nature Connectedness**

Following on from the Biophilia hypothesis and the notion that exposure to nature can restore cognitive functioning and improve physical and mental health and wellbeing, nature connectedness is the latest development in theory and research in this area. Nature connectedness refers to nature as part of an individual’s identity; that is, the extent to which nature feels like part of the individual personality. Connectedness to nature has also been described as an ‘affinity’ or an emotional connection, and it develops the Biophilic idea of an affinity and the benefits of ‘exposure’ to nature further;

with nature being a part of the individual rather than the individual periodically engaging with nature. The concept of nature connectedness and related ideas surrounding natures' capacity to improve health and wellbeing can be seen as a spectrum; full nature connectedness at one end, with green care, green exercise and exposure to nature following. Nature connectedness is outlined below, with a discussion of the ways nature connectedness is used in interventions and practice later in this chapter.

According to Schultz (2002), there are three components that are required in an individual to forge a healthy connection with nature. These traits include a cognitive element; described as an integration with the natural environment, an affective element which involves a sense of care for the environment and a behavioural aspect which is described as a commitment to protect nature (Schultz, 2002). Schultz (2002) states that due to modern lifestyles not facilitating frequent contact with nature, connectedness is declining and leading to a lack of consideration and care for the natural environment.

In their research, Lumber, Richardson and Sheffield (2017) explored connectedness to nature from a Biophilic perspective. They were interested in what elements of the natural environment lead to greater connectedness to nature and used online surveys with two hundred and three participants to gather data. In this preliminary research, they found that contact, emotion, meaning, beauty and compassion are pathways to nature connectedness. The further research aimed to evaluate these pathways by creating activities around them and evaluating nature connectedness. The participants were taken for a guided walk and assigned to one of three conditions: 'emotion', 'meaning' or 'compassion'. Walking in nature provided the 'contact' and views of the surroundings

provided the 'beauty'; the remaining pathways. The 'emotion' activity included talking to others about their feelings about nature. The 'meaning' activity involved writing down the meaning of any symbolism they could infer from nature they saw or heard along the walk, whilst 'compassion' involved watching an RSPB nature video about building homes for nature.

The researchers found that engaging with nature through emotion, meaning, contact, compassion and beauty facilitate nature connectedness (Lumber, Richardson & Sheffield, 2017). In particular, the enhanced contact with nature experienced by those engaging via the sensory and emotional activities was effective for increasing nature connectedness. The researchers conclude that more needs to be done to connect with nature at a deeper level and stress that the type of interaction with nature is important; superficial engagement is not effective at facilitating nature connectedness (Lumber, Richardson & Sheffield, 2017).

Further, an important contribution was made by Nisbet, Zelenski and Murphy (2008). They proposed a scale to assess the three constructs of nature connectedness; affective, cognitive and experiential. In a two part study, they first tested the components of the nature relatedness scale to check for construct validity. The second part of the study involved testing the scale to see if those 'connected to nature' spent more time in the natural environment. Across both studies, the researchers found that nature relatedness correlated with behaviour, time spent in nature and environmental scales; offering reliability and validity of nature relatedness. The scale is a useful tool for researchers exploring connectedness to nature; it can be used to test interventions and

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explore relationships between nature relatedness and other personality and behaviour. For example, Metz (2017) used the nature relatedness scale in her research examining the relationship between nature relatedness, empathy and narcissism in the Millennial generation. 'Millennials' are defined as people born between 1982 and 2001; current college students were recruited as they fitted this criteria. One hundred and forty undergraduate students took part in this research, which aimed to measure how Millennials relate to themselves, others and the natural world. To do this, Metz (2017) identified three generationally variant traits: empathy, narcissism and nature relatedness. Empathy was measured using the Interpersonal Reactivity Index, narcissism was measured using the Narcissistic Personality Inventory and connection to nature was measured with the Nature Relatedness Scale. Metz (2017) found a positive correlation between empathy and nature relatedness, showing a link between individuals' ability to connect with others and that individuals overall sense of nature relatedness. This statistically significant relationship between nature relatedness and empathy echoes the importance of an emotional connection found in the previously discussed research by Lumber, Richardson and Sheffield (2017).

## **2.4 Nature Assisted Therapies**

There are a wide range of nature assisted approaches to therapy and a wide array of different terms applied in this field. In the following section, I introduce 'green exercise' and the broader term 'green care'. Then I move on to focus on how nature has been used in therapeutically beneficial ways and the impact of the incorporation of animals, particularly with children, in a discussion of care farms.

### **2.4.1 Green Exercise**

Pretty et al (2005) define green exercise as “adopting physical activities whilst being directly exposed to nature” (p. 319). The benefits of exercising have been well evidenced with physical and psychological research and included in government health promotion strategies including the ‘Let’s Get Moving’ campaign (Department of Health, 2012) and the most recent guidelines relating to recommended physical activity (Department of Health, 2011). The addition of the ‘natural environment’ is a relatively new concept in terms of its implementation in policy; though the expanding research base is going some way to support its inclusion. The NHS ‘Get Fit for Free’ advises the use of park games, outdoor gyms as well as ‘green’ gyms which incorporate gardening activities to individuals exploring ways to exercise for free (NHS Live Well, 2017).

By ‘natural environment’ I refer to any and all outdoor green spaces; this can include a wide variety of places including urban parks and gardens as well as wild woodland, mountains, seashores and fields (Kaplan, 1995). Similarly, ‘exercise’ refers to any physical activity; from walking and cycling to gardening and horse-riding (Pretty et al, 2006).

Some of the included literature focuses on a more general exposure to nature; rather than participating in exercise, research has explored how spending time taking in the natural world can benefit health and wellbeing. I felt it was important to include these studies, as they make a valuable contribution to what is known about how the

environment can have a role to play in physical and mental health, though it is not 'green exercise' by definition.

#### **2.4.1.1 Types of Green Exercise**

Green exercise is not only used as a therapeutic intervention for particular mental or physical health issues and can be open to anybody to try. To this end, there are many types of green exercise that can be beneficial for health and well-being. Some take little organisation, particular tools or place to occur, and can be taken up by anybody, whereas others may take a little more thought and planning. Some green exercise is more like traditional therapy; adapted to include the natural world, whereas other forms might be seen as 'pleasant' activities that make some people feel better, mentally, physically or both.

Gardening is a popular choice in the UK and serves as both a casual and therapeutic activity. More casually, it involves individuals completing gardening tasks such as weeding, planting and harvesting food and flowers in their own or communal gardens. More formally, it can be used therapeutically under the umbrella terms of green care (Haubehofer et al, 2010) where it is more commonly referred to as horticultural therapy, therapeutic horticulture or social and therapeutic horticulture. They all vary slightly by definition. Horticultural therapy has pre-defined goals, as in traditional therapy, defined by the therapist and client; therefore it is delivered by a healthcare professional and incorporates the use of plants (Haubehofer et al, 2010). Social and therapeutic horticulture takes into account the importance of social interactions and sense of community and uses horticulture alongside this to promote wellbeing

(Haubenhofner et al, 2010). Social and therapeutic horticulture deviates from traditional gardening in that it takes place in an organised environment, though there are no pre-defined clinical goals to aim for and achieve as in traditional therapy (Haubenhofner, 2010). Gardening is of particular interest in relation to the group at the centre of this doctoral research because gardening activities were the first and only activity on offer when it was first set up; the group has since expanded to include cooking and craft activities, but gardening remains a popular and prominent feature. The group and activities offered will be discussed more thoroughly later in the thesis.

Unassisted activities refer to actions that individuals can perform with little organisation or equipment. Walking and cycling are common types of green exercise in the UK (Pretty et al, 2006). Walking and cycling are ideal green exercise activities because they can be done by almost anybody, with very little preparation needed. The level of activity can be adjusted to suit the individuals' needs, and each can be done at the required pace. The time spent doing these activities can also be determined by the individual. Gardening at home can also be included here, as well as more social activities such as guided nature walks and bird-watching. Other more unusual, and perhaps less accessible to all, forms of green exercise include horse-riding, canal-boating, and conservation work (Pretty et al, 2006). These activities require more specialist equipment or experienced instructors and are often undertaken by people with a passion for the particular hobby. Social activities could also include bushcraft and foraging groups.

Clearly, the term 'green exercise' encompasses a wide range of activities undertaken in

the natural environment. Different types of green exercise require different levels of organisation, equipment and instruction, though it is important to note that to benefit from green exercise, it need not take specialist planning, equipment or preparation.

#### **2.4.1.2 *Benefits of Green Exercise***

In this section, I explore some of the key research around green exercise. As previously outlined, connectedness to nature refers to a deeper level of engagement with nature to the extent it becomes part of individual identity. Green exercise involves taking part in physical activity in the natural environment, therefore perhaps less intensity but an engagement with nature nonetheless. Below, I discuss the benefits of green exercise for a variety of populations including adults and children with various physical and mental health needs.

In their systematic review, Thompson et al (2011) aimed to identify if participating in exercise in an outdoor setting would have greater impact on mental and physical health and wellbeing compared to an indoor environment. Exploring wellbeing, quality of life and adherence to exercise in the long term, they located eleven studies to compare. The researchers identify the most common outcome for 'mental wellbeing' as a measure of participants' mood or feelings, such as feelings of revitalisation, energy, pleasure, delight and self-esteem. As with Ohly et al (2016), heterogeneity of included studies posed an issue in terms of collating results, so a narrative synthesis was performed. Overall, the results were positive in favour of exercising outdoors; nine of the included studies showed an improvement in mental wellbeing in at least one of the

outcome measures and participants reported a reduction in anger, tension and aggression. That said, exercising outdoors decreased calmness in some participants. Outdoor exercise also led to reports of intent to repeat the exercise, however none of the included studies measured exercise adherence so this cannot be verified (Thompson et al, 2011). Interestingly, the effect of the physical activity on physical wellbeing was not measured in any of the studies either, which limits the findings to mental wellbeing outcomes; which are also difficult to extrapolate due to the self-report nature of the mental wellbeing outcomes. The results from this review are promising; they support the notion that outdoor exercise can promote aspects of mental wellbeing, but also limited in that the researchers confirm the included studies were flawed methodologically (Thompson et al, 2011). Further, there lacks detail of the 'natural' or 'outdoor' setting, which will invariably differ from study to study.

Moeller et al (2018) conducted a scoping review of the literature around green exercise to determine what nature-based interventions are currently available specifically for adults who reside in institutional settings. Such settings included care homes, prisons and rehabilitation centres. Intervention type varied across the eighty-five studies included in this review, from animal encounter programmes to horticultural therapy, and participants were able to self-refer based on perceived benefit of the intervention or 'prescribed' the intervention by the relevant health and social care teams. Across the four identified intervention types (animal-assisted therapies, gardening/therapeutic horticulture, care farming and simulations of natural environments) positive effects were identified, though no formal conclusions regarding efficacy of interventions are made.

As previously discussed, methodological limitations and issues with heterogeneity of the

included studies is acknowledged, however the review benefits from a rigorous approach to inclusion and exclusion as well as thorough and detailed extraction of relevant data. This enabled the researchers to build up a full picture of what is known about nature-based interventions in institutional settings (Moeller et al, 2018).

More specifically, Cimprich and Ronis (2003) explored the effects of outdoor exercise on concentration. They found that when individuals were ill, their concentration and focus was more prone to fatigue. They studied a sample of adult breast cancer patients, assigning half to an experimental group who took part in outdoor activity each week. They found that the concentration levels of those in the experimental group significantly improved in comparison to the control group, showing how green exercise can assist with the restoration of the capacity to concentrate (Cimprich & Ronis, 2003).

Further, Hawkins, Mercer, Thirlaway and Clayton (2013) conducted research exploring the benefits of allotment gardening on health and wellbeing. Semi-structured interviews were used with fourteen participants aged 53 to 82 to collect data relating to perceived benefits of allotment gardening activity. Transcripts were analysed thematically, and two central categories emerged; the benefits of the activity ('doing') and the benefits of spending time at the allotment ('being'). Some identified themes overlapped these central categories; relaxation and escape were a result of both carrying out the physical work and being at the allotment. Physical benefits were noted as health improvements from the exercise associated with gardening tasks; raking, digging and carrying water. Stress reduction was also highlighted, and specific examples such as having a break from the home and relationship were mentioned. Being outdoors was an essential part

of this, taking in the sights and sounds of nature and wildlife, and 'getting out' (Hawkins et al, 2013, p. 118). Also exploring gardening, Gross and Lane (2007) conducted a grounded theory analysis of interviews with individuals aged 18 to 85; the aim to examine how interest in gardens changes over time. The findings indicate that gardens are implicated with escapism, identity and ownership and the importance of 'retreat'. The theme of 'ownership/identity' spanned across the age group, reflecting the ideas of nature connectedness in that individuals felt their gardens were a reflection of their personality and, for some, an embodiment of their existing interests (Gross & Lane, 2007).

In terms of research into green exercise with children, a study by Bekesi et al (2011) aimed to explore health related quality of life changes and recruited children with chronic physical health conditions to evaluate a camping programme. Over a hundred children aged ten to eighteen took part in an adapted questionnaire, which was completed two months before attending camp, and again two months after. Health conditions included cancer, arthritis and diabetes. The questionnaire measured physical and mental health and well-being, mood, autonomy and self-perception. The reported findings were encouraging, with over twenty seven percent of children improving significantly on at least one of the measured subscales (Bekesi et al, 2011).

The benefits of exposure to nature for children were investigated by Whitehouse et al (2001). Slightly different to green exercise and connectedness, exposure to nature is described as a more passive relationship with the natural world and concentrates more on being in contact with the natural world but not necessarily *engaging* with it.



Whitehouse et al. (2001) carried out research with a sample of children and their families who were under hospital care. The aim was to uncover whether having access to a garden whilst in hospital could improve perceived well-being by reducing stress. Twenty-two children and eighty-three adults took part in the research which included observations and interviews; modified for the children in the sample. The children reported that one of their favourite features of the hospital garden was the fountain, with the sound of the running water; the same feature was reported as the most helpful by adult users of the garden. The study was carried out in America using various methods of data collection including observations and interviews. Findings suggested that garden access reduced stress and restored hope and energy, with ninety percent of adult users of the garden reporting a positive effect on their mood (Whitehouse et al, 2001).

Whitehouse et al (2001) concluded that there were specific barriers which prevented the garden being utilised by all; primarily, knowledge of the healing garden. The majority of the families and patients surveyed in the hospital did not know about the existence of the garden, though asked for details of its location after they learned of it. Further barriers included accessibility, especially for more fragile wheelchair users navigating the uneven ground. There was also some confusion around the garden's purpose, with some staff believing it was for families only, and somewhere that staff must avoid (Whitehouse et al, 2001). One of the noted changes was the request for more trees and greenery, supporting the idea that exposure to this is restorative, as well as games for the children to play (Whitehouse et al, 2001). This could be useful to provide a level of 'fascination' for the children, to encourage restoration.

### **2.4.2 Green Care**

Green care is a broad term and is used to describe therapeutic and health-promoting activities which take place outdoors (Haubehofer et al, 2010). Green care differs to green exercise in that activities are more actively aimed towards facilitating change; it is described as using 'nature to produce health, social or educational benefits' (Sempik et al, 2010:28). Green exercise is more of a descriptive term, used to explain exercise that takes place in the natural environment. Green care activities often include social and therapeutic horticulture, animal assisted interventions, care farming and general farm-based therapy (Artz & Davis, 2017). Social and therapeutic horticulture have been defined above, therefore I will provide a brief definition for each of the others. Animal Assisted Interventions are broadly defined as the use of animals with humans in a therapeutic manner (Sempik et al, 2010). This can be through traditional Animal Assisted Therapy, delivered by a qualified practitioner, through to Animal Assisted Activities, which is less controlled contact with animals that may or may not have a therapeutic effect (Sempik et al, 2010). These concepts will be discussed further in Chapter Three. Care farming involves the promotion of physical and mental health from a farm or agricultural setting and will be discussed in more detail below. There appears to be geographical variation in the focus of green care, for example in Germany, animal assisted interventions and care-farming are favoured, whereas here in the UK the primary focus lies with social therapeutic horticulture and green exercise as a treatment (Haubehofer et al, 2010).

Artz and Davis (2017) explain that many countries have acknowledged the evidence for green care, however it is not yet used widely across the United States. They propose community-based ways in which green care can be used in America, based on the evidence they have found. The researchers conducted a review of the available literature around green care, which involved identifying articles using a variety of search terms to incorporate evidence across the breadth of this topic area; animal assisted therapy, therapeutic horticulture, equine assisted therapy and farm care were included amongst others. Some promising results were reported for children with behavioural, emotional or educational problems and children with autism as well as adults with adults with psychiatric disorders, though the researchers acknowledge there is further research to do in this area with American populations.

## **2.5 Care Farms**

One example of green care is care farming, which is a relatively new concept, especially in the UK. I have chosen to include care farming in this section, on the human/nature interaction, rather than chapter three, which covers animal assisted therapy because the activities completed in care farming are more diverse than animal interaction alone. Time spent with farmers instead of therapists, crops and the manual labour element separate this from the animal-focused literature. As knowledge of how the outdoor environment and spending time with animals increases, farmers are able to capitalise on this and diversify; enabling them to help others and continue in their farming despite financial pressures in recent times. Care farming involves clients spending time working on the farm and with the animals, carrying out various skilled and non-skilled tasks such

as feeding and cleaning animals, growing, fencing and general farming duties. Below, I will explore the concept of care farms and discuss the geographical incongruity with the provision of care farms. I will also outline the current empirical evidence around care farming; who it can help and how.

Care farming can briefly be described as the therapeutic use of farming practices; activities typically include caring for livestock or crops with the aim of promoting wellbeing (Artz & Davis, 2017) and is open to a wide variety of individuals with a range of needs. Increasing in popularity in the UK, research shows care farming has the capacity to improve physical and mental health (Hine, Peacock and Pretty, 2008). For a more comprehensive definition, Hine Peacock and Pretty (2008) offer the following:

“... the use of commercial farms and agricultural landscapes as a base for promoting mental and physical health, through normal farming activity. It is a . . . movement to provide health (both mental and physical), social or educational benefits through farming for a wide range of people. These may include those with defined medical or social needs (e.g., psychiatric patients, . . . people with learning disabilities, people with a drug history . . . as well as those suffering from the effects of work-related stress or ill-health arising from obesity. Care farming is a partnership between farmers, health and social care providers, and participants” (P. 12).

Care farming in the UK is part of a wider growing movement towards green care practices, which also includes social therapeutic horticulture and animal assisted therapy (Hine, Peacock and Pretty, 2008). Across Europe, the Netherlands are leading

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the way in care farm provision with a network of over eight hundred care farms; initial scoping research in the UK carried out in 2008 showed seventy-six operating care farms (Hine, Peacock and Pretty, 2008). More recently, Bragg (2013) identified 180 operating care farms, demonstrating the increase in their use.

As previously discussed, green care and care farming has not yet gained widespread popularity in the United States, however Artz and Davis (2017) suggest it would be a useful approach to mental health care, particularly in rural communities. In the Netherlands, care farming seems to provide a synergistic relationship for farmers and health care providers. Farmers are paid to provide care in the community, which in turn aids the economic viability of their farm, enabling them to continue their agricultural work. Hassink and van Majken (2006) offer a comprehensive summary of research around the impact of care farming across Europe and America on mental and physical health and social wellbeing, exploring this changing paradigm in public health and agriculture. The definition of care farming varies geographically, with the Netherlands enabling service users to access fully functioning farms to supplement their care. In Germany however, care farms are linked to large health care institutions, with no farms originally only focussed on agricultural production (Haubenhofer et al, 2010). Care farms in Germany are also on a much larger scale, often catering for more than three hundred clients at any one time (Haubenhofer et al, 2010).

As discussed, Hine, Peacock and Pretty (2008) conducted an initial scoping study which involved distributing a questionnaire to determine the current extent and diversity of care farming in the UK. The data collected illuminated who is currently providing care

farming opportunities, who is benefitting from care farms and how, as well as the successes and challenges care farmers face. The scoping study identified that individuals attending care farms showed improvements in physical and mental health; improved farm skills, mood, well-being, and self-confidence. The farmers also noted the social benefits; communication skills and the development of a work ethic. The questionnaire was distributed to all members of the National Care Farming Initiative (NCFI) and further to therapeutic communities and interested parties.

Following the initial scoping study, Hine, Peacock and Pretty (2008) carried out a more in-depth analysis to explore further how people in the UK are benefitting from attending care farms. Seventy-two participants took part in a 'snapshot health benefit survey' which was administered immediately before and after care farm attendance, to identify changes that were a direct result of being on the farm. Participants included those with mental health needs, older people, reoffenders and people recovering from drug or alcohol misuse. The questionnaire used standardised tools to measure self-esteem and mood; as previous research had indicated these could both be affected by care farm use. Overall, sixty four percent of participants experienced an improvement in their self-esteem, and eighty eight percent reported an improvement in their overall mood. The researchers conclude that "Care farming therefore offers an ideal way of helping a wide variety of people to feel better" (Hine, Peacock and Pretty, 2008:94).

This research does provide a useful snapshot of how care farming can be used to help people however it is just a glimpse; it would be useful to observe how attitudes and behaviour change over time, which a longitudinal study could offer. Crucially, the

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questionnaire used in this research was only suitable for completion by adults. Children, and people with learning difficulties, were excluded from this research. This excludes a significant population of the users of care farms, with the researchers stating that alternative methods are required to assess this population (Hine, Peacock & Pretty, 2008).

The years following the scoping study outlined above saw change in the network of care farms; the NCFI was superseded by Care Farming UK, which went on to merge with the Federation of City Farms and Community Gardens, becoming Social Farms and Gardens. Their aim is to support community projects which encourage individuals to connect through farms and gardens to improve wellbeing.

The initial scoping study carried out by Hine, Peacock and Pretty (2008) was followed up by Bragg (2013) to see how care farming has changed and provide an update on the key facts and figures. The number of care farms that responded to the questionnaire increased, with 115 of the 180 care farms in existence taking part in the research. This is compared to 76 in the original study. Care farms continue to provide services to people with learning disabilities, drug and alcohol dependency and mental health issues, however in Bragg's (2013) updated study, clients with Autism Spectrum Disorder are included. The reported benefits are consistent with the findings from the scoping study and split into physical health benefits (improved health and skills), mental health benefits (improved self-esteem and mood) and social benefits (team working, independence and formation of work ethic).

A study commissioned by Natural England (2014) sought to establish what services are currently provided by care farms and how these services can be better utilised. They found that care farms offer social, educational and health services to a variety of populations, consistent with Hine, Peacock and Pretty (2008) above. The key challenges faced by care farmers include obtaining sustainable funding to continue providing the services and making them accessible to more people. The lack of validation regarding the value of care farms from commissioners is also highlighted, as well as issues with staffing and continuing provision in poor weather. The recommendations include using more robust evaluation methods; this could help with the funding issues and offering evidence for the value of care farms. Further, it is suggested that a better support network, including linking with other countries that provide care farms, could help with overcoming issues and sharing solutions to common issues in the sector (Care Farming UK, 2014).

More specifically, Scholl et al (2008) carried out research exploring the effects of regular interaction with goats. An adult sample was recruited, who were deaf and with multiple disabilities. Participants were recruited on a voluntary basis and spent at least an hour with the goats each week for eleven weeks. Interaction was recorded on video tape and behaviour was coded for statistical analysis. This was compared with tape recordings of the participants in a dining room setting, used as a control. Statistically, the findings showed increased participation in guided activities and attentiveness (Scholl et al, 2008). That said, aggression levels reportedly rose too. The researchers included some qualitative observations and communication with staff, which revealed that for three clients out of the ten under study, a marked improvement was noted. The goats



provided companionship for the clients. One experienced increased joy and a sense of responsibility, another found an improvement in mobility and the third overcame her fear of the goats (Scholl et al, 2008).

Further qualitative research was carried out by Pederson et al (2012) who sought to explore individual experience of farm animal assisted interventions. A phenomenological perspective was used to gather experiences of eight individuals with depression, who completed a twelve week intervention at a dairy farm. Overall, the findings were positive; the participants felt that the distraction from their illness and the ability to assume an ordinary working life were essential parts of the experience. Coping with the intervention was assisted by a flexible approach to tasks; adaptations could be made where necessary to aid individuals (Pederson et al, 2012). This insight into experience offers a useful perspective on how farm animal assisted therapy can be useful in mental health recovery.

### Impact on Policy

The case studies analysed by Hine, Peacock and Pretty (2008) suggest that care farming can help ease the pressure on health and social care providers, as well as education authorities, by providing services to address depression, obesity, reoffending and disconnection from nature. Care farms can provide many services to help different people, including developing and improving social and work skills. Some care farms also offer the opportunity for clients to work towards accredited training courses. In their initial study Hine, Peacock and Pretty (2008) noted that many care farms have referrals from different sources including the Job Centre, local Primary Care Trusts, Education

Authority and the Prison Service. Many perceived benefits were put forward by the farmers such as; improved physical health, improved mood, increased confidence and increased calmness. Farmers also noted it was good for clients to form a work ethic and learn to work independently. Perceived success varied across the UK Care Farms that took part in this survey, but three themes emerged; making a difference to people's lives, helping the 'excluded' become 'included' and positive feedback from those affected. The latter theme refers to feedback from the client themselves, their families and the service which offered the referral (Hine, Peacock & Pretty, 2008).

The success of care farming in Europe has paved the way for research in the UK. However, there are a number of difficulties inherent with evaluating care farms, the first arising from the definition, or lack of. With so much diversity in approaches, there is no standardised way of running a care farm, such as what facilities, services and activities are offered. Therefore, it is difficult to compare and contrast initiatives and interventions (Hine, Peacock & Pretty, 2008). Also, by their very nature, it is almost impossible to apply the usual measures of good empirical research such as control groups and opting for a blind approach. For a control group, though it is possible to have a 'waiting list' for a care farm intervention, it would be unethical to deny access to participants in need. It would also be impossible to test against a 'placebo'; participants have either been to a farm or they have not, and it would also be very difficult to offer treatment discreetly. The outcomes of care farms are problematic to measure, though some success was achieved using the snapshot health survey. A qualitative research approach could be used to explore the experiences of care farm users over time, to provide a holistic representation of the perceived benefits.

## 2.6 Chapter Summary

In this chapter, I have explained some of the key theories relating to human-nature interaction. Attention Restoration Theory, the Biophilia hypothesis and stress-reduction theory were outlined and comparisons between the theories made. Relevant research was detailed and critically evaluated. I also discussed the current knowledge of nature connectedness and available therapies and interventions that utilise the natural environment. Green care and care farms have also been explored in this chapter. Having discussed some of the previous research, it is evident that the restorative effects of nature are difficult to ascertain empirically due to the wide variation in outcomes measured. There is some support for the positive impact of nature on wellbeing, as demonstrated by Bowler et al (2010), however due to the quantitative synthesis method used to evaluate the literature, the researchers acknowledge that some improvements may have been excluded. The literature around green exercise suffers a similar limitation in that it is difficult to draw accurate conclusions about whether exercising in nature is beneficial to wellbeing because the chosen outcome measures for each study vary from study to study. It is encouraging that findings are generally positive, however due to the limited outcomes measured in the quantitative research included, establishing what it is about nature that offers these benefits is problematic. Using qualitative methods affords the researcher an opportunity to investigate what it is about the experience of nature which offers improvements to wellbeing. In the current study, using a descriptive phenomenological approach enables the 'whole' of the experience to

be explored, in accordance with objective three: “To examine what it is about the experience of the natural world and animals that contributes to the experience”.

## **Chapter 3 Animal Interaction**

### **3.1 Chapter Overview**

The perceived benefits of spending time with animals, in various capacities, is a relatively new concept in terms of research in psychology, starting to take off in the 1990's. It is necessary to first explain the terminology and definitions used in this field of research and situate animals in the therapeutic context by outlining the key theory and related research from previous studies, starting more historically then building up to what has been established more recently. After outlining the history of animals in therapy, I will discuss the use of animals in current interventions; animal assisted therapy in the present day. This will include broadly how animals are used to promote well-being and assist people with their physical and mental health needs. I will move on to explore the use of animal related interventions for children with additional needs. I will conduct a narrative synthesis of the current literature around interventions using animals for children with additional needs, identifying and synthesizing the key research that has been conducted since 2007. Having highlighted the gaps in the current literature, I will relate this discussion to the current study by summarising what is known and providing a rationale for the research.

### **3.2 Defining Animal Interaction**

Animal Assisted Therapy (AAT), Animal Assisted Interactions (AAI) and Animal Assisted Activities (AAA) vary in a similar way to horticultural therapy and social and therapeutic horticulture, in that the degree of formality and professional input differs. Essentially,

AAT is a goal-directed therapy which is carried out by a professionally trained individual as part of a treatment process. Animals used in therapy must meet certain criteria and the progress of the client is measured (Kruger & Serpell, 2006). AAI is less formal; it includes interacting with animals more casually and aims to have a therapeutic effect on those taking part but the delivery can be from volunteers or professionals and is described as a 'category of promising complementary practices' (Kruger & Serpell, 2006 p.21). AAA includes interaction with animals for therapeutic gain but can be delivered by anybody and there are no specific goals to achieve.

### **3.3 Overview of Animals in a Therapeutic Context**

Historically, animals have been used as part of therapeutic processes. Self-efficacy has been the focus of some previous research, with studies exploring the use of systematic desensitisation. This type of therapy can help individuals with specific phobias, but the following example explores the ways in which systematic desensitisation can have an overall effect on feelings of self-efficacy in other stressful situations people may encounter in their everyday lives.

Bandura and Adams (1977) explored the use of systematic desensitisation for people with phobias of snakes, in relation to their perceived self-efficacy. Strong self-efficacy is linked to effective coping, according to the researchers, and self-efficacy can determine the way in which people persevere when faced with difficulties. Self-efficacy is also an influencing factor with individuals' choice of experiences and the effort they put in to these experiences (Bandura & Adams, 1977). Bandura and Adams (1977) explain that there are four main components of self-efficacy; performance accomplishment,

watching others succeed, verbal persuasion that one can succeed and physiological states. Participants in the research were asked to rate their feelings about encountering snakes in different scenarios; the figures were averaged out to provide a gauge of their individual level of anticipatory fear. They were then asked to rate how they would cope with the situation, which was averaged to provide a score of perceived self-efficacy. Participants also completed ratings for encountering other animals they feared, as well as their feelings about dealing with difficult social situations. Systematic desensitisation then took place with a trained therapist. The average duration for complete elimination of anxiety in the most threatening imagined event was eliminated in an average time of just under four and a half hours. The results also showed the desensitisation treatment increased the strength of the participants' perceived self-efficacy (Bandura & Adams, 1977).

More recently, self-efficacy was explored by Berget, Ekeberg and Braastad (2008) who carried out a randomized controlled trial to explore the effects of animal assisted therapy using farm animals. They measured self-efficacy, coping ability and quality of life using questionnaires for ninety participants. Of the ninety, sixty were randomly assigned to the experimental group, and thirty to a control group. The control group received treatment as usual, and the experimental group attended a farm twice a week for a duration of three hours over the course of twelve weeks. Questionnaires were completed by all participants before, immediately after intervention and six months later. The intervention involved clients working directly with the farm animals, which included cows, sheep and small animals such as rabbits, cats and poultry. Of the sixty in the experimental group, forty-one completed the intervention. Reasons for leaving the

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intervention included little interest in the particular animal on the farm, boredom with the tasks and private reasons.

The findings indicated self-efficacy was significantly better in the experimental group at the six month follow up. The suggested reasons for this increase were discussed by the researchers; it could be that working with the animals encouraged the clients to engage fully with their standard psychiatric treatment, or that the contact with animals served as a pleasurable social experience, making participants less afraid of new social interactions. It could be that in learning new skills on the farm, and skills acquired from interacting with the animals, the clients felt their confidence improve, which in turn had a positive impact on self-efficacy (Berget et al, 2008). This is congruent with concepts from Bandura's (1989) social cognitive theory in that confidence, and the belief in oneself to complete a task, is central to self-efficacy. Also, the contact with animals served as a positive social interaction; carrying out tasks in small groups and under the supervision of a farmer would enable the client to observe behaviour to assist learning the new skill, which could have a positive influence on self-efficacy.

Currently, there is a much broader exploration of how animals can be successfully incorporated therapeutically. It has been recognised that animals can be valuable in the therapeutic context for much more than self-efficacy and the treatment of phobias, and they are now incorporated in therapeutic practice for a variety of both physical and mental health concerns.

For example, Cole, Gawlinski, Steers and Kotlerman (2007) explored the impact of a  
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therapy dog for patients hospitalised with heart failure. The therapy group were visited by a volunteer with a dog and compared with a control group, who had a visit from a volunteer only. The therapy group had significantly greater decreases in systolic pulmonary artery pressure, amongst other physical health improvements, during and after the visits compared to the control group. The therapy group also had the greatest decrease in state anxiety compared to the control group, highlighting the improvement in both physical and mental health (Cole et al, 2007).

Mercer, Gibson and Clayton (2015) conducted an exploratory study investigating the effects of an animal assisted activity programme in a UK prison. Semi-structured interviews were used with staff and offenders to gather data. Offenders on a small, intensive care wing were selected to care for a variety of animals including chickens, goats, miniature ponies and two dogs. The dogs were focussed on by the participants; perhaps because they resided in the wing with the prisoners, enabling continuous access, it aided a feeling of connectedness. Data were analysed using thematic analysis and the findings included enhanced communication, building trust, having a sense of responsibility and a positive impact on mood and behaviour. The findings were far reaching; a positive impact on mood and behaviour saw a reduction in self-injurious behaviour and an increase motivation to take care of themselves and their surroundings. Building trust with the dogs in particular helped to break down barriers for offenders, facilitating connections with the staff on the wing and adding to the enhanced communication. Though a small-scale study, this research paves the way for further exploration of the impact of animals for this population and adds to the evidence base of the benefit of interacting with animals.

Marino's (2012) review of AAT and AAA sought to answer the question 'how important is the *animal* in animal assisted therapy?'. Marino (2012) examined two meta-analyses and twenty eight single empirical studies, and concluded that the effects of AAT and AAA are 'moderate and broad at best' (Marino, 2012:139). Of the twenty eight empirical studies reviewed, seven involved child participants, and one of these involved children with a diagnosis of autism specifically. The review aimed to assess whether a live animal is an essential component in therapy or whether 'another novel, stimulating component' (Marino, 2012:139) can provide therapeutic success. Though the literature is increasing, Marino (2012) concludes the research is not yet rigorous enough to provide a definitive answer as to whether animal interventions are effective, nor whether the animals in therapy are a necessary element.

However, other authors are more positive in their assessment of the outcomes of animal interventions and the effects of animals in therapy. Souter and Miller (2014) conducted a meta-analysis of animal assisted therapy and animal assisted therapy in relation to depression. Five studies were identified for analysis and the researchers reported a statistically significant effect size which indicated that the animal interventions were associated with fewer depressive symptoms (Souter & Miller, 2014). Animal assisted therapy has empirical support demonstrating the physiological improvements clients make whilst receiving therapy, such as reduced anxiety and cardiopulmonary pressures (Cole et al, 2007) and decreased blood pressure and increased social interaction (Jorgenson, 1997).

### **3.4 A Narrative Synthesis of the Animal Assisted Therapy Literature for Children with Autism**

This section presents a narrative synthesis of the available research exploring the impact of contact with animals for children with autism. Firstly, Nimer and Lundahl's (2007) meta-analysis is described. This helps to establish what has been discovered about animals in therapeutic settings. For the purpose of this thesis, I aim to establish what has been found since this review took place. The rationale for the narrative synthesis is then presented and the search strategy I used is explained. I applied inclusion and exclusion criteria to identify the appropriate research, which is shown below. The synthesis results are then discussed.

#### **3.4.1 *Animal Assisted Therapy: Current Knowledge***

There is a variety of research exploring the use of animals in therapy settings and, of particular relevance to this work, a number of studies have focused on exploring the use of animal therapy and interaction for children with autism. Nimer and Lundahl (2007) reviewed the research on animal assisted therapy and carried out a meta-analysis to explore the impact of AAT on four outcomes: ASD symptoms, medical problems, behavioural difficulties and emotional well-being. To obtain data for the analysis, Nimer and Lundahl (2007) identified two hundred and fifty abstracts and applied inclusion criteria such as ensuring the research was in English, contained more than five participants and had sufficient data to establish an effect size. This can be seen as a

limitation, because many qualitative research projects may have been excluded; not only due to generally smaller sample sizes but also because of the way that data is collected and analysed. As qualitative research often does not seek to show effect sizes like quantitative research does, it therefore often fails to provide the numbers and figures required to establish an effect size and therefore potentially valuable contributions from qualitative research are missed.

Having applied the inclusion criteria, the researchers were left with forty-nine studies. Four of these studies explored the effect of animal assisted therapy for children with autism. All four studies were using children aged up to twelve, and all used dogs in the therapy programme. The 'autism measure' in this study include outcomes such as increases in positive social interactions, increased communication and decreased self-absorption (Nimer & Lundahl, 2007). The average effect size on the 'autism measure' for these four studies was 0.82. Effect sizes around 0.8 were considered 'large in magnitude' (Nimer & Lundahl, 2007:228). In terms of other findings from the studies of children with autism: 'Effect sizes for changes in ASD behaviours were in the high range, while they were low to moderate range for wellbeing, moderate for medical and behavioural changes' (Nimer & Lundahl, 2007:232).

In their assessment of the available evidence, Nimer and Lundahl noted it appears that handling animals can be used to help with physical health problems; for example, learning to groom a dog has been used improve muscle strength and to develop fine motor skills and walking a dog can improve physical health.

They also highlighted that exposure to pets seems to help with mental health promotion too, through the reduction of loneliness and providing a sense of connection with another living being (Nimer & Lundahl, 2007). Using an animal alongside traditional therapy, rather than as a standalone treatment, was identified as promoting a warm and safe atmosphere, which in turn encouraged clients to accept treatment (Nimer & Lundahl, 2007). Through carrying out the meta-analysis, it was discovered that dogs are the most frequently used animals in therapy, and most often for mental health concerns.

The findings specific to autism behaviours were explained further, to highlight the improvements found. Increased communication, increased positive social interaction and decreased self-absorption were all identified (Nimer & Lundahl, 2007). The review also compared animal assisted therapy to alternative forms of complementary therapy including photography. They found a higher attendance rate for the animal therapy, and more desirable social interaction. They concluded that “Young children consistently benefitted across all outcomes, including ASD” (Nimer & Lundahl, 2007:234).

The findings from this research shed a positive light on the use of animals in therapy for children with autism, as well as other individuals with other physical and mental health problems. The meta-analysis is limited by the studies that were included, or rather, those not included as they failed to meet the inclusion criteria, but also it is difficult to make inferences from these analyses in other areas. For example, exploring the impact on well-being for thirteen to seventeen year olds only had two studies; in quantitative terms this is unrepresentative of this group. However, the meta-analysis does raise some interesting questions about animal assisted therapy on the whole; notably by

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exploring the different effect sizes when using different animals. The authors state that “The data suggest that the use of dogs in AAT is consistently associated with moderately high effect sizes, which is not the case for all animal groups- horses and aquatic animals often cross zero or are near to zero, which suggests that animal type does matter” (Nimer & Lundahl, 2007:233). This is an interesting concept to explore further; could it be that using dogs is more effective, or is it that there is simply more research on animal assisted therapy with dogs? What could cause a difference- could it be that there is an element of fear when being around horses? They are large animals that can be difficult to handle and considered intimidating to some. Perhaps it could be that people have less exposure to horses as they are less commonly kept as pets, where regular contact would reduce concern for safety. Dolphins could also stimulate a fear response for some; being in the water can be anxiety-provoking, especially with a large animal which they have had little exposure to. If it is the case that there is an element of fear, could the positive effects of animal therapy be greater if and when the client has formed an attachment with the animal, thus overcoming the exposure issues, and has learned their behaviour to the extent that they feel more in control?

### **3.4.2 Rationale**

The narrative synthesis of the current research was a necessary step to help situate the current study in the research field. It was important to explore the non-traditional autism interventions which utilise animals to establish what is being done and see where the gaps in the literature lie. At the beginning of this thesis, I explained that I would use the term ‘additional needs’ throughout, however this narrative synthesis is the exception.

Upon scoping the literature, I noticed that the animal assisted therapy interventions targeted children with autism specifically, rather than more general 'additional needs' or learning disabilities. This could be because autism is considered a 'social disability' with symptoms affecting social skills; a quantifiable concept that can be measured for change in psychological research. To ensure I found all of the relevant research in this area, I used the term 'autism' in my searches and will use it throughout this section. As a fast-moving topic in current psychology, new research and the employment of alternative methods is changing what is known about the potential benefit of contact with animals for this population. To establish the contribution of the current study, it is first essential to confirm what contributions have already been made.

### **3.4.3 *Why A Narrative Synthesis?***

A narrative synthesis is similar in execution to a more traditional systematic review in that it aims to identify the literature in the research field using a systematic search of databases. After applying inclusion and exclusion criteria, the research is analysed. It differs by producing a narrative of the findings; instead of using statistics and figures, a story of the results is told to explore data from both quantitative and qualitative studies (Rodgers et al, 2009). A narrative synthesis can be used to incorporate data from a wide range of research evidence, which is appropriate for the current study (Rodgers et al, 2009). To carry out a narrative synthesis, firstly the aims and objectives of the review are outlined. Then, a search strategy details how the studies are found, and inclusion and exclusion criteria are applied. Studies put forward for review may be subject to a quality appraisal. For this research, quality of included studies was considered but no

formal quality appraisal was undertaken; the research in this area can often be critiqued for methodological flaws, however if studies are excluded due to this then important research could be lost. Relevant data is then extracted from each study and a thematic analysis is carried out to organise data in to themes and subthemes for discussion. A summary of findings from the synthesis is then constructed (Rodgers et al, 2009).

#### **3.4.4 *The Search Strategy***

The research question posed to guide the literature search is: “How do children with autism experience animal interaction?”. The aims of the synthesis are to establish:

- “How many studies explore the impact of contact with animals for children with autism?” and
- “What does the research suggest that the impact of contact is for this population?”

To conduct the review, two comprehensive databases were searched using specific search terms, PsycINFO and PubMed. As identified in section 3.2, defining contact with animals is difficult due to the variety of terms used to describe it (Animal Assisted Therapy/Interaction/Activities) so I used the term ‘Animal\*’ to ensure each of these were included. Upon scoping the literature, it appeared that, for the purpose of psychological research, Animal Assisted Therapy was the main focus and term used. Animal Assisted Activities and Interaction are perhaps favoured outside of research; being less goal-oriented the impact of these therapeutic interventions are more difficult to measure thus less widely researched; though by using the terms I did, all relevant research was included. I used the terms “Animal\* AND autism” to search the PsycINFO and PubMed



databases, and applied the below inclusion and exclusion criteria to the studies found. I also manually searched to identify any studies missed in the review.

### **3.4.5 Inclusion and Exclusion Criteria**

After searching the databases using the terms outlined above, inclusion criteria and exclusion criteria were applied to the abstracts of the research found. The use of the criteria enabled me to identify the relevant research studies to include in the review and leave out the research that was not appropriate to the research question.

The following are the inclusion criteria applied to the abstracts:

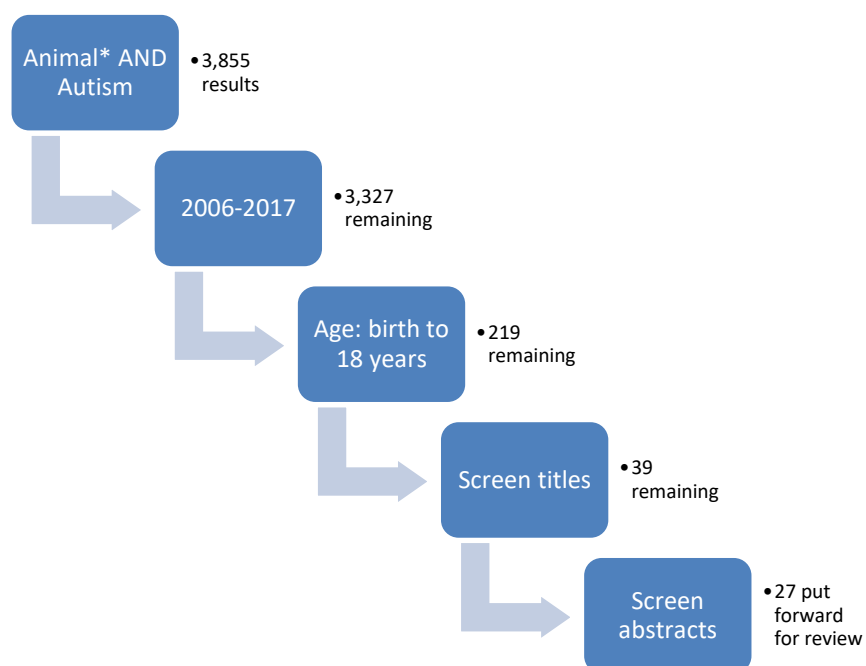
- Studies written in English. This meant that funds did not need to be located to translate the research, causing delays.
- Research carried out from 2007 to the present day. As previously stated, research in this topic area is moving quickly and therefore it is only necessary to include the more recent studies. Furthermore, Nimer and Lundahl's (2007) systematic review explores the key research from before this period; the results of which were discussed in section 3.4.
- Research with children in the sample rather than adult populations. Studies with the majority of participants were aged under eighteen were included.
- Research exploring the impact on autism. Although it is not the only additional need in the participant group, it appears to be the most prevalent condition both in the participant group and the current literature.
- Research that aims to explore the effect of contact with animals in some way.

The following exclusion criteria were applied to the abstracts:

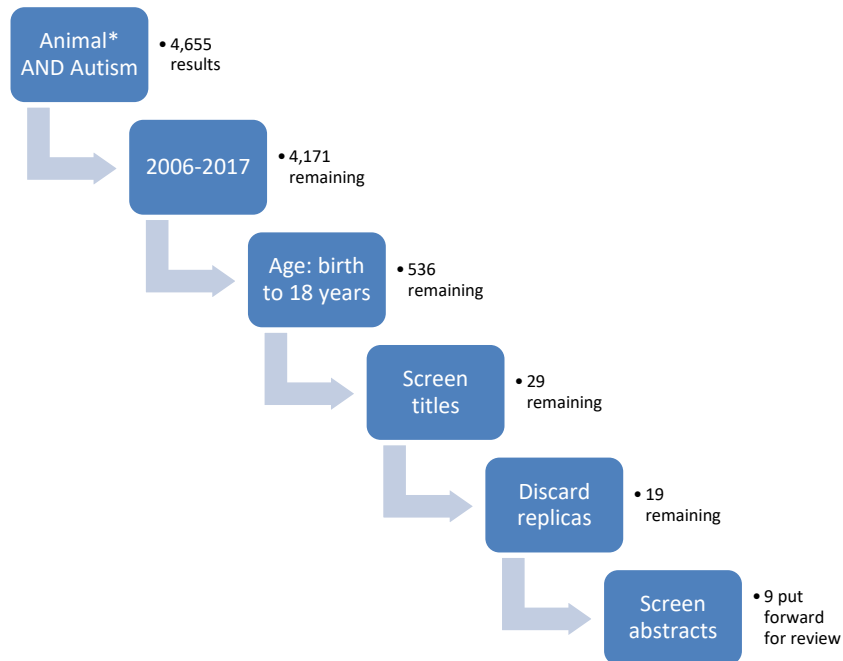
- Studies not in English. The funding and time constraints of the research project meant that translations were not feasible.
- Research taking place prior to 2007. With new information coming to light about both Animal Assisted Therapy and autism, it is important to exclude dated research to give an accurate description of the current knowledge.
- Research that does not include children in the sample. Studies with the majority of participants were adults over the age of eighteen were excluded.
- Research that does not explore the impact on autism in some way.
- Research without the aim of exploring the effect of contact with animals in some way.

### 3.4.6 Search Results

The below diagram demonstrates the number of studies found and what remained after each criterion was applied.



**Figure 1: Search results from PsycINFO.**



**Figure 2: Search results for PubMed.**

### **3.5 A Discussion of Included Studies**

Thirty-six studies were found searching the databases, and a further two studies from manually searching. Upon further reading, it became clear that four of the included studies were not relevant to the research question and were subsequently excluded. Hoagwood and Acri (2017) conducted a review of the literature and included mainly children who had, or were at risk of, mental health conditions as well as some studies with children with autism. Maurer et al (2017) used a mixed sample and children with

autism were in the minority. Further, their methods involved children looking at photographs of animals rather than any physical contact with animals. Grandgeorge et al's (2012) research explored the behavioural profiles that emerged when encountering animals, focusing on the nature of the interaction rather than the impact of animal contact. It also seems that the study was conducted on a non-autism sample, with a view of replicating the study with children with autism. Grandgeorge et al (2015) was also excluded from the review as it was concerned with establishing whether children would have a preference for humans or animals in the home compared to the lab setting, rather than impact on the children's wellbeing.

Thirty-four studies were reviewed overall. The following tables summarise the aim, method, key findings and conclusion of each study for ease of reference. I also included a column to clarify whether qualitative or quantitative methods were used, and a comment on how data was collected or anything else that I felt was significant to include.

The key findings column forms part of the thematic analysis. In their example, Rodgers et al (2009) explore relationships between studies using concept mapping and idea webbing, but Holding, Gregg and Haddock (2016) carried out a thematic analysis of the findings of included studies to generate themes and subthemes. This seemed an appropriate method for organising the findings of the studies included in this synthesis, thus the process I followed is detailed below.

PsycINFO Articles				
Author(s), Year	Study Details	Findings	Conclusions	Methodological Approach
Hoagwood and Acri 2017 (Excluded)	Excluded- though it does include some research on equine therapy for children with autism, the review includes all AAT research for children with, or at risk of, mental health conditions.			

<p>Anderson &amp; Meints 2016</p>	<p>15 children with autism took part in this study to determine the effects of a 5-week therapeutic riding programme, consisting of one 3-hour session per week. Social functioning was the focus for the researchers. Efficacy was measured using three scales: the autism spectrum quotient, the empathising and systemising quotient</p>	<p>The results showed that the intervention increased empathising and reduced maladaptive behaviours (those which prevent the child from adapting to certain situations; destructive habits, repetitive behaviours). However, specific behaviours such as socialisation and communication were not affected.</p>	<p>The results show that whilst therapeutic riding does not change all behaviour, it can improve specific aspects of social functioning and reduce some autism 'traits'.</p>	<p>Quantitative.  Intervention not long enough? Petty et al (2017) found improvements from the beginning of week 5.  Note: Behaviour scales and parent questionnaires used to gather data.</p>
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	<p>and the Vineland Adaptive Behaviour Scale.</p> <p>Parents were asked to complete a questionnaire and an age appropriate variation of the Autism Spectrum Quotient on the first and last day of the programme.</p>			
Jesionowicz, 2016	<p>This study aimed to discover if animal assisted therapy could influence emotional</p>	<p>The researcher report that there was minimal evidence that suggested that the</p>	<p>Overall the findings do not suggest that animal assisted therapy had a positive effect on the</p>	<p>Quantitative</p> <p>Note variation in language used: 'temper</p>

	<p>regulation for three boys with autism.</p> <p>12 sessions took place over 6-8 weeks with a therapy dog and 'tantrums and aggressive behaviour' were used to indicate emotional dysregulation.</p> <p>Frequency, intensity and duration of 'tantrums' were measured, and frequency and intensity</p>	<p>animal assisted therapy decreased the duration of 'tantrum behaviours' and the intensity of 'aggressive behaviours'.</p>	<p>participants' 'temper tantrums and aggressive behaviours'.</p>	<p>tantrums' and scale used to measure (Giesbrecht Temper Tantrum Grid).</p> <p>Behaviour scales used to gather data.</p>
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	of 'aggressive behaviours'.			
Borgi et al, 2016	<p>This study tested the effectiveness of Equine Assisted Therapy for children with autism. 15 children took part in therapeutic sessions including riding and ground work, compared to 13 in a control group (on the waiting list). The researchers aimed to identify any improvements in</p>	<p>Results showed an improvement in social functioning for the children in the intervention group compared to the control group.</p> <p>A milder effect was found for motor skills and executive functioning (e.g. problem solving).</p>	<p>This study provides further support for the use of Equine Assisted Therapy for children with autism.</p>	<p>Quantitative</p> <p>Note: Interviewing parents (for behavioural scale) and observing children completing a task.</p> <p>Interviews and behaviour scales used to gather data.</p>

	<p>adaptive and executive functioning.</p> <p>Sessions took place once a week for six months; totalling 25 sessions per participant.</p> <p>Participants were evaluated before and after the intervention using behavioural scales.</p>			
Stevenson et al, 2015	Three students with autism were included in this study which aimed	All three children showed an increase in meaningful social	This research adds to the evidence base that dogs can have a	Predominantly quantitative- some 'qualitative

	<p>to see if dogs could help children to socially engage with their teachers.</p> <p>Five sessions were recorded and coded, and qualitative observations were made about each child.</p> <p>Teacher questionnaires and measures were completed pre- and post-sessions.</p>	<p>interactions in the presence of the dog.</p> <p>There was also a reduction in solitary or repetitive behaviours in these sessions.</p>	<p>beneficial impact for children with autism (particularly in relation to social engagement).</p>	<p>observations' made by researchers which offered more detail on the types of interaction and how the dogs had an immediate impact on behaviour.</p>
Davis et al, 2015	<p>This systematic review included 20 studies to</p>	<p>The researchers concluded that overall,</p>	<p>It was concluded that the limitations of the</p>	<p>Systematic review</p>

	<p>evaluate the effectiveness of animal assisted interventions for children with autism. Included studies were assessed in terms of variables, outcomes and certainty of the evidence.</p>	<p>positive or mixed results were found. Eight of the included studies reported positive results whilst the remaining twelve were mixed. None reported negative results. Methodological flaws identified throughout also caused concern; these included a lack of experimental design and the use of</p>	<p>included studies and mixed results found necessitate further, more rigorous research to be carried out to determine the efficacy of animal assisted interventions for children with autism. Further research will need a sound experimental design and reliable, valid measurement tools.</p>	
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		researcher constructed measuring systems.		
Gabriels et al, 2015	116 children and adolescents with autism completed this 10-week randomised controlled trial of therapeutic horseback riding intervention. Participants were measured within 1 month pre- and post-intervention and assigned to one of two groups: intervention or	Significant improvements were found in the children in the intervention group compared to the control group for irritability and hyperactivity by the beginning of week five. Significant improvements were also found for social cognition and communication,	As the first large scale RCT, it is encouraging that the results show efficacy for the intervention for children with autism, and are consistent with previous findings of Equine Assisted Therapy research.	Quantitative  Note: Behavioural measures used by researchers and parental questionnaires used.

	<p>control (no-horse barn activity). Caregivers were also asked to completed questionnaires relating to behaviour on a weekly basis.</p> <p>Irritability was the primary outcome, with variables such as social cognition, communication, motivation and awareness among others measured using</p>	<p>including increased verbal output.</p>		
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	the Social Responsiveness Scale.			
O'Haire et al, 2015	This study investigated social stress in children with autism, and if the presence of animals impacted on anxious arousal, to see whether animals could act as 'social buffers' for the children. 99 children took part in groups of three (1 child with autism and two typically developing peers).	The results showed heightened arousal in the children with autism in all conditions except that in which the guinea pigs were present. Statistically, the children with autism showed a 43% decrease in skin conductance (indicating anxiety) in the presence	The researchers conclude that the animals may act as 'social buffers' for the children with autism.	Quantitative Note: Data collected using wristband

	<p>Continuous physiological arousal was measured in children with autism and their typically developing peers in four conditions (reading silently, scripted classroom- reading aloud, free play with peers/toys and free play with peers/guinea pigs). This was measured using a wristband which recorded data including</p>	<p>of animals compared to toys.</p>		
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	skin conductance, temperature and movement.			
Grandgeorge et al, 2015 (Excluded)	This study was excluded as it aimed to assess what the children would show an interest in- humans or animals- whilst in the home compared to the lab environment.			
Fung & Leung, 2014	In this study, ten children with autism took part in 14 sessions of play therapy with a	The researchers found that in the group with the therapy dog, verbal	The researchers conclude that a therapy dog could play a useful	Quantitative  Observations were used and behaviour

	<p>therapy dog. This was compared to a comparison group of children who had a doll instead of a dog. Social behaviour was measured such as asking questions and following instructions, demonstrating engagement with the intervention.</p>	<p>social behaviour increased significantly. Although the change was not significantly greater for the children in the intervention group compared to the control group, the therapy dog had a positive impact on language output.</p>	<p>role as a speech elicitor for children with autism.</p>	<p>was coded and analysed using parametric tests.</p>
Lanning et al, 2014	<p>Equine Assisted Activities were the focus of this study, with</p>	<p>Parents noted significant improvements in</p>	<p>This research provides further evidence for the benefit of equine</p>	<p>Quantitative</p>

	<p>10 participants engaging with equine activities compared to 8 taking part in a non-equine intervention over 9 weeks.</p> <p>Quality of life assessments and parent contributions were used to collect data.</p>	<p>relation to physical, emotional and social functioning after 6 weeks of the children attending the equine assisted activities.</p> <p>Parents of the children in the non-equine intervention also noted improvements, to a lesser degree.</p>	<p>assisted activities for children with autism.</p>	<p>Data collected from parents and children using Pediatric Quality of Life and Child Health Questionnaire.</p>
<p>Garcia-Gomez et al, 2014</p>	<p>8 children with autism took part in this research exploring the effects of therapeutic</p>	<p>The findings showed a significant difference in two of the quality of life indicators (social</p>	<p>The researchers concluded that the therapeutic riding intervention was</p>	<p>Quantitative</p>

	<p>horseback riding on behaviour and quality of life.</p> <p>The participants took part in 24 sessions lasting 45 minutes and the Behaviour Assessment System for Children was used, as well as a quality of life questionnaire which measured variables including interpersonal relations and social inclusion.</p>	<p>inclusion and interpersonal relations) and a reduction in aggression on the Behavioural Assessment System for Children Scale.</p>	<p>especially useful for children with autism as it is an individual activity in which interactions occur. It is less 'chaotic' than other group activities.</p>	<p>Behaviour scales completed by researchers used.</p>
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<p>Holm et al, 2014</p>	<p>Different doses of therapeutic horseback riding were examined in this study, to see if it affected behaviours during the session, at home and in the community.</p> <p>The doses were 1, 3 or 5 sessions per week and participants were three boys with autism.</p> <p>Counts of target behaviours were</p>	<p>Compared to the baseline, 70% of the target behaviours were improved during intervention. Target behaviours included spontaneous interactions and verbal communication. The latter increased for all three participants.</p> <p>Improved physical core strength and co-ordination was also found for the children,</p>	<p>Target behaviours were improved with therapeutic horseback riding and the magnitude of change was in line with the higher dose.</p>	<p>Quantitative</p> <p>Parent reported behaviour using the Aberrant Behaviour Checklist-Community and the Social Responsiveness Scale, as well as the Sensory Profile- Caregiver Questionnaire to report specifically on sensory experiences of children.</p>
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	collected in each setting and phase.	thought to be from sitting on the horse and controlling the reins. Increased doses of therapeutic horseback riding were significant for the magnitude of change recorded.		
O'Haire et al, 2014	This study explored the effects of classroom-based animal assisted activities on social functioning. 64 children with autism took part,	Significant improvements were found from before to after the programme on social approach behaviours and social skills, as well as	The researchers conclude that the animal assisted activities could be a cost-effective way of helping families and teachers improve social	Quantitative Teachers and parents using behavioural scales.

	<p>from 41 classrooms in 15 different schools.</p> <p>The programme included 8 weeks of animal exposure in the classroom, alongside 16 animal interaction sessions.</p> <p>Teachers and parents reported on behaviour of the children before intervention, during an 8 week 'wait' for the intervention to start</p>	<p>decreases in social withdrawal.</p> <p>Parents also reported an increased interest in attending school whilst the programme was running.</p>	<p>functioning of children with autism from the classroom.</p>	
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	then after the 8-week programme.			
Funahashi et al, 2014	Two 10-year old male participants took part in this study; one with autism and one without. The participants wore smile recognition devices whilst taking part in animal assisted activities. Sessions lasted around 30-40 minutes and sessions took place over a 7-month period.	Positive social behaviours increased as smiles increased. Negative social behaviours decreased when smiles increased for the child with autism.	The researcher concluded that by providing the environment in which a child with autism smiles, the positive social behaviours will increase and negative behaviours will decrease.	Quantitative  Data collected using wearable device, also coded by researcher.



	Sessions were recorded and behaviour coded to ensure accuracy of data collected by the device.			
Grigore & Rusu, 2014	This research explored the effects of a combination of methods to improve social skills in children with autism; Social Stories and animal assisted therapy. The ability to greet, and introduce oneself to, a	They found that the presence of the dog during the reading of a social story had a positive effect. The frequency of social initiations increased, whilst the number of prompts required decreased.	This adds to the literature suggesting a dog is beneficial for improving social skills of children with autism.	Quantitative  Sessions were recorded and behaviours coded by the researchers.

	<p>social partner was targeted in three children with autism.</p> <p>The frequency of appropriate interactions were recorded, as well as prompts required and social initiations.</p>			
Carlisle, 2014	<p>Social skills of children with autism living with dogs were compared to those living without dogs were compared in this study.</p>	<p>In 7 of the 8 measured social skills areas, the children living with dogs scored higher than those living without dogs. Social skills included assertion,</p>	<p>The findings of the research contribute to the literature which suggests that dog ownership can be beneficial for children with autism.</p>	<p>Mixed methods</p> <p>Parent report and children contributed some data re how attached to their pet they were.</p>

	<p>Telephone interviews were carried out with caregivers who completed the Social Skills Improvement System Rating Scale. They were also asked open-ended questions, the answers of which were analysed thematically.</p> <p>The children who lived with dogs completed the Companions Animal</p>	<p>which was defined as initiating behaviours in social situations.</p> <p>The children living with dogs reported high bonding using the CABS and parents confirmed they were 'very attached'.</p> <p>From the thematic analysis, parents described the benefits of dog ownership which included unconditional</p>		
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	Bonding Scale to establish attachment.	love and companionship.		
Jenkins & DiGennaro Reed, 2013	This study looked at the effects on behaviour of therapeutic horseback riding for 4 children with autism.  The children were observed weekly during horse riding lessons and observed intermittently at home.	No changes were found in behaviour for the children under study.  Behaviours included affect, responding to others, spontaneous initiations and problem behaviour.  Three of the children improved their posture.	No changes found except improved posture.	Quantitative  Observations were coded by the researchers.
Terrasi, 2007	Three children with autism took part in this research exploring the	The results showed that the participants produced significantly	This study contributes support for dolphin assisted therapy for	Quantitative

	<p>effects of dolphin assisted therapy on verbal operant production. Baseline data were recorded before therapeutic sessions for each child using video recordings provided by parents, as well as direct observations. Verbal operant production, prompts and nonverbal behaviour were noted.</p>	<p>more verbal responses, and required significantly less prompts, during the therapeutic sessions with dolphins compared to the classroom.</p>	<p>children with autism in relation to verbal operant production.</p>	
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	Three dolphin sessions were compared to three classroom settings after a behavioural trend was established.			
Grandgeorge et al, 2012 (Excluded)	This study was excluded as it aimed to measure the nature of interaction with animals and the behavioural profiles that emerged. It also did not use children with autism in the sample, and instead considered replicating			

	the study with children with autism.			
Silva, Correia & Lima, 2011	<p>This single case study looks at how the introduction of a service dog impacts a child with autism receiving therapy.</p> <p>The participant was video-recorded during normal treatment sessions and sessions including a service dog for comparison.</p>	<p>The researchers found that the service dog had two effects; the child showed more positive behaviours, for longer (including smiling and positive physical contact) and less negative behaviours including aggression.</p>	<p>The study adds to the literature suggesting service dogs can have a positive impact on children with autism, particularly in relation to engagement with therapy.</p>	Quantitative

	Behaviour was coded and analysed for each condition.			
Alison, 2011	<p>Three children with autism were included in this study exploring the impact of contact with a dog on social and communicative behaviours.</p> <p>Alison hypothesized that multiple semi-structured interactions with a dog could reduce restricted, repetitive</p>	<p>Two of the children showed statistically significant results; an increase in social cognition, engaged social play, smiling and expressive communication. The third child showed positive responses though not statistically significant.</p>	<p>This study adds support to the body of literature suggesting children with autism may benefit from contact with dogs.</p>	<p>Quantitative</p> <p>Social Responsiveness Scale used to collect data.</p>



	behaviours and increase social communication.			
Maurer et al, 2010 (Excluded)	Excluded- children with autism are in the minority of the sample and the study uses photographs of animals rather than real-life contact.			
Viau et al, 2010	It has been established that contact with dog's results in decreased cortisol levels in healthy adults. The researchers	The introduction of the service dogs translated to a statistically significant diminished CAR.	This provides further support for the suggestion that service dogs can benefit children with autism.	Quantitative.  Cortisol levels were tracked to collect data.

	<p>in this study aimed to determine if this physiological impact could be found for children with autism too.</p> <p>Salivary cortisol levels were measured in 42 children at three times: prior to the dog being introduced, during the dog's presence and after the dog had been removed from the family.</p>	<p>Prior to introduction, CAR was measured at 58%&gt; During the time with the dog, the CAR decreased to 10%. On removal of the dog, CAR raised to 48%.</p> <p>No difference was found in average cortisol levels.</p>		
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	Average cortisol levels and Cortisol Awakening Response (CAR) was measured.			
Krskova, Talarovicova & Olexova, 2010	This study investigated how the presence of a guinea pig impacted social behaviours of 9 children with autism. Observations were used and children experienced both conditions. In the first, contact with an 'unfamiliar person' and	The researchers found that the frequency of contact with the acquaintance significantly increased when the guinea pig was present. They also noted that the children interacted significantly more with	The researchers conclude that the presence of a guinea pig can positively influence both the quantity and quality of social behaviours in children with autism.	Quantitative Observations were coded.

	'acquaintance' without the guinea pig were recorded. In the second condition, contact with the acquaintance and guinea pig were measured.	the guinea pig than the 'unfamiliar person'.		
Bass, Duchowny & Llabre, 2009	This study examined the effects on a 12-week horse riding intervention for 19 children with autism compared to 15 children in a control group (on a waiting list).	The findings showed that the children in the intervention group expressed greater sensory seeking and sensitivity as well as greater social motivation.	The results of this study add to the evidence base that horse riding is a viable alternative intervention for children with autism.	Quantitative Data collected using Social Responsiveness Scale and Sensory Profile.

	The aim of the study was to evaluate how the intervention impacted of social functioning.	The children in the intervention also exhibited less inattention, distractibility and sedentary behaviours.		
Prothmann, Etricht & Prothmann, 2009	14 children with autism took part in this study exploring social interactions. Children were offered the choice of interacting with a person, therapy dog or toy. Observations were	The study found the children interacted most frequently, and for the longest time, with the therapy dog.	The researchers conclude that animals, in particular dogs, communicate intentions to children with autism in a clear manner that is understandable, hence the preference.	Quantitative  Note: Data collected using observations

	used to record the interactions.			
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**Table 1: A summary of the included studies from PsycINFO**

PubMed Articles				
Author(s), Year	Study Details	Findings	Conclusions	Methodological Approach
Petty et al, 2017	This pilot study investigated the effects of a 10-week therapeutic horseback riding intervention. The aim was to see if behaviour towards the family pet changed after the intervention. 66 children aged 6-16 participated. Caregivers completed a	Caregivers of the children in the intervention group reported significant improvements in the caring actions towards the family pet for the children in the intervention group compared to the control group (no-horse barn activity).	Engaging with the horses in the intervention group may generalise to improving caring actions towards family pets for children with autism.	Quantitative  Note: Caregivers completed questionnaire

	questionnaire pre- and post-intervention.			
Fung, 2015	<p>This case-study tested the effectiveness of animal assisted play therapy in increasing social communication.</p> <p>One 7 year old boy with autism took part in 3 sessions per week with a dog and therapist; the dog was phased out towards the end.</p>	<p>Social behaviours were measured at baseline, during sessions, posttreatment and at follow up.</p> <p>The participant's social communication increased during treatment and remained higher than baseline at the follow up.</p>	<p>The case study offers support for the use of animal assisted play therapy to increase social communication for children with autism.</p>	<p>Quantitative</p> <p>Note: Behaviour measures were used to collect data.</p>
Burgoyne et al, 2014	This study explored the value of assistance dog	Participants with an assistance dog rated	The findings indicate that an assistance dog	Quant



	<p>interventions for the family unit. 134 parents/guardians of children with autism who have an assistance dog were surveyed and compared with 87 on the waiting list for an assistance dog (control group).</p> <p>The researchers focused on how the assistance dogs improved the safety of the child and public</p>	<p>their child as significantly safer from environmental dangers. They felt that the public were more respectful towards their child and felt more competent managing their child's behaviour compared to the control group.</p> <p>Safety and comfort of the children and a sense of freedom were reported from the</p>	<p>can be a valuable intervention for the whole family with children with autism in terms of safety, public perception and freedom from the restrictions families of children with autism often face.</p>	<p>Note: Survey of parents used, including the Caregiver Strain Questionnaire, the Perceived Competence Scale and qualitative data collected from part four of the former scale were analysed using open coding and categorisation, which produced themes.</p>
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	reception of the child, as well as caregiver competence.	families with an assistance dog.		
O'Haire et al, 2013	This study compared social interaction in the presence of toys and animals. 99 children took part, divided into groups of 3-1 child with autism, 2 typically-developing peers. Children took part in three 10-minute free play sessions with toys, and three 10-	The children with autism displayed more social approach behaviours (talking, looking at faces and making contact) and more pro-social behaviours (e.g. smiling and laughing) in the presence of the guinea pigs compared to toys. Less self-focused	The results of the study suggest that the presence of animals can significantly improve social behaviours for children with autism.	Quantitative  Note: Children's behaviour was coded by two blinded observers.

	minute free play sessions with two guinea pigs.	behaviours were demonstrated (e.g. frowning and crying) in the presence of the guinea pigs compared to the toys.		
O’Haire, 2013	This literature review included 14 studies from peer-reviewed journals exploring the impact of animal assisted activities. The presentation of animal assisted	Findings from the included studies were “unanimously positive”: improved social interaction and communication, decreased negative behaviours and autistic severity.	The review demonstrates a proof of concept that animal assisted interventions are beneficial for children with autism. The reviewer notes that most of the studies were flawed with	Literature review

	activities varied across the studies.		methodological weaknesses.	
Berry et al, 2013	This critical review includes six studies on the effects of interactions with dogs in families with children with autism. There is particular focus on the effect of social behaviour and language use.	The overall findings of the included studies are “encouraging”: the emotional connection forged with the dogs can help children with autism to relate and interact with others by targeting core symptoms of the disorder, improving social interactions and	Further research is required; the authors conclude that the larger samples and more rigorous study designs are required for the interventions to make it into clinics.	Critical review

		acting as 'social catalysts' P77.		
Grandgeorge et al, 2012	This study explored whether the presence or arrival of a pet could trigger pro-social behaviours in children with autism. Participants were split into 2 groups of 12 and 2 groups of 8 and assigned to 'pet arrival after age 5 compared to no pet' and 'pet since	The researchers found that two of the items on the 36 item scale changed positively for children aged between 4 and 5 in the pet arrival group. These items were 'offering to share' and 'offering comfort'; both identified as pro-social behaviours.	These findings indicate potential ability for children with autism to form pro-social behaviours and opens up lines of research on the impact of pet arrival and pet presence. Interesting to note that it is not just the presence of an animal	Quantitative  Note: Behaviour scale used and parental questionnaires to gather data.

	<p>birth compared to no pet'.</p> <p>Social impairment was measured twice using a 36-item scale and parents were asked to complete a questionnaire.</p>	<p>Similar results were observed for children who had had a pet from birth as those who had never owned a pet. Changes were only noted in the group where the pet arrived after age 5. (Always been there/not novel/didn't form a bond?- Pet arrival group formed bonds)</p>	<p>in this study- as those who had had pets from birth did not differ significantly from those who had never had a pet.</p>	
Salgueiro et al, 2012	A series of scales and checklists were used to	The findings on all but the PEP-R scales show	The researchers concluded that the	Quantitative

	<p>measure the efficacy of a dolphin interaction programme for 10 children with autism. Scales included the Childhood Autism Rating Scale (CARS), Psychoeducational Profile-Revised (PEP-R), Theory of Mind Tasks (ToM Tasks), Autism Treatment Evaluation Checklist (ATEC) and a custom-</p>	<p>no benefits of the dolphin interaction programme. On the PEP-R, some statistically significant results were reported on the 'Overall development', 'Fine motor development', 'Cognitive performance' and 'Cognitive verbal development' scores.</p>	<p>dolphin interaction program did not support significant developmental progress in children with autism.</p>	<p>Note: Scores to measure behaviour used</p>
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	made Interaction Evaluation Grid (IEG).			
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**Table 2: A summary of the included studies from PubMed**



### **3.5.1 *Thematic Analysis***

Following the example set by Holdings, Gregg and Haddock (2016), who carried out a narrative synthesis of the literature around experiences and opinions of psychological therapy, I carried out a thematic analysis of the key findings of included studies to form a narrative synthesis. I used Braun and Clarke's (2006) model for the thematic analysis, which uses 5 stages to organise and analyse data. After extracting relevant data from the research included, I familiarised myself with it by reading through the findings column thoroughly. Initial codes were then identified. These are specific and narrow, often direct quotes from the text being analysed. The third step sees these codes clustered into broader themes, which are then reviewed and defined by name in steps four and five. The sixth stage sees themes written up, which will make up the body of the narrative synthesis.

The four key themes identified after the analysis were: 'no change', 'reduction in negative behaviour', 'physical changes' and 'increase in social behaviour'. These themes will now be explained further.

### **3.5.2 *No Change***

Two of the included studies reported no significant change in the variables measured after the animal interventions. Jesionowicz (2016) aimed to explore the impact of Animal Assisted Therapy using a sample of three boys with autism. A therapy dog was used for six to eight weeks and 'emotional regulation' was monitored. This involved measuring the frequency, intensity and duration of "temper tantrums" and "aggressive behaviour" to

establish any change. The use of the terminology “temper tantrums” is perhaps a cross-cultural variation in language; the study was carried out in America, though on further reading it is defined as behaviour such as whining, screaming, crying, stomping and throwing self on the floor.

In the UK, ‘tantrums’ and ‘paddying’ tend to have negative connotations and are often related to a lack of understanding of autism. As in Ryan’s (2010) research, parents of children with autism use this kind of language when describing the public’s perception of their child’s behaviour, without knowing the child has autism. Emotional dysregulation is common in children with autism, who can struggle to express emotion in a ‘normal’ way, though this kind of dysregulation is more commonly referred to as a ‘meltdown’ (Ryan, 2010). Aside from terminological differences, Jesionowicz (2016) also used Giesbrecht’s “Temper Tantrum Grid” to measure changes in frequency, intensity and duration of meltdown behaviour. Arguably this is an inappropriate tool, as it was devised to measure the tantrums of neurotypical pre-school children rather than those with a complex developmental disorder. As Ryan (2010) states, applying the normative ways of behaving is often problematic when it comes to children with autism because of the social, intellectual and sensory difficulties they face. Further, Jesionowicz (2016) radically altered the Grid to the exclusion of physical reactions and comforting behaviour, potentially affecting the integrity of the tool.

Jenkins and DeGennaro-Reed (2013) studied a sample of four children with autism taking part in a therapeutic horseback riding intervention. The children were observed during their sessions and at home intermittently. The researchers were exploring effects

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of the program on behaviour, and measured variables such as responding to others, spontaneous initiations and problem behaviour. No significant changes were discovered in the children under study for behaviour, though three of the four participants saw improvements in posture post-intervention. The researchers acknowledge the difficulty in measuring behaviour using observations and state that they were unable to adopt a multiple baseline design across the horse riding sessions; for example, commands given to the horse would vary depending on the behaviour of the animal. The intervention lasted nine weeks, so perhaps the program needed to continue for longer to bring about any significant change. Also, the baseline data and intervention data were collected in ten-minute intervals rather than throughout the session; it could be that behaviour was missed. The current literature around therapeutic horse riding is generally supportive, including a thorough randomized controlled trial (Petty et al, 2015) so this is an anomaly.

### **3.5.3 *Reduction in Negative Behaviour***

#### *Reduced Aggression*

Garcia-Gomez et al (2014) and Silva, Correia and Lima (2011) both found a reduction in aggression in their studies. The former used a therapeutic horse riding intervention and the latter introduced a service dog to normal therapy sessions. Garcia Gomez et al (2014) report “lower levels of aggressiveness on the Behavioural Assessment System for Children Scale” (p.108) and concluded that the intervention is “less chaotic” than other group activities (p. 108). Silva et al (2011) state they found “less frequent and shorter durations of negative behaviours (such as aggressive manifestations)” and

“more frequent and longer durations of positive behaviours”, adding this contributes to the literature in relation to engagement with therapy (p.655).

### *Reduced Distractions*

Petty et al (2015) found an improvement in both hyperactivity and irritability in their study. Similarly, Bass, Duchowny and Llabre (2009) found “less inattention and distractibility” (p. 1261). Petty et al (2016) conducted a large scale randomised controlled trial examining the impact of a therapeutic horse riding intervention, measured using the Social Responsiveness Scale. Interestingly, Bass, Duchowny and Llabre (2009) used the same intervention and measurement scale, and in addition to the reduction in negative behaviours found the children displayed “greater social motivation” post-intervention (p.1261).

### *Maladaptive/Repetitive Behaviours*

Anderson and Meints (2016) found a therapeutic horse riding programme “reduced maladaptive behaviours” in children with autism. This included a reduction in “destructive habits” and “repetitive behaviours” (p.3344). Interestingly, Stevenson et al (2015:341) also found “a reduction in solitary or repetitive behaviours” in their study exploring how dogs could help children with autism engage with learning.

### *Decreased Negative Social Behaviours*

O’Haire et al (2014) found a decrease in “social withdrawal” in their study utilising guinea pigs in a classroom setting, as well as an increase in social behaviours (p. 162).

Funahashi et al (2014) also noted a decrease in “negative social behaviours” when the child in their study smiled during animal assisted activity sessions (p. 685).

Burrows, Adams and Spiers (2008) carried out a qualitative research project exploring the effect of integrating a service dog in to families of children with autism. Ten families from Canada were included in the research, and the children ranged in age from four to fourteen. They were selected after interviews with parents identified that the children had issues with communication, and data was collected using participant observations, video footage of interactions and semi-structured interviews. Family data sets were compiled and compared. The primary function of the service dog was safety-focused; the dog was harnessed and attached to the child, which meant that it could act as a guardian. The dog prevented the child from bolting and was described by the parents as a ‘sentinel of safety’ (Burrows, Adams & Spiers, 2008:1644). The families reported they had a renewed sense of freedom when the service dog was introduced; family outings occurred again, and the service dog promoted awareness of autism, which in turn improved social recognition of the condition. Families noted that when out with the dog wearing a harness “confrontations were avoided when the child displayed inappropriate behaviour or a tantrum, whereas strangers had previously attributed the behaviour to a lack of parenting skills” (Burrows, Adams & Spiers, 2008:1646). Parents found having the service dog facilitated conversation, giving them a chance to explain autism which was perceived as improving awareness, tolerance and empathy, leading to “positive social acknowledgement” (Burrows, Adams & Spiers, 2008:1648). This could extend in to the therapeutic domain; a service dog may be able to act as a facilitator between the child and others, with some families in this study explaining how the child was willing to

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communicate others about the dog. The findings were wide and varied from family to family but included observed improved motor skills (from petting, feeding and throwing a ball during play with the dog) and reported improvements in well-being were far reaching: decreased anxiety, less frequent meltdowns, promoting calm and making bedtimes more manageable as the dog stayed with the child throughout. The improvements for the parents were significant too; parents reported the dog enabled them to have personal time, encouraged exercise and relieved stress. The research concluded that having a service dog calmed the child, prevented meltdowns and stopped bolting, therefore improving quality of life (Burrows, Adams & Spiers, 2008).

Solomon (2010) added to the research carried out by Burrows, Adams and Spiers (2008). Using case studies with American families, therapy dogs visited children in their homes weekly for up to six sessions. Interactions lasted between one and two hours and were video-recorded for analysis. Discussing two case studies in particular, Solomon (2010) found that the presence of the dog improved communication and participation in everyday life. Furthermore, Solomon (2010) found that the dogs supported the children's emotional connection with others. Solomon (2010) discusses how dogs have helped in the military, stating they "provided a powerful sense of security, stability and safety in the middle of the chaos and terror of war" (p. 146). Having the emotional connection with another living creature provided a sense of humanity and morality. Solomon (2010) also considers how dogs can enter our lifeworld, or rather, how letting a dog enter our lifeworld, they become part of our life stories.

### **3.5.4 Physical Changes**

A number of studies reported physical improvements in the children participating. Borgi et al (2016) found a mild positive effect for fine motor skills after children had taken part in a therapeutic riding program. Part of the program included ground work with the horse (grooming and feeding) which may have contributed to this. O’Haire et al (2015:584) found a “43% decrease in skin conductance responses” which indicate anxiety when in the presence of animals and Viau et al (2010) reported “the introduction of service dogs translated into a statistically significant diminished Cortisol Awakening Response” indicating stress reduction (p 1187). Lanning et al (2014) used parent reports and quality of life assessments to collect data for an equine assisted activity intervention and found “parents noted significant improvements in physical, emotional and social functioning following the first 6 weeks of Equine Assisted Activities” (p. 1897). Physical functioning was measured using the Child Health Questionnaire, and a statistically significant improvement was found.

### **3.5.5 Improvement in the Social Domain**

This theme has three subthemes: communication, behaviour and interaction. I felt it was important to make the distinction with these findings, as although the differences may seem subtle they are present, and the different terms are used in the literature. Social behaviour seems to relate to actions or reactions to the situation. Social interaction suggests an exchange between individuals; a response with reciprocity. Social

communication may include non-verbal communication and actions towards the animals as well as communication between humans.

### Social Communication

Fung and Leung (2015) specifically explored the impact of a therapy dog on social communication and found a positive result in this single case study. They report that “verbal social behaviour increased significantly in the experimental group” and although this difference was not significantly larger than the effect that the comparison group saw, “the preliminary findings suggested that the therapy dog had a positive impact on language output” (p. 253). Though a single case study, this offers support for the use of animals in conjunction with therapy to target social communication. Petty et al (2015) conducted a large scale RCT to measure the effects of therapeutic horse riding (THR). Specifically, they found “significant improvements in the THR group were also observed on a measure of social cognition and social communication” (p.541). This is consistent with other findings of studies utilising THR (e.g. Anderson & Meints, 2016; Lanning et al, 2014).

### Social Behaviour

O’Haire et al (2013) reports “Participants with ASD demonstrated more social approach behaviours (including talking and looking at faces) in the presence of animals compared to toys” (p. 1). They used guinea pigs in an animal intervention with a large sample of ninety-nine children. The demonstration of these pro-social behaviours in the presence of the animals is a positive result, and the researchers go on to say the children with autism also received more social approaches from their peers, which highlights the use



of animals for facilitating social behaviour. Following on from more social approach behaviours, Bass, Duschowny and Llabre (2009) found that the motivation for social interaction was greater; that is, the children sought out social interaction from their peers too.

Grandgeorge et al (2012) also considered the impact of animals on pro-social behaviours, focusing in particular on the differences between children with no pets, children who had pets from birth and those who acquired a pet aged four or five. They found that two of the items on the scale used to measure this impact saw improvement for the children who welcomed a pet when aged four or five; “offering to share” and “offering comfort”. Of the children in the study, changes were only discovered when a pet arrived with children aged four or five; similar results were observed between the children who had never had a pet or those who were born with pets. This is interesting to note as it seems it is not simply being in the presence of animals which brings about pro-social behaviour, perhaps the opportunity to form a bond with a pet at an appropriate age has an effect.

Improvements in social skills were observed in several studies using a variety of animal assisted interventions. O’Haire et al (2014) used guinea pigs in the classroom in their intervention for children with autism and concluded that “Significant improvements were identified in social functioning, including increases in social approach behaviours and social skills” (p. 162). Similarly, Carlisle (2014) found “a trend toward increased social skills for children with ASD who lived with pet dogs” (p.78) though adds that this difference was not statistically significant.

Fung and Leung (2014) noted an increase in verbal social behaviour, though this improvement was not significantly greater than the control group in their study using therapy dogs. However, Terrasi (2007) did find a significant difference in verbal responses in their study exploring the impact of dolphin therapy. Terrasi (2007) also found that the children required fewer prompts during the therapeutic sessions.

Lanning et al (2014) used Equine Assisted Therapy to establish the impact on quality of life. Parents recorded “Parents noted significant improvements in their child’s physical, emotional and social functioning following the first 6 weeks” (p. 1897). Funahashi et al (2014) also found improvements in positive social behaviours, concluding that smiling more due to the animal contact facilitated this change.

### Social Interaction

O’Haire’s (2013) review found that, of fourteen studies, the findings were “unanimously positive” and nine of those included “increased social interaction” (p. 1606). Measures used included behavioural observations of social isolation and self-absorption, both of which decreased. O’Haire (2013) notes that the four survey-based studies included in the review used a different tool to measure social interaction (Social Responsiveness Scale, Socialization Skills subscale of the Vineland Adaptive Behaviour Scale, Sociability subscale on the Autism Treatment Evaluation Checklist and Human-Equips Interaction on Mental Activity). All four report a significant improvement in social interaction. This offers rigour to the findings.

Berry et al (2013) also conducted a review of six studies with “an emphasis on social behaviours and language use” (p. 73). They describe animals as an “emotional bridge” in the therapeutic context and act as “social catalysts” (p. 77). They consider that the attitudes towards animals are the key; by being non-threatening, they bring about calm which in turn facilitates “responsiveness and willingness to communicate” (p. 77), concluding that children are more likely to engage in the presence of the therapy dog. Stevenson et al (2015) also used therapy dogs in an educational setting, to help children with autism to engage with their teachers. They found “an increase in meaningful social interactions with dog and teacher” in the presence of the therapy dog (p. 341).

Also focusing on frequency of meaningful interactions, Krskova, Talarovicova and Olexova (2010) found an indication “that the presence of a small TA [therapy animal] can positively influence the quantity and quality of the social behaviour of autistic children” (p.141). Similarly, Prothmann, Ettricht and Prothmann (2009) concluded that contact with a therapy dog was more frequent and longer lasting than with humans or objects in their study exploring social interactions.

Grigore and Rusu (2014) found that the presence of a therapy dog while reading social stories “increased the frequency of social initiations” and, as with Terrasi (2007), “decreased the level of social prompt needed to elicit social responses from children with autism” (p.1). Borgi et al (2015) explored the use of equine therapy for children with ASD. A control group of thirteen was included, and a sample of fifteen studied. They

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used structured equine assisted therapy sessions, which included horse riding as well as ground work, such as grooming and handling. Behaviour scales and assessments to record levels of 'executive functioning' were used prior to the equine assisted therapy and again six months later, after the intervention. They reported that the children in the therapy group improved their social functioning and noted that children were more efficient at problem solving, termed 'executive functioning' (Borgi et al, 2015). They also found that the children showed a small improvement in fine motor skills. This links back to Nimer and Lundahl's (2007) suggestion that handling the animals, especially practising grooming techniques, can improve motor skills.

### **3.6 Summary of the Review**

The aims of the review were to establish:

- “How many studies explore the impact of contact with animals for children with autism?” and
- “What does the research suggest that the impact of contact with animals is for this population?”

To answer the first question, thirty-two studies explored the impact of contact with animals. Quantitative methods were used in all studies, with one drawing on some qualitative methods to gain feedback from teachers. Of the included studies, thirteen explored the impact of contact with a dog. This included pet dogs as well as therapy dogs in a more structured setting. The literature indicates dogs are the most popular therapy animals. This is followed by horses; nine of the included studies used equine assisted interaction/therapy. Guinea pigs were the animal of choice for four studies; Krskova et al (2010) describe them as “the “small great” therapists for autistic children”

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(p. 139). Two of the included studies used dolphins as therapy animals. One study includes a mixture of pets including cats, dogs and rabbits. Two of the included reviews include a mixture of animals. The final study used a mixture of dogs, llamas and rabbits. The number of participants varied from one to one hundred and sixteen; one study reports data from one hundred and thirty four parents but the number of children in the study was eighty.

The second question is more complex; overall the results report a positive impact, with only two studies finding no change post-intervention. The findings from the thematic analysis highlight that animal contact can have a significant impact on social behaviour in particular. This was discussed in the literature using different terms including social interaction and social communication. This could be because a lot of the research focussed on social aspects as an outcome, measuring this variable only or including it in quality of life or autism 'trait' assessments. This theme was multi-faceted; improvements in social behaviour manifested itself in many ways including increased verbal output, increased social initiations and improved social skills. Other perhaps less obvious presentations included an increased eagerness to attend school and an increase in empathising behaviour, both of which facilitate more frequent, better quality social behaviour.

The included studies also found a trend in decreasing negative behaviours. This included antisocial behaviours, such as lower aggression, irritability and social withdrawal. It also covered a reduction in 'autism traits' such as repetitive and solitary behaviour.

Physical health also saw an improvement in some studies, albeit a small improvement. Motor skills and posture were highlighted as improved after animal interactions. This could be because physical changes were not measured pre- and post-intervention; instead, research concentrated on mental health changes.

As previously noted in relation to care farms, the literature around animal assisted therapy can be difficult to evaluate and particularly difficult to compare due to the wide range of research methods and analysis techniques used. The narrative synthesis has highlighted this issue further; many of the studies identified for inclusion in the review explore the phenomena differently. For example using observations, questionnaires or technical data to measure change offer different perspectives. Many of the studies relied solely on quantitative methods to analyse results, which has advantages of ascertaining effect size but can also miss essential findings regarding the impact of contact with animals. It also means that the scope of the studies is often smaller; hence there are studies identifying changes in social communication but little opportunity for exploring other variables. There were also the normal difficulties researchers face in terms of attaining all follow-up data (e.g. Lanning et al (2014) had to exclude data due to missing answers on questionnaires, and a clerical error meant that there was no data at all for the comparison group at the 12 week post-intervention mark).

As research in this area is still relatively novel, many of the included studies had small samples which can be seen as a limitation (e.g. Stevenson et al (2015) had three participants, Holm et al (2014) had three, Funahashi et al (2014) had two and Fung (2015) had just one participant). There were also some potential problems with the

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length of the interventions, which may have affected results. For example, Anderson and Meints (2016) found no change on socialisation and communication after a five week intervention. However, Petty et al (2015) only noted improvements in these aspects from the beginning of week five of a ten-week intervention.

I felt it was important to include the research with the small samples and methodological flaws to give a fuller picture of what is currently known about animal assisted approaches for children with autism and consider what can be done in future research to contribute further.

### **3.7 Rationale**

Now the relevant theory and research in this area have been outlined, it is time to consider what has been established by the previous research and where the gaps lie. This will indicate why, on evidence of the literature, the current study is needed.

#### **3.7.1 *Where Does the Current Study Fit with Existing Literature?***

The current study aims to build upon the existing research in animal assisted therapy in a 'green care' environment. It will explore the experiences of children with additional needs; how they perceive the animal interaction in the 'green care' environment. Animal interaction is not currently included as an ongoing activity within the participant group. Exploring how the children experience this new animal interaction activity will form a key part of the current study. Throughout this thesis, I have chosen to use the term

'additional needs'. I have chosen this term instead of others such as 'special needs' and 'learning disabilities' because it is the term used by the participant group.

Previous research in green exercise has drawn upon clinical adult populations; exploring how green exercise and green care can improve physical and mental health issues (Hine, Peacock & Pretty, 2008; Cimprich & Ronis, 2003; Scholl et al, 2008). Research with families of children with autism has been carried out in America (e.g. Solomon, 2010) and Canada (Burrows, Adams & Spiers, 2008) but the UK equivalent is lacking. The narrative synthesis illuminated the variety of methods used and different ways of analysing collected data, and also how the focus for animal assisted therapy has remained on children with autism. The key variables measured were in the social domain; communication, behaviour and interaction, and how contact with animals can improve this. The current study aims to build on this existing research exploring how children with additional needs can benefit from animal interaction, adding to the literature around animal assisted therapy, green care and alternative interventions for children with autism. Using a radically different methodology in the form of descriptive phenomenology will enable a full picture to be built of the experience without the constraints of an interview schedule or similar.

### **3.7.2 *Identified Gaps in the Literature***

Conducting the literature review and narrative synthesis for the current study has highlighted several gaps in research that it is hoped this research will contribute to. It has been established that green exercise can assist with improving the capacity to



concentrate (Cimprich & Ronis, 2003), and help to improve physical and mental health and well-being for adults with varying diagnoses (Cox et al, 2017). As an umbrella term for a wide variety of 'care' methods, green care evidence comes from a variety of fields outlined above; care farms, animal assisted therapy, social and therapeutic horticulture and more. It is not clear how green exercise or green care may affect children with additional needs and specific requirements; Hine, Peacock and Pretty (2008) concluded that the measures used to evaluate green care were unsuitable for these children and further research, using alternative methods, was required. It is also unclear precisely what it is about contact with nature that can bring about these results. By working with the proposed population, I can explore their experience of green care, shedding light on the potential impact of green care for children with additional needs.

The current study aims to explore the participant group's (children with additional needs) experience of animal interaction. It has been demonstrated that animals in therapy can help to improve symptoms of depression in adults (Souter & Miller, 2014) and the findings of the narrative synthesis highlight the wide range of benefits that contact with animals can have for children with additional needs, most commonly improving social skills in general. Contact with animals can help a wide range of populations with varying physical health problems; decreasing blood pressure (Jorgenson, 1997) and reducing anxiety (Cole et al, 2007) as well as helping with social interactions and improving health and wellbeing more generally (Hine, Peacock & Pretty, 2008). It has also been established that companion animals can help the disabled with their mobility, overcoming fears, building relationships and participating in activities (Scholl et al, 2008). Evidence for the therapeutic use of animals clearly is not

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short on the ground, though the quality of this evidence can be difficult to ascertain and there are inherent difficulties in evaluating these approaches, as identified in the discussion of care farm evaluation.

Though evidence for the use of animal therapy for children with additional needs and autism in particular is growing, there is a lack of research in this population (and others) utilising qualitative methods. The narrative synthesis highlighted that the research to date has used quantitative methods to ascertain changes in fixed outcome measures, often focusing on changes in social behaviours and communication and collating responses from parents and healthcare providers. Although quantitative methods are useful for ascertaining what the effects of interventions are statistically, an experiential approach has much to offer in determining why this change has been brought about and, in some cases, illuminating unexpected effects of interventions. I propose a qualitative, descriptive approach to explore the experience of animal interaction as a whole, directly from the children's perspective. This approach will yield a rich description of the animal encounter experience and help to uncover what it is about contact with animals that can bring about change for these children.

The use of more exotic animals has also been overlooked in the existing research; the focus often centres on therapy dogs and equine assisted therapy, and there is a lack of research into the potential benefits of animal activities combined with other elements of green care and green exercise. Care farm research is going some way to address this dearth in the research, however as established, this currently excludes data collected from children.

In the current study, the children in the participant group will be given the opportunity to meet a variety of familiar and exotic animals whilst in the green care environment. Despite not taking place directly outdoors, the children will have access to the environment and green spaces to explore between animal interactions, adding to the experience. As it has not been explored before, I will find out how children with additional needs experience interaction with animals in a green care setting by following the research aims and objectives:

#### Research Aims and Objectives

*Aim:* To explore how children with additional needs experience animal interaction within a green care setting.

#### Objectives

*Objective 1:* To observe the nature of children's interaction with animals, each other and their environment.

*Objective 2:* To collect individual experiences of children.

*Objective 3:* To examine what it is about the experience of the natural world and animals that contribute to the experience.

### **3.8 Chapter Summary**

This chapter has provided a useful overview of what is currently known about how animals can assist in the therapeutic domain. It has been established that they can

facilitate treatment for physical and mental health issues in adults and children. The narrative synthesis has highlighted that animals in therapy can be beneficial for children with additional needs, in particular those with diagnoses of autism, and the literature so far has focused specifically on issues around social communication. It is also evident that there is scope for qualitative research in this area and to examine this phenomenon from more the perspective of the children, instead of relying on parental reports or that of caregivers and therapists/researchers. In the current study, the insight provided by the children and their families, alongside the organisers and volunteers, could offer a unique understanding of how children with additional needs experience green care and contact with animals. The current study has the potential to contribute to a wide range of research areas and suggest practical uses for the findings that have the capacity to help people; the findings may be able to inform the development of useful interventions and lead to the adaptation of facilities in order to serve the under-represented population.

## Chapter 4 Methodology

### 4.1 Chapter Overview

In this chapter I introduce phenomenology, the philosophical approach underpinning this research, and outline the key concepts and explain the language used in this paradigm. I explain the differences between descriptive and interpretive phenomenology, and address some of the critiques of the methodology. I then explain why I chose to adopt a descriptive approach for the current study and draw upon examples of psychological research which have utilised descriptive phenomenology. I conclude the chapter with an overview of the chosen analysis method: Colaizzi's (1978) seven step analysis process.

### 4.2 Introduction

The purpose of this research, broadly speaking, is to investigate the lived experience of a range of individuals to uncover the *essence* of that experience (and I will go on to explain in greater detail what I mean by 'essence' through this chapter). More specifically, this research aims to understand how children with additional needs experience an interaction with animals. This study uses descriptive phenomenology to explore the experience of the children taking part in this research, enabling a full picture to be viewed of this experience. To delve into what it is about contact with animals that shapes this experience will contribute to the growing body of research into animals as a therapeutic aid. I will now provide an overview of phenomenology, focusing particularly on its use in psychology. I will explain some of the key terms used in phenomenology and discuss the different phenomenological stances available to psychologists and researchers. Finally, I will explain how and why a descriptive phenomenological

approach was used in this research and explain the nature and steps of Colaizzi's method, the particular approach used in this study.

### **4.3 What is Phenomenology?**

The 'founding father' of phenomenology is usually acknowledged to be Edmund Husserl (1859-1938). A radical philosophy, phenomenology deviates from traditional ways of understanding epistemology (Ihde, 1986) and was developed as a rigorous way to examine human experience. Instead of an 'objective reality', Husserl posits that only subjective individual experience is 'knowable' (Brooks, 2015) and that "natural knowledge is based on facts which become known through experience" (Macann, 1993:25). The original phenomenological approach then explores individual lived experience, building an essential structure of the phenomena under study using transcendental reduction, and Ihde (1986) describes phenomenological psychology as being concerned with the subjective experiences of a subject. A central concept in phenomenology is the importance of examining 'the whole' with precision and depth; Ihde (1986) explains descriptions must be thorough and judgements made based on the phenomena in front of you, rather than what you expect to see based on previous experience or superficial description. Mistakes are made in phenomenology when a version of reality is defined before a thorough descriptive analysis of the parts is made (Ihde, 1986).

It is important to note that phenomenology is not a singular stance, but encompasses a wide variety of related approaches which have been developed in different ways over time. The clearest distinction is between the descriptive (or transcendental)

phenomenology outlined by Husserl and alternative approaches later developed (known as interpretive, existential or hermeneutic phenomenology). Before I move on to describe some of these different branches, in the following subsection I will first cover some of the main terms and concepts used in phenomenology. Although some of these terms seem obscure at first, or are more usually associated with a different meaning, Ihde (1986) explains that it is important to become familiar with what he calls 'Husserlian language' to adopt the phenomenological stance. The following subsections offer a definition of some of the key terms and concepts in Husserlian phenomenology.

### Lifeworld

Consciousness, in phenomenological terms, is not limited to awareness but encompasses preconscious and unconscious processes also (Giorgi & Giorgi, 2008). Husserl notes that events do not occur independently of experience; that is, one must be conscious of the event in order to experience it. The lifeworld refers to the world of lived experience, as experienced by individual conscious beings (Brooks, 2015). It includes how 'phenomena'- objects, events and feelings- appear to us in everyday life (Brooks, 2015). Husserl's concept of the lifeworld is pre-reflective; that is, without interpretation (Dowling, 2005). This means that the lifeworld consists of phenomena as they appear immediately, without explanation or "...before we have applied ways of understanding or explaining it. It is experience before we have thought about it" (Crotty, 1996:95).

## Intentionality

Intentionality is the idea that the consciousness of these individual conscious beings referred to above is always directed towards something; memories, perception and even imagination is always thinking about something (van Manen, 1990). The principle is that every mental act is related in some way to an object (Dowling, 2005). Ihde (1986) states “For phenomenology, the central feature of experience is a structure called ‘intentionality’, which correlates all things experienced with the mode of experience to which the experience is referred” (P23). Not to be confused with the usual definition of intentional- for example, deliberate- intentionality refers to the essence of consciousness; more than awareness, it means consciousness always has a direction (Giorgi & Giorgi, 2008).

## Essences

Essences refer to the “invariant features and structures of phenomena” (Brooks, 2015:642). The aim of descriptive phenomenology is to describe these essences exactly. By identifying essences from a variety of experiences, it may be possible to propose which qualities make a particular phenomenon distinctive (Brooks, 2015). Holloway (2005) explains that essences are what makes an object, or phenomenon, what it is. These essences are neither objective nor subjective, they are the invariant features of an experiential phenomenon which distinguish it (Todres, 2005). The essence of an experience can be arrived at through imaginative variation, which involves imagining the phenomenon in as many different ways as possible to identify the boundaries of what makes it what it is (Todres, 2003).



## The Natural Attitude, Bracketing and Epochē

Husserl proposed '*the natural attitude*' was our usual, everyday way of seeing the world; all expectations, presuppositions and judgements in place, which we hold based on the experiences we have had (Ihde, 1986). Macann (1993) explains that the natural attitude is "that in which I operate as a human being in a world in which I assume to exist distinct and independent of me" (p.27). It is assumed that others are aware of the world and its objects in much the same way as we are.

As the ways in which the phenomenon under study is explored can influence the essential structure uncovered, Ihde (1986) explains that the first step in phenomenological 'looking' is to suspend, or *bracket*, the ordinary way of looking at the world. By suspending the natural attitude, the world stays the same but the way it is viewed is altered radically. The 'natural attitude' needs to be temporarily suspended or 'bracketed out'. This can be done by being critically aware of how we usually perceive phenomena and attempting to imagine this is the first time it has been encountered. The aim of bracketing is not to be objective about the phenomenon, rather it is about being open to seeing the phenomenon in any way that it presents itself and engaging with it in such a way that it does not influence the research (Giorgi & Giorgi, 2008). Bracketing different perceptions of the same phenomenon may assist the researcher in seeing differences and new dimensions (Giorgi & Giorgi, 2008). Macann (1993) explains that following the suspension of the natural attitude, the world still appears the same. However, each component part which makes up the lived world becomes clear and bracketed or 'put out of action' (Macann, 1993:28).

This attitudinal shift is referred to as the *epochē* (Giorgi & Giorgi, 2008). Epochē is where researchers bracket their current knowledge, attitudes and values concerning the phenomenon under study and revert to the unreflective understanding of the lived world. Epochē is sometimes referred to as the phenomenological reduction and involves the bracketing, or temporary suspension, of the 'Natural Attitude'.

To explore the concept of epochē further, it will be broken down into two parts; firstly, theoretically can epochē be achieved in practice? And secondly, what factors might make it more or less difficult in the current study? Taking the first point, I do think that theoretically epochē can be achieved. Husserl's ideas about transcendental subjectivity suggest that we can suspend our preconceptions, and by interacting directly with the phenomenon under study, we are able to enter into the lifeworlds to identify and analyse the meaning; thus unravelling the essential structure of the experience. By keeping a reflexive journal throughout the research to draw upon during analysis, the researcher is able to separate out their own observations, thoughts and feelings from the research, so as not to affect the findings. Whilst not objective, the notes kept in the reflexive journal clarify any biases, enabling the researcher to bracket them out during the analysis.

With regard to the second point, in relation to the current research I think my previous experience of interacting with animals made epochē more difficult to achieve. Having taken part in so many animal encounter shows through assisting Rob at events, attempting to bracket out my expectations of how the children might react to interacting with the animals was difficult at times but was significantly aided by keeping a reflexive journal throughout and going back to the analysis with those reflections in mind. My

personal belief in the potential benefits of interacting with animals also made epochē more difficult to achieve. I was consciously aware from the beginning of the research project that children may benefit from the interaction; by having this in mind I was particularly vigilant throughout data collection and analysis to describe only what occurred without attaching meaning to it that was not evident. The use of a reflexive journal and continuous referral to it throughout analysis was an essential tool for bracketing. I used the notes made in my reflexive journal throughout analysis to check my descriptions were accurate and not influenced by my perception of the children or thoughts of how the animal interaction might go. Ultimately, this is new research into the therapeutic use of animals with children; previous research has been generally positive, but as Nimer and Lundahl (2007) explain, the dearth of empirical research in this area make it difficult to make inferences about the positive effects. What makes it less difficult for me is the nature of the research; although a serious topic in that the implications for these children could be serious, the overall tone of the research is a positive one in that it arises from a health promotion perspective; exploring experiences with an aim to include concepts discovered in a way to promote wellbeing. I feel it would be different, and more difficult, if exploring a phenomenon around a negative or traumatic experience; in that it would be more challenging to bracket out the strong emotions associated with such.

#### **4.3.1 *Phenomenology: Descriptive and Interpretive***

As explained, phenomenology is not one single approach, rather a variety of ideas under one umbrella. The focus of phenomenological psychology is on lived experience: people's experience of things as they are in their lifeworld. Objects of our

consciousness- things that we notice, learn or experience- are not a separate entity from the individual, or indeed the world, rather they are part of the individual lifeworld. In phenomenology, the aim is to examine the 'whole' to gain further understanding and see phenomena in full. Husserl's original descriptive phenomenology sought to isolate essences and to describe these as precisely as possible so as to identify the qualities that make a particular experiential phenomenon distinctive. Descriptive phenomenology is the most classically Husserlian method in current psychology, with the focus on the 'lived experience' of the individual and how consciousness is central to this experience. Descriptive phenomenological research aims to uncover and capture the psychological essence of a phenomenon; exploring how it is experienced by individuals in the context it takes place (Giorgi & Giorgi, 2008).

Following Husserl's initial ideas, different schools of thought continued the continental approach, including the University of Utrecht school (Finlay, 2009) and the Duquesne circle, which stemmed from interest in German philosophy (Applebaum, 2011). These are phenomenological philosophies; successors have interpreted these philosophies and taken them in different directions, considering what they mean in terms of practice.

The key divide in different phenomenological approaches is whether the theorist followed Husserl's descriptive approach or shifted toward an alternative (hermeneutic) approach, first developed by Husserl's pupil, Heidegger. Husserl's phenomenology focussed on describing objects or experiences exactly as they presented themselves to consciousness, through 'bracketing out' other thoughts and using the phenomenological reduction (Rapport, 2005). Heidegger believed that human experience was already

within the world and that individuals 'relate to the world in integral ways, not as subjects related to objects, but as beings inseparable from a world of being' (Rapport, 2005:126). Heidegger proposed that, in our search to understand experience, we need to consider the bigger picture as well as individual elements (Brooks, 2015). This means that wider factors need to be taken into account; language, history, culture and temporality (Brooks, 2015). The notion of bracketing is challenged by hermeneutic psychologists; to understand the world, you need to be part of it. Supported by Merleau-Ponty, this was a radical deviation from Husserl's phenomenology. He argued that 'as people are embodied beings, we cannot, when considering human experience, meaningfully detach mind from body, nor subject from object' (Brooks, 2015:643).

The best known descriptive approach in psychology is that of Amedeo Giorgi (Morrow et al, 2015). Giorgi's descriptive empirical phenomenological method is the most classically Husserlian method currently utilised; this method involves comparing accounts of an experience and illuminating individual and general essential structures using the epochē, reduction and imaginative variation (Applebaum, 2011). Giorgi distinguished between phenomenological philosophy and phenomenology as a scientific practice (Todres, 2005). Giorgi's method follows four steps, the first being to adopt the phenomenological perspective; that is, to suspend the natural attitude, and read the accounts given thoroughly. Secondly, the researcher is required to separate the data into 'meaning units', and thirdly those meaning units are transformed into psychologically relevant statements. The final stage sees an essential structure of the phenomenon under study created (Giorgi & Giorgi, 2008). Peter Ashworth built on Giorgi's work within the descriptive approach to create the Sheffield School, which

incorporated aspects of existentialism. This involves focussing on existentials of the lifeworld such as embodiment, temporality and spatiality during the analysis of the descriptions (Finlay, 2009).

In psychology, the hermeneutic movement is currently dominated by Smith, who founded Interpretive Phenomenological Analysis, and van Manen. Van Manen also disagreed with Husserl's notion of bracketing and posited that by attempting to ignore what we already know about the world, there is a risk that it will seep back into reflections anyway (van Manen, 1990). Van Manen's method encourages the researcher to make decisions on the most appropriate way to collect data, and analysis is thematic. Analysis is centred around the four existentials: temporality, spatiality, sociality and corporeality (van Manen, 1990).

Jonathan Smith developed the hermeneutic Interpretive Phenomenological Analysis (IPA) method, clearly involving a shift from purely descriptive to interpretive phenomenology and this method has been applied more widely in mainstream psychological research. With roots still in the study of individual lived experience, the method requires detailed examination of the participants' perceptions of the phenomenon under study (Smith & Osborn, 2008). Access to the individual lifeworld is not straightforward; a double hermeneutic is involved: "the participant is trying to make sense of the world; the researcher is trying to make sense of the participants trying to make sense of the world" (Smith & Osborne, 2008:53). IPA goes beyond descriptive bounds in both analysis and data collection, asking questions which seek to gather more than descriptions of phenomenon. IPA attempts to see past only what participants

say, into what they might mean or if there is more to the story than initially meets the eye; interpreting the participants' mental and emotional state (Smith & Osborn, 2008). In practice, IPA is also a staged process, with the first step familiarising with the data. At this stage, the researcher may also identify interesting or significant parts within the transcript. This may include some early interpretations or summarising what is being said. The second stage sees emerging themes identified, and further interpretation of the participants experience. The themes should be recognisable from the original data. Themes are then clustered by similarity, and form superordinate themes, which are often discussed in relation to wider psychological theory and literature (Smith & Osborn, 2008). The debates around, and criticisms of, phenomenological study are important to consider. In the following section, I will consider some of the criticisms levelled at phenomenology before moving on to explain why, despite these criticisms, there remains a clear rationale for adopting a descriptive approach in this study.

#### **4.3.2 *Critical Issues in Descriptive Phenomenology***

As discussed, phenomenology is a philosophical approach. It has witnessed many interpretations and has been applied in various ways and as such there are many perspectives within the current applications. The radical nature of phenomenology, and the many ways it has been adapted, can leave it open to scrutiny and criticism as there is no one way of carrying out phenomenological research. It is difficult to identify descriptive phenomenology in terms of its epistemological stance using the usual philosophical distinctions about what is real and how we know this. A realist ontology, for example, aims to go 'back to the things themselves' but in descriptive phenomenology, the 'things' are not objects or facts that are objectively knowable, they

are individuals' lived experiences. With this in mind, in descriptive phenomenology, what is 'real' (ontology) and what we know about it (epistemology) are understood differently compared to traditional definitions of approaches. Rather than defining descriptive phenomenology in terms of how it differs from positivist research, using inappropriate categorisations, I feel that it takes an epistemology and ontology of its own. In descriptive phenomenology, we should not concern ourselves with the ontological nature of experience, but focus on what is known by the person, and treat that experienced reality as real to them. Giorgi developed Husserl's work on the descriptive phenomenological method as a rigorous alternative to methods deemed inappropriate for understanding human experience (Applebaum, 2011). That said, with the various adaptations and different ways of carrying out the research, including different ontologies, the research is not always consistent and researchers tend to study a particular 'school' or branch of phenomenology. This lack of consistency or 'one way' of doing phenomenological research at times can be seen as a criticism of phenomenology and may be a contributory factor as to why there is less empirical research using descriptive methods compared to interpretive.

The preference for interpretive methods makes it more difficult to find examples of descriptive phenomenology in practice, which can lead to questions being raised as to whether research is being carried out 'correctly'. Though Todres (2005) argues that there are guidelines in place, the variety of approaches and adaptability of the method can make it difficult to locate specific examples. Todres (2005) goes on to say that the method has been subject to criticism regarding the essential character of phenomenology being lost in the translation of philosophy to qualitative method. Giorgi



counters this, stating that the Husserlian method has changed over time and can be successfully adapted to a qualitative method (Todres, 2005). Due to the nature of phenomenology, relying on individual lived experience and the importance of capturing the experience at that time, research cannot be easily or reliably replicated to check the accuracy of the execution of the method.

A further critique of descriptive phenomenology is that it studies “experiential phenomena on its own terms” therefore, the findings offer illuminations of the lifeworld, which may or may not be transferable ways of seeing other, similar experiences (Todres, 2005:116). Further, when attempting to uncover the essences of the lifeworld, the researcher is tasked with how to encourage participants to speak openly and deeply about their experiences, and to then go on and discuss these experiences, to the extent that the individual lifeworld is revealed (Rodriguez, 2009). Bracketing comes in here, as the key to this lies in being open to how meanings evolve and the lifeworld presents itself (Rodriguez, 2009).

Bracketing and the achievement of epochē is still debated and somewhat of a divisive issue, particularly between descriptive and interpretive phenomenology. One of the key criticisms from hermeneutic phenomenologists lies around this debate; that bracketing is impossible to achieve and instead the role of the researcher, and their inevitable participation in the research, should be acknowledged and worked with rather than attempting to detach them from the process. The claim that there is no such thing as a pure description of meaning, that there is always a level of interpretation, is countered by Giorgi who states that both approaches are legitimate ways of exploring phenomena

and that it is the researcher's responsibility to identify with the appropriate approach and make it clear which they follow, and how (Todres, 2005). To make a decision, the researcher should be clear about what they aim to achieve by carrying out the study and also confident in their abilities as a researcher; to bracket effectively should they choose a descriptive approach.

A final thought from Todres (2005:115) "Relativists would argue that looking for order in experience or between experiences is arbitrary". This means that to try and identify a logical course or similarities between experiences is futile, because experiences differ so greatly. My thoughts are that to look for order and an essential structure of an experience can be enlightening; to view a phenomenon from other perspectives, whilst actively bracketing your own thoughts on the phenomenon, offers a radical way of looking at it and provokes thought, questions and, in some cases, much needed change.

#### **4.4 Why Adopt a Descriptive Approach in the Current Study?**

Phenomenology is the study of the world as experienced by conscious beings; it is also a methodology to guide our study of phenomena. As already discussed, the main approach to descriptive phenomenology in psychology is Giorgi's method, though there is another, much less frequently used approach by Colaizzi. Examples of descriptive phenomenological research utilising Giorgi and Colaizzi are detailed below.

Descriptive phenomenological psychology uses rich and detailed descriptions of different phenomena to identify the essential structure of it, and to try to establish what makes a phenomenon what it is. Different methods of data collection and analysis can be used to carry out descriptive phenomenological research; Shosha (2012) used semi-

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structured interviews to gather data for their research into adolescents' experience of receiving chemotherapy and analysed them using Colaizzi's (1978) method. Bargdill (2000) used a descriptive phenomenological approach to explore life boredom, drawing on narrative analysis to analyse written descriptions of life boredom before following up with interviews and analysing using Giorgi's method (Bargdill, 2000). Though interviews are the common method for gathering data in descriptive phenomenological research, alternative methods can generate appropriate data such as written descriptions (Bargdill, 2000) and observations (Langdridge, 2007). In the current study, sessions were audio recorded and transcribed, which provided the data which enabled the analysis.

When carrying out descriptive phenomenological research, a simple yet vital principle is "describe, don't explain" (Ihde, 1986:34). To a degree, this sets out what is to be included and excluded, which starts to specify the initial goals for phenomenology (Ihde, 1986). By leaving out any explanation and including only description, no attempt is made to 'go behind' the phenomena; it is simply presented as it appears. This study has adopted a classically Husserlian descriptive phenomenological approach; specifically adopting Colaizzi's interpretation and method of analysis. Colaizzi's (1978) analysis process fits with the descriptive phenomenological approach and is comparable with the analysis method of Giorgi (1997), which is more often used in descriptive phenomenological research (e.g. Bargdill, 2000). Although the descriptive phenomenological approach is rarely used in psychological research, with psychologists often favouring the mainstream interpretive stance, the method has much to offer the phenomenon under study. Colaizzi's method of analysis is again often overlooked for

the more mainstream method of Giorgi, however not only fits with the descriptive approach, but it also provides a thorough examination of 'the whole' phenomenon, with more steps and a focus on the parts for the data which are relevant to the phenomenon under study. I will discuss the key differences between Colaizzi's and Giorgi's in section 4.5, below.

Todres (2005) argues for the use of descriptive phenomenology as it studies experience on its own terms, without reduction to outside theories. This maintenance of human participation grounds the research in the experience and offers an insight that other qualitative methods cannot. The effective use of bracketing offers new insight into the phenomena, not clouded by researcher's judgements or skewed by wider theory. In the current study, the method offers the opportunity to unravel the essential structure of how children with additional needs experience interaction with animals and collect ideas to create an 'essence' of the experience. Effective bracketing is crucial to creating an essence of the phenomena which is a description of the experience only, without contribution or influence from the researcher. Further, the method 'allows human beings to intuitively share in the phenomenon described' without risk of being altered by outside perspectives (Todres, 2005:115). Descriptive phenomenology is grounded in the lifeworld; which offers a closer view of the experience than other methods by focusing on the individual and their unique experience. This focus on the individual honours the 'particular' whilst the exploration of shared elements reveals essences, which takes understanding to the more 'general' (Todres, 2005). The researcher is tasked with recording an accurate account of the experience without their natural attitude influencing what is recorded or how it is analysed whilst maintaining this close view of

the individual experience. A difficult balance, but with careful bracketing and the use of reflexivity, it can be done and ultimately offers a radical perspective of the phenomenon.

By acknowledging the unique nature of individual experience, essences are presented as ways of viewing a phenomenon. That is not to say however that variations do not occur; in descriptive phenomenology, it is accepted that alternative views can and do transpire; the essential structure discovered by one researcher is not the absolute or best way of understanding an experience, it is merely 'a' way of understanding it (Todres, 2005). The research question lends itself well to a phenomenological approach ("A study to explore how children with additional needs experience animal interaction"), taking into account the key words 'explore' and 'experience'; the open nature of this question and aim to uncover lived experience of the participants afforded a descriptive approach. The descriptive method, and Colaizzi's analysis, appeals because of the all-encompassing nature of both data collection and analysis; that is, the collection describes the experience as a whole and the analysis enables all parts of experience that are relevant to the topic under study to be included in the final description. As Todres (2005) explains, descriptive phenomenology is not about 'proving' things, it is concerned with understanding lifeworlds and phenomena, and considering how these understandings can take things forward in a meaningful way. In relation to the current study, the aim is not to prove a theory about animal contact. The aim is to understand more about how the children experience the animal contact and how this can be taken forward to assist understanding of these children and the ways in which contact with animals can affect them.

The descriptive phenomenological approach “offers methodological guidelines and procedural steps of discipline” (Todres, 2005:115). The rigour offered by this approach is somewhat underestimated, as indicated by the lack of applied psychological research using this methodology. The guidelines offered in the methodology and the clear rationale and structure to Colaizzi’s analysis enhances rigour in the research. As there is a dearth of research using a descriptive approach to explore how children with additional needs experience interaction with animals, I also questioned what key information families and indeed policy makers could be missing by excluding this approach. By exploring the phenomena from the children’s perspectives, it is giving them a voice to describe their experience. Parents were not excluded from the study entirely; indeed, their input was an important part of the experience for some children, however the perspectives of the children were occasionally validated and/or encouraged by parents and leaders.

#### **4.5 Colaizzi’s Method: Key Features and Critique**

As established in section 4.3.1, Giorgi’s approach tends to be the dominant method in current descriptive phenomenological psychology. That is not to say that other approaches are not useful or relevant, and for the current study I chose to use Colaizzi’s approach. Colaizzi’s (1978) analysis process sees the collected data transformed from transcripts of the interview or observed experience to an essential structure of the phenomena by following seven stages. Following familiarisation with the transcripts, significant quotes are extracted, from which meanings are formulated. These are then clustered into themes, which are then written up to create an exhaustive description.

This is then condensed into a fundamental structure, which provides a short yet all-

encompassing description of the phenomena under study; the experience of animal interaction (Colaizzi, 1978).

Colaizzi's method is rooted in descriptive phenomenology and is used in psychological research 'to gain a description of the meaning of an experience from the participant's point of view' (Magnussen *et al.* 2008, p. 126). The approach sits well in the descriptive paradigm as it gathers a description of phenomena based on individual experience. Interpretation is excluded, with careful steps taken along the way to ensure this.

Although less well known than Giorgi's, Colaizzi's method is widely used across topic areas. In descriptive phenomenology, there are examples of it in practice and clear steps which aid consistency further. For example, Pelusi (1997) used Colaizzi's method to explore the lived experience of surviving breast cancer, finding nine theme categories relating to facing the unknown, experiencing loss and an evolving journey of enlightenment (Pelusi, 1997). In Beck's (2004) research exploring the aftermath of post-traumatic stress disorder from childbirth, the findings illuminated a struggle with flashbacks and isolation, highlighting the need for further research in this area to inform change. Suryani, Welch and Cox (2016) used Colaizzi's method to explore the lived experience of Indonesians with a diagnosis of schizophrenia, who were experiencing auditory hallucinations. Data was collected in Indonesian and translated into English for analysis. They discuss the difficulties faced when using this method across languages, which I will discuss further in Chapter Six.

A rigorous approach, each step is outlined and followed which addresses some issues around consistency. The method adopts the key principles in descriptive phenomenology, such as bracketing, which are employed alongside. The openness offered at each stage of analysis offers an element of transparency in the research. That said, Giorgi raised some issues with Colaizzi's method, which I will now consider. Giorgi (2006) discusses the varying ways different psychologists interpret the primary philosophers, including how Colaizzi (1978) interprets Husserlian phenomenology in the creation of his analysis process. Giorgi (2006) is not claiming an orthodox methodology but considers the different variations and whether or not they are true to their origins. He puts forward several criticisms of Colaizzi's approach that I feel I need to address to justify my choice of analysis.

In his analysis method, Giorgi (2006) advocates changing transcripts of data to the third person in order to avoid the researcher projecting themselves on the data during analysis, for example changing the participants worlds from 'I felt' to '[X] felt'. The complex processes involved when being a reflexive researcher are unlikely to be hindered by changing the pronouns, and instead risk detaching with the data. Phenomenology aims to explore the lived experience utilising concepts such as bracketing and reflexivity, which should protect from this projection, but also necessitates the researcher to immerse in the lifeworld of the participant in order to understand their experience. This disengagement through changing the transcripts risks missing essential parts of the experience.



Giorgi (2006) disagrees with the second stage of the analysis, which sees significant statements pertaining to the phenomena under study extracted from the transcripts. He cites loss of context of the data as a reason, as well as failure to account for all the data. Giorgi (2006) argues that by extracting 'relevant' parts of the data, and discarding the rest, there is the potential to overlook key nuances within the data, thus excluding them from the themes and overall findings. He goes on to suggest that this approach is at odds with the holistic nature of phenomenological inquiry.

The method of analysis put forward by Giorgi sees the data broken down into units of meaning, rather than extracting parts seen as significant (Giorgi, 2006). This means that, if put back together, the meaning units would resemble the transcript. Therefore, it is possible to see why Giorgi would oppose the idea of discarding any of the data. I feel that extracting the significant statements is a difficult process and one which takes time, to ensure that nothing is missed. If carried out properly, it can enable the researcher to uncover the essential structure of the phenomena without distraction; that is, by topics that do not pertain to the study area. Rather than being 'at odds' with the holistic approach of phenomenology, it focuses the data on the topic under study. If carried out with the careful consideration required, nuances should not be missed. Repeating the second stage is necessary until saturation point occurs and no more significant statements are found. Giorgi's argument regarding the context of the data will be discussed in relation to the findings in the Discussion chapter.

Giorgi (2006) also criticises Colaizzi's (1978) third stage- the formulation of meanings using creative insight- for being ambiguous. Giorgi states that exactly how the meanings

are formulated is critical from a Husserlian perspective: "For Husserl, eidetic intuitions are the means by which meanings come to consciousness and their essences are determined with the help of imaginative variation" (Giorgi, 2006:308). This means essences and meanings are seen and brought into the presence of the researcher's consciousness. Giorgi (2006) speculates that if Colaizzi's 'formulating meaning' is anything other than guided by the data then it is deviating from Husserlian phenomenology. I interpreted Colaizzi's instructions for data analysis as remaining grounded in the data, and true to the participants' experience, at all stages of the analysis. Using creative insight to create meaning 'ex nihilo', out of nothing, would indeed deviate from Husserl's descriptive phenomenology, but careful consideration of the words used and the context in which they were spoken, alongside reflexive working, prevents this deviation from happening.

The final concern Giorgi notes with Colaizzi's analysis process surrounds the last stage which sees the fundamental structure returned to the participants of the research for validation; ensuring that the researcher has captured an accurate description of the phenomenon. Giorgi states that to give back the fundamental structure is 'wholly indefensible theoretically' (Giorgi, 2006:311). The argument is broken down into three parts.

Firstly, Giorgi states that participants view the experience from their own Lifeworld, whereas analysis is carried out in the phenomenological perspective. Giorgi infers that without being in the phenomenological perspective, the participant cannot see the experience in the same way as the researcher. I feel that the two perspectives should

not be so different that it yields a description of the experience that it is unrecognisable to the person who experienced it. The importance of the phenomenological perspective when analysing the data cannot be underestimated; it ensures that the findings are free from the researchers' views and preconceptions and means that the description is representative of the experience. Though using 'creative insight' might bring the participants attention to elements of the experience they perhaps had not noticed so much at the time, it should not be so distorted by the phenomenological perspective that the participant is unable to relate to it.

Secondly, Giorgi (2006) argues that the lived experience and the meaning of that experience are different things, stating 'the experiencer is not necessarily the best judge of their experience' (Giorgi, 2006:311). As previously stated, the experience and the description of that experience should not be so different that the participant cannot validate it. If the analysis had strayed into interpretive realms, it could be argued that researchers may interpret things differently to participants, but in this descriptive phenomenological approach, the participant ought to be comfortable in validating the fundamental structure if the analysis has been followed. I considered what the necessary steps would be if the participants, subsequent to the animal interaction, went on to have a negative experience with animals. The possibility may be that they disagreed with the description of the experience based on an event after the interaction that altered the way they perceived the animals. I concluded that, in this research, I aimed to capture the experience at that time; to provide a snapshot of that moment in time. In this case, it would be discussed at length with the participants of the research

with a view to reaching a common agreement about how the experience was received on the day.

Finally, on a practical note, Giorgi questions what would happen if, after delivering the fundamental structure back to the participants, a discrepancy occurs. As the analysis process is lengthy and labour intensive, it would be difficult to repeat the entire process within the time constraints of most research projects. Ideally, a discrepancy should not occur if the steps are followed meticulously. If it does, I would embrace it if it is relevant to the study. I would consider if it is a genuine new contribution, in which case I would include it, or a variation of a theme already covered. If it is a new contribution, that had been overlooked, the research would benefit anyway; Colaizzi is right to insist that 'any relevant data which emerges must be worked into the final product of research' (Colaizzi, 1978:72).

Colaizzi's approach was more favourable to me than Giorgi's because of the thorough and all inclusive nature of the analysis process. The steps provided are detailed and, if followed correctly, all parts of the experience relevant to the phenomena are included. The final step, where the fundamental structure is returned to the participants, is a key part of the process that does not feature in Giorgi's analysis, for the reasons outlined above. To me, it was important that the participants were able to see this description and I valued their feedback and confirmation that I had captured their experience from the day accurately, as a validation of my findings. Finally, and perhaps a small factor, I disagreed with changing the pronouns to [X] instead of 'I' as advocated by Giorgi. Although I can see that this could help with bracketing and epochē, I felt that it would

distance me from the experiences of the children and almost create too much 'objectivity' at a point where I needed to be immersed in their lifeworld.

## **4.6 Chapter Summary**

This chapter has outlined the key concepts of descriptive phenomenology and explained why this methodology was chosen. The importance of bracketing the natural attitude during research has been discussed and the critiques of the phenomenological method have been explored. I also introduced Colaizzi's (1978) method of analysis, explaining its relevance to the chosen methodology and why I chose this method over Giorgi's approach.

## **Chapter 5 Method**

### **5.1 Chapter Overview**

In this chapter, I explain the research setting and the overall study design. I discuss the use of observations and why they were chosen for this study. I describe the recruitment process and give further detail on the sample of participants, before explaining the preliminary exploratory work carried out prior to the animal handling session. The data collection method is detailed and I provide a narrative of the day, to build a picture of how the sessions were delivered. The practicalities of using observations and Colaizzi's analysis follows. A discussion of ethical implications of this study conclude the chapter.

### **5.2 The Research Setting**

The group from which participants were recruited, named Sprout, is part of the charity Growing Works. The charity was happy to be named in the current study, rather than be assigned a pseudonym. Beginning as The Holme Valley Gardening Network in 2009, the founders started working with other growers in the local area for support and encouragement. Funding saw an expansion of the network, and a name change to "Growing Works", of which Sprout is one of the extensions. The charity also offers gardening sessions to adults with long term health conditions ('Bud'), carers' breaks and 'Pod', the mobile potting shed which is taken to outdoor events. Sprout began as a gardening group run for children with additional needs and their families. With long term funding from the local council, Sprout saw greater attendance and provided alternative activities including crafts, cooking and outdoor games. Growing Works aimed to reach 180

out to isolated families living in the town centre by offering the different groups for the different target populations (children, adults and carers). Currently, Sprout aims to provide a safe and welcoming environment where children can learn about and engage with nature and wildlife. The new 'Young Mentors' scheme is available for children graduating from Sprout, where they can continue to learn life skills and develop socially. There is also support for parents; it is recognised as a place where they can chat freely to other parents of children with additional needs and seek advice. A formal diagnosis is not necessary; the group is open to anyone who feels they, and/or their child, could benefit from it.

Attendance often varies depending on the weather and health of the children, but the private Facebook page for the group has over 140 members. Sessions take place weekly alternating between two locations, offering some variance in attendees, and usually last two hours; though due to additional funding obtained externally some 'double' sessions have taken place, which involves a morning session and an afternoon session. Although formal diagnoses are not required to attend Sprout, the project manager disclosed some of the types of disabilities the group provides for. Clinical populations attending the group include children with Autism Spectrum Disorders (ASD), Pathological Demand Avoidance (PDA), dyspraxia, cerebral palsy and more, who are often joined by siblings and accompanied by parents or carers. Usually there are between 12-16 children plus parents/carers attending each week. The age range is anywhere from 1-18, with the most common age group 6-12. Children are able to take part in any or all of the activities on offer, usually supervised at each activity by a support worker. The concepts of green care and green exercise are widely accepted

and understood here as demonstrated by the types of activities available, and the original focus on gardening. The group was chosen for the study as they have an understanding of the ideas around green care and practise this weekly, by encouraging the children to engage with nature in a variety of ways. Gardening, growing and harvesting still feature heavily, and craft activities often incorporate aspects of nature such as creating art with foraged materials. Sometimes the children cook using food they have grown, and physical activity is encouraged; playing football outside, walks in the woods and den-building.

In order to collect the data, I needed to provide an animal encounter for the children to participate in and me to observe. As outlined in the introduction, I had contact with Rob who provides animal encounters. However, I researched other local companies providing such experiences to see if there was anything further available. Rob was chosen to present the animals to the children at Sprout due to his wealth of experience with the target population and encouragement of a 'hands-on' experience. Rob owns a franchise which offers animal handling experiences throughout West Yorkshire and has experience working with children and adults, including those with additional needs. I have a close personal relationship with Rob and was able to explain the details of the research thoroughly as well as go through the ethical issues, including taking care to ensure consent throughout the handling experience and encouraging the children to describe their experience as it occurred. Rob has full DBS clearance and contractual obligations including to provide a full risk assessment for the session, ensuring the safety of the children and animals at all times. Rob was briefed on all details regarding the logistics of the session including the approximate number of children to expect, how



long the sessions might last and the need for a flexible approach to these factors. He was informed that the group was designed for children with additional needs and their families, so he may need to adapt his approach, such as taking a little extra time for children to speak and formulate answers. Rob was unaware of the research aims beyond the basics of observing children with additional needs experiencing animal interaction; instead the information I gave him focused on what would be required of him on the day.

### **5.3 Overview of Study Design**

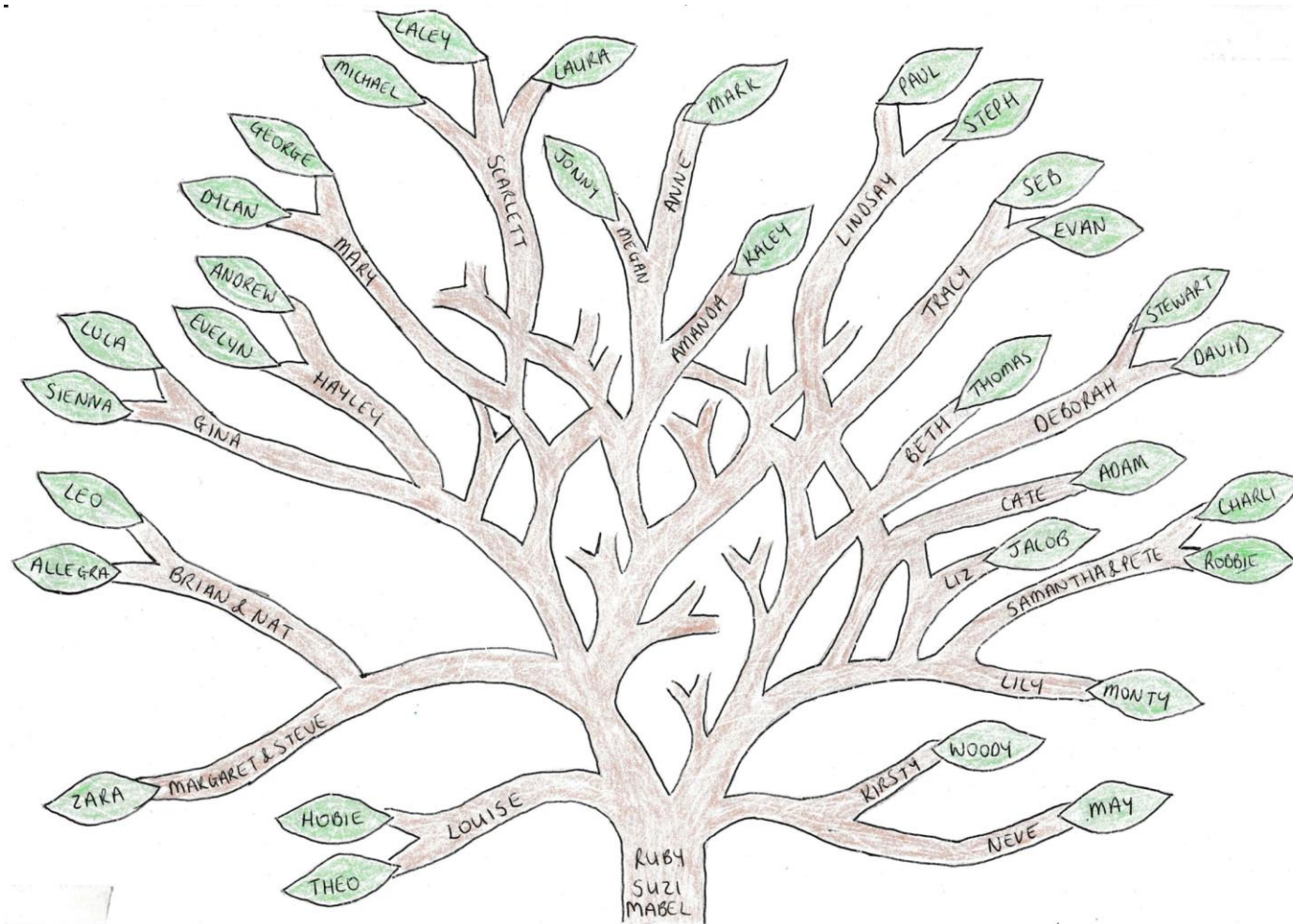
The study used a qualitative design and the primary method to collect data was non-participant observation. I recorded the sessions using several Dictaphones: one at the front of the room, one at the back of the room and one in my pocket. I used multiple devices for several reasons; in case one failed to record, in case the audio quality was poor on one and to ensure I recorded all interactions. It was useful to listen through recordings from each device on occasions where the participant was further away from the Dictaphone, as one of the others may have captured what had been said more clearly. I chose a Dictaphone rather than video recording as it was less intrusive than a camera, and also some of the parents refuse consent for photographs; I did not want to exclude them from the sessions. I transcribed the recordings, then used Colaizzi's method to analyse data, in keeping with the phenomenological stance. Colaizzi's method, as discussed, involves seven stages which leaves the researcher with a fundamental structure; a thorough description of what is essential to the experience which is presented to participants at the end of the analysis process.

Ethical approval was sought and granted from the Institution from which the research took place, the University of Huddersfield, prior to contact with and recruitment of participants. Approval was granted in October 2014 (see Appendix 7); I discuss the main ethical issues faced in this study below, in section 1.9. Following ethical approval, I contacted the project manager and staff of Growing Works to brief them on the purpose and nature of the research and acquire their permission to contact potential participants. Permission was granted and I attended a Sprout session as an informal 'drop-in' to introduce myself to staff and the families in attendance. Prior to data collection, I attended another session to make myself familiar to the children and distribute the information packs to parents and carers (see appendices 1-5). This provided a useful - opportunity to talk to families; offering details of the study and answer any questions. After this session, I opened a separate, private Facebook group to answer further questions about the research and discuss the proposed format of the day. I spoke to parents and Sprout staff to gain ideas about how best to introduce the animals. Prior to the animal session, I conducted a formal observation as part of the preliminary exploratory work; more detail about this session will be given later in this chapter. This was useful to establish a better understanding of the current format of the group, including how Sprout sessions are usually run, attendance, engagement with activities and any logistical information that would be useful to know in advance. Some parents used this opportunity to hand in signed consent forms; others provided them on the day of the animal session. On 7<sup>th</sup> March 2015, the animal session took place. Following data collection and analysis, I gave the parents an opportunity to validate the analysis as per Colaizzi's (1978) seventh stage and inform the participants of the findings of the research. This took place on 7<sup>th</sup> July 2016.

## 5.4 Sampling and Recruitment

As explained, initial contact was made and the group agreed to allow me to access participants. Agreement by the group to take part was obtained prior to the methodological details being finalised, in order to take into account any adaptations that may be required. The first informal session I attended enabled me to casually observe the structure of a typical day, meet parents and children, assess interest in participation and start to make my face 'familiar' to the children. It was useful to familiarise with the staff and enable the children to recognise me, without making bracketing more difficult by getting to know the children. At this stage it was important to me not to find out specific information about children, particularly diagnoses, but for them to see me.

The figure below shows the fifty-seven participants in their family hierarchy. There were twenty-three parents, thirty-one children and three members of staff. The tree represents the participants in their family units; the branches represent the parents and the leaves represent the children. Where there is more than one leaf on each branch, the children are related as brothers and sisters. I felt this would assist the reader in understanding the families and their interactions between each other, as well as the rest of the group. The names on the trunk of the tree represent the Sprout staff that took part in the study. All names have been changed to pseudonyms to protect the identities of the participants.



Key

- Trunk: Staff
- Branches: Parents
- Leaves: Children

Figure 3: Sprout Family Tree

## **5.5 Developing the Animal Intervention**

The findings from this preparatory work are included here as they informed the design of the animal interaction. The preparatory observations were useful because it allowed me to identify potential issues that may arise in the animal session and put strategies in place for them before they occurred. During the first 'drop-in' at the session, I noticed that all activities at Sprout were carefully thought through and adapted to ensure all of the children could take part should they wish, without feeling different from each other. This included everything from ensuring wheelchair access to activities to the provision of appropriate food and drink for the children with gluten and dairy intolerances. This helped my planning and led me to decide to have all of the children sitting on chairs in a semi-circle (rather than on the floor) so that wheelchair users were on the same level as the other children for the animal encounter. I also noticed that some of the children liked to watch the activities but not always take part, so I noted that I would make sure there were some seats nearer the back that children could sit on to be slightly further away. I talked this through with Rob too, agreeing that he could encourage the children to take part but, if they stepped back, to allow them to watch from a distance should they choose.

I attended a second informal session to chat to parents and children about bringing the animals in. I thought it could be useful to explain what kinds of animals would be coming and when, to give the children a chance to get used to the idea and ask questions. I was less anxious about the prospect of bringing a new activity into the group, as those currently offered vary greatly from one week to the next. This also gave me the opportunity to see how a standard Sprout session runs; how many people attend, the layout of the location and meet some of the families before the session so I was not a stranger to them. It was also helpful for the more formal initial observation, as it gave an indication of what I would need to make a note of in terms of site location and abilities of the children. At this second informal session, I also distributed the information about the research and consent forms to the families (see Appendices one to five). Each family received a pack which consisted of separate letters for parents and children, inviting them to take part in the research. Information sheets were also included for parents and a separate one for children; parents were encouraged to read this through with the children as part of the consent process. Consent forms were also included, which were signed by parents. These were handed in before the animal session or on the day, before data collection, by those wishing to participate. I ensured that parents and children were welcome to attend the animal interaction regardless of their participation in the research; this was stated in the participant information as well as verbally. After distributing the information packs, I opened a private Facebook group for parents to join

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to discuss the study, which also helped me gather any comments they might have. It was a useful place to relay information about the animal session too.

Upon collecting completed consent forms from those present I did my first formal observation as preparatory work without the animals in attendance. The purpose of this observation was primarily to get a clearer idea of how a typical Sprout session runs including a rough idea of numbers, types of activities on offer and how the site was laid out. I made detailed notes on anything I thought might be helpful for me to know when designing the animal session including group size, ages of the children, range of needs and any adaptations to consider and logistical information including layout of the area the animal presentation would take place in. It was also useful to understand the context of the group and its participants, and provided an opportunity for me to clarify any matters parents raised and assure them of the confidentiality of their data. I observed the children and how they interacted with each other, their parents and Sprout leaders. I also saw how they engaged in the activities and if there was a specific activity they particularly favoured. I watched how they moved between activities; whether they stuck with one thing until it was complete or whether they flitted between stations throughout the session. After this observation, I spoke to leaders about how they thought the animals would fit in best and noted this in my reflection.

Throughout the preliminary observations, it was clear some of the children kept their parents close, sometimes to assist with the activity and sometimes just to share what they were doing. This helped me consider numbers for the day, bearing in mind that children would likely bring their parents in with them, so I could prepare enough seating and encourage parents to come in too. Some of the children had speech and hearing difficulties, evidenced by their limited speech and parents and staff using sign language to communicate. I briefed Rob fully on how to present his show; speaking clearly and allowing the children to see his face, as well as taking time to enable the children to talk. There were also some children who appeared to need more one to one contact and communication at times; disengaging with activities to seek reassurance from parents, so Rob could be prepared for that with reassuring words and encouragement without pressure. It was also worth noting that some of the children were extremely active, so not to be alarmed if they left the session to run around outside at any time. As well as speaking to staff about the best structure for the animal session, I also used the Facebook group to ask parents what they thought. It was also a good place for parents to ask questions privately using the messaging function, which some took advantage of, to ask about the suitability of the session for their children and request information packs and consent forms. It was helpful to see what adaptations may need to be made for individual children. That said, I was unable to implement all suggestions; for example some parents felt that short, informal presentations would work well whereas others thought the children would be happier to meet all the animals in a longer, structured

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show. Having the flexibility on the day to work with the children in the manner they were most comfortable was ideal. Observing the children and how they interacted was useful in many ways. Understanding the dynamic of the group was essential for a smooth introduction to the animals. It helped me to consider the structure and led a discussion with parents, leaders and Rob on how to structure the day. It also helped immeasurably with reflexivity; I was able to revisit my reflexive journal after this observation and reflect on how my values could influence the way I observed on the day.

## **5.6 Data Collection**

On the day of the animal handling session, I used a Dictaphone to record data and took observation notes. Observations alone tell only one part of the story, a snap shot of what can be seen at that time. The observation notes therefore support the recordings from the session, which were transcribed to form the main part of data. I kept a battery powered Dictaphone with me to record any conversations with parents or children outside of the animal session. I also noted down non-verbal behaviour to provide context for the communication that was recorded. Observation notes were made on details such as where children were sitting, body language, quieter interactions with parents or Rob, when children stood up to get a closer view of the animals or if they moved to the front of the room. Having four smaller groups, rather than one large session, made it easier to observe all of the participants. I added these notes to the

transcripts in the corresponding places of when they took place. This was useful for the analysis to assist recall of the day and provide some context for the communication taking place.

Interpretation during observation is a risk with this method, and one that I was mindful of. I attempted to record data descriptively, noting down behaviours that I saw without imposing any possible hidden meaning. Some parents used the private Facebook group to share some photographs from the day. Although the feedback given by parents afterwards was not included in the overall analysis, as the aim is to primarily focus on the children's view of their experiences, the photographs were helpful for the research to build a picture of the day.

The sessions were set up in a converted barn, around the size of a small classroom due to weather conditions on the day. The animals were displayed at the front of the room, with space for Rob to move around in, then the chairs set out in a semi-circle. The preparatory work highlighted the need for everybody to feel included in the activity, and nobody to feel 'different', for example, being in a wheelchair and at a different level to the others. More chairs were positioned nearer the back of the room, so those who did not want to get directly involved (straight away or at all) could observe from a distance. The preparatory work also highlighted that the parents tended to stay with the children whilst they completed activities, or at least close by, so I provided extra chairs for

parents and welcomed them into the session when it was due to begin. Burrows, Adams and Spiers (2008) examined the impact of integrating a service dog into families with children with autism; the research explored the effects for all members of the family, not just the child, which confirmed the decision in my mind to include the whole family. By 'include the whole family' I mean collect data on interactions between parents and children, and any comments or contributions from parents regarding their child's experience.

### **5.6.1 *Using Observations***

Observations were chosen so I could see for myself how each child behaved and record it accurately. It was important to observe the phenomenon as it unfolded and record it in real time, rather than upon reflection. By using observations, I had the opportunity to step back and observe 'the whole' as required in descriptive phenomenology. It was also essential to gather the experiences of the *children* taking part; their interaction with the animals, parents, siblings, friends, leaders and Rob. The observations included parental input where appropriate, for example in interactions with the children, because although the focus of the research is on the children, key parts of their experiences included their parents too. The data collection methods are consistent with accessing the lived experience of the children, which included validation of their experiences from their parents at times. Interviewing at a later date, or interviewing parents, does not offer

the same insight as gathering experiences at the time they occur by the people who are experiencing it. It is even conceivable that if I had interviewed some of the children, they may not have known themselves how they would react to meeting the animals. The difficulties with alternative, self-report methods are the inherent difficulties of articulating feelings; which I feel many children (with or without additional needs) may struggle to do. Observations also allowed me to see how the children behaved individually as well as when interacting with each other- this would be difficult to glean using another method such as interviews, where individuals attempt to reflect on the self. I noticed that between activities, the children would talk to leaders, each other and the parents. The collection of this real-time data meant that I would be able to record what was happening in the moment instead of interviewing the children afterwards (risking misremembering) or distracting them from the experience by talking to them during animal handling. Using observations is consistent with the descriptive phenomenological methodology; I could describe exactly what I saw. That said, this method relies on the researcher's skills. I needed to record all data without missing aspects of the experience and record it accurately.

### **5.6.2 *Narrative of the Day***

On the day the animals came to Sprout, it was a double session; two hours in the morning and two hours in the afternoon. This meant we could run four sessions in total-

lasting from forty minutes to an hour. There were fifty-seven participants in the research in total, twenty three parents, three staff and thirty-one children. One child and one adult did not consent to take part in the study but did attend the animal session. I made no observation notes relating to these people and left out their speech in the transcription of recordings from the Dictaphone. The number of parents and children varied in each group: nine attended the first, eighteen in the second and then we had a short break for a picnic lunch. In the first of the afternoon sessions, eleven parents and children in total attended, then the final session of the day had sixteen altogether. Some children attended more than one session. Each session was structured in the same specific way, designed to build confidence in the children as the time went on and offer a different sensory experience. Firstly, the rabbit is introduced. As a small, non-threatening mammal that most children are familiar and comfortable with, the rabbit is the ideal animal to begin with as the soft fur and calm nature relaxes the handlers. The lizard comes out next; a reptile, so a little more unusual in appearance and a different sensory experience being cooler, rough and quite hard. The lizard is happy to be handled and stays still, so this begins to build confidence in more unusual creatures. The millipede comes after the lizard; small yet active, and another completely different sensory experience with tickling feet and a smooth, hard shell. The guinea pig is the penultimate animal and acts well as a reassurance for any children who are unnerved by the millipede; a small, easy to handle, furry animal that stays still. Finally, the snake comes out. By this point, the children are usually more comfortable with handling and have had

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recent experience of holding an animal that they might not have held before. The snake is cool like the lizard, smooth like the millipede yet much bigger and more active than the other animals. The order of the animals is an important part of the interaction experience and it has taken careful consideration to develop a structure which builds confidence and ensures participants are comfortable with the animals.

I tested the Dictaphones to ensure they were working correctly and the power supplies were switched on to record each session. I also kept a Dictaphone in my pocket, which I checked before the sessions started.

The first session of the day started on time and everybody was excited. The children and parents told me that they had been looking forward to the animals visiting. The children and parents entered the classroom and sat down on the chairs, waiting for me to introduce the session and Rob. I explained that Rob had brought some animals for them to see and I was going to sit at the back and watch. Children were reminded that they could leave the session at any time. The children mostly sat near the parents at the beginning, but as the session progressed and the parents got up from their seats to take pictures of the children, some congregated at the back instead of returning to their seats. The children did not seem to sit anywhere specifically or in particular groups, or mind that their parents were not with them throughout.

The second session was much busier than the first; latecomers that had arrived as the first session was underway were ready to come in and there were some people that wanted to participate that I had not met before. I gave out some information packs and consent forms that they completed before we started the next show. I needed to put out some more chairs in this session as there were more people than I had anticipated. The atmosphere at the beginning of this session was excitable, but almost to the point of chaotic as I made sure everyone had chairs, were sat with parents and checked who had given consent to be part of the research. As previously noted, participation in the study was not compulsory for taking part in the animal session, but it was important to keep track of who was taking part in the research so I knew who to avoid making observation notes on, and who to exclude from the recordings when I transcribed the recordings. In this group the children were more eager to sit with their parents and stay close, which was different to the first, perhaps because it was a larger group or maybe some of the faces were new to them as well. As parents were distracted at the beginning of the session with organising consent forms, children were wandering to the front and almost taking lids off animal boxes and tapping on them, which Rob supervised; he encouraged the children to talk to him about themselves and their pets, which animal they were looking forward to seeing and why. He then encouraged the children to sit down to meet the animals. As the session progressed, although it seemed

busier than the first and some of the children got a little distracted at times, they were eager to contribute; answering questions, offering stories and handling the animals.

The third session, after lunch, was smaller again which I felt worked better for the children and the research; it was easier to keep track of who was who and the children were given that extra bit of time to interact with the animals and talk to Rob about all things animal related. Although parents stayed close to the children throughout, it was different from the second session in that it seemed to be because the parents and children were simply enjoying the experience together. The smaller group afforded more discussion and the children were engaged throughout.

The final session of the day was a mixture of children who had not seen the animals yet and a couple that had been in previous shows. This made for a supportive, reassuring atmosphere as the more experienced children could tell the others what was coming, and encourage them to hold some of the more exotic animals when they were nervous. Once again, parents stayed close by to assist with handling and share the experience. At the end of the session, some of the children and parents stayed behind to thank Rob for bringing the animals and help put chairs away.

The following table shows which children and parents attended each session. Parents names are in bold, for distinction:

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Session One	Session Two	Session Three	Session Four
<b>Louise</b> , Theo & Hobie	<b>Hayley</b> , Evelyn & Andrew	<b>Scarlett</b> , Michael, Lacey & Laura	<b>Tracy</b> , Seb & Evan
<b>Kirsty</b> & Woody	<b>Lily</b> & Monty	<b>Nat, Brian</b> , Leo & Allegra	<b>Lindsay</b> , Steph & Paul
<b>Neve</b> & May	<b>Samantha, Pete</b> , Charlie & Robbie	<b>Mary</b> , George & Dylan	<b>Cate</b> & Adam
<b>Liz</b> & Jacob	<b>Deborah</b> , Stewart & David		<b>Lily</b> & Monty
<b>Gina</b> , Luca & Sienna	<b>Amanda</b> & Kacey		<b>Hayley</b> , Evelyn & Andrew
	<b>Anne</b> & Mark		Margaret, Steve & Zara
	<b>Megan</b> & Jonny		

**Table 3: Attendance in each session**

## **5.7 Ethical Issues**

A number of ethical issues are inherent in working and researching with children with additional needs and their families. The NSPCC (online) have compiled guidelines to assist researchers working with children with additional needs. I ensured I was familiar with these guidelines, which include how to obtain informed consent, managing the risk

of harm to participants and how to handle the information gathered as part of the research. These factors, amongst others, were considered in the design of the study and throughout data collection; I will provide further detail of this below.

The first potential ethical issue to address is consent. A rigorous consent procedure was followed to ensure willingness of both children and parents to taking part. The parents were supplied with information packs which included details relating to their own participation as well as their child's. An invitation for families to take part in the study was provided (see Appendix 1). Parents were asked for their own consent to take part in the research (see Appendix 4), and also to explain to the children what taking part in the research meant using the information for children sheet, before asking them whether or not they would like to be involved (see Appendix 3). Children had their own information sheet explaining the study (see Appendix 2) and a consent form was included for parents of children taking part (see Appendix 5).

Prior to each session taking place, parents and children were reminded that they could withdraw from the study, the animal session or both at any time and did not need to give a reason. I clarified at the beginning of each session that participation in the study was not essential to attending the session. It is important to note that the child's consent was not a simple one-tick exercise; instead the willingness of the child to participate in the animal session in particular was constantly monitored. Rob was briefed prior to

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attending that consent was fluid and the children could leave the session, and the research- or both- at any time. Ensuring each participant is aware of their right to withdraw at any point, without giving a reason and with no consequences was essential in this research. Children may worry they will get in to trouble or any adults might be cross with them, and parents may worry that if they withdraw, or withdraw their child, that they cannot attend Sprout and/or participate in the activities. The right to withdraw was emphasized in the information packs provided, and children were assured throughout that they did not have to do anything they chose not to.

Causing distress to the children due to a change in routine and new faces needs to be considered carefully in terms of ethics. Fortunately, the animal session fitted in with the usual structure of the group in terms of timings and location which minimised some of the disruption. From the first observation, I was able to understand the most efficient- and least distressing- way to introduce the animals; a pressure free and informal presentation. That said, children were carefully monitored at all times throughout the session, to ensure there was no distress or change in the willingness to take part, as well as to collect the data. New people join Sprout all the time, and activities vary each week, so distress caused by these factors should not be an issue. The animals chosen for the interaction were species that many have come across before- with some children even keeping them as pets themselves, so I did not anticipate this would cause distress either. Rob works with children with additional needs on a regular basis and ensured the

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children handled the animals in a safe manner at all times. I requested that any phobias be disclosed prior to the animal visit, so Rob could be prepared to deal with them sympathetically.

The limitations of privacy and confidentiality are important ethical considerations, especially in the Facebook discussion group. Participants were made aware that unless they used the Private Message facility on Facebook that their contributions would be seen by other members of that group. Siblings and parents of the children were included in the observation and data, as I felt they could play a vital role in the children's experience. Parents and children were informed that their contribution to the research would be anonymous, as each participant has been assigned a pseudonym for use throughout this research. All photographs included are discussed generally so as to prevent identification, and permission from the parents and photographer were obtained prior to inclusion in this thesis.

Finally, the ethical treatment of animals also needs to be addressed here. It was vital that the animals showed no signs of distress and their welfare was monitored at all times. The animals that attended the handling session are used to visiting children and adults of all ages and Rob is well practiced in animal handling, as well as working with children with additional needs. Rob has contractual obligations that ensure animals' wellbeing at all times; animals that are ill or moulting are not taken to visit people until

they are fully recovered, and they are retired from work permanently should the need arise. As part of the contract with the franchise owners, animals are given health checks weekly, weights are recorded and vet visits monitored by the business owners.

Nevertheless, precautions were taken on the day; handling was closely supervised at all times and the temperament of the animals was carefully considered throughout the day.

## **5.8 Feedback to the organisation**

It was agreed prior to the research taking place that I would ensure the organisation had the opportunity to learn about what I had found during the course of the study. The final stage of Colaizzi's analysis involves returning the findings to the participants for validation; this was a useful way of giving the organisation feedback on the findings of the research too. The fundamental structure was returned to the organisation as it gives a concise account of the findings, with the offer to discuss findings more specifically if required.

## **5.9 Chapter Summary**

In this chapter I have explained the method for carrying out the research. I introduced Sprout, the participant group, and detailed their background including their history, ethos and current format for sessions. I explained the recruitment process for the

parents and children. I also described the exploratory work I carried out and any adaptations that may be required on the day. I then provided a narrative of the day the animals came to Sprout and an overview of how I carried out the observations. I related the methodology to the method; how descriptive phenomenology was applied in practice including how I bracketed out the natural attitude, a discussion of reflexivity in practice and whether the epochē could be achieved in the current study. Finally, ethical issues were addressed.

## **Chapter 6 Analysis & Findings**

### **6.1 Chapter Overview**

This chapter outlines how concepts from the methodology apply in practice. Each step of the Colaizzi analysis process follows, detailing exactly what happened to the transcripts of data throughout the analysis process. The seven steps are described and examples given for the first three stages. In the fourth stage, where themes are produced, I describe the process before presenting the themes. As stated in 5.4, all names have been changed to pseudonyms to protect the identities of the children, and consent for the included photographs was obtained prior to inclusion. The fifth and six stages show the exhaustive description and fundamental structure, and the chapter concludes with the final stage: validation of the findings from the participants who helped to create them. I decided to include the findings in this chapter, alongside the details of the analysis procedure, to assist with flow and to help construct a picture of the study findings.

### **6.2 Introduction**

After the animal handling session, the data had to be organised in preparation for analysis. This involved transcribing all recorded data and collating comments and

feedback from the Facebook group (for the seventh stage). Overall around forty thousand words were transcribed from the animal handling session. These transcripts form the primary data. The following demonstrates how the data were analysed, and details the findings of the research.

### **6.3 Using Descriptive Phenomenology**

In this section, I clarify how the information gathered on the day was prepared for analysis. I also explain how descriptive phenomenology was used in the current study. This involves explaining how the concepts covered in Chapter Four are used in practice, focusing on the natural attitude and achieving epochē through bracketing. I explain how reflexivity aided this throughout the analysis process, the difficulties faced when using a descriptive approach and how I overcame them in practice.

#### **6.3.1 *Preparing for Analysis***

After the observations, I transcribed all of the audio recordings from the day. At times where the audio quality was poor or the children spoke quietly, it helped to listen to the recording from the other Dictaphone which often picked up the speech more clearly and made the transcription process easier. I went through all of my observation notes and omitted any data that strayed into interpretive realms to maintain the descriptive phenomenological approach, adding them in to the corresponding place where they took place. Using reflexivity after the sessions and throughout the analysis process, I was able to ensure I rigorously adhered to the descriptive approach. Discussion of the

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analysis with supervisors also aided this. Reflexivity is the conscious acknowledgement of the researcher as an individual and how this can have an effect on the information produced during research (Langdrige, 2007). It is important to reflect on the way in which research is carried out and the characteristics of the researcher themselves, in order to ensure that the research is not influenced by these factors.

### **6.3.2 *The Natural Attitude and Epochē***

As explained, the natural attitude encompasses those ideas, values and traits that make up an individual. Effectively bracketing out the natural attitude enables the researcher to record the data accurately, without influence from these factors. For me, completing this research, this involved multiple considerations:

- Suspending preconceptions about how children with additional needs may react and respond to the animals
- Suspending considerations about how their parents and siblings might react
- Removing expectations about how the animals may be received, based on previous experience
- Disregard previous behaviour witnessed within group for the purpose of data collection and analysis
- View each animal show as if I had not seen it before- either on the day or in the past

Understandably, this was a tricky task and required action both on the day the children met the animals and subsequently throughout data analysis. Taking each point in turn, firstly, I have little experience of working or interacting directly with children with additional needs. I intentionally refrained from asking any questions surrounding diagnoses or characteristics of the children and reading around additional needs in general until after the session. Although I felt it was important that I was not a stranger to the children, I avoided discussing specific information concerning individuals prior to the sessions and maintained this unawareness of specific diagnoses during analysis. My lack of prior knowledge in these areas made it somewhat easier to 'bracket out' the little knowledge I did have. This applies too to the second point; having little knowledge of the family dynamic made bracketing my expectations of their behaviour more achievable. Thirdly, to remove expectations about how the animals may be received was one of the most difficult parts of bracketing. Having seen so many animal interaction sessions through helping Rob at events, there are often reasonably predictable ways that people will react to certain animals; the snake is often a source of excitement with a hint of anxiety, the rabbit is often the favourite and perceived as the cutest, the millipede is an object of curiosity and uncertainty. To overcome this, I made a significant effort to view each session as if it were the first, and record each reaction accurately, not 'minimising' anything that, in my natural attitude, may be perceived as 'standard'. Putting this into practice involved ensuring all notes relating to the previous session were complete so I did not need to go back to anything and recording anything

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of significance before the next session began. Rob and I also took a short break between sessions to restore our focus, check on the animals and prepare the space for the next session by straightening out chairs and ensuring availability of consent forms. Bringing each session to a close by completing notes and stepping away for a few minutes helped me to view each session as if it were the first. The fourth point was helped by the fact that I spent relatively little time with the children prior to the animal session, and as there were so many there it was difficult to remember certain behaviours attributed to individuals. Lastly, viewing the show as if it was a new phenomenon: this was assisted by several breaks throughout the day, refreshing the mind and ensuring I was recording the experience as it occurred. Having the opportunity to take a step back from the session, and a quiet space to ensure I was satisfied with the way the sessions were running, was an invaluable part of the process. It also afforded the opportunity to check my recording of the events was both functioning and suitable. Having different groups each time, who genuinely were experiencing the session for the first time in the most part, also assisted with this.

### **6.3.3 *Reflexivity and Achieving Epochē in the Current Study***

According to Yardley (2005) “reflexivity is the term used for explicit consideration of specific ways in which it was likely that the study was influenced by the researcher” (p. 250). Reflecting ones consciousness back on oneself, reflexivity involves examining and

uncovering the researchers place in the study (Holloway, 2005). Epochē, as explained, is the ability to bracket out the preconceived ideas and presumptions we hold as individuals. Reflexivity is the conscious awareness of these preconceived ideas and presumptions, as well as how, as different individuals with differing backgrounds, our individuality can influence the knowledge produced from our research (Langdrige, 2007). There are many considerations that must be made during the reflexive process as well as previous experience or knowledge of the phenomena under study; motivations for carrying out the research, how the researchers subject position may affect the analysis and how the researcher might influence the research in terms of age, sex, class and disability factors (Langdrige, 2007).

Some may question the need for a reflexive approach in Husserlian descriptive phenomenology. It could be argued that reflexivity is at odds with bracketing, in that if the researcher has successfully bracketed out the natural attitude, it should not be necessary to consider how one's preconceptions may be influencing the research. I see bracketing and reflexivity as working synergistically; being reflexive about my position in the research enables a critical awareness of the natural attitude, thus aiding the achievement of epochē. By being aware of these ideas as they entered my consciousness, I was able to acknowledge them as part of my natural attitude and consciously bracket them out. This in turn helped me to achieve epochē. I could utilise a

reflexive journal throughout the analysis process in particular to check that the description was truthful and free of my thoughts and suppositions.

Keeping a reflexive journal throughout the research process is a useful tool to aid the achievement of epochē. I used a journal from the first 'drop in' session and throughout the data collection process; it is continually added to with further reflections as the experiences are explored further and new dimensions are uncovered. The journal can also be referred back to during the analysis process to ensure the findings are not influenced by, or simply reflective of, the natural attitude. Checking back through the reflexive journal and then combing through all of my observation notes gave me the opportunity to add to the reflexive journal and exclude any information which crossed the descriptive line and into interpretive realms. Any details that sought to explain behaviour, beyond the facts, needed to be excluded so as to remain in the descriptive stance. Of course, this process can be a challenging stage of the research. After all, it is not possible to step outside of oneself and look in, to see where judgements or values are clouding description. For this reason, running through drafts with supervisors and recalling how this was done effectively in my previous use of descriptive phenomenology (Morrow, 2013) assisted with this step. Meetings were held to ensure that bracketing had been efficacious and the research was true to the methodology.

Now it has been established what epochē is and how to, theoretically, set aside the natural attitude, the question posed is: can it be achieved? Husserl and other transcendental phenomenologists believe that it can, provided the natural attitude can be successfully bracketed out. The achievement of epochē is discussed more thoroughly in relation to the current research below.

I have a personal interest in the phenomenon under study and therefore it was important to explore and acknowledge what I needed to bracket out from the beginning. I believe in the positive effects spending time outdoors and with animals can have. I have noticed in the past that children often enjoy interacting with animals and in my own experience, it is a therapy of sorts. With this in mind, being reflexive throughout this research was vital so as not to alter the experiences of the children in order to fit my world view. Instead, I aim to illuminate the essence of the experience for these children, good or bad. Being aware of reflexive issues will not be overlooked during the analysis of this data, as if “the confessional abdicates responsibility” (Langdrige, 2007:61) and instead will be revisited throughout.

I considered what could be done in the current study to help achieve epochē; that is, what steps can be taken before and during the research process to assist with bracketing. By exploring these ideas prior to collecting and analysing data, I was able to work reflexively throughout the research rather than looking back. Maintaining a lack of

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knowledge regarding specific diagnoses until after the analysis assisted with bracketing. To this end, I endeavoured to avoid any discussion with parents or leaders regarding official diagnoses of the children participating. This could be difficult with the leaders at times as they felt it appropriate to prepare me for what to expect in terms of behaviour from the children on the day so I could plan accordingly. However, this in turn sowed the seeds of expectations in my mind. The use of a reflexive journal was invaluable here; noting down what was useful logistical information (such as wheelchair access requirements) and what was a pre-judgment of behaviour (such as short attention spans) helped me to bracket out the interpretations. One example of how the reflexive journal was useful for bracketing was during the planning stages. After corresponding with leaders, I took the time to process what they had said and consider if it had created expectations in my mind. One of the leaders was anxious about the children sitting for long periods; I noted this down but did not change the planned format of the sessions. It was made clear to the children on the day that they could leave if they felt they needed to- none did- but by bracketing out this expectation, I was able to focus on the experiences of the children instead of considering if they were losing focus or wanted to leave. Correct use of a reflexive journal from the beginning of the research and discussing the analysis and emergent findings with supervisors assisted bracketing and the achievement of epochē, and was particularly helpful to look back on during data analysis. Making notes on behaviour, expectations and individuals meant I was aware of judgements as they were being created. Having carried out a formal observation, the

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use of the journal helped me to see what my thoughts were and what was useful information to inform the next stage of the research.

#### **6.4 Analysis: Step One- Familiarisation**

The first step in Colaizzi's process is similar to many thematic analysis procedures; familiarisation with the data. As I had attended the animal sessions and transcribed all of the data myself, I was already fairly familiar with each transcript, though I ensured I re-read the transcripts in their entirety before beginning stage two. The observation notes I took were useful to have alongside the transcriptions and I used them for adding context, for example where someone was sitting in the room; with parents, away from the animals or away from parents. Also the notes helped with familiarising myself with what happened in each session on the day, such as details of who was in each session. At this stage in descriptive phenomenological research, it is also important to be mindful of bracketing and the natural attitude. Assuming the psychological perspective and getting into the mindset of the phenomena under study is important before proceeding (Giorgi & Giorgi, 2008).

#### **6.5 Analysis: Step Two- Significant Statements**

Identifying the significant statements from the data is the second step in the analysis process. Significant statements can be anything in the transcripts that pertains to the phenomena under study; interacting with the animals. This process took quite some



time; due to the sheer volume of data and the thorough approach necessary for this analysis process. As previously noted, Suryani, Welch and Cox (2016) carried out research exploring the experience of auditory hallucinations in schizophrenia. Their research data were collected in Indonesian, then translated into English and analysed using Colaizzi's method. The use of the method is detailed, along with the difficulties faced due to the language barrier. Whilst identifying the significant statements, they report returning to the full transcript multiple times for clarity and context (Suryani, Welch & Cox, 2016). Although in the current study there was no language barrier, when extracting significant statements it helped to reread sections of the transcript a few times to gain the full context of what was being said and why; sometimes it was deemed necessary to include bigger extracts of conversation.

Some of the significant statements were more obvious than others, such as comments made when the children were handling a particular animal, for example '[He feels] really soft. He's light.', 'I like how the fur all grows on them. But sometimes it feels lumpy when you stroke her' and '[I like] their faces! I like the fluff too. I like everything'

Other significant statements were about other animals, or animals more generally, that the children had been prompted to contribute due to the session, such as 'They like to eat all fruit and veg but they can't eat tomatoes or potatoes.', 'Rob? They [guinea pigs]

squeak like <Squeaks>' and 'that they stick their tongue out! [what do you like about snakes?]'.

Further significant statements were more subtle; comments brought about by the animal handling or as a result of the children handling the animals, but not necessarily about animals themselves, such as 'I've been to the butterfly centre with my school and at first I was really shy but then I holded it'. This statement is about sharing previous experience with the group about a trip and interaction with similar animals, but does not relate directly to the day. These kind of comments were identified as significant statements because they contributed to the experience on the day: sharing knowledge and previous experience was an important part of the phenomena under study, the experience of animal interaction. Lastly, in some cases it was important to include what was said before or after a significant statement, to provide a background and make it clear what context the statement has been said in.

During this stage of the analysis, I read through the transcripts several times, occasionally noticing things I had overlooked previously. I highlighted each comment or interaction that related to the phenomenon under study. When I was confident I had identified all significant statements, I copied them all into a separate Word document. This offered the opportunity to review each comment whilst considering the focus of the study, to check each was relevant. After all significant statements were reviewed and

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copied into the separate Word document, the analysis was ready to move on to the next stage. In total, there were three hundred and sixty-six significant statements.

## **6.6 Analysis: Step Three- Formulating Meanings**

The third step in Colaizzi's approach is to formulate meaning from the identified significant statements. This is a tricky step as some level of deeper explanation is required, though it is essential to remain close to the data and stay within descriptive realms, avoiding interpretation. Formulating meanings from the significant statements involved elaborating on what was being said, offering context, highlighting the significance of the statement and explaining what the child was saying or doing without going beyond the data. I read through each significant statement in turn and offered a description of the interaction, which I reviewed periodically to check for interpretation. During this part of the process, it is especially important to employ bracketing; suspending existing preconceptions so as not to influence the data. It can be easy to see the early stages of themes beginning to emerge at this stage, therefore the use of bracketing ensures that the analysis is an appropriate reflection of the experience and that meanings are not formulated or shaped to 'fit' with emerging themes. Suryani, Welch and Cox (2016) explain that when formulating meanings, they considered both the implicit and explicit meaning and often referred back to the original significant statements to ensure their formulated meaning was accurate.

Some examples of how I formulated meanings from significant statements is below, with the formulated meaning underneath. The remaining significant statements and formulated meanings can be found in appendix six.

Paul: Lizards are always happy, except when somebody is being mean

Paul shows empathy here and understanding of how an individual's behaviour may impact on an animal and they may subsequently become unhappy.

Rob: That's ok! He's very nice, you could stroke just here

Kacey: Just here? Just here.

Kacey is nervous of the lizard and Rob reminds her that it's ok to be shy and gently persuades her by directing her to where she could stroke. Kacey confirms this with Rob then proceeds carefully; she is mindful of her actions and wants to do it right.

Evan: Erm I like little spiders! Because they're tickly sometimes!

Evan: She feels a bit greasy! oh no it tickles! It tickles!

Evan enjoys things that feel tickly on his hands; he describes the bearded dragon and millipede as tickly and says he likes spiders that tickle; interesting that he focuses on the sensation on his hands and how things feel as opposed to how they look.

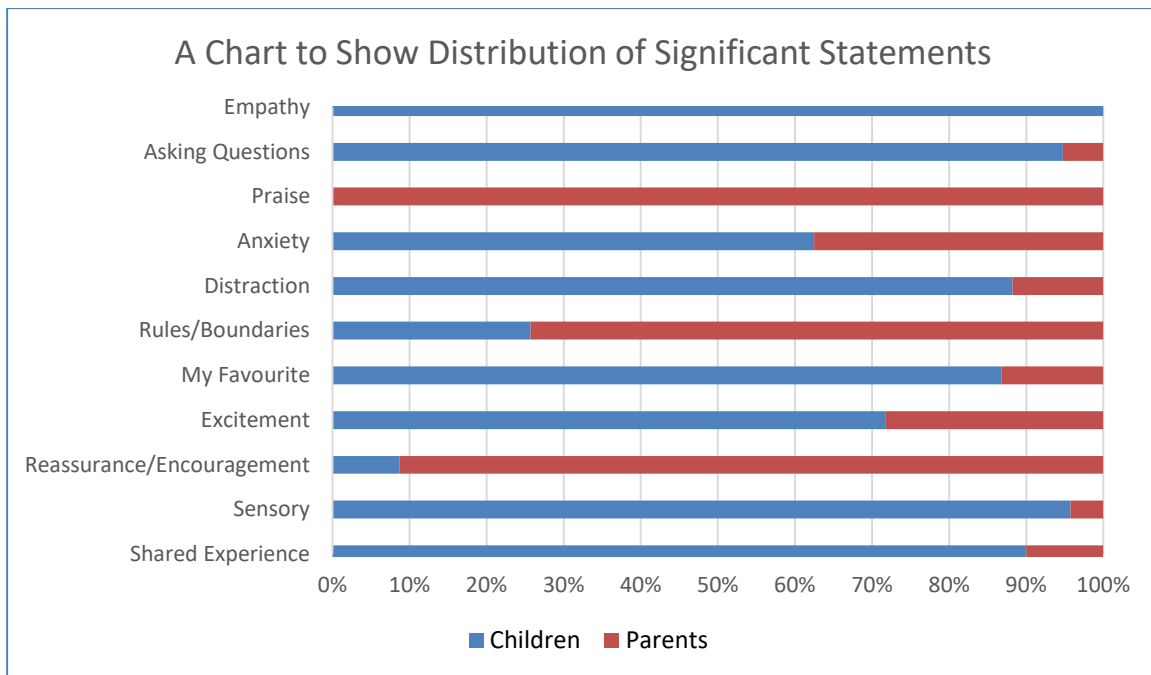
Zara: We have got two guinea pigs at school. Toffee and Nutmeg.

Zara hasn't got pets of her own but has been thinking about where else she comes into contact with animals like Rob's, as some time has passed since Rob asked about pets at home. She shares this information with Rob to show she has previous experience and remembers their names.

## **6.7 Analysis Step Four: Clustering the Themes**

After the meanings had been formulated for each significant statement, I printed them out and cut them up into individual extracts of the significant statement and the matching formulated meaning. This made it easier to cluster the themes, as I could move statements around and take my time to think about anything I was unsure of. Clustering the themes is a difficult stage in the analysis process; it is important to take time to reflect and occasionally go back to the transcripts to ensure accuracy. By having the statements and meanings on paper and cut out, and being able to physically move them around and considering their place much easier, though this stage took a considerable amount of time. This stage is important to get right, as the themes and their titles feed into the next steps; they help to write the exhaustive description which is condensed into the fundamental structure which forms the essential findings of the overall research. Some of the themes were clear from the start; 'Praise' and 'Asking Questions' cropped up a lot during the animal handling experience. However, some clusters were harder to name, and some statements were hard to categorise. It is vital

in this part of the procedure that statements are not 'made to fit' in certain categories for ease or simplicity; instead this process requires careful consideration. There is no fixed quota for the number of themes required, therefore new themes can be created should the need arise. It should also be clarified that the importance of a theme is not defined by the number of significant statements, therefore the below chart illustrates the significant statements divided up by the children's contributions and the adult contributions, rather than in numeric order. Adult contributions were included when they related to the children's experiences. Eleven themes were identified by the end of step four. The following table shows the theme and the distribution of the significant statements, demonstrating the balance between parents and children:



**Figure 4: A chart to show themes and distribution of significant statements for children**

The chart shows the distribution of significant statements proportionally between parents and children. Empathy is dominated by comments from the children, who enquired about the welfare of the animals throughout the day. Praise is made up entirely of comments from the parents, encouraging the children and congratulating them for being kind to the animals and waiting patiently for their turn. It was also predominantly children who asked questions about the animals, and sharing their previous experiences of animal encounters. Parents were often the ones reminding children of rules and boundaries, but it is interesting to see that some of these

comments came from the children too, reminding others to wash their hands or how to handle the animals safely.



## **1.1 Presentation of the Themes**

I will now explore each theme in turn and include quotes from the data to show how I reached them. Shosha (2012) grouped their fourteen theme clusters in to four 'emergent themes'. Some researchers prefer to offer 'categories' or 'subthemes' such as Shin et al (1999) who explored how middle-aged women aged. They describe how their data were coded, assigned meaning, put into themes, groups of themes then categories. For example, a category was titled 'planning for the future' and a theme 'being ready to pass away'. To me, this level of 'coding' and assigning themes felt more compatible with an interpretive phenomenological analysis and, though this has been done in previous research, it could be argued that the further integration of the identified themes could risk overlooking the nuances of each theme. Mackenzie (2009) used Colaizzi in their phenomenological study exploring an intervention for women with dyspareunia. They maintained individual themes and included sub-themes to give additional context in their analysis. Therefore I adapted Mackenzie's (2009) example, and maintained individual themes but felt the sub-themes were unnecessary for this research. The themes are discussed in the present tense. I feel this suits the phenomenological method; studying the lived experience and feeling a part of that experience. It enables me to build a picture of the sessions throughout the day, and I invite the reader to immerse in the data.

### **1.1.1 *Theme One: Sharing Knowledge, Shared Experience***

The children enjoy sharing their previous animal encounters with Rob, their parents and the other children; they become animated as they explain their previous experiences. Mary tells Dylan 'You've held spiders!', to remind him about a previous

interaction where he has done something brave, to encourage him to make the most of this opportunity. Leo tells Rob and the group 'I've held a bearded dragon before and it looked at me like this'. He shares this previous experience as it adds weight to his next instruction, as he tells his sister 'Allegra, put your hands out like this'. He is using this opportunity to teach Allegra something and share his knowledge. Allegra reciprocates, and wants to share her experience with Leo and her parents too: 'Come over here, look over here it's awesome. Just come and look! Bring Leo!'. The children talk to each other over the collective interest in animals, as the below interaction demonstrates:

George: Do you have a chameleon?

Michael: Chameleons change colour!

The children are also eager to share their interaction with the group. Evelyn is still excited from her turn holding the snake and is watching the other children avidly. As she watches, she says 'Yeah it did that when I was holding it!' and finds a commonality between the two interactions which enables her to connect with the other children. The children listen carefully to each other, leaning forward in their chairs to look at the person speaking, occasionally nodding in agreement. Monty is also still excited by his interaction with the animals, saying 'I hold all of them! I love.. I love the snake, it just feels.. Have you done the snake?'. He's talking to the group and hoping to find someone who is in the same position as him to share the excitement and experience with.

The presentation allows the children to share their wider knowledge of the animals on show as well as more exotic creatures. Paul tells Rob 'My guinea pigs love vegetables as well' and Steph adds 'They like to eat all fruit and veg but they can't eat tomatoes and potatoes'. They consider their answers and draw upon their previous knowledge, gained from having their own pets, to answer Rob's question of 'What do guinea pigs like to eat?'. Robbie tells Rob about his rabbit, suggesting they might eat hay and adding 'And we give them a piece of wood to gnaw on, so his teeth don't grow too long'. Robbie shares his knowledge of how to care for rabbits here, including an explanation of why they feed what they do, to show he understands their needs.

Steph also introduces Rob to some new information, telling him '[bearded dragons] don't like mirrors! And they like raspberries'. Rob tells Steph he did not know this information, and Steph gains a sense of purpose telling Rob things he did not know, adopting a 'teacher' role and her body language changes; she sits up straight and addresses Rob directly. After being upset earlier in the session, and as an older child, this gives Steph the boost she needs to engage in the session as she becomes more animated.

May draws upon her previous experience to tell Rob and the group 'You get. In'. She is telling Rob that she has seen millipedes before in another country. Sienna talks to Rob about her pet guinea pigs, telling him 'they don't like the nails cut', sharing her previous experience, and Robbie compares the way he strokes the lizard to the way he strokes his cat at home saying 'That's the way my cat likes it'. He shows consideration for the lizard by stroking it in a way he knows another animal likes, and

also curiosity; wondering if they like similar experiences. Kacey also shares her experience of animals by drawing upon her pet cat at home, as shown here:

Kacey: he's soft. He feels like my cat called Tom.

Rob: You've got a cat called Tom! Do you like to stroke Tom?

Kacey: Yeah!

Rob: Do you think Tom likes to be stroked too?

Kacey: Yes! (laughs)

Not all previous experiences with animals are reported positively, as Paul says 'Do you know one thing, a long long long time ago we had a load of rabbits but they all died'. Paul does not seem distressed by this revelation, but his older sister Steph is distraught at the memory and retreats to her mother's lap, where she cries and attempts to hide away, refusing to engage with anybody. Seeing the rabbit and being reminded of her previous loss has had a negative impact and I worry that the animal session will be spoiled, not only for Steph, but also Paul and her mother if she needs to leave the session.

When the millipede comes out, Sienna also shares with the group 'I've been to the Butterfly Centre with my school and at first I was really shy but then I holded it. It tickles!'. Here Sienna is using her previous experience with this animal to encourage herself and others; noting that it is understandable to be shy at first but if you can overcome this then it feels good.

Michael is eager to share his wider knowledge of exotics with Rob, telling him 'I don't

like black widows because they are quite poisonous, when they bite'. This is an expansion on his previous comment of 'I like all animals. Except for black widows'. He explains the reason for disliking black widows and shares this information with the group. Theo also explains how he knows the guinea pigs are friendly, and hints at a negative previous experience when he says 'Because they don't bite'.

The discussions around previous experience add to the excitement and atmosphere on the day; it brings the group together and provides a common interest for each individual to bond through. The parents utilise the animal session as a bonding experience with their children and grandchildren, with Steve asking 'Does it feel weird Zara?'. He encourages her to talk him through the sensations with each animal, so they could share the experience. Dylan and his mum Mary are close throughout the session and sharing thoughts with each other throughout, including Dylan telling his mum 'His spots look like cheetah spots!' and Mary confirming 'Yes they do!'.

### **1.1.2 Theme Two: Sensory**

The children are focussing on different sensory elements throughout the experience, though touch and sight seem to be the most common. Sienna in particular likes to explain what she can see, saying 'It's white!' when the snake comes out. She says the millipede 'Looks spiky!' as she waits for her turn to hold it. Hobie also likes to tell Rob and the group what he can see, noticing the millipedes markings: 'It's stripy!'. Hobie is looking quite closely to be able to see this.

Rob draws attention to certain sensory aspects when the children are handling the

animals; sometimes as a distraction technique or as part of his description of the animal, or sometimes to encourage the building of rapport. He says to Zara 'Did you see his little tongue flick out then?' and she replies 'Yeah!'; he has noticed she is watching the rabbit carefully as she strokes him and would have been likely to see this. This is part of the confidence-building throughout the session, to enable the children to get the most out of it.

Allegra likes to watch the other animals while waiting for her turn. She is watching the rabbit closely as Rob talks about him, and tells Rob 'You should call him Sniffer instead. Or Floppy, because he's got floppy ears'. She is making observations based on the rabbit's behaviour and appearance, suggesting alternative names for him.

Most of the children largely discuss how the animals feel on their hands. Theo says the rabbit 'Feels soft' and Zara explains that the snake feels 'Really soft and smooth'. Allegra says 'He feels quite squishy!' when she is holding the bearded dragon and Woody reassures 'They're not sharp, his spikes'. As seen in figure five, the sensory experience is generally pleasant for the children. The child in the picture smiles as the millipede moves across his hand and he can feel the legs moving. He is watching closely to see how the legs move too.

Occasionally the children compare what they can feel to another familiar object; they explain this to the rest of the group. The children's use of similes links back to the idea of sharing experience- they choose to compare the animals to common objects to help them explain their sensory experience. Woody says the rabbit 'Feels like he's soft, like candy floss' and Sienna says 'It feels like a foot bar!' about the lizard. Zara

thinks the millipede 'feels like a hairbrush!' and Steph compares it to plastic: 'It feels like plastic! Can she walk up there? Whoa that feels weird!'. Rob encourages the children to compare the animal they are holding to previous animals, such as in this exchange:

Rob: Which was softest, the rabbit or the lizard?

Evelyn: The rabbit

Rob: The rabbit! Which one feels nicest to stroke?

Evelyn: The lizard!

Lacey explains that the millipede 'Feels all bumpy' which is unusual, as mostly the children comment on the sensation from the legs; for example Evan 'Oh no it's tickly! It tickles!' and George 'They've got really spiky legs'.

Paul also notes the feeling of the entire animal, saying that 'Oh it's heavy! I can feel her skin- it's warm'. He is surprised at how heavy the guinea pig feels; perhaps because he has pet guinea pigs at home and this one feels different. He also notes the guinea pig's skin is warm, which is an uncommon observation. Children often note that the reptiles feel cooler than they have felt before, or than they were expecting, but in other animal shows I have not come across a child commenting on the warmth of the mammals. Paul also states it is the skin that is warm rather than the fur.

Zara is also pleasantly surprised when she strokes the lizard:

Rob: Have you stroked a bearded dragon before?

Zara: No

Rob: How does it feel?

Zara: Quite rough! Warm! Soft!

This is a new experience for Zara and from her tone of voice she is excited.

Allegra is also excited when she thinks of a new way to describe the lizard; one that nobody has said before: 'It feels like I'm stroking a pineapple! No no honest, it sounds like the worst description ever but it does actually feel like I'm stroking a pineapple!'.

Monty explains how the lizard feels to the other children in a reassuring tone: 'He feels nice'. He has held the lizard in a previous session and is eager for the other children to share the experience, so gives a positive description to the others to encourage them to hold it too.

Hobie notices something unusual about the snake when he holds it and it prompts him to ask 'Why does it feel cold on my hands once it starts moving?'.

Woody is struggling to articulate what the millipede feels like and Rob helps out by offering some examples he might be familiar with:

Woody: It feels like...Like...I don't know

Rob: Does it feel soft like a teddy or hard like a plastic toy?

Woody: Like a plastic toy



Woody appreciates being given the choice to pick from, and uses the idea of comparing the animals to something he is familiar with on the next animal, saying about the snake 'He feels like your shoe!'.

The parents also have some surprise sensory experiences. Gina holds the snake and says 'He's smoother than.. He's silky'. She is surprised that the snake does not feel as she had anticipated, and explains this to Sienna and the other children in an encouraging way.

The sensory element enables the non-verbal children to engage with this experience on an equal level to those around them, for example May cannot always articulate what she wants to say but she can feel the animals just like the other children. For the children with limited fine motor skills such as Zara, capabilities were irrelevant as they can engage with the animals in whichever way they feel able. This adds to the inclusivity of the experience.



**Figure 1: “A pleasant sensory experience”**

### **1.1.3 *Theme Three: Encouragement and Reassurance***

As seen in the above table, the theme of reassurance and encouragement is dominated by parent comments. Rob was careful throughout the presentation of the animals to be encouraging without being pushy; this was important not only for consent purposes but also because the session was designed to be fun and exciting, not a test of how brave the children were for holding the different animals. Rob says frequently ‘You don’t have to stroke him, you can say no thank you’ and ‘now remember, you don’t have to’ but is also encouraging by assuring the children the animals are safe: ‘He is very friendly’ and even demonstrations ‘In fact, he’s so friendly

that he loves to sit around my neck like a scarf'; at this point, Rob wraps the snake around his neck.

The children are encouraging of each other in non-verbal ways; waiting patiently for their turn, asking questions whilst other children hold the animals which maintains the inclusive atmosphere. They watch intently as each person holds the different animals. Monty has been in a previous session and therefore shares with the 'new' parents and children which animals they can expect to see: 'Erm there's a centipede, a lizard and then a snake!'. I perceive this as reassuring; the conversation he is having is about what animals are present, with a little anticipatory anxiety about what might be coming. Monty also says this excitedly, which was encouraging for the other children, as they knew he had already had this experience and was talking positively about it.

Sienna seeks reassurance from Rob before she holds the snake, asking 'He won't hurt me will he?'. At the beginning of the session she had stated she would not be holding the snake, with mock-horror- '(sharp intake of breath) As soon as you get the snake out I'm flying! As soon as I see one. And then if I had to hold it!' - the above interaction seeking reassurance shows she needed that little extra support but that her confidence had grown enough to hold the snake.

Woody wants to confirm to the other children that it is safe and wants them to be as involved as he is when he says to Rob, after being asked if he would be a 'helper': 'Yeah I'll show them how easy it is too!'.

The parents are both reassuring and encouraging in different ways. Louise is keen to ensure Hobie understands it is fine if he did not want to hold anything or everything, saying 'Are you just happy to look at some of them?'. This may have also been for the benefit of the other children; ensuring they knew they could just look at the animals if they wanted to. Scarlett, one of the parents, and Rob were careful to ensure an attempt at holding ended positively, saying:

Rob: Sometimes just trying is good enough!

Scarlett: Yeah course it is!

Both Rob and Scarlett use a heartening, positive tone of voice to smooth over the attempt at holding the millipede, to prevent Michael from feeling deflated and put off holding the other animals. Rob puts the children at ease by explaining what each animal feels like before the children hold them, relating it to something they may be familiar with, for example when talking about the lizard '[He] feels rough like stroking a rock or piece of wood' so the children have an idea of what to expect.

While waiting for their turn, some of the children become a little concerned that due to the layout of the room they might be forgotten about or missed. Anne was on hand to remind them 'It's nearly your turn! He's coming I promise'. As a trusted figure within Sprout, making a promise and using a gentle voice is enough to calm the children.

The parents like to encourage the children to get involved with the handling in

various ways. Kirsty makes it a challenge for Woody by asking him to be 'braver than me'. Scarlett offers an alternative idea, phrasing it as though asking for help with the handling: 'If Mummy does it will you do it with me? Cos Mummy is terrified'. Others, like Lily, simply say 'Just have a go!' and Scarlett who says 'Yeah go on Michael, you can do it' by way of encouragement. Tracy offers to show Evan how to do it first 'Like this Evan' so he can see how to hold the millipede before his turn.

#### **1.1.4 Theme Four: Excitement**

The excitement from the children is palpable and they express this in different ways. Evelyn quietly says 'Yes!' when she learns the snake will be the next animal to come out, and Zara exclaims 'Snake!' in a mix of excitement and nerves. Charli is giddy with excitement, almost to the point of interruption, as she tries to finish Rob's sentences and second guess what he is about to say, as shown below:

Rob: (laughs) Now then, this little millipede is called Millie. And Millie is the biggest type of millipede in-

Charli: Short for millipede!

Rob: -in the whole wide world. She can't see very well so she has got two wiggly antennae so she can feel where she's walking-

Charli: Sensing

Allegra's excitement peaks as she bombards the other children with questions as she bounds round the room: 'Are you here to see the animals? Have you seen the animals? Where are the animals?' without giving much time for answer. Charli is similarly excitable, saying to Rob 'I'm really looking forward to the snake coming out!

The rabbit has got its legs out. The rabbit has got its legs out! What are you getting out next?' without pausing for breath. Rob encourages Charli's enthusiasm which seems to help her engagement with the animals, asking 'Do you like it? Do you like the dragon?' to which she replies 'I love it!'. Charli is excited just looking at the animals, saying 'Do you know where the snake is? It's under the rock. Can you see the snake? It's sort of camouflaged. And there's another millipede in there. Can you see it? Guinea pigs! Ones moving. One just moved. There's another one in there.'.

Allegra calms as she holds each creature but her excitement begins to build as she watches the others and tries to answer Rob's questions. After a little while she starts to notice the other animals in the display and asks 'Can we look at the guinea pigs?'. She seems eager to move on to the next animal shortly after her turn. She also remembers she missed out on hugging the rabbit, so when the guinea pig comes round she happily says 'I want a hug!'.

Evan seems quite awe-struck by the animals and whispers 'Wow' when he sees the millipede. May expresses her enthusiasm by relating to what Rob is saying in an excitable manner. Rob explains to the children that the snake is wriggling, and suggests it might have ants in its pants. May responds, saying 'Ants in my pants, I've got ants in my pants like the snake!' The children are also excited when they get the answers to questions correct, such as when Hobie correctly guesses what the purpose of the holes in the side of the lizards head are: 'Ears!'. May exclaims 'Mermaid!' when Rob is explaining how a lizard uses his toes like a paddle in the sand, linking this information with the way she knows a mermaid uses a tail. Monty is pleased to have been able to come in to a second handling session, exclaiming 'Second time!' as he holds the snake around his shoulders again. Stewart is excited

to be sitting close enough to the rabbit to see what he is doing, telling the group 'He's cute! He's lying down!' and his brother David joins in, adding 'I like sitting near the front cos then I get to see the bunny rabbit!'. Allegra enjoys talking the other children through what she can see and feel when handling the animals. As the snake comes out, she says 'Oh the snake! He's white. Look what he's doing! Can we hold him?'. She is excited to meet the snake and wants to learn about him, asking Rob questions and watching carefully as he handles the snake.

The pace of the session is enough to keep the excitement going throughout; the anticipation of the next animal coming out, guessing which one it could be and anticipating their turn all keep the children engaged with the session. This can be seen in the first of the pictures below; the child in the centre of the photo in figure six is anticipating their turn to hold the millipede; we can see he is watching closely and holding his hands out flat, as instructed, ready for his turn.

The parents are generally familiar with most if not all animals on show, but they are impressed to see them up close. Overall eight different parents exclaim 'Wow!' throughout the day including Gina, Liz and Kirsty, and some of the children seem quite awe-struck, as demonstrated in figure seven. Excitement is demonstrated in other ways from the parents too, with Amanda joining in the experience with Kacey: 'It's your turn!' as they both anticipate the millipede coming. In another case, the excitement was perceived almost as a potential concern that needed managing, with Louise saying in an anxious tone 'I know you're excited' whilst calming Hobie and Theo down and preventing them getting over-stimulated.



**Figure 2: "Anticipation"**



**Figure 3: "Wow!"**



### 1.1.5 Theme Five: “My Favourite/Animals Make Me Feel”

The children are telling Rob about their pets at home, and why they like to have pets.

Hobie and Theo have their own guinea pigs at home, and Rob asks what they like about guinea pigs:

Hobie: That they are soft

Theo: That they are *really* soft!

Theo goes on to say ‘Well they’re really friendly. I like stroking them’. Theo enjoys interacting with the animals on display today; he is more forward about holding the animals and stroking each one than Hobie, who seems a little more nervous; happy to look at some of the animals but not hold, and asking questions such as ‘when will it kick?’.

Some of the children are very specific about aspects of the animals and handling experience they like, such as Sienna who is responding to being asked what she likes about guinea pigs: ‘Their faces! I like the fluff too’. This is a different response to Hobie and Theo, so Sienna has thought about her answer and chosen a different feature to those previously mentioned.

During the handling of the snake, Evelyn likes how ‘He moves a lot!’ and Robbie likes ‘that he sticks his tongue out’. This shows careful observation on Robbie’s part as it can be difficult to see the snake stick his tongue out. Evelyn has picked up on one of the key differences with the snake; he is active whilst you hold him where the others tend to remain fairly still. Rob asks Evan ‘Which was your favourite animal?’

and he replies 'Erm probably the snake. Cos it's just so wriggly!'.

Here, Andrew is describing his experience with the snake:

'It feels slippery n stuff. [Have you stroked on before?] No. [Do you like stroking him?]  
Yeah! [Would you like to hold him as well?] Yeah!'

Andrew is enthusiastic about holding the snake and uses his tone of voice to convey this. It is a significant exchange for him as he is quite quiet around people who are unfamiliar to him. In contrast, some of the other children are general about what they like about animals, or indeed what animals they like; Michael says 'I like all animals!' and Lacey agrees 'I like them all'. Rob encourages the children to talk about other animals in their discussion of favourites, and in this extract he finds out about Zara's favourite animal:

Rob: Are rabbits your favourite?

Zara: My favourite thing that you can have as a pet

Rob: What's your favourite animal of all the animals?

Zara: Dogs!

Woody struggles to articulate what he liked about spending time with animals at the beginning of the handling session, saying 'well I like.. I like.. I don't really like anything *about* them, I just like.. I don't know why but I just like them'. At the end of the session, I ask Woody which his favourite animal was and he says 'The snake! It really felt scaly but is also felt soft'. Here he is able to explain what his favourite animal was and why; giving detail about what it felt like.

Throughout the session I notice a real shift for some of the children when the animals come out. This is clear for Steph, who at the beginning of the session was very upset at being reminded of the deceased pet rabbits. Her mum tries to persuade her to hold the rabbit saying 'Steph, would you like a turn? Maybe come back'. Steph is sitting close to her mum, sobbing and refusing to look at the animals or engage in any way. After everybody else has their turn, Rob offers her the chance again and she accepts, sitting with the rabbit on her lap.

Rob: How does he feel?

Steph: Soft. Cuddly

Rob: So do you like him?

Steph: (quietly) Yeah

Steph is quiet but engages in conversation with Rob, telling him all about her pet guinea pigs. Although the animal session initially brought back some sad memories for Steph, she does engage and enjoys the remainder of the session; holding the animals, telling Rob and the group about her pets and showing off her knowledge about rabbits and lizards.

Monty also changes throughout the day; having the benefit of dropping in to a couple of sessions he becomes braver, and even works up to holding the snake around his shoulders, which he was too frightened to do at first:

Rob: Are you glad you got to have a hold? What do you think, does he make you feel brave?

Monty: Yeah!

Monty also decides to hold the millipede, and Lily feels that his confidence is increasing:

Rob: So you didn't hold this one this morning?

Monty: No

Rob: What's different now? Do you just feel a bit more brave?

Lily: Confidence I think

Rob: Do you think it helps that you've seen it twice?

Monty: Yeah!

Rob: Yeah so the more times you see it the happier you feel?

Monty: Yeah

Rob asks Paul how holding the rabbit makes him feel: 'Happy!' and George considers what he likes best about animals here:

George: I like how they all feel

Rob: You like how they feel. How do they make you feel?

George: It makes me feel happy

Lacey agrees, when Rob asks her if the animals make her feel happy too she says 'Yeah!' excitedly. The parents also enjoy how the animals make them feel, especially Samantha who is overcoming a phobia of snakes. Rob introduces her to the snake and she says 'Oh thank you, I've got a bit of a phobia about snakes. I think.. what it

is, is.. not actually being near, it's just a fear thing. It's weird.. the more you.. But he is beautiful'

Samantha is also struggling a little to explain to Rob how her fear makes her feel.

She is eager to end on a positive though, and even brings in her husband to look at the snake too, commenting on how beautiful he is.

Hayley is keen to share with me how Andrew enjoyed the session:

Rosie: Hi guys, what did you think, did you enjoy it?

Hayley: yeah, Andrew did.

Hayley explains that Andrew enjoyed the session; not to say Evelyn did not but she was anticipating Andrew may not enjoy the new experience

Rosie: Did he! Did he stroke everything?

Hayley: Just the millipede he didn't do

Hayley says this proudly; she is pleased that Andrew engaged with the other animals and enjoyed interacting with them

Rosie: The legs can be a little bit creepy

Hayley: I think that's what he thought

Hayley explained prior to the session that she was worried that Andrew may not enjoy the animal experience as he can become anxious with new experiences and unfamiliar faces. She seems happy that Andrew interacted with the animals and also sat with his sister throughout the show; in subsequent interactions I have noticed Andrew usually stays close to his Mum and prefers her to be nearby when engaging with activities, even disengaging to find her if she moves away. The pleasure the

animals bring to some of the children in particular is shown in figure eight. The child is holding the guinea pig closely, leaning forward in her seat and smiling as she strokes it.



**Figure 4: “Animals bringing pleasure”**

#### **1.1.6 *Theme Six: Rules and Boundaries***

There is subtle variation within this theme but not significant enough to split it into two. Regarding rules, Charli and Allegra are both eager to enforce the rules they have learned when the other children are handling the animals, despite not always following said rules themselves. Allegra says ‘If you want to touch him you have to use the soap afterwards’. Charli says ‘You can’t hold him, you’re not allowed to hold him’ after being told she was only able to stroke the lizard. For Charli this was tied up in a wider issue she had with ensuring the other children were not able to ‘do more’

than her, and her urge to be able to 'do more' than the other children. This feeds directly into the boundaries aspect of this theme. She asks 'Can I hold her on my own?' after seeing the other children being assisted and holding half of the millipede, while Rob holds the other half. She also tries different ways of persuading Rob to allow her to do more such as 'Can I hold the lizard in my hands? I just thought with the bearded dragon because I've held one before'. By reminding Rob of her previous experience she hopes he will relent. Charli wants more control during her handling experience, saying to Rob 'I want to get the front end' after the children before her held the back of the millipede. It offers her the chance to do things differently to the other children and express a preference for her experience.

Charli and Allegra also get up from their seats frequently and need to be reminded that only children sitting down would get to meet the animals, when Rob says 'If we find ourselves a seat then we're going to get the rabbit'.

The children listen carefully to the instructions and rules given by Rob regarding how to handle the animals safely. The photo in figure nine shows one of the children listening to Rob's instruction about how to hold the millipede. He maintains contact with the animal but keeps looking at Rob whilst he explains about keeping a flat hand and staying still so the millipede feels safe.

Ruby is eager to ensure boundaries are in place from the beginning of the day, expressing that 'they do seem to respond well when they have those ground rules' and although the children had additional needs, 'they still understand the basic rules of how you've got to go about things'. Some parents also enforce rules such as Nat: 'Allegra don't do that to his ear', 'Don't stroke him backwards' and 'Understand and

accept that you have to be gentle'. Scarlett allows Michael some independence before she intervenes 'What are you doing? No leave it alone. Michael leave it now'.



**Figure 5: “Listening to instruction”**

### **1.1.7 Theme Seven: Distraction**

Some of the children are more easily distracted than others, particularly Charli, Allegra and Evan. The children do not often distract each other, but it becomes apparent that some are easier to 'lead astray' than others, such as Charli wandering to the front of the room to look at the other animals sends a message out to Kacey that it is acceptable to do so.

Jonny sits at the back of the room and is less eager to engage directly with the animals, and tries to distract the other children on two occasions by making noises



from his seat at the back.

The rabbit is a huge distraction for many in all sessions, possibly because he is the only animal that is properly visible throughout, so the children enjoy providing a running commentary on his behaviour. There are many significant statements relating to the rabbit alone, some commenting on what he is doing at the time, such as Charli 'The rabbit is being lazy again!' and Allegra, who is excited by what the rabbit is doing: 'LOOK! Look at Arthur, look at him! Take a picture of him!'.

Distraction is used almost as a deflection technique, for example in this exchange Woody and Rob are talking about the different animals the children could hold.

Woody is hesitant about whether or not he might like to hold the snake, and does not want to commit to something he is unsure about:

Rob: We can stroke the snake and hold him if you like. Are you feeling brave?

Woody: Erm

Rob: It's ok, just see how you feel

Woody: Erm I think I might have to have a look at him first

Rob: ok have a look first. It's pretty good having a little look. Then we've got a millipede and she's got hundreds of legs.

Woody: I've held a tarantula!

Rob: Have you! Well what we're going to do is wait til the groups come in separately cos the next person coming in will see you holding, then they'll want a hold and everyone will want a hold. So we'll just stroke him for now.

Woody: How old is she anyway?

Here, Woody changes the topic of conversation to go back to the animals he feels more comfortable about (the guinea pigs), after explaining to Rob that he would perhaps see how he felt at the time about holding the snake. Rob uses asking questions as a way to reassure the children if they appear a bit nervous; almost taking their mind off the task in hand and getting them to focus on something else in answering the question. It is also a useful tool to re-engage the children if they become distracted, asking individuals questions or addressing the group. In figure ten, below, the child is continuing to stroke the guinea pig whilst answering one of Rob's questions.

Some of the children seem to genuinely struggle to pay attention for a length of time. I notice that after Charli had her turn with the animal, she instantly seeks further stimulation and gets up to visit the other animals, telling the group what she can see: 'I think it's got itself into a knot. Oh it's a lizard there. There's the guinea pigs! Whoa! Is that a giant millipede?'

Parents have different reactions to disruption; some ensure the children sit patiently watching and at the first sign of distraction would remind the children why they were there and how they were to behave such as Tracy, who says to Evan 'We're here to see more animals, sit down' and Lily who says 'Just sit down Monty' as soon as Monty becomes a little restless. Some seem alert to the first signs of deviation, like Deborah calling out 'David. David' as soon as David starts to engage with Mark. The parents also have different ways of trying to re-engage distracted children. Anne is firm with Mark and uses a positive instruction, instead of saying 'don't do that' she says 'Sit down please Mark. 5, 4, 3, 2, 1. Sit down please' before he could become

restless or disturb the other children. Cate tries an alternative approach, and attempts to engage Mark in a relevant conversation instead: 'Mark, tell them about your horse... Mark just say one line about the horses'.



**Figure 6: “Answering questions”**

### **1.1.8 *Theme Eight: Anxiety***

There is a mixture of anxieties presenting themselves throughout the sessions; some parents are worried their children may not settle, some of the children are a little worried about the more exotic animals and some seem to be a bit concerned due to past experiences with the animals. There are a few occurrences of false anxiety, especially around talk of holding the snake:

Rob: And then we'll have a look at the guinea pigs. And then we'll have a look at the snake.

Sienna: (sharp intake of breath) As soon as you get the snake out I'm flying! As soon as I see one. And then if I had to hold it!

*Sienna mock horror about the snake is funny- she is laughing too and holding her face with her hands in a 'shock' expression.*

Here Sienna is half pretending that she is terrified of snakes, but also hinting at the idea that she is apprehensive. This is helpful to know as it means Rob can be reassuring- demonstrating the snake's safety by holding him around his neck, and offering the children plenty of time for handling. Michael and Scarlett laugh while they encourage each other to hold the 'scarier' animals, with Michael saying 'Argh mum!' when Scarlett pulls her hand away during their shared handling of the millipede. Rather than being anxious about the snake being a potential threat, Paul excitedly tells Rob 'Snakes can kill you, you know! Yeah by slithering around your face!'. Michael is concerned about when the snake is coming out, asking 'Is it the snake next?' but his tone of voice hints that he is excited to see it. Robbie adds 'Snakes last, snakes scariest'.

However, some of the anxieties from the children are genuine and need to be handled sympathetically. Hobie is worried about holding the guinea pig, saying 'Erm sometimes they try kicking at you' and Robbie asks 'Does it bite?'. Worries about biting come up once more when Michael asks 'Can that giant centipede bite?'. Rob is careful to reassure the children that the animals are safe to handle and will not bite them. This is generally enough for the children's anxiety to subside, although Hobie

is still unsure about the guinea pig.

Kacey is also unsure of the lizard but Rob works with her:

Rob: Would you like to have a stroke?

Kacey: No

Rob: That's ok! You could stroke just here?

Kacey: Just here? Just here

Although Kacey is nervous and unsure, Rob encourages her by suggesting a specific place she could stroke the lizard, away from the head and feet which often cause the most anxiety. By following his instructions, Kacey strokes the lizard carefully and later says 'I like him but I'm still not sure.'. Although her anxiety was removed enough for her to interact with the lizard, she admits she still is not sure about him.

Andrew explains why he does not like the millipede to Rob:

Rob: Would you like to have a stroke?

Andrew: No

Rob: You weren't keen on this one before were you? What is it that you don't like about her?

Andrew: The legs

Rob: All those legs! Yeah they look a bit weird

Andrew: They look spiky

This is quite a long conversation for Andrew as he can be apprehensive about new situations and unfamiliar faces. Not only does he share his fears with Rob about the millipede, he also volunteers information without being pressed or offered options to choose from. This is significant in that Andrew is continuing the conversation with Rob. In other situations where shy children have refused to handle the millipede, they often shrug their shoulders or turn away when asked why. Andrew often relies on his mum for support but here he engages not only with the animals, but with an unfamiliar person too. Missing out on their turn is also a worry for some of the children, or not being able to handle the animals in the same way as the others. Upon seeing her younger sister only stroke the snake, as she was too small to hold it, Lacey is worried she may not get a turn: 'Oh I wanted to hold him'. This is quickly dispelled when Rob allows her to hold the snake around her neck.

For the parents and Sprout leaders, the primary concern of the day seems to be around whether the children will sit through the animal show. The initial plan was supposed to be shorter shows with smaller audiences, though as the day progresses it becomes evident the children are generally able to sit and engage for the full session, lasting up to one hour. Nat says 'I knew Leo would be fine but sometimes Allegra can be focused on something or not interested' and 'It's just she gets very easily distracted'. Ruby's concerns at the start of the day focus on the children: 'I'm imagining some of them might get quite uptight' and 'trying to get the kids to listen for any length of time..'. As the day goes on this anxiety generally lessens as the children stay engaged with the session. The parents also express some concern about handling the animals; they want to set an example for the children and reassure them that it is safe, however they realise that this is likely to mean holding

the animals themselves, with Anne saying 'Am I going to have a millipede on my hand?'. The parents also show a little anxiety and almost want to 'help Rob out' by explaining to him what is happening when he is introducing the snake, with Lily exclaiming 'Where is he going?!' and Samantha adding 'He's gone right around!' as the snake disappears behind Rob's back.

### **1.1.9 Theme Nine: Praise**

Rob, the parents and Sprout team are forthcoming with praise for a variety of reasons, not just handling the animals. It is important to create a really positive experience for everyone involved and I had noticed from previous contact with Sprout that praise is essential, even for things that might seem small or insignificant to some.

I notice that some parents are praising other children both directly like Anne 'Oh well done Thomas!' and also indirectly like when Lily says to Monty 'Evelyn's brave isn't she?!'. This really adds to the family feel of the group and supportive environment. Parents also praise their own children, like Mary saying 'Well done, good job!' and Gina is also impressed with Sienna's interaction with the animal saying 'Good girl!'.

Nat is a little anxious at times when Allegra is handling the animals; she is eager to applaud Allegra when she does so safely but also wants to ensure Allegra is careful with the creatures, saying 'Be really careful! Don't squash her! Well done Allegra!'.

Rob commends the children for a variety of reasons today including handling the animals nicely 'That's it, nice and gentle. Well done' and handling the animals at all

'Very brave indeed, that is amazing!'. Rob also says '[You're] sat nice and patiently. I'm just going to turn him around. You've been absolutely amazing!'. He acknowledges the children have been waiting for their turn and also explains to them why they are waiting, such as when he was getting the snake into a safe position to handle. At the end of the session Rob reiterates how well the children have done so they can leave on a high 'You have been so brave! I'm really proud of you all'. Praise is especially important when the children are hesitant about handling the animals but seem to want to give it a try. In figure eleven, below, we can see the child is stroking the lizard tentatively, not holding, and concentrating carefully on what she is doing and where on the animal she is stroking. She is sat back in her seat rather than on the edge, as with previous animals with which she was comfortable. This kind of interaction gains praise as the children try something new, even when they are not completely comfortable.





## **Figure 7: "Tentative"**

### **1.1.10 Theme Ten: Asking Questions**

The children ask many questions for a variety of reasons; therefore this theme overlaps with empathy, anxiety and sharing knowledge. Some want more detail on the specific animal being handled, and some want to know more about animals in general, for example Allegra is eager to learn new information, commenting 'I've learned the rabbit's way of saying thank you!'.

Monty asks questions about the snake such as 'What does he do with his skin?', and Lacey about guinea pigs asks 'How long do they live for?'. Others, such as Thomas, want to find out specific information about the animal on display such as 'What is he called? How old is he?'. The questions often focus on the animal that is currently being handled. Children also like to query Rob's animal knowledge and ask 'why', for example Hobie 'Why is that toe longer than the others?' and 'Why do animals not like being stroked this way?'.

Allegra is watching the bearded dragon and says 'Oh look at the bearded dragon it its box! Why is he doing it at you? Why is he doing it at you? Why is he doing it if he can't see any lady bearded dragons?'. She is listening to Rob as he previously explained head-bobbing is a bearded dragon looking for a female. She wants to query this further to understand why the lizard is exhibiting the behaviour as it does not 'fit' with what Rob told her. The children query other elements of the animals' behaviour and anatomy whilst handling, such as Sienna asking 'What does he do with his spikes?' and Allegra asking Rob 'How can you tell which millipede is Millie

and which one is Mike?'. This is some time after she has handled the millipede so she seems to have been pondering this and waiting for an opportunity to ask.

Some also ask questions in anticipation of their turn, to prepare themselves and alleviate anxiety such as Allegra 'Is it going to go over us on the special mat?' referring to how the rabbit will sit on her knee, but also in Jonny's case to enable him to share the experience without getting directly involved. He asks another child 'Is it nice?' while they handle the animal.

Questions are also asked as a way of gaining instruction or permission, such as Allegra: 'Can we stroke his tail as well?'. Allegra also asks a question to find out about how the animal might be feeling about being handled, linking with empathy, when she says 'Does he mind you swishing his tail about like that?'.

Some also like to be on the receiving end of questions, to show they have been listening and have learned from the experience, especially Allegra 'Please ask questions!' and 'Are there any more questions?'.

The parents ask minimal questions; often the query has been answered already either in Rob's introduction to the animal or in response to one of the children's questions. Anne asks 'So what does she eat? And does she bite?' as she is eager to prompt the children into asking more questions, as well as wanting to dispel some of her own anxiety about the millipede.

### **1.1.11 Theme Eleven: Empathy**

The children show empathy and concern for the animals' well-being throughout the day. During handling as well as when the animals are resting, the children ask questions to ensure the animals are happy and their needs are being met. Empathy in particular is important here, as often people with autism are described as lacking in empathy; due to being unable to read social situations and others' feelings. This will be further explored in the discussion. 'Empathy' is an important theme because the children displayed it so frequently, however in previous and subsequent interactions with the group there was little overt evidence of empathic behaviour; they showed a level of empathy for the animals that I had not seen them show to each other.

Michael is asking Rob about chameleons, and Rob explains to him that chameleons are very sensitive, and we would be unable to bring them to the show if we did have them. Chameleons require consistency with humidity and temperature in order to thrive, but to explain this to a child can be difficult, so Rob explains to Michael that the travel would make the chameleon sad. Michael replies 'Why would they get sad?'. He asks this question to understand further how a chameleon might feel.

Paul explains his understanding of bearded dragons 'Lizards are always happy, except when someone is being mean to them'. His understanding is that animals are generally content, but also the impact people can have on them.

Sienna asks questions to find out what makes rabbits happy. She says 'Do they like to jump as well?' and as she holds the rabbit, she wants to know what he might be

feeling about the experience, asking 'Can he feel being stroked?'

This exchange shows Stewart is thinking literally, but also showing empathy for how the rabbit is feeling:

Rob: How do you think he will feel? [physically, to touch]

Stewart: Fed up of all the humans holding him! He looked fed up when you were doing that with his ears.

Stewart is explaining to Rob that the rabbit might not like it when he flaps his ears around. He is trying to read the rabbit's emotions by concentrating on his face carefully, and his first response to 'how do you think he feels' is to explain how the rabbit might be experiencing the interaction.

The children also show concern for the animals' welfare during the day, Charli asks 'Where is his water trough?' and Woody wonders 'How does he get time to rest?'

Woody is also explaining how careful the children need to be when handling the rabbit: 'Yes we must, you have to be very careful [with the rabbit]' and also says 'I really care about them [animals]'

Lacey is one of the younger children today, and she is telling Rob how the animals make her feel happy and 'I like feeding them!'. I notice the act she chooses is something that is for the animals' benefit rather than something to make her happy, such as stroking them.

## **1.2 Analysis Step Five: Exhaustive Description**

The fifth step in Colaizzi's analysis sees the researcher turn the clusters of themes into an exhaustive description of the experience. This is a detailed statement which describes the phenomena under study; in this case, the experience of animal interaction. Below is the exhaustive description:

The animal handling experience elicited a positive reaction from most of the children for most of the time. On meeting the animals, the children were inspired to ask questions and learn more about each individual creature. Excitement bubbled throughout the day; in anticipation of holding them and of the next animal coming out, as well as watching others meet the animals. The children were encouraged, reassured and praised by Rob, the leaders and parents that watched over, as well as by each other. This facilitated a bonding atmosphere, where children could share their previous experience and wider knowledge about animals. They enjoyed sharing with the wider group which animal was their favourite and why, and how interacting with the different animals made them feel. The animal handling experience also stimulated the different senses; touch, sound and sight. Although at times parents could become anxious about the children handling the animals safely, and some of the children were apprehensive about certain animals at times, the children showed great empathy with the animals and treated them with respect and care. One or two children became a little distracted at times, occasionally distracting the others, however a gentle reminder of the boundaries settled them and they re-engaged with the experience.

### **1.3 Analysis Step Six: Fundamental Structure**

The penultimate stage in Colaizzi's analysis sees the exhaustive description further reduced into a fundamental structure. The aim of this is to encapsulate the findings into an essential narrative of the experience. This must be concise yet all-encompassing; drafting and re-drafting was required to ensure all aspects of the experience were included and none of the vital parts are left behind in the exhaustive description. Rather than trying to work out what can be excluded, it is a process whereby the researchers recognise what needs to be taken forward. To create the fundamental structure, the researcher must identify the key aspects and word these in a way which represents the experience. Suryani, Welch and Cox (2016) explain how the fundamental structure is arrived at through condensing of the exhaustive description; identifying the 'core concepts' of the exhaustive description and taking them through to the fundamental structure. The final version of the fundamental structure is as follows:

The children were inspired by the animal handling session to ask questions, share knowledge and previous experience with each other. They bonded through this shared experience, discussing their favourite animal and why. The experience was exciting and appealed to many senses, and any anxiety was soon dispelled by the encouragement and reassurance given by the experienced activity leader, each other and praise from parents watching. Distracted children were soon re-engaged after a gentle reminder of the boundaries, and the children showed empathy and respect for the animals.

## 1.4 Analysis Step Seven: Validation of Findings

In the seventh and final stage of this analysis, the fundamental structure is returned to the participants that created it. This is potentially the most controversial stage of Colaizzi's analysis procedure, because if the participants disagree with the fundamental structure it could render the analysis void. Participants could reject the fundamental structure for a variety of reasons as discussed in section 4.5. They may not feel the description is reflective of their experience, the focus is wrong or the fundamental structure is missing a key element of their experience. Giorgi (2006) feels that researchers see the data in a different way to the participants with their 'natural attitude' and therefore the participant, not seeing data through a researcher eye, is unable to definitively state whether the interpretation is an accurate account of the experience. My viewpoint is that the data should be validated by those who created it. If the analysis process has created an unrecognisable account to those who experienced it, the analysis has gone awry.

The fundamental structure was returned to the participants via Facebook, where parents were invited to read the extract to the children as well as consider if they felt it was representative of the experience. Several parents commented that the quote was befitting of the experience, and later approached me in person to verify the account. After reading it to the children, positive feedback was recorded; Lindsay said "Steph nodded through it and said it's good" and Gina reported "Sienna said brill" and Tracy "Yes that's good". One parent added 'It also brought a smile to our children's faces!!' though I felt that this was encapsulated within the other themes; particularly 'Excitement' and 'Animals make me feel'. No additions or amendments

were required having spoken to parents and children about the concluding statement.

## **1.5 Chapter Summary**

This chapter has outlined the analysis process and the findings of the current study. I explained how Colaizzi's seven step analysis process transforms the data into a fundamental structure to provide a short but comprehensive description of the phenomenon. I provided detail for each theme, including quotes from the day to encourage the reader to fully immerse in the data.



## **Chapter 2 Discussion**

### **2.1 Chapter Overview**

In this chapter, I review the findings in relation to the research explored in the literature review to situate them within the field, by discussing the fundamental structure further in relation to the literature. I then consider the limitations of the research overall, and issues specific to the methodology. I will consider issues relating to quality in qualitative research, and whether or not this study could be considered good quality using the guidelines chosen. Then I will explore where this research fits with the social model of disability and neurodiversity (as discussed in 1.5.3), and discuss the implications of the study on policy, practice and further research. Novel contributions to knowledge will be outlined, and I will conclude with the chapter summary.

### **2.2 Revisiting the Fundamental Structure**

Below is a reminder of the fundamental structure from stage six of the analysis using Colaizzi's (1978) framework. I will use phrases from this structure throughout this chapter to structure the discussion of and reflection on findings.

The children were inspired by the animal handling session to ask questions, share knowledge and previous experience with each other. They bonded through this shared experience, discussing their favourite animal and why. The experience was exciting and appealed to many senses, and any anxiety was soon dispelled by the encouragement and reassurance given by the experienced activity leader, each

other and praise from parents watching. Distracted children were soon re-engaged after a gentle reminder of the boundaries, and the children showed empathy and respect for the animals.

### **2.2.1 *“The children were inspired by the animal handling session to ask questions...”***

Throughout the animal handling experience, the children asked many questions. This often related to the animal that was on display or being handled at the time; questions about the specific animal such as name or age, or questions about the species in general. The flow of questions was constant and I reflected on why the children asked so many questions. I also noted that some of the children asked questions as a way to build rapport with Rob and increase their confidence with the animals. For example, Sienna seemed quite nervous and shy at the beginning of the session; she recoiled at the thought of meeting the snake and despite being introduced to Rob, she was reluctant to call him by his name to get his attention; instead waiting for him to address her. As the session progressed, her confidence with the animals seemed to grow: she held all of the animals including the snake. She also addressed Rob directly to ask her questions or even just to share her previous experience of the animals she could see. Another example was Andrew. From previous observations, I noted he preferred to stay close to his family and was reluctant to communicate with others. If approached directly, he would often look down and speak quietly. His mother spoke to me before the session to say that Andrew does not often want to speak to people he does not already know well, but she hoped he would talk during the animal session. Andrew came into the animal session with his mother and sister, but seemed happy to stay with just his sister.

Despite his occasional difficulties in communicating, especially with strangers, Andrew engaged well with the session and, though quietly, he did speak to Rob and ask questions about the animals. Some of these exchanges were quite long considering Rob was effectively a stranger to Andrew before the session.

In previous research carried out by Solomon (2010) it was found that integrating a service dog into the family of a child with autism supported the child's ability to communicate and their participation in everyday life. Solomon (2010) argues that the presence of a service dog enables children to form an emotional connection with those around them; teaching humanity and morality. Similarly, Zilcha-Mano et al (2011) discuss Animal Assisted Therapy in relation to attachment; suggesting that a pet in the therapy room can provide the client with a safe haven and secure base during therapy, which in turn facilitates the treatment itself. In the current study, this improvement in communication and participation is suggested by the children asking questions.

It is suggested that an animal can bring about these changes in the therapy room as good therapy animals seem to bond with people. As in the current study, time spent with therapy animals is limited. Zilcha-Mano et al (2011) considered whether this restriction would impact on the bond forged between client and therapy animal, and concluded that though a full-blown attachment is unlikely, the therapy animal may still become important in the client's attachment hierarchy and offer therapeutic benefit to the client during sessions. Therefore, though the animal session is relatively short, a connection can still be made. Nimer and Lundahl (2007) highlight the fact that Animal Assisted Therapy is usually thought of as a supplement to wider

interventions rather than a treatment in its own right.

In the current study, the children were encouraged to interact directly with the animals, if they felt comfortable doing so, and to ask questions and talk about the animals. This facilitated a connection between the children, the animals and Rob, who was able to answer the questions. As in Solomon's (2010) research, this triadic relationship evolved throughout the session as the children became more comfortable in the presence of the animals, and more comfortable speaking directly to Rob by asking him questions; especially for Sienna, whose confidence grew with the animals and in conversing with Rob as the session progressed. For Andrew, it seemed the animals helped to break down this barrier in communicating with strangers; perhaps the animals provided a focus so he felt less pressured, or the animals were a topic of conversation so he did not have to think of something to say himself. Nimer and Lundahl (2007) suggest animals in Animal Assisted Therapy create a warm and safe atmosphere for clients, through seeking affection and interaction with clients, which may have helped Andrew. In the narrative synthesis, many included studies reported an improvement in social communication and interaction. For example O'Haire et al (2013) and Bass, Duschowny and Llabre (2009) report that the children in their study expressed greater social motivation; that is, they sought out communication, which relates to the children asking questions and seeking interaction in this study.

As the animals changed throughout the session, a gap in the children's knowledge was generated that curiosity often prompted them to fill. In education, asking questions about the topic being taught is considered active learning, and research

has explored how to encourage students to ask more questions (Chin & Osborne, 2008). According to Chin and Osborne (2008) when students ask questions it demonstrates several points that indicate meaningful learning; they have been thinking about what is being taught, they are considering this in relation to what they already know about the topic and they are prompted to ask questions to further their knowledge or fill gaps in the knowledge that have become evident.

### **2.2.2 “...share knowledge and previous experience with each other”**

Sharing knowledge and previous animal encounters with each other was a key part of each of the four animal sessions. I noticed that the children appeared to socialise and converse more with each other during the animal handling experience than they did during other activities, which they seemed to undertake on a very individual basis. The children took an interest in what others were doing and shared their thoughts on the animal, or the species in general. This seemed to bring the children together and enable them to connect with each other, as they had a shared experience they could discuss. The children also shared their previous encounters to reassure others, and the session facilitated bonding between the children and their parents as they watched the show together and talked about what they could see and feel.

Findings from the narrative synthesis carried out in chapter three highlighted the improvements children in receipt of animal assisted therapy made. These improvements were of particular significance in the social domain; improved communication, social interaction social behaviour. Specifically, Borgi et al (2015) carried out research on equine therapy for children with autism, exploring how

grooming and handling the horses impacted on the children. They measured impact using standardised tests for behaviour and executive functioning (Borgi et al, 2015). One of the key findings was an improvement in social functioning; something that I think is recognisable in this research. Further, Fung and Leung (2014) concluded from their research that a therapy dog could be used to encourage speech in children with autism.

Nimer and Lundahl (2007) also found an increase in positive interaction in their meta-analysis of animal assisted therapy outcomes on autism behaviours. The current study reflects these findings as the children got along well with each other throughout the animal handling sessions and most showed awareness of, and were sensitive to, others' needs during the sessions. Although some of the children could be more forward than others in having their wants met, such as asking for extra turns, generally they were happy to listen and interact with each other in between handling the animals, and paid attention to others.

Hine, Peacock and Pretty (2008) found a theme in their care farming study "helping the excluded become the included"- this struck a chord as I felt that this reflected the key aim of Sprout in general; helping parents and helping children by bringing them together and showing that there are others around them experiencing similar difficulties, thus reducing isolation. By sharing their knowledge of animals, and previous experience of animal encounters, the children created an inclusive atmosphere which encouraged participation from all; children without pets were able to talk about school trip or class pets to join in with the discussion. An important part of Sprout's ethos is inclusion; they encourage parents and siblings to attend

alongside and get involved in the activities. Many parents have told me what a lifeline Sprout is to their family, and how reassuring it is to be in a place where the needs of the family, not just the child with additional needs, are met through interaction with others and the provision of appropriate activities and support. The lack of judgement of behaviour, conditions or parenting make Sprout the integrative environment that it is. Sharing this particular experience in the accepting environment of Sprout enabled the children to unite as a group through this shared experience. At previous and subsequent Sprout sessions, I have noticed that the children tend to do each activity independently; or rather, with a parent instead of a 'friend' or other attendee.

In the animal handling sessions, the children were able to connect through sharing the experience with each other; parents were soon forgotten about by some of the children, though of course there were some exceptions. I noticed this clearly with Sienna and May as they conversed; something I have not seen before or since. Sienna occasionally looked around to check her mother was still visible, but remained seated with the other children. Andrew often appeared excluded during other sessions as he preferred to stay close to his family, only joining in activities if the other members of his family did, but he engaged well in the animal handling sessions with both the activity and Rob.

Challenges in social communication and difficulty in developing relationships are core diagnostic features of autism (Wolfberg et al, 2015). Playing with peers is a key part in development for children, and for those with autism, the drive to engage with those around them is present (Wolfberg et al, 2015). However, the expression of this

desire to play is often unconventional and therefore goes unnoticed; which leads to the misconception that children with autism prefer to play alone. In the current study, the children did communicate with each other about the animals and sharing their previous experiences, which facilitated a connection. Though not always direct, as the children talked to Rob about their experience, the other children could hear and often contributed, meaning the social attempt did not go unnoticed.

Haubenhofner (2010) discusses the importance of a sense of community in social and therapeutic horticulture, noting that it is the environment in which it takes place that distinguishes it from domestic gardening. Social and therapeutic horticulture brings people together in an organised environment in which to carry out horticultural tasks. Unlike traditional horticultural therapy, the tasks are not directed by clinical goals; instead a therapeutic community is created around plants and horticulture, in which people are able to improve their well-being. In the current study, the therapeutic environment is created by the animals' presence instead of plants; the goals are not directed by clinical outcomes but the potential to connect with each other through this community remains. This can be seen in the way the children enjoy sharing their experience with their parents, siblings and other attendees.

Vygotsky (1962) discussed the importance of the shared community and social context in relation to meaningful learning. Enabling children to have meaningful discussions, facilitated by the 'expert' or teacher, promotes learning. The social context- interacting with other children, parents and experts- cannot be separated from learning, and during the animal session the parents, and Rob, were able to help the children form knowledge about the animals through social learning.



The session brought families together in a social way to share the experience; Allegra encouraged her brother and parents to get involved with both looking at and handling the animals, and the children were happy to listen while others talked about their experiences, nodding in agreement at times.

### **2.2.3 “*They bonded through this shared experience...*”**

In the current study, the animal session offered an opportunity for the families to experience the animals together. Some of the children prefer to stay close to parents during Sprout sessions and complete activities together, so this inclusive experience appealed to them. Some children often complete activities and engage well with the staff and leave their parents. There were exceptions on both sides on this occasion. For example, previously I had seen Monty completing activities on his own, whereas for the animal session he stayed close to his mum and they talked about the animals with each other. However, Andrew stayed close to his mum previously, but watched the whole show and shared the experience with his sister.

The parents were able to bond with their own children as they asked questions about what each of the animals felt like, and the supportive atmosphere, praise and encouragement facilitated a bond between adults and other children too, such as Lily praising Evelyn. The commonality of the experiences enabled the children to build bridges and forge relationships, as they could discuss their individual experiences too.

Burrows, Adams and Spiers (2008) carried out research on how children with autism responded to the integration of a service dog in their family. They found that the dogs

had a calming effect on the children, which in turn reduced 'meltdowns' and 'bolting' behaviour and the dogs decreased anxiety in the children; all of these factors combined enabled behavioural change and the family to spend more time together (Burrows, Adams & Spiers, 2008).

The calming effect of the animals during the session meant that parents and children were able to bond through the shared experience and sense of calm; this was especially notable in Monty and Lily, who experienced the animals together; unusual as Monty often goes off to do activities with Sprout leaders.

Bandura's (1989) Social Cognitive Theory explores how self-efficacy plays a role in how individuals approach tasks and challenges. Self-efficacy is said to be developed from external experiences and self-perception; those with high self-efficacy are more likely to go into a task with the belief that they can complete it (Bandura, 1989). He suggests that an individual's actions are influenced by observed behaviour and the environment in which they are in. Further, Bandura and Adams (1977) noted that expectations of self-efficacy stem from sources including performance accomplishment and watching others succeed at tasks. The shared experience, as previously discussed, facilitated the children to bond with each other and this bond in turn encouraged the children to watch each other enjoy the handling experience. In this supportive environment, the children had the opportunity to build their self-efficacy. Accomplishing tasks they previously thought they would be unable to, such as Sienna holding the snake, and watching others succeed are good ways to build esteem (Bandura & Adams, 1977).

#### **2.2.4 “...discussing which was their favourite animal and why”**

The children enjoyed telling Rob and the others which their favourite animal was and often gave a reason; such as that the animal is soft or friendly. They talked about how the animals made them feel; happy, confident, brave. Of the children who chose a favourite animal, the rabbit was mentioned most frequently. The rabbit also drew the most comments from people seated, both children and parents drawing attention to and asking questions about it. I think the comments about the rabbit and the questions most likely arose because the rabbit was the most visible animal upon entering the room. Being in a pen on the floor, the children could see it immediately; unlike the snake or the lizard which were inside boxes on a table.

The reason the rabbit was the favourite animal amongst those who chose is less clear but, I think, important to consider. I think it is likely that it is the animal with which the children were most familiar; the children perhaps have had more exposure to rabbits, as they are common pets and often seen in pet shops and petting zoos. Some of the children on the day even had pet rabbits themselves. This familiarity, combined with the visibility, may have had a role to play. Also, there is little natural predator and prey instinct; rabbits are not seen as predators and children are usually taught a rabbit's favourite food is carrots, reinforcing the 'harmless' nature of the animal. That said, some of the children were a little concerned at first about potential biting such as Hobie. Lastly the rabbit on the day was a good size for children to handle: not too big so as to intimidate, but not so small (like the guinea pigs) that the children worried about harming it.

This notion of the importance of different animals, or animals at all, during therapy was explored by Marino (2012). In her review, Marino explored whether the animal in animal assisted therapy was required at all, or whether another novel, stimulating component could be used to the same effect, as well as the efficacy of animal-assisted therapy and animal assisted activities. It was concluded that the current available research was not rigorous enough to determine whether animal assisted therapy was indeed an effective intervention, or whether the presence of animals was necessary (Marino, 2012). Marino (2012) explored whether the animal in a therapeutic context was necessary at all, which resonated with this part of the findings and led me to consider how much the animal contributed to this experience. I think a key part of the presence of the animal lies in the necessity of a meaningful task; the children need to feel like they are doing something worthwhile, rather than simply practising a skill with no specific outcome. This is akin to the Montessori notions of purposeful activity; that is, that children learn through discovery, perhaps by doing everyday tasks, rather than being presented with information (Montessori, 1995).

I reflected on the possibility that the children engaged better with the animals because they felt as though they were doing something useful and the task was worthwhile. This raises questions regarding the importance of the animal, and indeed what the animal brought to the experience; a consideration for further research and something which will be discussed in more depth below.

What the animals brought to the experience is important to note, as the children at Sprout have taken part in wider activities as part of 'themed' weeks before. Music or

specialist crafts have both featured, as well as different gardening and outdoor activities. An animal handling experience had not taken place before, so I considered what the animal brought to the experience that these other activities do not. Firstly, the animals are obviously living beings. This is a key element because previous activities have only included other, stimulating components but not living creatures. This appeared to spark an empathic response in the children; a caring role emerged, and a sense of responsibility and trust was bestowed on the children whilst they had their turn handling each animal. To take this a little further, the caring role that some of the children took upon extended even to the animals that the children were unsure about handling, particularly the millipede and the snake. The children acknowledged that the animals were reliant on them during their handling time to look after them, demonstrated by the children seeking reassurance from Rob that they were holding or stroking each animal correctly so it was content and being mindful of the rabbit and guinea pig not slipping off the cushion they were on, or off their laps. By realising that their own behaviour and actions influenced and impacted on the animals, even just for a short time, goes some way to support the notion of empathy, which is hard to get across using quotes from the day alone. The concept of responsibility and trust placed in the children runs through this idea of a 'caring role' too. The children understood their responsibility towards the animals during their handling time, and expressed this responsibility through the caring responses exhibited.

Though linked with the previous section on what animals brought to the experience, I also wanted to think about why it might be that animals have this effect, as the children enjoyed explaining their favourite animal choices. In Marino's (2012) research, there was no conclusive evidence drawn about whether animals added to

the therapeutic experience at all, due to methodological flaws in AAT research. That said, Marino (2012) states the efficacy of animal interventions were moderate and accepts the flaws in the research they carried out; varied outcome measures and the issues with carrying out animal therapy without a human handler. There is much discussion around the idea of 'novelty' providing therapeutic benefits; that is, Marino (2012) suggests another novel, stimulating component could be as effective as a live animal. I think the novelty aspect in the current study does have a role to play. As explained, the children have not experienced animal interactions in this setting before so it was a unique experience. As well as being novel, the animals offered the children chance to describe their previous experiences to an interested audience. They were encouraged to talk about animals in general, tell everyone including Rob about their pets and if they had ever met some of the animals on display before. This opportunity to talk helped Rob to build rapport with the children and enabled the children to forge connections with each other. However, I think the animals being 'living beings' contributed to this effect in a way that another novel experience could not. The mutuality of the interaction, and related empathy, between animals and children added a dimension that could not be gained from other collaborations.

As well as having favourites, in the current study some of the children avoided some of the animals, for example Andrew avoided the millipede. The fact that some of the children chose specific animals over others as their favourite, and went as far as to avoid others, suggests to me that the *type* of animal in a therapeutic or health-promotion environment does indeed matter. It could simply be that children have favourite animals, rather than having anything to do with the therapeutic benefit of such animals, however it could be worth considering for further research. For the

children who did not choose a favourite, and instead said they liked all the animals such as Lacey, perhaps type of therapy animal would not matter so much.

### **2.2.5 “The experience was exciting...”**

The excitement of meeting the animals seemed to take over as the children encouraged each other with the animals and communicated with each other rather than parents. This is not something that is often seen at Sprout; as previously discussed, the children are more often seen talking to their parents or Sprout leaders than interacting with each other. Some children preferred to share the experience with parents, such as Monty and Lily, whereas others were content for parents to take a step back for most of the handling sessions. In the latter cases, the children were sharing their excitement with each other. The novelty of seeing ‘new’ animals encouraged them to talk to each other instead of parents and this enthusiasm was maintained throughout the sessions. The levels peaked when a new animal came out and as their turn approached, and the children also spoke of the animals and their previous experiences with excitement. Although parents were eager to see the animals, especially the more ‘exotic’ creatures, they perhaps could not relate to the excitement as easily as another child could.

Nimer and Lundahl (2007) reported an increase in communication and positive social interaction for children with autism receiving animal assisted therapy. Similar increases in communication and positive social interactions can be seen in the current study; Andrew spoke more than I have witnessed before and seemed particularly engaged with the session compared to other activities. It would be interesting to explore further how excitement relates to positive social interaction, to

see whether the excitement of meeting the animals helped with this and increase in communication.

### **2.2.6 “...and appealed to many senses...”**

In the current study, the children were not limited by their motor skills, in that it did not matter if they had good motor skills or not. Handling each of the animals encouraged them to practise their motor skills as they petted each animal differently. For example, the instructions for petting the rabbit was to use a whole flat hand and stroke fairly firmly, whereas, stroking the snake required just the index finger and a light touch. To hold the millipede, the children had to put both hands out flat, yet to hold the snake the hands were cupped. These different techniques allowed the children to practise their motor skills, however it was not so difficult that those who struggled with fine motor skills, like Zara, would not be able to participate. Rob assisted the children that were struggling, showing them how to pet the animal and use the correct technique for each animal. Upon completing this, the children were offered a sense of achievement through the praise given by Rob and adults watching. It would be useful to carry out further research to explore how to effectively improve these skills as a lack of motor skills can reduce participation in some activities for children. For example, in the observation I carried out prior to the animal sessions, I noted that Zara became upset and frustrated at being unable to take part in carving lino to make stamps. Her lack of fine motor skills essentially excluded her from this activity, as she was only able to complete a basic lino carving with close supervision. As she looked round the table to see others carving, she got upset as she was unable to do the same as the other children.



The sensory aspects of the experience were different to other activities previously held at the session. Not only did each animal bring a different sensory experience as they looked, sounded and felt dissimilar, the mutuality of the experience offered something new. Instead of the sensory activity being one-way, where the children considered what *they* could feel that was unusual, the experience was two-way, with the children wondering aloud what the animal might be feeling and how each creature experienced handling, for example the children questioned whether the rabbit liked to be stroked or if the snake liked to be held. This empathic way of thinking will be discussed further later in this chapter.

As previously discussed, Burrows, Adams and Spiers (2008) carried out qualitative research to explore the impact of a service dog for families with children with autism. They introduced a dog to ten families in total and found positive results. A key finding was an improvement in motor skills for children with autism in contact with a service dog. Activities such as playing with the dog and practising throwing a ball, grooming and petting are all said to have contributed to this improvement (Burrows, Adams and Spiers, 2008). Borgi et al's (2015) research into equine assisted therapy involved participants' horse riding as well as completing ground work tasks such as feeding and grooming. Borgi et al (2015) found a small improvement in fine motor skills, supporting the idea that allowing individuals to practise these skills with animals can have a beneficial effect. I questioned if it was simply being given the opportunity to practise fine motor skills that created an improvement in this area. In terms of specific sensory outcomes, Bass, Duschowny and Llabre (2009) found that children completing a twelve week therapeutic horse riding programme exhibited greater sensory seeking behaviours after the intervention. Animals can provide a

wide variety of sensory experiences, which can encourage the practice of fine motor skills; grooming horses provides the roughness of the brush with the smooth coat of the animal, as well as the sights and sounds of the yard.

### **2.2.7 “...and any anxiety was soon dispelled...”**

For some of the children in the current study, the animals provoked an anxiety response which was usually, though not always, dispelled. Often the anxiety was dispelled by a few reassuring words from Rob or parents. On other occasions, the anxiety was dispelled by another child. For example, Monty had already interacted with the animals and could put others' minds at ease about what it felt like or if it was safe. The anxiety response arose more often for the more obvious 'scary' animals, such as the snake, but for example Hobie seemed anxious about the guinea pig and rabbit. He showed this by asking about when the rabbit would kick or when the guinea pig would bite. He maintained a distance from these animals and was reluctant to touch or hold them, and he sought reassurance from his mum Louise. Louise recognised Hobie was uncomfortable and explained he did not have to touch any of the animals if he chose not to, and she sat close by to calm him down and help to dispel the anxiety he was experiencing. Hobie overcame this anxiety to an extent; however, this could have been because he was reassured he did not have to hold the animals if he chose not to. Sometimes the anxiety was enough for the children to not engage with the animal in question at all: Andrew refused to hold or touch the millipede as he observed it and the legs concerned him. For others, they were able to overcome their anxiety and engage with the animal. This produced some mixed responses: Kacey worried about touching the lizard. At first, she refused

to touch it at all; then she decided to stroke it after some support from Rob. She commented that she still was not sure about it.

Sienna on the other hand expressed her anxiety at the thought of holding a snake at the beginning of the session, she joked with Rob that she would leave the room when it was time for the snake. However, as the session progressed and her confidence grew with handling the other animals, she did in fact hold the snake with little hesitation and smiled throughout. As in Bandura and Adam's (1977) research, the interaction with the animals promoted self-esteem through performance accomplishment; especially the children who were anxious about particular animals and went on to hold them. Monty was also anxious about some of the animals including the snake, however his anxiety was reduced by becoming involved with the other animals. His mum explained that she could see his confidence was growing; he was keen to help others with their worries too. He explained to the children what they could expect by sharing his experience in the previous session, thus providing reassurance.

Anxiety had an undeniable presence during the day, be it from parents, staff or the children themselves, and it was important to dispel it to maximise the enjoyment of the day all round. For the children, it could be hard to resolve anxieties as it depended on the source of it. I felt it was important to distinguish whether it was caused by the unknown, such as with Sienna, or a negative previous experience, or something else entirely. Sienna's anxiety was almost easier to dispel because reassurance from Rob was enough to clear it, whereas it was harder to tell where Hobie's anxiety was coming from and thus harder to reassure him. On the whole,

anxiety was dispelled through reassurance or a reminder that children could opt out of any handling they were not entirely comfortable with. It was important for Rob to assure the children that they need not hold or stroke any or all of the animals, as this provided comfort and enabled confidence to grow.

The meaning of anxiety varied from child to child; some disguised their anxiety by making jokes out of it such as Sienna, who made a 'horror' face at the prospect of meeting the snake. Some changed the subject to discuss a different animal, such as Woody who went back to talking about the rabbit instead of the snake. Some avoided the animal in question, such as Andrew who did not want to hold the millipede as the legs made him anxious. Some actively sought reassurance from Rob, asking questions such as 'Will it bite?' and others looked to their parents for guidance and encouragement. Some children employed a combination of these techniques, especially Sienna who needed some extra help at times to overcome reservations. Anxiety had the capacity to impact negatively on the day in some cases, so it was important to address this issue in whichever way was appropriate; assure the children of their safety or remind them that interaction with the animals, and even presence in the room, was not at all compulsory.

Also, the animals did promote a sense of calm in some of the children. The biggest difference in calmness I observed was in Mark. In previous and subsequent observations, I noticed Mark often flitted between activities; seemingly getting bored easily and often involved himself in the more physical activities such as sport. At the beginning of the animal session, when people were still getting seated and Rob was waiting to begin, Mark was restless and got up out of his seat a few times. Anne

insisted calmly but firmly that he sit down and wait for the session to begin. When it did, Mark seemed overcome by a sense of calm; whilst watching the animals he sat still and quiet- despite other children trying to distract him and get his attention. He was careful with his movements and the way he handled each animal, and watched the session through to the end.

The research carried out by O’Haire et al (2015) showed a 43% decrease in skin conductance, indicating anxiety, in the presence of animals compared to toys for children with autism. This is in line with the above findings of the current study as anxiety also appeared to decrease, however this was a process for the children in the current study. Anxiety began at a higher level for some of the children in the current study, then reduced; but it is important to note that some of that anxiety could have been *caused* by the animals. There was also decreased anxiety identified in Burrows, Adams and Spiers (2008) research. However, the animals in their research were dogs, which are less likely to cause anxiety than, say, snakes, and therefore the anxiety was likely to be at a lower level. Although the findings essentially say the same thing- the presence of animals decreased anxiety- it is important to note the distinction. In the current study, the animals may have contributed to a higher level of anxiety which returned to normal, and in Burrows, Adams and Spiers’s (2008) research, anxiety in general decreased.

#### **2.2.8 “...by the encouragement and reassurance given by the experienced activity leader, each other and praise from parents watching”**

In the current study, the support and encouragement given created a sense of community, which emerged as crucial to the success of the session. The children

and parents spent time to encourage each other and watch each other with the animals, and these positive interactions facilitated an enjoyable experience and a commonality of the group. The group sizes varied throughout the day and I felt that the smaller groups worked better than the larger group in the second session. There was a little more time for children to spend with each animal, and also the children seemed more willing to speak up and describe their previous experiences.

The encouragement given by Rob throughout the animal handling was also a vital element. Having someone with experience of interacting with children, and knowing how to reassure, when to encourage and what to say helped the children with the animals and helped the community spirit. Having the parents present was also necessary for some of the children on the day, in order for them to fully engage in the experience. On the whole, most children seemed to rely less and less on the encouragement from their parents as the session went on. Sienna for example seemed quite shy and quiet at the beginning of the session and looked to her mum for guidance with the animals. As the session went on, she became more confident and addressed Rob directly, interacted with the other children and her mum moved near the back of the room. Instead of staying close to parents, they focussed on Rob's encouragement and took reassurance from him and each other. However, for some children like Steph, it was a comfort to know that parents were there if they were needed. Also, some children seemed to want to share the experience with parents as well as others, rather than needing parents for support. Zara and Monty in particular enjoyed watching the animal show with their parents, talking to each other and asking questions, sharing the anticipation of which animal might come out next and waiting for their turn.

This sense of community, brought about by the shared experience and support offered to each other through this shared experience, emerged as each session progressed. The community spirit is mirrored in social and therapeutic horticulture, where plants are used to develop wellbeing. In more traditional, client-focussed therapy (such as horticultural therapy), plants are drawn upon as a therapeutic aid; a medium to remove some focus from the primary aim and help put the clients at ease. Haubehofer (2010) reports the importance of positive social interactions in relation to the success of social and therapeutic horticulture; the sense of community in the vulnerable groups is a key concept. The notion of a 'therapeutic community' is interesting to explore here; defined by Campling (2001) as a small community of people who are all involved in the smooth running of that community. Haigh (2013) explains that the key theoretical underpinnings for therapeutic communities are based around five principles: attachment, containment, communication, involvement and agency. The Sprout group can be seen in a similar way to a therapeutic community, which relies on the alliance of the peer group to succeed. Staff in both settings are responsible for providing a safe frame for work; for the Sprout group, this would equate to the overseeing of activities, whereas for the therapeutic community staff facilitate therapeutic work (Campling, 2001). Encouraging independence, empowerment and personal and collective responsibility are key aims of therapeutic communities, and this can be seen in the Sprout group too. Children are supported to undertake activities alongside their peers, and take the lead with projects, whilst in a safe and encouraging environment. Praise plays an important role in support and encouragement; rewarding efforts of those involved encourages them to continue, and those watching on to take part.

Bandura (1989) found individuals experienced an increase in self-esteem from watching others succeed at tasks. In the current study, for children like Monty, Andrew and Evelyn, who saw the show more than once, watching others handle the animals first encouraged them to attempt it themselves. They were then able to replicate this for other children in proceeding sessions that they attended; holding the animals first to encourage others. This was an effective way to forge social connections and thus improve self-esteem further. This improvement was especially evident in Monty, who decided to hold the snake after his initial concerns having watched others. As his confidence grew with handling the animals, he engaged more with the other children instead of talking only to his mum. He advised the other children which animals were present and, when others were nervous of a particular animal, he explained that there was nothing to be afraid of and described how the animal felt to hold.

In the current study, the parents and Rob played a key role in praising the children throughout each session. Lots of praise was given out for various reasons; attempts to hold the animals, actual holding, gentle stroking and using calm and quiet voices around the animals. Staying seated and waiting patiently was also praised. This was an important part of the children's enjoyment and helped the sessions to run smoothly. Relating to the increase in self-esteem from watching others complete tasks, Bandura (1989) also found increased self-esteem from verbal persuasion to complete tasks. It seems that the two ideas work synergistically; the children are persuaded to engage with the animals and praised for their efforts, which enables



them to succeed. Viewing this success increases self-esteem in the others to the extent that they feel able to engage with the animals too.

### **2.2.9 “*Distracted children were soon re-engaged...*”**

Some of the children struggled at times to focus on the animal session. Their concentration waned when waiting for the next animal to come out, whilst other children held the animals or even waiting for the show to start. Children and parents were reassured that if they did not want to stay in the room for the full session they could leave at any time, so that if the children were struggling with concentration they knew they could go outside. Re-engaging distracted children was usually as straightforward as introducing the next animal, though clearly this could not be done for all children all of the time. Rob often spotted the signs of distraction early on; children would become fidgety and get out of their seats. He kept the children engaged by asking individuals questions or involving the whole group in discussions about animals. This meant that the children were focussed, albeit at different levels, throughout the session.

Some children, such as Mark and Michael, did lose focus after a short time but were able to concentrate their attention on the session again and remain in the room.

Others seemed to concentrate at a high level throughout; paying close attention to everything that Rob and each other said. This may have led to difficulty in maintaining concentration, which appeared to manifest itself into disruptive behaviour at times. Charli and Allegra in particular listened closely to everything Rob said, evidenced by their specific questions and comments on facts or points made.

As the session progressed, it may be that their ‘capacity to concentrate’ depleted

which led to 'switching off' at times; asking questions that had already been answered or failing to listen to instruction, such as remaining seated and not tapping on animal boxes. Or it could be that they simply had a shorter attention span than the other children present.

The distracted children seemed to re-engage when their turn, or their siblings, came around or when Rob spoke to them directly. They sat and watched carefully, listened to how to interact with the animal and took part. Sometimes this concentration was fleeting, and after their turn the distraction took over again and they got out of their seats or interrupted Rob. Other times, the grounding provided by their turn helped their concentration and they remained seated and focused.

Kaplan (1995) states that the capacity to concentrate depletes when using direct attention. For some of the children, it seems that experiencing the animal interaction required direct attention; to listen to instruction and focus on what was being said, wait for their turn and concentrate on guidance given when handling the animals. It could be that they became more easily distracted after a short while as this capacity to concentrate had depleted. According to Kaplan's (1995) notion of directing attention, the fact that the session was an unusual format for Sprout may have been more demanding on the capacity to concentrate. The children needed to work out the dynamic of the room, who the strangers were and get used to all being together on one activity which was unusual for Sprout. In line with Kaplan's theory, this should have been draining, without even considering the concentration potentially required for focusing on the animal handling itself, but for most children it seemed it was not. Although there were some instances of loss of concentration, on the whole, the children were able to pull it back and stay with the session throughout.

Perhaps the children realised that they did not need to concentrate as much when they had got to grips with the format of the show and understood how the day was going to run; there was less to think about once they knew what was happening. Or perhaps Kaplan and Kaplan's (1989) theory does not quite fit with this element of the findings. It could be that there is more to the attention restoration element of the theory. Maybe an intense connection need not be fatiguing, as in the current study, and there is more to it than simply concentration leading to inevitable fatigue. Perhaps there are some conditions in which voluntary attention is not fatiguing; where interest, excitement or even adrenaline or fear can 'over-ride' the fatigue effects. This would be interesting to research further.

#### **2.2.10 “...after a gentle reminder of the boundaries...”**

Following on from the distraction some of the children experienced, this often manifested itself in pushing rules and boundaries. Although there were not many 'rules' as such for the day, the Sprout leaders were eager for some boundaries to be in place to help with structure; stating that the children often responded positively to knowing what they were expected to do. As the children came in to find a seat for the animal session, most came up to the front to see what was in the boxes. Rob and I were happy to tell everyone what was in the boxes, but children were asked not to touch or tap on the boxes. The children were asked to maintain good hygiene at all times, which was adhered to, and at the beginning of each session the boundary was set that the animals would come out when the children were seated and calm. Reminders of these boundaries were needed in most of the sessions, particularly to stay seated and not tap on the boxes. Of the children that became distracted during

session, most got up out of their seats at some point and wandered to the front to look at the animals. Parents would often remind the children of the boundaries set out, and occasionally Rob had to step in to reinforce these.

Nimer and Lundahl (2007) found a decrease in self-absorption in children with autism in their meta-analysis of the effects of animal assisted therapy. Identified as an autism trait, this was measured and compared to other forms of complementary therapy. In the current study, I noticed absorption in the activity was high which occasionally led to rule breaking; Allegra went in to the experience eager to learn everything she could about all of the animals, but this seemed to affect her ability to adhere to the boundaries set. She became so absorbed in learning about the animals and interacting with each one, that she would forget instructions and what had been asked of her regarding staying seated, taking turns and not interrupting others. Though the children enjoyed interacting with the animals themselves, in line with Nimer and Lundahl's (2007) findings self-absorption did not seem to present as the children seemed happy to watch the others hold the animals too.

Allegra and Charli in particular were eager to learn the rules and ensure they were followed by the other children in their groups. Allegra was interested in learning and understanding the reasons for certain rules and boundaries, which she went on to explain to other children. For example, she learned about the importance of washing her hands after handling the snake to minimise the risk of salmonella. She went on to ensure the other children knew to wash their hands immediately after handling the snake. Also, Charli paid special attention when learning how to stroke each animal, as each required a different technique. Charli was insistent that the other children

followed these 'rules' though it seemed to arise when the possibility of a child doing something 'differently' came about. For example, if the instruction was to touch and a child asked to hold, Charli would state that they were not to hold but instead must stroke in a specific way. Charli seemed concerned that other children may be enabled to 'do more' than she could, and wanted to ensure the experience was fair for all. Both Charli and Allegra applied their learning, from their experience, to others thus becoming absorbed in the experience to the extent that they became concerned and disruptive after their turn, with making sure the experiences were equal with others.

Scholl et al (2008) explored how regular interaction with goats could impact clients with multiple disabilities. They found an increased sense of responsibility in the clients who were caring for the goats, which was mirrored in the current study. The children took the responsibility of handling the animals carefully very seriously, often checking with Rob that they were holding and stroking the animals correctly and following the rules, as well as imposing the rules on the other children where they felt appropriate.

#### **2.2.11 “... and the children showed empathy and respect for the animals”**

In the current study, the children enjoyed talking to the animals first and foremost, which gradually progressed into talking to Rob and parents about the animals, and eventually each other about the different animals on display. The children asked questions about the animals' wellbeing and showed concern for them, such as Woody ensuring the rabbit had access to some water and food throughout the day. They showed empathy with the animals and considered how they might be feeling;

Stewart expressed that the rabbit might be fed up of all the human contact for example.

The concept of power relations is interesting to consider in relation to empathy.

There is clearly a power imbalance between animal and child; the child being several times the size and having much more physical strength, yet the empathic response sees them handle this in a responsible way. Aware of the damage they could cause if they chose to, the children instead were careful to be very gentle with each animal and worried about harming them, asking Rob several times if they were holding the animals safely. The children seemed to respect the fact that they held the power, something which may have been unusual for them as children, and continued to show empathy for the living beings in their care.

Solomon (2010) found that the experience of integrating a service dog into families of children with autism encouraged the children's emotional connection with others, enabling them to participate more fully in everyday life. This connection seemed evident as the sessions progressed and the children shared the experience; those who sometimes struggled to participate in group activities were able to join in.

There is a common belief that children with autism lack empathy, but this may be a misconception emerging from the struggle that some children with autism face with reading social situations and emotions. Downs and Smith (2004) compared children with autism, children with Attention Deficit Hyperactivity Disorder (ADHD) and children with Oppositional Defiant Disorder (ODD) to typically developing children. They found no significant difference between the typically developing children and

children with autism in cooperative behaviour, aloof behaviour and level of emotional understanding. They did however find that the children with autism showed worse emotion recognition (Downs & Smith, 2004). Therefore, the issue does not seem to lie with emotional understanding, or empathy, but with expressing and reading emotions in others.

## **2.3 Limitations**

It would have been interesting to see how the animal session would have been if we were able to deliver it outdoors. Bearing in mind the benefits of green exercise covered in Chapter Two, it may have had an impact on the findings. Due to site location and time of year the animal session could not take place outdoors. This could not be changed- it was too cold for the children and animals and data collection could not be delayed. However, children had access to the outdoors, and time was spent outdoors before and after the animal session. Sprout would also be 'associated' with being outdoors for the children in regular attendance. The children could break off during the session if they wanted to be outdoors. The familiarity of the setting aided engagement, in that it was not a new place to explore or become distracted by, but it could be interesting to conduct further research outdoors to see how the results differed.

I think the additional stimulation could make it harder for the children to concentrate, and distraction may spike, but the idea of breaks in between could prove useful. The children could take short breaks during the session, then come back to refocus. I wonder if this would affect the flow of the session, and the bonding element could dip.

Data collection using a Dictaphone made analysis challenging at times. The sound quality was poor at times, despite seeking out a particularly good quality Dictaphone, which resulted in missing some potentially important dialogue. If two people were talking at the same time it was difficult to hear both conversations. The Dictaphone also missed some of the quieter people talking, and the recording of sound only meant I had to rely on my observation notes to ensure their behaviour was documented, as well as non-verbal communication. Using observations was useful for adding context, as I was able to make notes on body language and individual behaviour which the Dictaphone would be unable to pick up. I also included any key quotes just in case that the Dictaphone missed them. Taking observation notes was also helpful to cross-reference what parents had told me about what to expect. Sometimes this was accurate and it aided my planning, such as Hayley advising me Andrew would probably be quiet; knowing this in advance meant I could listen carefully to Andrew's interactions and make additional notes. However, I had to ensure that my notes were not led by parents' comments, and part of the bracketing process involved excluding ideas about expected behaviour that was not useful to know for planning purposes.

Transcribing the sessions was a time-consuming task. There was no alternative but for me to do it myself; I needed to identify who was speaking in each session. The clarity of the recordings aided this, however at times it was necessary to listen several times to confirm who was talking. However, it enabled me to get properly acquainted with the data, as I had listened to it several times both in the transcription process and through checking to confirm what was said. This was especially useful when I started step one of the analysis; familiarising with the data.



Video recording could have been an alternative method; it would have been clearer who was speaking at the time and picked up on non-verbal communication. Being able to comment on the body language and look back at the session for anything I had missed at the time, or to be able to check the actions of people during the sessions would have been really helpful. The downside to this is it is a much more overt method of data collection; parents in particular may have been more aware of the camera and behaved differently. The Dictaphone was subtle and I think most people forgot it was even there.

Including the parents in the research made the aim- 'exploring the experience of the children'- difficult to adhere to at times. Particularly during the analysis and presentation of the findings, it was difficult to isolate the children's experience; the parents were an integral part of the day for some. Themes such as 'praise' and 'reassurance/encouragement' were dominated by parent comments, however they were an intrinsic part of the children's enjoyment; showing their parents how brave, responsible and knowledgeable they could be added to the pleasure for some children such as Allegra. Parental involvement was also a key factor in the bonding element, and without the presence of the parent some of the children may have found it harder to fully engage, such as Hobie. It is important to remember that as children with additional needs, many of the children rely on their parents for support, more so than children without such needs, especially those who are physically disabled. It also could have spoiled the experience for children like Steph, who relied on her mother's emotional support throughout the session. I chose to include parents

comments where they related to the children's experience, to ensure all elements of the experience were captured.

In terms of limitations of the chosen methodology, the process of bracketing was difficult at times. In-keeping with the descriptive phenomenological method, it was essential part of the research process. During data analysis, I wrote up my observation notes and needed to read, re-read and edit them extensively to ensure I refrained from interpreting behaviour the children exhibited, producing notes that were descriptive only. This also presented as a problem in the write up of the themes. It was important to stay within the descriptive stance, and reading into the behaviour of the children crossed into interpretive realms at times but was tricky to avoid. I read through each section several times, going back to edit themes to ensure the analysis was descriptive only. It was also important that I avoided making assumptions about how the children might be feeling from what they said, which was especially difficult.

Following the animal session, I got to know the children more and more by spending time with them at weekends during Sprout. Being with the children more and learning about each of them made me realise more and more the magnitude of the day; how unusual it was for the children to sit and engage with a single activity for such a long period of time, especially as that activity involved pushing personal boundaries at times and interacting with a person not already known to them. This made it harder to bracket my personal experiences with them, but all the more important to be vigilant with bracketing. Prior to the animal handling session, I had little idea of specific diagnoses of the children at Sprout. I knew that it was a group for children

with additional needs, but I did not know individual diagnoses or indeed much about additional needs in general. This meant that I had few ideas of 'traits' or typical behaviour of the children attending on the day. This was very useful when it came to data collection and analysis, as there was little to bracket out. Knowing what I do now about additional needs, autism and having worked closely with some of the children in the current study, I think I would have found the bracketing process much more difficult.

I considered the extent to which epoché was achieved in the current study. I feel that through being mindful of the key concepts of descriptive phenomenology from the beginning of the project and employing the recommended techniques such as using a reflexive journal and effectively bracketing, epoché was achieved. The quality of the research will be discussed in further detail below.

## **2.4 Quality in the Current Study**

Assessing the quality in qualitative research is a different process to that in quantitative studies. In quantitative research, statistical tests are used to measure outcomes which indicate adequacy of the research. Quantitative research tends to adhere to the same criteria to assess quality, which focus predominantly on issues of measurement. Outcomes such as replicability and considerations of the sample are often included, and the correct tests need to be selected and carried out accurately. There are many different epistemological and ontological approaches in qualitative research, that is, the different understandings of what we can know and how. This makes selecting the appropriate criteria to measure quality more challenging (Brooks & King, 2017). Some qualitative researchers opt to reject general criteria sets

completely and judge the quality of each study independently, though having some appropriately chosen guidelines can help to ensure the research is well executed and demonstrate to others that quality has been considered throughout the project (Brooks & King, 2017).

A wide variety of methods are available to the qualitative researcher and the individual nature of each study mean that criteria need to be considered carefully. Using criteria to assess the quality is important for the current study as I feel it helps to bridge the gap between descriptive phenomenology and qualitative research. Currently, there is a dearth of empirical research utilising descriptive phenomenology; by making a sound contribution to knowledge using this methodology, it is hoped that it will help to encourage its wider application in research.

Quality criteria in qualitative research need to be congruent with the methodological and philosophical underpinnings of the research. There are several examples of sets of criteria, but selecting the right one for the research being undertaken is vital to get a fair assessment of the quality of the study. Inappropriate criteria may lead to an unnecessarily poor quality score, if it does not 'fit' with the research, as demonstrated below.

There are many sets of 'criteria' that can be used to assess the adequacy of qualitative research; Guba and Lincoln's (1985) evaluative criteria (which recommend a focus on credibility, transferability, dependability and confirmability) are often drawn upon in qualitative health research in discussions relating to quality.

I considered Guba and Lincoln's concepts in relation to the current study whilst exploring the options for appropriate criteria, and felt some were more useful than others. Dependability and transferability were particularly difficult to understand as useful or meaningful in relation to my own work. Dependability considers whether similar results would be found if the study was repeated. Whilst I found it a worthwhile point to consider, despite the small scale of the study, I questioned what the conclusions would be if further research found different results. Should results from further research have illuminated a vastly different experience, I wondered if this original research would be rendered of more limited value. It seems that there is inherent difficulty in judging experiences; just because they are different does not necessarily make one of more value, or more trustworthy, than the other.

Transferability considers the extent to which the findings from the current study can be applied in wider situations. This is interesting as in some ways, this research can be - and is - considered in relation to other populations and settings. However, the limitation here is that in descriptive phenomenology, context is vital and must be taken into account when exploring other situations to apply the findings to.

According to Guba and Lincoln's criteria then, the current study could be seen to be 'lacking' in trustworthiness; I would contend though that this is because the criteria used do not 'fit' with the design or methodology, rather than the study itself being flawed. Yardley (2000) notes the importance of selecting appropriate evaluative criteria for the individual research project and it is clear to see from the above examples that this is vital. Having explored Guba and Lincoln's concepts, it became apparent that these were not entirely coherent with the descriptive phenomenological approach taken in my own work. Using Colaizzi's analysis framework also brought

additional points to consider in terms of quality, such as the findings being returned to participants for validation.

With this in mind, I chose to use Henwood and Pidgeon's (1992) method of assessing quality in qualitative research, which involves the consideration of seven criteria. Henwood and Pidgeon (1992) state that the usual methods for assessing quality in psychological research are too limited for qualitative studies, which risks losing the benefits of using qualitative methods at all. They explain the traditional methods for judging qualitative research often rely on the objectivity of the researcher, whereas it is more useful to acknowledge that the researcher will be present in the research and instead use these criteria to guide the research and evaluate overall rigour (Henwood & Pidgeon, 1992). It is also acknowledged that, particularly with qualitative research, there are no guarantees as to the accuracy of research, though it is good practice to consider criteria appropriate to the research. Although Henwood and Pidgeon's (1992) approach is compatible with many of the aspects of both Colaizzi's analysis and descriptive phenomenology, it is not a perfect fit. Henwood and Pidgeon's criteria are rooted in Grounded Theory and the embedded assumptions conflict with concepts in phenomenology. Therefore, I felt it necessary to adapt some of the language in the criteria and consider them in a slightly different way to ensure that the evaluative criteria were appropriate to and congruent with my own research. Changes to criterion will be explained before it is discussed in relation to the current study.

#### **2.4.1 *Keeping Close to the Data: Importance of Fit***

Henwood and Pidgeon (1992) explain that this relates to the emergent theory as the data are analysed. It means that each category of theory which emerges should fit the data well.

However, unlike the grounded theory approach from which these criteria developed, descriptive phenomenology is not centred on developing a 'theory' from data. It aims rather to explore and produce an essential description of phenomena. To adapt this criterion so that it is meaningful to and congruent with the methodology used in this study, I propose that it should be understood as ensuring analysis is rooted in the data throughout.

Colaizzi's analysis process is particularly helpful for this as it is clearly shown how the data are transformed; throughout the analysis it can be seen how the data are taken from transcript to significant statement, then formulated meaning and into theme clusters whilst staying true to the original data, sometimes even using direct quotations in from the transcript in the fundamental structure. Being close to the data is a key part of descriptive phenomenology and therefore this criterion is both appropriate for the research and demonstrably met.

#### **2.4.2 *Theory Integrated at Diverse Levels of Abstraction/Congruency in Analysis***

Henwood and Pidgeon's second criterion refers to ensuring that the theory remains related to the phenomena under study, or 'problem domain', at all levels of processing. Again, 'theory' is not relevant to descriptive phenomenology but the essence of this point is relevant. I adapted it to relate to congruency throughout the

analysis. Though this sounds similar to the above criterion, whereas the first point relates to ensuring the analysis *stays close to the data*, this one ensures the analysis *stays close to the phenomena under study*.

During the analysis, it is important to keep in mind the phenomena at the centre of the research so as to answer the research question and prevent distraction or going off-topic. Using Colaizzi, this is of vital importance when extracting significant statements, as these essentially form the initial building blocks of the fundamental structure and thus findings of the research. By keeping the phenomena under study at the forefront of my mind, and checking the extracted data and remaining transcripts several times, I was able to ensure that I had extracted all significant statements and that they were all relevant to the research. By following Colaizzi's steps closely, the data is funnelled down into the fundamental structure yet remains rooted in the data throughout each stage.

### **2.4.3 Reflexivity**

Although reflexivity has been covered theoretically and in relation to the research already, it is important to acknowledge the role it plays in ensuring the quality of research and, in more detail, how it can be carried out in practice. Henwood and Pidgeon (1992) explain that the role of the researcher in the process should be accepted rather than attempts made to eliminate it; by being open and documenting the exact role of the researcher, the research is transparent. In descriptive phenomenology however, this is slightly different. It is important to be reflexive whilst carrying out the research, but this is primarily in order to bracket off your own position as the researcher. The title of this criterion will remain, however the different



approaches to 'reflexivity' need to be noted. Interestingly, Guba and Lincoln (1985) also advocate the use of a reflexive journal to document reflections of values and interests, as well as a log of methodological decisions and rationales. I kept a detailed reflexive journal to help with making decisions about the research and also to reflect on when carrying out the analysis, to ensure that my values were not clouding the research in any way.

#### **2.4.4 Documentation**

Relating to reflexivity, documentation involves the use of a reflexive journal for thoughts and ideas as well as a log of decisions made throughout the research. This can include decisions about methods chosen, logistics of data collection, plans and timings. Interestingly, it is also suggested that the researcher make notes on initial thoughts about the quality of the data and the way the research is progressing. This can be useful to see if the research needs to change direction at all, or further methods employed to collect more data. I found this stage particularly helpful at multiple stages of the research; most notably when trying to assess whether the data from the observations was sufficient. I found it helped to write down my arguments for and against using certain methods too, such as when I was considering using focus groups with the parents. By keeping track of my thoughts and methodological decisions, I found my rationales for including, or not, certain elements of the research were stronger as I could reflect and challenge myself. Also, the step-by-step nature of Colaizzi's analysis meant I had documentation at every stage of the analysis. This enabled me to reflect back at each stage and discuss with supervisors if the analysis was being completed correctly. It also meant I could look back and

ensure I did not lose sight of the phenomena under study whilst immersed in the analysis.

#### **2.4.5 *Theoretical Sampling and Negative Case Analysis/Adequacy of Description***

This point relates to how the sample of participants are recruited and, more importantly, how the sample is recruited to meet the needs of the research.

Henwood and Pidgeon (1992) state it is only necessary to recruit a sample to answer the research question thus elaborating knowledge; further recruitment and data collection beyond this is not required. Henwood and Pidgeon (1992) also add that it is essential to continue to research when findings come about which do not fit with the current line of theoretical knowledge, as it may be necessary to alter the emerging theory.

The language used and the way in which Henwood and Pidgeon present this criterion clearly reflects the grounded theory roots of the original guidelines. I propose a change to 'Adequacy of Description' in the context of phenomenological work and consider this in terms of *depth* of findings rather than breadth. In descriptive phenomenology, it is possible to gain an in-depth knowledge of an experience, but the aim is not to reach 'saturation' as such. Negative case analysis fits in some ways; descriptive phenomenology encourages the researcher to look at situations in many ways and keep looking until it seems there are no new ways to view the phenomena.

This does raise interesting questions about when this stage is reached; how do

researchers know that further sampling will not result in different results? In descriptive phenomenology, it is only possible to state what is found from what has been studied. It can be that as a phenomenon is explored further, more is illuminated. This resonates with Ihde's (1986) notions of adequacy; the more instances of the phenomenon are looked at, the more adequate the resulting description.

Knowing when to draw the line with participants and data collection is difficult. With descriptive phenomenology in particular, accounts of similar experiences can vary wildly anyway due to individual nature, however using Colaizzi's framework it is clear to see that there are still similarities across experiences. After the four animal sessions, it became clear to me that although there were differences in experiences, there was also a pattern emerging of similarities; the children's excitement, asking questions about the animals and the mixture of nerves and anticipation. I felt that the nature of animal interaction for these children could not be defined by one experience, but I had gathered sufficient data to provide an adequate description. Had more animal sessions taken place, the fundamental structure of the experience may have altered but I feel the differences would be slight. Further, the participant group may have needed to change, as Sprout has limited available members, and therefore the focus of the research may have shifted. After completing Colaizzi's analysis process, I concluded that no more data collection with the participant group was necessary.

#### **2.4.6 Sensitivity to Negotiated Realities/Use of Respondent Validation**

This refers to the discussion between researcher and participants on the findings of the study. It is an issue which is often debated in qualitative research and, as already discussed in the analysis chapter, a major criticism of Colaizzi's approach by Giorgi. If the emergent findings are a good fit for the data, it should be clear to the participants who provided the material for it. I propose a change of wording for this criterion because although I discussed the findings with the participants, this was not through negotiation.

There are of course inherent difficulties with Henwood and Pidgeon's suggestion of negotiation; the first being that people are not always aware of the reasons for their actions and as a result, do not perceive their behaviour in the same way as an 'outsider' (Giorgi, 2006). This does not mean that researcher or participant is necessarily right or wrong, and instead Henwood and Pidgeon (1992) advise that one approach to this is to jointly construct a version of reality with the participants. This would allow both researcher and participant an opportunity to explain why their views on the findings are as such, and compromises may be made. In some cases, this need not be detrimental to the research, and in fact could strengthen the results as participants are offered the opportunity to debate and explain, thus reducing potential inaccurate interpretations of the researcher. However, it is important to establish that a 'reality' that is negotiated by researcher and participant is a reality created by two people. Yardley (2000) warns of the inevitable power imbalance between researcher and participant. Although steps are taken in qualitative research to minimise this, the researcher is often seen as 'expert' and in charge of co-ordinating the research and those chosen to participate in the research may feel the

imbalance of power. This needs to be taken into account when considering negotiating the findings with participants.

Using Colaizzi's approach, returning the research findings to the participants who created it is the final stage. Although the participants are encouraged to comment on the fundamental structure and highlight any inaccuracies, the fundamental structure is returned to them as a completed draft rather than created *with* the participants. In the current study, the fundamental structure was returned to parents to read with the children in their own time. Feedback from the parents confirmed the children were satisfied that the statement was reflective of their experience, therefore no alterations to the fundamental structure were required. This suggests it was a good fit for the data provided.

#### **2.4.7 *Transferability***

As in Guba and Lincoln's (1985) criteria, this encourages the consideration of the extent to which the findings can be more widely applied. Henwood and Pidgeon (1992) phrase this slightly differently, and instead of a focus on the applicability of the findings in other situations, they consider the more general significance of the research findings. They add that it is important to consider the full context of the current study when exploring other areas that the findings can be applied to, which is a primary concern for the descriptive phenomenological approach. The extent to which the findings of a descriptive phenomenological study can be transferred is a difficult question and an idea that needs to be considered on an individual study basis. As already stated, context is vital and therefore adequate detail of the study settings need to be provided for this judgement to be made.

Although Sprout is a relatively niche setting in terms of their use of the outdoors for therapeutic purposes, there are many support groups for families of children with various additional needs that the findings could be considered useful for.

Having considered the current study in relation to Henwood and Pidgeon's (1992) guidelines, I think on the whole, the current study is congruent with the key principles. Although some of the language needed to be edited to fit with descriptive phenomenology, the criterion offered relevant guidelines to help assess the quality of the current study and provided an assurance of the quality of this research.

Henwood and Pidgeon (1992) propose that meeting the criteria should help to increase the persuasiveness of qualitative research if nothing else and conclude: "theory that is represented at diverse levels of abstraction, but which nevertheless fits the data well, should be challenging, stimulating and yet highly plausible in the sense of clearly reflecting substantive aspects of the problem domain" (P108).

Although the nature of the methodology renders the 'theory' aspect of this quote problematic, I think it offers a useful summary; the findings should be novel yet conceivable, and it should be clear how they have arisen from the data.

## **2.5 Congruence with Social Model and Neurodiversity**

### The Social Model

The social model of disability is described by Oliver (1990) as a political movement rather than a shift underpinned with psychological research. The difficulty with pitching the social model against the medical model is that it suggests each model is mutually exclusive (Oliver, 1990). It does not need to be, and should not be, this way; each model has worthy contributions to make to improving the lives of

individuals with disabilities including autism. For example, the medical model might suggest that the communication difficulties experienced by individuals with autism is a symptom of their disability. The social model might suggest that the difficulty in communication arises from an environment which is not facilitative of communication. It could be that it is a combination of these factors; the child with autism may struggle to communicate effectively, and the circumstances and environment mean that they are given little chance to practise this communication and the acquisition of social skills.

The social model may advocate that in order to promote health and wellbeing in individuals with disabilities, we must create an environment free of barriers (Elliman, 2011). However, this seems unrealistic due to the differing nature of some disabilities. In the case of autism, creating an environment for a child with hyposensitivity could mean having lots of loud noises and sensory rich activities. For an autistic child with hypersensitivity, this would be the opposite of a barrier-free environment and could be quite distressing. Ultimately, what can be a barrier for one person's disability could be an enabler of another's; with the differences between autism cases too, it seems unrealistic to create a barrier-free environment.

The current study aims align more with the social model in that it explores non-traditional, non-medical methods of helping people with disabilities. The findings also echo the idea that to improve wellbeing, it is important to remove barriers in society; that is, the contact with animals aids communication and brought families together to enjoy a shared experience. That is not to say that the medical model does not have

an important role to play, but to look towards a more integrative approach to managing autism would be beneficial for everyone in contact with autism.

### Neurodiversity

Neurodiversity aligns with the current study in that the focus is on helping individuals thrive rather than curing them of a condition or disability. The idea behind introducing the children to the animals is to understand the essential structure of the experience, but also to provide a pleasant, enjoyable and memorable time for the children and their families. The neurodiversity movement draws on elements of the social model in that it explores ways of adapting the environment to meet the needs of individuals with disabilities, with interventions which reflect this. In the current study, few adaptations needed to be made but these were carefully considered and included ensuring nobody felt 'different' by sitting on chairs instead of the floor and developing handling techniques that even those with limited motor skills could master.

## **2.6 Implications for Practice & Policy**

Current practice for autism aims to manage the symptoms of the individual. As outlined in Chapter One, this can include medication for physical imbalances and psychoeducational approaches (Francis, 2005). Behaviour management classes and respite care can be offered by the Local Authority depending on area. Clearly, some of these interventions offer a change in surroundings for individuals with autism as advocated by the social model, however the approach does not change; autism is still seen as an 'issue' that requires an 'intervention' to fix; this is reflected in some complementary and alternative therapies too. Vitamin therapy and switching to a gluten-free diet, both changes the individual needs to make, are also being explored



however there is not yet any empirical support for these (Francis, 2005). The current study findings indicate that short-term contact with animals may be beneficial for children with additional needs, and do not require the individual to make changes. Benefits included a positive sensory experience and positive social interaction with parents and peers, often brought about by the excitement that the animal handling experience created. Some of the current interventions focus on breaking down barriers to communication, which contact with animals could assist with. This needs to be explored in more detail; on reflection of the findings I think introducing short term contact with animals could be useful particularly in educational settings. Visits from animals for children attending specialist schools, or visits to specialist units in mainstream schools, could help open lines of communication for children and the previous research has identified animal contact as an aid to learning and communicating (e.g. O’Haire et al, 2014; Gabriels et al, 2015). Animal-based activities could also be a useful tool for parents hoping to improve children’s social interactions; the findings from the narrative synthesis highlighted how contact with animals improved social communication and behaviours.

In terms of recommendations for policy, the Children and Families Act (2014) was developed to ensure all children with special educational needs are provided for in their education. There is current debate as to whether a mainstream or specialist school achieves better outcomes, and learning experiences, for children with autism. Some mainstream schools have additional resources for children with additional needs including SENCO and speech and language therapy, and children with an EHCP can attend specialist schools on successful application. Without an EHCP, it is difficult to obtain a place in specialist school; the Department for Health and

Education Code of Practice for Special Educational Needs and Disability (2015) states that there are only exceptional circumstances in which this can take place, such as emergency placements, hospital admissions (and the established hospital school is for children with special needs) or a specialist academy. Due to the difficulties some parents face in obtaining an EHCP, it would be useful if units in mainstream schools for children with autism were to incorporate the use of animal contact in the learning environment. The use of this type of intervention could facilitate learning in a therapeutic atmosphere, thus meeting educational requirements within a mainstream setting.

## **2.7 Suggestions for Further Research**

Through carrying out this research, I have noticed other questions raised that would be useful to answer to add to the knowledge base of how children with additional needs experience animal interaction. Answering some of these questions could lead to the provision of support and services to help these children in their day to day lives.

For example, it may be useful to explore if contact with animals had any effect on the improvement of fine motor skills for children who need support in this area. A lack of motor skills can reduce participation in everyday life, and handling animals offers an opportunity to practice and hone these skills; to establish whether or not this would be an effective intervention could be helpful.

Also, there are areas of animal assisted therapy research which would benefit from further study, adding empirical evidence where possible. First and foremost, further

research is required to establish whether an animal is indeed a vital part of the picture, as Marino's (2012) research was inconclusive. Though the current evidence base points to the animal as important, a more rigorous review of the most up-to-date research is required. Secondly, as discussed, could it be that for some children certain animals may have a more effective therapeutic benefit? Or is it simply a case of preferring one animal to another? With this in mind, could it be that a preferred animal will have a better therapeutic effect? Thirdly, how efficacious are one-off interactions with animals? Could irregular contact with the 'right' type of animals bring about change? These questions could be answered with further research, and may help to take animal assisted therapy forward, providing more targeted care for those with more specific requirements (as not all children had a strong preference, perhaps type of animal would be less important).

In terms of setting, it would be interesting to explore further if different types of settings aided or hindered engagement in the activity. If the animal handling experience had taken place outdoors during warmer weather or in a place the children were unfamiliar with, would nature be a distraction or a calming influence, or neither? Would the novelty of the new setting impact on how the animals were experienced? More research in a variety of settings could be useful in answering the question 'what is it about animals that contributes to this experience?'

It would also be interesting to research how excitement relates to positive social interaction; I pondered the extent to which meeting the animals helped the children to communicate with their parents and each other and increase the positive social interaction.

Lastly, and relating to the impact of excitement, there appears to be a dearth of literature around the conditions in which directed attention does not deplete or become fatigued. I wondered if excitement, or other strong, consuming emotions such as fear, could 'over-ride' directed attention fatigue, but was unable to locate literature which tested this theory.

## **2.8 Conclusion**

The aim of this thesis was to explore the experience of animal interaction for children with additional needs. Animal assisted therapies have previously been shown to help adults with physical and mental health issues, and children with autism in terms of improving social communication. I felt that exploring this type of intervention qualitatively, and from the perspective of the children, could illuminate previously uncovered perceptions of the experience. This research has provided an original contribution to knowledge methodologically by utilising a qualitative, descriptive phenomenological approach. It was possible to gather the lived experience of the children without their parents advocating for them and identify the essential structure of the experience. This offered a new perspective of the experience of animal interaction; it highlighted the excitement of meeting animals, the importance of the shared experience for the children and demonstrated the value of a varied sensory experience. It also allowed the empathy of the children to shine through. By exploring this phenomenon in this way, I have found that interaction with animals is a multi-faceted experience for these children. Similar to previous research, the impact on social communication was clear, as seen in themes such as 'sharing knowledge, shared experience', 'my favourite/animals make me feel' and 'asking questions', and

was an integral part of the overall fundamental structure. My findings show that the experience of animal interaction went even further than this; the children showed empathy, the interaction provided a sensory experience and enabled the children to receive praise from their peers and parents. The potential downsides of the experience cannot be ignored here, and the anxiety some of the children felt could have been distressing. That said, the sense of achievement when this was overcome was a positive. 'Distraction' and 'Rules and Boundaries' highlighted important issues to consider when exploring animals assisted therapy and interventions. The children responded well to having clear rules about how to handle the animals and taking it in turns. Distraction was a problem for some of the children in this research, and I feel they may have benefitted more from one to one sessions, though the group environment worked well overall for sharing the experience and enjoying the interaction as a family and group. The children's perspective, and using the phenomenological methodology, provided findings which are congruent with existing literature as well as new ideas about how children experience, and can benefit from, interaction with animals. This methodology enabled me to maintain exploring the phenomenon from the children's point of view and report the findings as they appeared, without going through a third party (parent/carer/teacher) and without the potential constraints of an interview schedule, questionnaire or other form of measurement.

Carrying out this research has highlighted areas for further study which are important to consider when exploring the potential implications for current policy and practice in the field of animal assisted therapy. On the basis of the research discussed, I feel that the *animal* in therapy, rather than an alternative stimulating component, is

essential for bringing about change, and should Marino's (2012) review be repeated taking into account the new literature, the results may be more convincing instead of inconclusive. The possibility that different animals may be more suited to different children is an interesting concept to explore further and ascertaining the efficacy of 'one-off' or irregular contact with animals may help to make animal assisted therapy more accessible.

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## **Appendices**

### ***Appendix 1- Invitation to Take Part***

Children

Exploring the Effects of Animal Interaction and Green Exercise

Researcher: Rosie Morrow

Dear

You have been invited to take part in some research. We want to find out how being outside and coming to Sprout makes you feel, and what you think about looking at some animals.

Your parents have said you can take part if you want to. If you want to, there is more information inside to read. If you don't, that's fine and you can still come to Sprout as normal.

If you want to ask any questions, you can ask your parents or ask me.

Parents

Exploring the Effects of Animal Interaction and Green Exercise

Researcher: Rosie Morrow

Dear Parent/Carer,

You and your child have been invited to take part in the above named research study. It is concerned with exploring the potential benefits of animal assisted activities for children with additional needs.

Whether or not you decide to allow your child to take part is entirely voluntary. You may withdraw your child from the research at any time, and you may withdraw their contribution to the data up to data analysis, which will be approximately February 2015. Your child will be encouraged to help evaluate an animal assisted activity, alongside the usual Sprout activities.

Please read the enclosed information carefully and contact me if you have any questions.



## ***Appendix 2- Children's Information Sheet***

### Exploring the Effects of Animal Interaction and Green Exercise

My name is Rosie and I am from the University of Huddersfield. I wondered if you might like to help me with some of my research? It is fine if you do not want to, and you can still come to Sprout and enjoy all the activities. Also, if you think you would like to join in but then change your mind that is fine too. Please read (or ask someone to read for you) the following information about the research and if there is anything you are not sure about, just ask! You can write to me, ring me or ask me at Sprout- my contact details can be found after the research information.

#### What is the purpose of the research?

Firstly, I would like to find out about how coming to Sprout, being outside and joining in the activities makes you feel. I am especially interested in what you find the most fun and what it is about the different activities that you like the best. Secondly, I was also wondering what you might think about having a look at some animals as one of the activities. Thirdly, I would like to run an animal activity that hopefully has considered your other Sprout experiences and your thoughts about animals involved in an activity. It is likely that you will be able to hold the animals, touch them and talk about them to the other people at Sprout. I will give you postcards and pens following the activity so you can write down or even draw how the activity has made you feel. We will also talk about it in the usual Sprout discussion at the end of the session.

### Why have I been chosen?

You have been chosen because you come to Sprout groups already, and you can tell me which bits of the session you enjoyed, which bits you did not enjoy so much and which bits you would change.

### What will I have to do?

You can get involved with handling the animals or just sit back and watch the show. I'll be there too to watch and see what everybody thinks to the animals. Afterwards, all you need to do is tell me what you thought about the Sprout group that day. When everybody gets together at the end of the session, you can tell me what your favourite and least favourite bits of the day were using the postcards and pens provided. You could even draw me a picture at home and bring it in next time, or tell Mum and Dad what you thought so they can pass on a message. You can even do all three!

I will need to record some of the session on a tape so I can listen to it later without forgetting anything, but nobody else will be able to listen to it.

### Will anyone know who I am?

Nobody will know who you are because you can choose a secret name for yourself, that I will use to refer to you but no-one else knows what it is.

### What will happen to the information?

All the information collected at group will be looked at and written into a report. After the data is collected and looked at, I'll come along to a Sprout group and show everybody what I found out.

I have a question, who can I ask?

You can ask your parents or the Sprout leaders, or ask me on [0970330@hud.ac.uk](mailto:0970330@hud.ac.uk).

I want to talk to someone else.

MIND: [www.mind.org.uk](http://www.mind.org.uk) or Call: 0300 1233393

MENCAP: [www.mencap.org.uk](http://www.mencap.org.uk) or Call: 0113 2351331

### ***Appendix 3- Parent's Information Sheet for Child's Participation***

Exploring the Effects of Animal Interaction and Green Exercise

You are invited to give permission for your child to take part in the above named research study.

Please read the information given below carefully before deciding whether or not to grant permissions, and do ask if you have any questions or require clarification on any aspect of the research. The research is voluntary, and you may withdraw your child from the research at any point. You may also withdraw your child's data from the research at any point until data analysis, which is likely to be around February 2015. Your child may still attend Sprout groups, regardless of whether they participate or not.

#### What is the purpose of the research?

The research study aims to explore how the provisions of 'green care' can be expanded to include more activities and therapies, and as a result help more people. Green care involves the use of therapeutic activities in the natural environment. I am

interested to find out how animal interaction alongside other 'green' activities that take place at Sprout each week might benefit your child.

### Why has my child been chosen?

The animal activity is aimed at children with varying needs. Your child has been chosen as they already attend Sprout groups and may be able to help in the development of an appropriate animal activity.

### What will I have to do?

Please read the information enclosed for your child. If you would like to give your child permission to participate, please pass on the information for your child. If you feel your child may not understand the information, it is thought appropriate for you to explain information relating to the study and their possible involvement in your own words. Ask your child if they would like to participate and, if they do, please complete the relevant consent forms. Alternatively, I can explain the study to your child at the Sprout session, or both of us can explain it- please indicate your preference on the consent form. Your child will not be expected to participate if they choose not to, even if you give your consent. The consent your child gives will be continually monitored, so should they decide part way through they do not wish to continue with the research, their data will not be used in the research, however they may still take part in all activities.

Alongside the usual running of Sprout, we will introduce an animal handling activity, including animals such as rabbits, snakes, lizards and millipedes. Your child will be encouraged to get involved with the animals at a level they are comfortable with, and asked about what they think of the animal sessions. Your child may wish to draw a



picture or ask you to pass on a message about what they thought of the sessions with the animals. A Dictaphone may be used to record participating members' thoughts and opinions for my reference only, though recordings will be transcribed and discussed with my supervisors.

#### Will my child's information be kept confidential?

All contributions will be confidential and members remain anonymous. In the unlikely event that I witnessed harm or abuse, I would be obliged to report it to the appropriate authority. Pseudonyms will be assigned to parents and children in the writing up of the research for anonymity. This means that each individual will be assigned a false name, with children choosing their own should they wish, so they can be referred to in the writing up of the research without being personally identified. Any information that may identify individuals will be excluded in the final project.

In the unlikely event that I witnessed harm or abuse, I would be obliged to report it to the appropriate authority.

#### What will happen to the information collected?

The information collected will be used as part of a PhD thesis, which may be published, as well as in further research journal publications and conferences. I will also provide a summary report of the findings for the members of Sprout to read should they wish, and come along to a session afterwards to show the children what I found.

I want to know more. Who can I contact?

If you have any questions or would like to discuss the research further, please don't hesitate to contact me on [0970330@hud.ac.uk](mailto:0970330@hud.ac.uk) or you can contact my supervisor, Alison Rodriguez, on [a.m.rodriquez@hud.ac.uk](mailto:a.m.rodriquez@hud.ac.uk).

Sources of Support

MIND: [www.mind.org.uk](http://www.mind.org.uk) or Call: 0300 1233393

MENCAP: [www.mencap.org.uk](http://www.mencap.org.uk) or Call: 0113 2351331

## ***Appendix 4- Parent's Information Sheet***

Exploring the Effects of Animal Interaction and Green Exercise

My name is Rosie and I am a research student at the University of Huddersfield. You have been invited to take part in the above named study. Participation is entirely voluntary and you will be able to attend Sprout regardless of whether you wish to take part or not. Should you decide to take part and then change your mind, you can withdraw your information from the study at any point up until data analysis, which is likely to be around February 2015. If you have any questions or would like clarification on any aspect of the research, please don't hesitate to contact me.

What is the purpose of the research?

The research study aims to explore how the provisions of 'green care' can be expanded to include more activities and therapies, and as a result help more people. Green care involves taking part in therapeutic activities and interacting with the natural environment. Terms such as 'Therapeutic Horticulture', 'Care Farming' and 'Nature Therapy' are often used, but green care can take place in a number of contexts, involving different client groups to provide many health benefits. Although animals have been drawn upon previously in this field, especially with Care Farming and Animal Assisted Therapy, I am interested in studying how animal interaction alongside other 'green' activities that take place at Sprout each week might benefit the members of Sprout, as well as other children and young people with additional needs.

Why have I been chosen?

Sprout has been chosen to take part in the research study because the group interest lies with gardening and other activities, for children with additional needs. I would like to find out more about how children with additional needs and their siblings/parents/carers benefit from the time spent outdoors, and how animal assisted activities might contribute to this.

What will I have to do?

Parents will be encouraged to assist with the evaluation of the animal intervention by letting me know how you felt the session went, how it could be improved and any impact you feel it may have had on your child. You may wish to contribute your thoughts and opinions at the Sprout group straight after the animal sessions or alternatively on a private Facebook group that will be set up for participating members. There will also be a comments box available for those who would like to evaluate using pen and paper. A Dictaphone may be used to record participating members' thoughts and opinions for my reference only.

Will my information be kept confidential?

All contributions will be confidential and members remain anonymous. I will use pseudonyms in the writing up of the research, which means that individuals will be assigned a false name, and I will not include any information about individuals that may lead to them being identified in the final project. Any contributions made on the Facebook group will not be anonymous, as in the focus group, though a statement of confidentiality should be followed by all participating members to keep what is discussed private. In the unlikely event that I witnessed harm or abuse, I would be obliged to report it to the appropriate authority.

What will happen to information collected?

The information collected will be used as part of a PhD thesis, which may be published, as well as in further research journal publications and conferences. I will also provide a summary report of the findings for the members of Sprout to read should they wish. Data will be stored securely at the University for 5 years after the study.

I want to know more. Who can I contact?

If you have any questions or would like to discuss the research further, please don't hesitate to contact me on [0970330@hud.ac.uk](mailto:0970330@hud.ac.uk) or you can contact my supervisor, Alison Rodriguez, on [a.m.rodriguez@hud.ac.uk](mailto:a.m.rodriguez@hud.ac.uk).

Sources of Support MIND: [www.mind.org.uk](http://www.mind.org.uk) or Call: 0300 1233393 MENCAP:  
[www.mencap.org.uk](http://www.mencap.org.uk) or Call: 0113 2351331

## **Appendix 5- Consent Form**

Name of Researcher: Rosie Morrow

Title of Study: Exploring the Effects of Animal Interaction and Green Exercise

1. I have read and understand the information sheet given to me regarding the above named research study.

2. I understand that my participation in the research is entirely voluntary and I can withdraw at any time, without giving a reason.

3. I understand that parts of the Sprout group may be recorded and transcribed, and the transcriptions may be discussed with supervisors.

4. I understand the data will be kept confidential and stored securely for five years after the study .

5. I agree to take part.

6. I agree to allow my child to take part.

7. I would like the researcher/myself/both of us to explain the study to my child (delete as appropriate).

Name:

Signed:

Date:



## ***Appendix 6- Significant Statements and Formulated Meanings***

Interview with RB

Ruby: trying to get the kids to listen for any length.. yeah. So, and they're all going to want to touch.

Ruby is worrying about the concentration span of some of the children, and has first hand experience of this as well as their eagerness with new activities.

Ruby: I'm imagining some of them might get quite uptight

Ruby is anxious that some of the children might not respond positively to the experience

And what I'd say is have fairly strict ground rules

Ruby is offering advice on how to run the session to meet the childrens needs.

they do seem to respond quite well when they have those ground rules.

Drawing on past experience, to ensure the session is enjoyable and safe

they still understand the basic rules of how you've got to go about things.

Ruby acknowledges that the children are capable of following rules

if it's nice and clear and direct then that gives her something to grasp hold of.

Ruby is offering guidance on how to communicate with the children for a safe session



But if there's strong boundaries, then the rest can be relaxed.

Ruby wants to make sure the session does not feel unlike a usual Sprout session, by keeping aspects relaxed.

we can take them to a nice relaxing environment. Peaceful. Just thinking in case any of them do get slightly over excited.

Ruby wants to put strategies in place for the children if they struggle with the animal session, and understands that changing the environment could be a helpful move.

### Animal Session 1

Woody: when my mummy and daddy tell Crinkle to do something, she doesn't do it!

And if I tell her, then she does it.

Woody wants to share experience with Rob and talks about how his pet seems to understand him and follow his instruction.

Guinea pigs! I've always wanted a guinea pig. Do you know what, I've always wanted a rabbit too.

Woody is enthusiastic about the animals and excited to meet the ones he wanted to keep as pets.

[Rob: Do you like animals?]

Woody: Yeah, I really care about them.

Woody explains that he cares about the animals wellbeing, rather than just enjoying watching them or interacting with them.

Woody: well I like.. I like.. I don't really like anything about them I just like.. I don't know why but I just like them.

Woody struggles to articulate specifically what it is he likes about spending time with animals, but knows he enjoys their presence.

Kirsty: What's the dog at school Woody? Remember at school what's the dogs' name that you've made friends with?

Woody: He jumps up at me.

Woody and Kirsty are talking about other animals they know that they have interacted with. Kirsty suggests Woody has 'made friends' with this dog which suggests a positive and regular interaction.

Woody: Erm I think I might have to have a look at him first [the snake]

*Woody is a little wary of the snake and does not want to volunteer to hold him straight away.*

Woody: I've held a tarantula! Sharing previous experience with animals, wants to impress.

Woody: How old is she anyway? [Arthur]

Interested in the animal that is most visible, wants to know more about him.

Woody: Yes we must, you have to be very careful [when stroking the rabbit]

Woody is aware of how to behave around the animals and shows that he cares about the wellbeing of the animals here.

Cate: It's a beautiful live animal. We can play games anytime but we can't touch rabbits anytime. *Cate is keen to explain to the children that it is a special day.*

Rob: Smashing. I tell you what, do you want to go first cos I know you're nice and brave.... show everyone else that he's nice and friendly. You can be my helper and show everyone how nice and friendly he is.

Rob sees Woody is a willing volunteer and has picked up on his careful, sensitive nature. His repetitive use of words such as 'friendly' are to reassure Woody.

Woody: Yeah I'll show them how easy it is too. Happy to be a helper, Woody wants the other kids to be involved as he is.

Woody: All you do is put one hand so like.. at the back of his fur and you just lift him up. Sharing knowledge, Woody wants Rob to see he is responsible and understands how to handle the animals.

Woody: How does he get lots of time to rest? That's his water there, is that his water holder?

Woody cares about the animals wellbeing, enquiring about his rest and identifying his water.

Woody: Look!

Woody wants to draw attention to the rabbit.

Samantha: I'm Samantha, my eldest is Charli, she's 9. Never shuts up talking, loves animals. She's a bit obsessed! *Samantha is offering forewarning that her child may be excitable around the animals and likes to chatter!*

Rob: So what do the hamsters do? Sienna: They stand on their legs and up at the cage

Woody: my cat has got a mind of its own.

Rob encourages the children to talk about their own pets at home and they enjoy sharing their stories

Woody: does he lie down on his cushion? Just like he's doing now?

Drawing attention to the rabbit, Woody is curious about his behaviour.

Woody: or I could buy a rabbit. Mum I've got enough money in my bank and I'm going to buy a rabbit

Kirsty: I'll get you a toy rabbit. We'll go and visit other rabbits.

Kirsty does not want to encourage Woody into thinking they can have a pet rabbit.

They discuss the practicalities of space at some length, but I noticed Kirsty would not say anything that might lead Woody to believe that he could have one.

Rob: Then we'll have a look at our guinea pigs. And then we'll have a look at the snake.

Sienna: (sharp intake of breath) as soon as you get the snake out I'm flying! As soon as I see one. And then if I had to hold it!

Sienna's 'mock-horror' at the thought of holding the snake is funny- she's laughing too- but equally she seems to be expressing some apprehension.

Woody: What's he doing now? So he's just pretending to dig. Woody is drawing attention to the rabbit and querying his behaviour.

Sienna: Do they like to jump as well? Sienna is eager to know what the rabbit enjoys doing.

Woody: Yeah I don't really play with her I just stroke her. yeah she really likes it.

Woody is talking about his cat at home and how he likes to stroke her, and he believes she likes it too.

Rob: they are all really friendly I promise. There's nothing to be scared of but if you don't want to touch the animal that's fine. We need to be nice and gentle with these creatures.

he is really friendly. Remember you don't have to do anything you don't want  
But its up to you.

Rob uses plenty of reassuring words in his opening speech before any of the animals comes out. He wants to stress that the children do not have to do anything they do not feel comfortable with, but on the flip side always talks about how friendly that animals are.

Woody: He feels like he's soft like candy floss.

*Woody focuses on how the rabbit feels*

Kirsty: Aww that's very good. well done.

Kirsty praises Woody for stroking the rabbit nicely

Rob: See even big grown ups like bunnies too!

Rob draws comparisons to the adults for the kids to follow

Hobie: mummy I can't see the snake

*Hobie is eager to see the snake while he waits for his turn*

Rob: If you don't want to have a stroke then we are going to be here all day so if you feel a bit braver later on you can always pop back. Well done, good girl. Excellent.

Rob praises the children when they handle the animals well and gently encourages any level of interaction. He also assures them of further opportunity if they do not want to interact at this stage.

Hobie: mine.. mine.. well... <indistinct>

Rob: it's ok take your time

Hobie: Carrots

Rob: Carrots! Excellent. Do you think they like jam sandwiches?

Hobie: no!

*Hobie struggles to get his words out at first but Rob is patient while he collects his thoughts. Hobie also thinks about his response to Rob's question- other children say 'yes' when asked the same question about jam sandwiches, so it shows his*

*concentration.*

Rob: Well done good boy. Well done. Lovely stroking. We're all being really gentle.

Well done. Why do you think he is furry?

Rob praises the children when they do as asked and stroke nicely.

Hobie: why do animals not like being stroked this way?

Hobie is curious as to why they must stroke the rabbit in a certain way.

Rob: That was perfect well done. Excellent. Well done.

Rob praises the children when they do as asked and stroke nicely.

Theo: He feels soft Theo focuses on how the rabbit feels on his hands

Theo: Yeah we've got guinea pigs at home.

*Theo wants to tell Rob about his own pets.*

Theo: Well they're really friendly. I like stroking them.

*Theo explains what it is he likes about having pet guinea pigs at home.*

Rob: How do you know they're friendly?

Theo: Because they don't bite.

*Theo understands that when an animals is not being friendly they may bite, and understands that his are because they do not.*

Hobie: Erm sometimes they try kicking at you. Hobie worries about what animals might do if they are unhappy or unfriendly.

Sienna: they don't like the nails cut. *Sienna draws on her experience of her guinea pigs, and the situations when they might not be happy.*

Rob: Lovely stroke. Well done, that's really beautiful stroking. Would you like to just stroke him there? That's his softest bit. Does it feel soft? It's like cotton wool that bit. Lovely. You can stroke him here if you want to? Well done.

Rob praises the children when they do as asked and stroke nicely. He also suggests places where they might like to stroke the animals- sometimes if a child is getting too close to eyes/face- as a distraction, rather than telling them 'not' to do something. Interactions are kept positive unless absolutely necessary.

Rob: [William] he is so friendly. what do you think these holes could be?

Repeated use of the word friendly, as this animal may be unfamiliar to some. Getting the children to focus on aspects of the animal and think about them.

Hobie: Is it for breathing? Hobie: well is it something to do with his brain breathing? Hobie is guessing what the holes could be but is unable to think about something that does not involve breathing, until he is prompted by Rob pointing towards his ear.

Hobie: Ears!

*Hobie is pleased he got the right answer.*

Woody: They're not sharp, his spikes.



Woody is concentrating on how the lizard feels on his fingers, and is surprised that the spikes on the lizard are not sharp.

Woody: he feels like a foot bar!

Sienna focuses on the touch sensation too and compares the feeling to something she has felt before.

Kirsty: Are you gonna be brave? Be braver than me.

*Kirsty is keen for Woody to hold the animals but is herself apprehensive.*

Hobie: The rabbit is standing on his hind legs and licking his paws.

*Hobie draws attention to the rabbit.*

Sienna: Can he feel being stroked?

Sienna is interested in what the animal can feel, and how he may be responding to the handling.

Hobie: What does he do with his spikes?

Hobie has noticed the spikes on the lizard and wants to know what they are used for.

Interest in the anatomy of the animals.

Hobie: Why is that toe longer than the rest?

*Interest in the anatomy of the animals.*

Rob: we just stroke him here. we just stroke him really gently.

Rob is reinforcing the message that the children need to be gentle with the animals.

Rob: When you go swimming you put your hands big and flat. That's what he does with his toes?

Rob puts the concept into terms the children will understand.

May: Mermaid.

May is not very verbal during the session but this shows she is paying attention to what is being said- she understands that the toes act like an oar for the lizard through the sand, like a mermaids tail does in the sea.

Hobie: What are we getting out next?

*Hobie is eager to move on to the next animal now he has had his turn.*

May: <indistinct> keep touch, that's the keep touch one (animated)

May's tone here is very animated, she seems excited to meet the animals.

Rob: That bit just there. Do you like that he feels different? Yeah. Well done. Very brave indeed. This is where you get to show your mum and dads and parents that you're much braver.

Rob praises the children when they stroke the animals nicely. He also draws comparisons to the parents again, this time encouraging a little competition in who might be the bravest.

Louise: wow!

Louise is impressed by the millipede.

Gina: wow!

Gina is also impressed by the millipede.

Louise: I know you're excited..

Hobie and Theo are excited to meet the millipede but also a little restless and eager for their turn.

Rob: she's so friendly. she can't hurt anybody.

*Rob reassures everyone before handling begins to encourage the children to hold her.*

Sienna: I've been to the butterfly centre with my school and at first I was really shy but then I holded it. It tickles!

Sienna is keen to share he previous experience with Rob, including how the millipede felt on her hand and how at first she was not sure but then overcame her concerns.

Rob: See it's ok to be shy sometimes but its ok to have a little try as well. Remember you don't have to. How else does she feel? What other words can you think of?

Rob gently encourages the children whilst reassuring them that it's ok if they don't want to. He also encourages them to think of describing words.

Woody: it feels like.. like.. I don't know.

*Woody is struggling to articulate how the millipede feels.*

Rob: Does she feel soft like a teddy or hard like a plastic toy?

Rob helps Woody to think of the words by offering some examples he is familiar with.

Woody: like a plastic toy.

Woody appreciates being given the choice to pick from and this helps his description.

Rob: you see you're being an excellent helper. You show everyone that she's nice and friendly.

Rob goes back to the discussion he had with Woody at the beginning of the session to reinforce their rapport and reinforce the 'friendly' message.

Kirsty: Wow Woody!

Kirsty is impressed with Woody handling the millipede.

Woody: She feels tickly

The describing words are flowing more freely for Woody now and he concentrates on how she feels rather than looks.

Rob: Did you like her?

Woody: yeah (appears agitated; unsettled)

Kirsty: He needs the toilet.

Woody seems agitated though says he liked the millipede; it transpired that he needed the toilet which is a source of anxiety for him.

Sienna: That's her head? Cos that's the eyes.

Sienna has a good look at the millipede and tried to identify her features; she is focusing visually now.

Sienna: looks spiky!

Again Sienna is focusing visually on what is in front of her, and imagining how it might feel on her hand.

Jacob: it tickles!

Jacob can feel the tickly sensation on his hand and comments on this, rather than appearance.

May: (chatter about where millipedes are found- indistinct> (animated)

*May is eager to share her knowledge of millipedes with her carer and Sienna.*

Louise: I'm just gonna. I'm just gonna.. (agitated- hands up and moves back)

Louise seems agitated by the millipede but steps away with the excuse of taking photographs, so as not to upset Hobie or Theo, or put them off.

Hobie: It looks like stripy.

Like Sienna, Hobie chooses to focus visually on the millipede and what he can see.

He is quite close to be able to see the stripes.

Rob: Do you want to hold her?

Hobie: No.

Hobie is determined he does not want to hold the millipede.

Rob: Would you like to have a little look at her instead? She looks like she's waving, she's saying hello!

*Rob offers a non-intimidating look at the millipede instead and turn Hobie's refusal into a positive by saying she was waving.*

Louise: Are you just happy to look at some of them? Shall I be brave and shall I hold her? Louise: Go on then, as long as it's not too tickly. Oh that's really funny! (laughs) oh! It's a really funny feeling

Theo: That's a really funny feeling.

Louise understands Hobie is apprehensive about some of the animals and offers to hold the millipede almost in Hobie's place. She giggles while she holds the millipede and draws attention to it tickling her fingers to Theo, possibly to encourage him to hold her.

Louise: You ok there? You want to stroke the guinea pig? (seeking to reassure Hobie as he seems agitated/nervous.

Louise stays close to Hobie and assists with handling by holding the seat pad that the guinea pig sits on.

[What do you like about guinea pigs?]

Theo: That they are soft

Hobie: they are very soft

Sienna: Their faces! I like the fluff too. I like everything.

Sienna, Hobie and Theo are keen to share their thoughts on guinea pigs with Rob and tell him about what they like about them. Sienna goes against the grain by saying something different to the boys.

Rob: she loves to squeak. She goes weep weep weep.

Kids: imitate squeaking

Sienna: Rob? They squeak like <Squeaks>

Sienna is keen to imitate the guinea pigs after Rob does, and gets his attention to listen to her impression. The rapport between them is building as Sienna shares her experiences with him and tries to make him laugh with her guinea pig impression.

Rob: molly is the friendliest. pop her on your knee just like Arthur the rabbit. very gently. Rob reverts back to reassuring language with the guinea pigs. He draws comparisons between the guinea pig and the rabbit so the children know what to expect.

Rob: Well done lovely stroking.

Rob praises the children when they handle the animals nicely.

Sienna & Gina: Yes, we like the fluffy ones.

Sienna and Gina are talking jointly about what they like, this seems to have been a bonding experience for them.

Hobie: Carrots! Hobie: and cabbage Jacob(?): Dandelions? Hobie: ermm Sienna: Cucumber. The kids are keen to share their knowledge of what they know guinea pigs eat with Rob.

Hobie: When does she kick?

Hobie I anxious about the guinea pigs being unhappy about being handled and is concerned that the guinea pig will kick him- I wonder if there has been a previous negative experience as this is the second time he has brought this up.

Jacob: I like how the fur all grows on them. But sometimes it feels lumpy when you stroke her.

Jacob is telling Rob what he likes about the guinea pig- he likes the way the fur has grown at random angles but explains that I makes her feel different to touch.

Hobie: What is the next animal? [second time Hobie has asked]

*Hobie has had his turn and is eager to move on to the next animal.*

Hobie: Can't we stroke the scorpion? Hobie: Why haven't we got as much time?

Hobie asks lots of questions that do not relate to the present moment.



Rob: Nigel is very friendly. me and him made friends! he's very very friendly. In fact, he's so friendly that he loves to sit around my neck like a scarf.

Rob is especially reassuring with both his words and his actions when the snake comes out. He reiterates the friendly message and demonstrates how harmless the snake is by wrapping him around his neck- a common fear being that of strangulation.

Woody: wow!

Woody is impressed by both the snake and Rob's display.

Sienna: He's going in your top!

Sienna is enjoying watching what is happening and her earlier fears seem to have disappeared.

Rob: How does he feel? Woody: Like erm your shoes

Woody draws comparison to something he has touched before, and does not seem to struggle to find/articulate what he feels.

Sienna: Rob, will he like going in your shoes?

Sienna is enjoying making conversation with Rob and asking him questions/getting his attention.

Gina: He's smoother than.. he's silky.

Gina is surprised by how the snake feels, and that her expectations were untrue.

(Sienna and May are having a conversation in the background about millipedes.

Sienna is patient whilst May gets her words out when she's struggling.)

Sienna: He won't hurt me will he?

Sienna's previous anxiety seems to have returned a little, though she seems to be checking that he really is safe before she holds the snake.

Gina: good girl!

*Gina is impressed with Sienna's bravery and is keen to praise her.*

Rob: And we keep our hands nice and open. Rob: open your hands, Perfect! That is excellent. If you open your hands for me.

Sienna seems to have switched off listening as she focuses on holding the snake so Rob has to reiterate his safety warnings a little more bluntly than previously to get her attention.

Gina: wow.

Gina is impressed with Sienna for handling the snake.

Liz: Are you going to do that Josh? Wow!

Liz is impressed with Sienna for holding the snake and is keen to encourage Jacob to do the same.

Rob: Of course you can have a hold. We need to be really really brave. Is that ok?

Rob double checks that the kids understand what is expected of them before they hold the snake.

May: ants in my pants, I've got ants in my pants like the snake.

May is following what Rob is saying, as he made a joke about the snake having ants in his pants.

Hobie: It's soft.

*Focussed on touch.*

Sienna: its white!

*Focused on sight/appearance.*

Hobie: why does it feel cold on my hands once it starts moving?

*Hobie asks further questions about why the snake feels a certain way.*

Rob: That's ok, would you like me to take him off you? Would you like me to hold him for you? Well done that was amazingly brave. Well done that was perfect. Excellent, I'm going to bring his head back round this way, and lift him up. That's perfect.

Rob is supportive with the nervous children and carefully reassures them and talks them through his actions so they know what is happening at every stage.

Liz: wow! Look at that!

*Liz is impressed by the children holding the snake.*

Rob: you have been so brave! I'm really proud of you all.

Rob reiterates how well the children have done and how brave they were.

Rosie: Woody which was your favourite animal?

Woody: The snake! It really felt scaly but it also felt soft.

Woody's favourite animal surprised him by feeling soft as well as well as scaly.

## Animal Session 2

Charli: I love rabbits

Charli is keen to share this information with Rob- she wants him to know she knows what the animal is and that she likes it.

Charli: They're not my favourite, my favourites are dogs and horses.

Sharing wider knowledge of animals and preferences, Charli wants Rob to know what she likes.

Robbie: I think that's its bottom and that its head.

Robbie is having a go at identifying one end of the rabbit from the other! Using visual cues, paying attention to what is in front of him.

Charli: Can I touch the rabbit?

Charli starts to push boundaries early on- she can see the rabbit is out of reach but wants to get in there first to stroke him.

Rob: If we find ourselves and seat then we're going to get the rabbit, give him a stroke.

Rob tries to gently guide the format for the session- only the children sitting down will be able to interact with the animals.

Robbie: Yeah! I saw a snake there!

Robbie is excited to have caught a glimpse of the snake and wants to share this with everyone in the room.

Rob: Well I tell you what we've got. He's like a little dinosaur. She can't hurt a fly. they are all some of my friendliest ones. if you don't want to touch the animal that's fine. You don't have to get scared or sad. We need to make sure we are very very gentle with the creatures, we need to use kind, soft hands when we're stroking the animals. Do you think we should have a look at the rabbit first? you don't have to hold him if you don't want to.

*Rob is setting out the rules for the session, both to relax the children and set the boundaries in place. He assures them they won't have to do anything they're not comfortable with but also that they must listen to instruction on how to handle the animals and be gentle with them.*

Anne: Aw Arthur! Aw! Lovely and soft

Anne is encouraging the children to pay attention and uses a gentle, calm voice. She is drawing attention to the rabbit and also describing him, to help put the children at ease.

Stewart: Fed up of all the humans holding him! [taken the 'how do you think he will feel' question literally]

Stewart is thinking literally about how he thinks the rabbit might be feeling emotionally, rather than how he might feel to the senses. This is interesting that it's his automatic response, demonstrating empathy with the animals.

Stewart: He looked fed up when you were doing that with his ears!

Again Stewart is empathising with the animals, explaining to Rob that Arthur might not like it when he messes around with his ears and trying to read the rabbits emotions from his expression.

Robbie: erm.. hay? And we give them a piece of wood to gnaw on so his teeth don't grow too long!

Robbie is keen to share his rabbit experience and knowledge with Rob showing consideration for animal wellbeing too as he understands the purpose for giving him the wood.

Amanda: Wow, lovely!

Amanda is impressed and uses encouraging positive words in front of the children.

Kacey: he's soft. He feels like my cat called Tom.

Rob: You've got a cat called Tom! Do you like to stroke Tom?

Kacey: Yeah!

Rob: Do you think Tom likes to be stroked too?

Kacey: Yes! (laughs)

*Kacey tells Rob about her cat and likens the experience of stroking the rabbit to stroking her cat. She wants Rob to know she has a pet of her own and that she enjoys petting it and shows responsibility. She also empathises with her cat as she believes he enjoys being stroked too.*

Rob: That's him trying to say thank you! Well done that was beautiful stroking.

Rob uses encouraging words and praises the children when they have interacted nicely with the animals by specifying what it is that they have done especially well. He also explains that the rabbit is thanking them for stroking him nicely, to channel into to the empathic kids that have shown interest in the rabbit's wellbeing and feelings about being handled.

Jonny: Is it nice?

Jonny is curious to know how the animal interaction is for the other children but is wary of getting involved.

Anne: oh wow!

Anne is impressed and uses encouraging positive words in front of the children.

Amanda: At it like rabbits!

Amanda makes a joke for the benefit of the adults in the room- the animal interaction is for everyone to enjoy and it is good that it is not solely focused on the children.

David: Aww! It's a bit tickly. He's nice.

David enjoys holding Arthur and concentrates on how he feels on his hands with the 'tickly' comment. He uses positive words to describe the rabbit and engages with the handling.



Stewart: He's cute! He's lying down!

Stewart is excited to watch the rabbit and see what he does next. He likes to look at him and draw attention to what the rabbit is doing, engaging with him in this way.

Kacey: I've got a rabbit too.

Kacey wants to share that she also has a rabbit at home.

Rob: Excellent. I'll pop him on your knee for you.

Rob talks through his actions with the children before carrying them out. It is important to read all body language signs and pay attention to any cues that the children might be feeling uncomfortable.

Anne: It's nearly your turn! He's coming, I promise

Some of the children near Anne become agitated that they might miss their turn or are over-excited for their turn and becoming impatient. She uses a gentle, reassuring voice and makes a promise to the children that it is nearly their turn.

Jonny: (making silly noises)

Jonny has moved to the back of the room and chosen not to engage with the animals physically but instead watch the others from a distance. He makes noises.

Rob: (talking quietly to Andrew)

Rob recognises Andrew is shy and talks quietly with him, gently explaining what is happening and talking him through his handling experience.

Lily: Monty, just sit on your chair

Monty is becoming restless waiting for his turn but Lily is firm with him to sit down.

Rob: that's it nice and gentle, well done.

Rob praises the children when they handle the animals appropriately and specifies what it is that they have done well so the other children can hear.

Charli: Whoa it's curled itself up in a knot. I think it likes me! it likes me.

Charli is trying to draw attention to the millipede in its box. She is out of her chair.

She wants the animals to like her as much as she likes them, reading certain behaviours as a 'sign' that they are reciprocating.

Charli: I think it's got itself in a knot. Oh it's a lizard there. There's the guinea pigs!  
What's in here? Woah! Is that a giant millipede?

*Charli is excitable and eager to see all the animals all at once. She does not want to wait for each to come out and by talking loudly about what she can see she distracts some of the other children too.*

Charli: look at all of its body, it doesn't fit in there!

Kacey: I love that! Guess what, I love that.

Kacey has joined Charli at the front and is distracted too. They are enjoying looking into the boxes and trying to guess what the animals are, speculating on what they can see.

Rob: Do you like stroking the rabbits? Why do you like stroking them? Because they're furry.

*Rob encourages the children to explain what it is that they like about each animal.*

Charli: what time is it? Can I ask you what type of snake is that?

Charli is flitting from one subject to the next and not paying attention. She is asking questions without waiting for responses.

Rob: You certainly can! have I missed anyone?

Rob is careful to check he has not missed anybody out, especially as some of the children were nervous of being overlooked.

Charli: Well it was a bearded dragon. Well I didn't exactly stroke it cos its spikes were..

Charli is talking about a previous experience. She backtracks in her tale and alludes to the idea that she was anxious about it's spikes.

Rob: Good girl, well if you want to go and sit down for me, and then I can bring him round

Rob is trying to reiterate the rules to Charli that she must sit down before she is allowed to interact with the animals

Rob: It feels rough like stroking a rock or a piece of wood.

Rob tries to reassure the children about this less-familiar animal, explaining what it

might feel like to on their hands by comparing it to something they would be familiar with.

Rob: Now remember you don't have to, you don't have to stroke him you can say no thank you. He is very friendly. He is very very lazy.

*Rob is reassuring the children about this less-familiar animal. He describes his behaviour and his actions, and reminds the children they do not have to touch him if they choose not to.*

Mark is sitting quietly and fixated on Rob holding the lizard. Today he is very careful with his movements and how he interacts with the animals

Charli: the rabbit was running around! Charli: When you put him back in the pen he ran around loads and loads.

*Charli is drawing attention to the rabbit and enjoys watching his movements and describes what she sees.*

Charli: can I hold the lizard in my hands? I just thought with the bearded dragon cos I've held one before.

Charli is trying to push boundaries and 'do more' than the other children. She reminds Rob of her previous experience to try and persuade him to let her.

Robbie: That's the way my cats like it

Robbie compares stroking the lizard to how he strokes his cat and wonders if they like similar experiences.

Rob: That's ok! He's very nice, you could stroke just here

Kacey: Just here? Just here.

Kacey is nervous of the lizard and Rob reminds her that it's ok to be shy and gently persuades her by directing her to where she could stroke. Kacey confirms this with Rob then proceeds carefully; she is mindful of her actions and wants to do it right.

Charli: I see his claws

Charli is anxious of the lizards claws and verbalises this- possibly to gain reassurance.

Anne: Am I going to have a millipede on my hand?

The parents are eager to get involved and show the children there is nothing to be afraid of, and Anne verbalises her intentions so the children know she is going to do it.

Rob: Very brave indeed, that is amazing!

Rob praises the children when they handle the animal nicely and highlights how brave they have been.

Rob: Do you like it? Do you like the dragon?

Charli: I love it!

Charli is excited by the experience despite her reservations regarding spikes and claws.

David: I like sitting near the front cos then I get to see the bunny rabbit

David is enjoying watching the animals and mostly engages this way, though he isn't afraid of the handling part either. He is enthralled watching the rabbit.

Rob: Which was softest, the rabbit or the lizard?

Evelyn: The rabbit

Rob: The rabbit! Which one feels nicest to stroke?

Evelyn: The lizard!

*Despite the rabbit feeling the softest, Evelyn enjoyed stroking the lizard most.*

Charli: You can't hold it, you're not allowed to hold it.

Charli has paid attention to Rob's instructions about not holding the lizard and wants the other children to know that they cannot hold it either- she's anxious that others might get to 'do more' than her.

Anne: Oh well done Tom!

Anne is impressed with Tom holding the animals and paying attention to the show

Tom: what is he called? How old is he?

Tom shows interest and engagement with the lizard and is eager to learn more about him.

Kacey: I like him but I'm still not sure..

Kacey feels internal uncertainty about the lizard.

Anne: Sit down please Mark. 5, 4, 3, 2, 1. Sit down please.

Deborah: David. David.

Mark and David are beginning to get restless and the parents try to settle them down again.

Charli: the rabbits being lazy again!

Charli is drawing attention to the rabbit- she is watching what he is doing and wants others to know what he is doing too.

Samantha: Go on, give him a stroke. Go on

Samantha is gently encouraging the Robbie to stroke the lizard.

Charli: I'm really looking forward to the snake coming out! The rabbit has got its legs out. The rabbits got its legs out! What are you getting out next?

*Charli is becoming excitable again and drawing attention to the rabbit. She is also bombarding Rob with questions but not giving him chance to answer.*

Charli: Can I have a look first? Cool! Can I hold it? Yeah cos I've held a giant millipede before.

Charli is pushing the boundaries and wants to get in there first. She also shares previous experience again in a bid to get Rob to let her have her own way.

Charli: (interrupts) Short for millipede! (interrupts) Sensing. (interrupts) from underground.

Charli is excitable and continually interrupts Rob throughout his introduction to the millipede. She wants to share her knowledge.

Charli: Can I hold her on my own?

If there is the opportunity to 'do more' than the other children she wants it.

Charli: I want to get the front end.

Charli wants some element of control over the animal handling and tries to tell Rob what she wants to do rather than be told what is happening.

Samantha: Oh well done!

Samantha is impressed with Charli for handling the millipede and praises her.

Charli: tickly cos she's got a lot of legs.

Charli explains how the millipede feels so the other children know what to expect.

She also offers an explanation as to why the millipede might feel tickly.

Anne: So what does she like to eat? And does she bite?

Anne shows a little anxiety here asking if the millipede bites, but also is eager to know more about the creature and prompts the children to ask more questions.

Charli: She's very ticklish on your hand and she's very smooth on the top. And you've got the front bit.

Charli enjoys talking the other children through the experience and what to expect.

Jonny: (making noises)



Jonny remains at the back of the room and is making silly noises again in an attempt to get some attention, since everyone is focused on the front of the room.

Rob: That's really brave well done. Do you think you'd like to hold her?

Andrew: Er no

Rob: no that's ok

Rob praises Andrew for stroking the millipede as he picked up on his anxiety around this animal. He also reassures Andrew that it is fine not to hold him, so as to encourage him to stroke the other animals without any feelings of obligation to hold.

Charli: Arthur.. Arthur

Charli is drawing attention to the rabbit by calling his name. Now she has had her turn, she has gone back to watching the rabbit.

Amanda: It's your turn!

Amanda is excited to tell Kacey it is her turn with the millipede.

Anne: yeah, go on!

The parents offer gentle encouragement with this animal as it is less-familiar

Lily: go on, hold it really well

The parents offer gentle encouragement with this animal as it is less-familiar

Robbie: snakes last, snakes scariest

Robbie has remembered the order the animals are coming out in, and also feels that the snakes are the scariest. He might be a little anxious about it coming out.

Charli: Oh it's gone into its little den! The snakes gone into its little den. What is the snake called? I can see its tail poking out there. Can bearded dragons have camouflage?

Charli has had her turn with the animals and has gone back to over-excited and bombarding Rob with questions but not paying attention to the answers.

Charli: I bet it's just boring sitting there. I think he likes me (taps box)

Charli is convincing herself that the snake likes her- it seems important to her that they like her as well as her liking them.

Rosie: don't tap on there please.

I have to be firmer with the boundaries here- reflecting on what Ruby said about having some parts strict and the rest relaxed, I had decided in my head that I wouldn't intervene with kids out of seats but animal safety was my priority here.

Charli: Do you know where the snake is? It's under the rock. Can you see the snake? It's sort of camouflaged. And there's another millipede in there. Can you see it? Guinea pigs! Ones moving. One just moved. There's another one in there.

Charli is excitedly flitting from box to box and commenting on each animal she sees- she's excited with the variety.

Charli: Can I hold it by myself?

Charli is trying to push the boundaries again here and wants to 'do more' than the other children to create her own unique experience.

Charli: well actually I think I'd like to see it all over again

Charli enjoyed the sessions so much she wants to stay and watch it all again to meet the animals for a second time.

Robbie: does it bite?

Robbie is anxious about the animal hurting him so checks with Rob to ensure it is safe.

Charli: Where's his water trough?

Charli is concerned for the animals wellbeing here and is asking Rob where it's water is as she cannot see it.

Monty: Scaly! (Monty is smiling throughout the animal session and interacting nicely with his mum. He took a little time to settle at first but they seem to be enjoying the experience together now; sitting together is quite unusual).

Charli: Smooth! It won't feel dry because if snake skin is dry then that isn't very good. I mean not super dry, not really dry and scaly. Needs to be moisturised. He's wrapping himself around your hand.

Charli is watching the snake carefully and is trying to describe how she thinks the snake might feel.

Robbie: that they stick their tongue out! [what do you like about snakes?]

Robbie has been observing the snake carefully to see that he sticks his tongue out, and picks out this feature as his favourite thing about snakes.

Pete: away from the box [Charli]

Charli's parents are becoming involved in keeping Charli away from the animals as she has started to cross the line by touching boxes and enclosures.

Charli: once my cat.. I might not hold the guinea pigs. Let me guess, the kind of snake that wraps itself around your neck is a python?

*Charli is flitting from topic to topic. She seems to be trying to get attention by trying to cover different topics and asking Rob a kind of question she thinks he might respond to.*

Lily: Just have a go. Right Monty.

Lily is encouraging Monty to hold the snake

Charli: Can I touch it again?

Pushing boundaries- wants to do more than the other kids by touching the snake twice.

Pete: Charli, no. Charli.

Charli's parents are becoming involved in trying to get Charli to stick to the rules.

Monty: Really smooth

Rob: really smooth! Do you think you like snakes?

Monty: Yeah

Rob: What do you like about this one?

Monty: That it's really long

*Monty seems surprised that the snake feels so smooth and also surprised that he likes it! He is impressed by the size of the snake too.*

Evelyn: he moves a lot!

Evelyn likes how active the snake is compared to the other animals who all stayed fairly still.

Lily: Where's he going!

Samantha: oh he's gone right around!

The parents show a little anxiety here and are almost trying to 'help Rob out' by explaining to him what is happening.

Rob: sat waiting nice and patiently. I'm just going to turn him around. You've been absolutely amazing. You've been so brave!

Rob praises the children and specifies what for- waiting patiently. He talks them through what he is doing with the snake so they know they don't have to wait much longer.

Samantha: Oh thank you, I've got a bit of a phobia about snakes. I think what it is is.. its not actually being near.. it's just a fear thing. It's weird, the more you.. But he is

beautiful.

*Samantha has overcome a bit of a fear of hers with the snake and explains that seeing the snake helped.*

### Animal Session 3

Nat: Understand and accept that you've got to be gentle.

Nat is becoming anxious that Allegra does not realise that she needs to be careful around the animals.

Nat: Allegra come away now please. I'm not having you doing that, I've asked you three times not to do that. He's very good, very patient with her

(Allegra is excitable and running round the room, from person to person chattering away. She's not listening to instruction from her parents. Nat is gently reminding her that she needs to be careful around the animals and listen to instruction.

Leo: have you got a hedgehog?

Leo is interested in hedgehogs and also trying to ascertain if Rob is the same person he has seen before, with a hedgehog.

Allegra: Where's the hedgehog?

Allegra has twigged on to the conversation and is curious to know where the hedgehog is.

Allegra: come look over here, look over here it's awesome. Just come and look!

Bring Leo

Allegra wants to share her experience with her mother and brother, she is encouraging them to come over so she can talk about what she sees.

Rob: What's your favourite animal?

George: A rabbit!

Rob is building a rapport with George by asking about his favourite animals. George wants to tell Rob about his favourite, especially as he can see one.

Nat: Careful Allegra

Brian: Allegra, no

Nat: Leo, not in here ok. If you want to play on those go outside ok.

Brian and Nat are wary about the children being excitable around the animals, and careful to chastise when they get too close to them, by suggesting they go outside until the show starts.

Nat: I think she wants to, once she sees it. It's just she gets very easily distracted.

Nat understands that Allegra can be excitable, but explains that she has a short attention span, to forewarn Rob that she might get distracted during the show.

Rob: They're all really friendly, there's nothing to be scared of. you don't have to. we have to be really nice and gentle when we're stroking the creatures, we have to be nice and kind when we're stroking them. So we need to be really soft and kind hands.

*Rob is careful to set out the instructions and format of the show before it begins. He uses reassuring words and highlights that the children don't have to do handle the animals if they don't want to.*



Rob: Do you like creeping crawlers then?

Allegra: Erm... yeah I think...

Rob engages Allegra in thinking about the animals. She is unsure whether to confirm whether or not she likes the bugs, as she doesn't want to volunteer for anything she's not sure about, and is autonomous in her choices.

Dylan: Erm we don't have any pets but erm... but erm... creepy crawlies are insects and spiders

Dylan wants to tell Rob that although they don't have pets of their own, he understands different kinds of animals and chooses to engage with Rob by sharing this knowledge instead of experience with animals.

Lacey: Arthur!

Lacey is excited to learn the rabbit's name and repeats it back to Rob to show she has processed the information and express her excitement at meeting the rabbit.

Allegra: You should call him sniffer instead. Allegra: Or floppy, because he's got floppy ears

Allegra is watching the rabbit carefully and makes alternative name suggestions based on her observations.

Allegra: how do you do that? Can I have a go?

Allegra is eager to learn more, she wants to know how Rob is flapping the rabbit's ears and wants to try it herself.

Scarlett: Would you like him on your knee?

Scarlett engages her children with the animals and also encourages them gently to do more.

Rob: Yeah? Lovely. So I'm just going to pop him down there.

Rob talks the children through his actions to build trust by saying what he will do before he does it and sticking to his word.

Lacey: yeah! Stroking them!

Lacey loves animals, telling Rob that her favourite thing about them is stroking them. She enjoys the physical contact, more than observing.

Rob: Do they make you feel happy?

Lacey; Yeah!

Rob: yeah! How else do they make you feel?

Lacey: I like feeding them!

Lacey is thinking carefully about what it is that makes her happy about animals. It's interesting to note that what makes her happy is a selfless act- feeding the animals so they are happy.

Allegra: Yeah! That's one thing that I've learned.

Allegra loves learning new information, about things she cares about, and now the show has started she is engaged and listening properly.

Nat: Allegra don't do that to his ear.

Allegra is trying to copy Rob's behaviour from earlier- she wanted to put her newly acquired knowledge into practice. Rob asked her not to attempt this before but Nat had to remind her.

Allegra: Yeah. I wish that...I wish that well obviously not for... wait is this a bunny or a rabbit?

Allegra is a little distracted here- she's not sure what she wanted to say but her attention goes back to the animals.

Lacey: Oh Arthur

Lacey has remembered the rabbits name and says this as she cuddles him. She is enjoying her interaction.

Allegra: Oh I didn't get to cuddle him! Can I cuddle him? Can I cuddle him?

Allegra has seen the other children interact with the animals and realises they did something that she didn't think to do during her turn. She doesn't want to be 'left out' or do 'to less' than the other children.

Allegra: yay! Wait are they going to go all over us on the special mat?

Allegra has noticed the pad that the rabbit is going round on and wants to clarify that the guinea pig will be coming around on the same mat. It's interesting that she's noticed more than just the animal.

Allegra: He's nodding! He's nodding look!

Drawing attention to the rabbit

Allegra: So it's the rabbit's way of praising you?

Allegra is sitting and concentrating now. She is enjoying answering and asking questions, and I can see she is processing what is going on because her comments and questions are relevant and flow from one to the next). Allegra enjoys the positive reinforcement from both people and the animals.

Allegra: I've learned the rabbit's way of saying thank you!

Allegra loves learning new information, about things she cares about, and now the show has started she is engaged and listening properly.

George: I like how they feel

Rob: You like how they feel. How do they make you feel?

George: it makes me feel happy

George is considering what he likes best about animals, and focuses on the sensation of them on his hands. He is enjoying the interaction, saying that it makes him feel happy.

Dylan: We had a cat and it kept on scratching me, at my old house.

Dylan remembers a negative experience with animals and shares this with Rob, though he isn't put off the animals- perhaps because it was a different animal.

Allegra: Does he mind you swishing his tail about? Allegra: Erm you say.. He's.. How do those ears even work? Allegra: Can we stroke his tail as well?

*Allegra is distracted at the beginning of her sentence but goes back to focus on the animals and ask questions. She wants to stroke his tail to get maximum out of the experience.*

Mary: Well done, good job!

The parents praise the children when they interact nicely with the animals.

Allegra: it feels like I'm stroking a pineapple! no no honest, it sounds like the worst description ever but it does actually feel like I'm stroking a pineapple!

*Allegra thinks about something she can compare the lizard to and comes up with something she has touched before. She doesn't want to sound silly in front of the other children though.*

Nat: Don't stroke him backwards, stroke him downwards like that

Nat is watching Allegra closely to ensure she is following instruction, and offers advice where needed.

Leo: I've seen a bearded dragon before and he looked at me like this

Leo wants to share his previous experience of interacting with a bearded dragon with Rob and the group.

Dylan: Do they eat spiders as well? But if it was a wolf spider and it was that big?

Dylan doesn't have pets of his own but clearly has wider knowledge of animals, which he uses to build a rapport with Rob instead.

Lacey: Can I hold him?

Lacey is enjoying her experience with the bearded dragon and wants to go further by holding the lizard.

Dylan: His spots look like cheetah spots

Mary: Yes they do!

Dylan is bonding with his mum whilst watching the animal show, as well as thinking about what other animals he knows of that he can compare to the lizard.

George: Do you have a chameleon?

Michael: Chameleons change colour!

The boys are bonding over the animal experience and want to know more about Rob's animals.

Michael: why would they get sad?

Michael is concerned that a chameleon might get sad if we brought him to the session- perhaps concerned that the animals we did bring could get sad too.

Allegra: Oh I didn't get to touch his spikes.

Lacey: They're soft!

The girls are sharing their experience here; Allegra is concerned that she didn't 'do everything' the same as the other kids- like when she didn't cuddle the rabbit.

Allegra: can we look at the guinea pigs?

Allegra is becoming excitable. She has noticed another animal and wants to move on.

Allegra: Oh look at the bearded dragon in its box! Why is he doing it at you?! Why is he doing it at you?! Why is he doing it if he can't see any lady bearded dragons?

*Allegra is becoming distracted. She's looking around at the other animals and asking Rob questions about them, she wants to learn about why they exhibit certain behaviour.*

Michael: Can that giant centipede bite?

Michael is a little anxious; he may have seen centipedes before (shared previous knowledge about wider animals) and is worried this one may harm him.

Rob: if you stroke your fingernail that is how she feels. but you don't have to. give her a nice gentle stroke. And she feels very nice, like a hairbrush dancing on your hands. How does that feel?

Leo: Alright!

*Leo seems surprised at how the millipede feels- I think he was worried before that he wouldn't like it.*

Allegra: Does he like.. does.. does.. does she like being stroked? Allegra: Does she like being scratched?

*Allegra wants to know how the animals feel about being handled and stroked- showing empathy.*

Nat: No we don't scratch.

Nat: gentle Allegra

Nat: She might think someone was trying to eat her Allegra

Nat is worried that Allegra may harm the millipede by scratching her- she's careful to advise how Allegra should interact with the millipede but also explains why we must be gentle.

Allegra: (laughs) when you said it feels like a hairbrush!

Allegra is paying attention to what Rob has said by repeating back his words.

Rob: That was perfect, well done!

Nat: well done! Well done Allegra

Rob and the parents are eager to praise the children when they interact nicely with the animals.

Leo: wow!

Leo is impressed with the millipede

Lacey: it feels all bumpy

Lacey is concentrating on how the millipede feels rather than how it looks, sometimes people can be put off by all the legs.

Mary: You've held spiders

Mary is reminding the children about previous experiences where they have done



something brave, to encourage them to make the most of the opportunity and hold the millipede.

George: they've got really spiky legs

George: Spiky!

George is focusing on how the millipede feels on his hand rather than the smooth shell on the outside. He notices that the millipede has spiky legs, then translates that into how he thinks it feels on his hand.

Dylan: I'd like to stroke her

Dylan is clarifying to Rob that he doesn't want to hold the millipede but he would like to stroke her. He is autonomous in his decision.

Dylan: She's pretty nice

Though he had some reservations, in the end Dylan liked the millipede.

Scarlett: Yeah go on Michael, you can do it

Scarlett encourages her child to hold the millipede, showing belief in his abilities.

Michael: I'd like to hold this part

Michael decided to hold the millipede but wants it to be on his terms, showing autonomy in his choices.

Scarlett: Go on Michael, I know you can do it. I know you can do that. If mummy does it will you do it with me? Cos mummy is terrified.

*Scarlett is trying to encourage Michael to hold the millipede by offering to do it to.*

Michael: argh mum!

Michael and Scarlett are both laughing at this point, trying to egg each other on but at the same time both being a bit scared.

Rob: Sometimes just trying is good enough!

Scarlett: Yeah course it is!

Rob and Scarlett are keen to brush off a failed holding attempt by turning it into a positive.

Allegra: Arthur is asleep

Drawing attention to the rabbit, Allegra has had her turn and is turning her attention back to the animals she can see.

Michael: I like all animals!

Michael wants to share this information with Rob that he likes lots of animals.

Lacey: I like them all

Lacey agrees with Michael and tells Rob she likes all the animals

Michael: Except for black widows

Michael is showing his wider knowledge of animals here, and specifies a dangerous species.

Nat: Allegra sit down

Allegra is becoming restless but Nat is keeping a close eye on her, understanding that her attention could be beginning to wane.

Michael: I don't like black widows, because they are quite poisonous. When they bite  
Michael has expanded on his previous point- he wants to show that there is a reason he doesn't like black widows.

Allegra: I've got a question that I forgot to ask. How can you tell which millipede is Millie and which one is Mike?

Allegra has been pondering on her thoughts but it's interesting that she is still thinking about the animals and wants to ask questions.

Allegra: Arthur is stretched out!

Allegra is watching the animals carefully and commenting on their different behaviours.

Scarlett: Sit down then

Scarlett is concerned that Michael is becoming restless but wants to set the rules straight.

Allegra: Is Lilly a bit like Mike? Look at Arthur!

Allegra is drawing comparisons between the animals personalities, she has been listening to what Rob has said about the,.

Scarlett: What are you doing? No, leave it alone. Michael leave them alone now

Scarlett is concerned that Michael is becoming restless but wants to set the rules straight.

Nat: There you go, really careful

Allegra: Can I stroke her there?

Nat is on hand to supervise Allegra holding the guinea pig. Allegra is mindful of her actions and seeks permission this time before attempting something.

Nat: Allegra, look. Look at this!

This time, Nat draws attention to something she has seen and wants to tell Allegra about it.

Allegra: I want a hug!

Allegra has remembered she didn't get to hug the rabbit and doesn't want to miss an opportunity.

Nat: Be really careful! Don't squash her! Well done Allegra!

Nat is anxious about Allegra cuddling the guinea pig, but praises her when she does it nicely.

Allegra: Arthur is sleeping again

Allegra has had her turn with the current animal and has resumed watching the others, drawing attention to the rabbit.

Lacey: How long do they live for?

Lacey is interested in more information about the guinea pig.

[How does she feel?] Lumpy!

Lacey is explaining to Rob how she thinks the guinea pig feels, focusing on the sensation on her hands.

Lacey: I think the rabbit [is softest]

Lacey is drawing comparisons between the animals, remembering what the rabbit felt like and deciding which she thinks is softest.

Michael: Is it the snake next?

Michael is anxious/excited about the snake. As he has wider animal knowledge, he may be a bit worried about this part of the show.

Allegra: Arthur is lazy! I thought he should be bouncing around all over the place.

Allegra is questioning her expectations, drawing attention to the rabbit and thinking about how what she sees contradicts what she thought she knew.

Allegra: Oh the snake! HE's white. Allegra: look at what he's doing! Allegra: Can we hold him?

Allegra is excited to meet the snake and wants to know all about him, bombarding Rob with questions.

Scarlett: No, sit still

Scarlett is concerned that Michael is becoming restless but wants to set the rules straight.

Lacey: Like a scarf!

Lacey compares what she sees in front of her to what she knows already,

Leo: Allegra put your hands out like this

Leo and Allegra are bonding over the experience, Leo has the opportunity to teach Allegra something.

Allegra: He feels quite squishy! I want to turn his head around so I can see him.

*Allegra wants more from the experience- always one step further*

Nat: Don't try and touch his eyes will you. Well done Allegra!

Nat is anxious as Allegra holds the snake, but praises her when the experience goes well.

Allegra: if you want to touch him you have to put the soap on afterwards

Allegra knows how the snake handling goes now and is eager to remind the other children of the instructions.

Allegra: LOOK, look at Arthur! Look at him! Take a picture of him quick! Take a picture of him quick! Take a picture of him really quickly!

*Allegra is drawing attention back to Arthur now her turn is over, and this time wants her parents to take action.*

Scarlett: Ah it's a boy and you're giving him a cuddle!

Rob: Good girl!

Scarlett: Yeah she might squidge him!

Rob: Shall we clean our hands now?

Scarlett: That was a good cuddle that was!

*Laura was a little too young to hold the snake on her own but touches him instead-  
Rob and Scarlett are eager to praise her for this positive interaction.*

Lacey: Oh I wanted to hold him!

Lacey sees her younger sister didn't hold the snake and is worried she might get a turn.

Scarlett: Does he feel as shiny as what you thought?

Michael: Yeah!

Rob: would you like to have a hold?

Michael: yeah. Michael: I want him on my arms! (giggles)

*Michaels reservations about holding the snake have disappeared now he has seen others do it.*

Rob: Do you like snakes?

Michael: Yeah I do

Michael tells Rob he likes snakes (in general) which may explain why he was a bit worried before but especially enjoyed holding one.

Scarlett: that was so good! Oh no she's scared of bees and woodlouse.

*Scarlett is impressed with the kids holding the snake*

Rosie: Wow Monty! That looks amazing!

Rob: Are you glad you got to have a hold? What do you think to him? Does he make you feel brave?

Monty: Yeah!

*Monty didn't dare hold the snake earlier on so we both praise him for doing it this afternoon.*

Allegra: thank you!

Lacey: Thank you!

Allegra and Lacey enjoyed meeting the animals and want to say thank you to Rob rather than just leaving the parents to say it.

Rob: Which one was your favourite?

Leo: Erm probably the snake. Because it's just like so wriggly

Leo liked the snake the best because he liked watching it move around- the other animals stay fairly still so the snake is a bit different in that respect.





## Animal Session 4

Zara: He's nice!

Zara likes the rabbit

Evan: Erm a rabbit on my telly called Peter!

Evan is remembering a rabbit on the television he's seen that likes eating radishes; he remembers the name of Peter rabbit from Beatrix Potter and draws a comparison.

Steph: They like to eat all fruit and veg but they can't eat tomatoes or potatoes.

Steph wants to share her knowledge of what rabbits can and can't eat and shows she knows what rabbits like to eat.

Tracy: Sit right back on your chair

Tracy is supervising the animal handling and tells Evan what he needs to do

Rob: Which was your favourite earlier on?

Evelyn: The lizard!

Rob: The lizard. What was your favourite earlier on?

Andrew: The snake

*Evelyn and Andrew remember their favourite animals from earlier in the day, they've made a lasting impact.*

Steph: 4 guinea pigs, 2 fish tanks, a bearded dragon and a cat.

*Steph is telling Rob about pets she has at home*

Paul: Do you know one thing, a long long long time ago we had a load of rabbits but they all died.

Paul is remembering pet rabbits he used to have that unfortunately died. He doesn't seem distressed about this but wants to share it with the group.

Lindsay: Well done Paul upset your sister

Lindsay is disappointed that Paul has brought up this information as it makes Steph upset.

Paul: Happy! [How does he make you feel?]

Paul doesn't seem to have negative feelings about his rabbits that have passed and instead feels happy to be interacting with our rabbit.

Rob: how does he feel?

Evan: Really soft (quietly). He's light

Evan is quiet and careful with his movements with the rabbit. He's speaking quietly as he doesn't want to frighten the rabbit and focuses on how the rabbit feels on his hands as well as on his lap.

Rob: did you see his little tongue flick out just then?

Zara: Yeah!

Zara is watching the rabbit carefully as she strokes him, carefully enough to see his tongue flick out.

Steph: Soft. Cuddly [How does he feel?]

Steph has overcome her initial upset at the reminder of her rabbits that have passed enough to hold ours, and is enjoying stroking Arthur and the cuddles.

Monty: Erm there's a centipede, a lizard and then a snake

Monty is sharing his prior knowledge of what animals are to come with the group.

Rob: So do you like him?

Steph: Yeah (quietly)

Steph has gone quiet and seems contemplative. She has calmed down and embraced the handling experience.

Andrew: It's yellow

Evelyn: Black?

Evelyn: like a dragon?

Rob: do his spikes feel spiky or soft?

Monty: Soft

The children from the previous session have remembered the information they learned earlier; they paid attention and are keen to share their knowledge; even Andrew who is usually very shy volunteers information.

Steph: They don't like mirrors!

Steph: They like raspberries

Steph is enjoying sharing her knowledge about bearded dragons, as she has a pet one at home. She likes telling Rob things he didn't know already.

Paul: Lizards like to watch telly!

Paul is also enjoying sharing knowledge about bearded dragons, as he has one at home.

[outside- data from mobile dictaphone]

Allegra: Please ask questions!

*Allegra wants to prove she was listening and tell me about what she learned in the animal session*

Allegra: Erm because the way it stuck its tongue out. Erm I couldn't.. I couldn't choose which I liked best, the rabbit, Arthur, or the snake.

*Allegra is unsure which was her favourite animal but instead picks two and explains that she couldn't decide between them; though says why she liked the snake.*

[How did it feel compared to a normal Sprout group?]

Allegra: Erm it felt different because.. erm. It feels like.. it feels like.. it feels different because it feels like there's like a travelling all over the place because the snake had been to a wedding and..

*Allegra loses her train of thought a little here but goes back to talking about the animals and why she enjoyed the session; interesting because there are so many distractions but she sticks with it and tries harder to articulate her thoughts.*

Nat: Yeah! Yeah it was a good little talk. I knew Evan would be fine but sometimes Allegra can be... focused on something or not interested

*Nat expresses her anxiety that Allegra would become distracted in the session but enjoyed the experience overall, and says the kids did too.*

Allegra: Well I have to admit that I don't know why the snake sticks its tongue out.

Like if you see somebody you use your eyes... like are my eyes darting about now?

So the nose is pretty much useless and they use their tongue to smell? So it's like the ability of the nose has been taken out and given to the tongue?

*Allegra is keen to find out more about the animals again and goes on to ask further questions to improve her understanding.*

Paul: I can stroke a bearded dragon at home because I have one!

Paul wants to remind Rob that he has a pet bearded dragon at home.

Steph: He wraps himself around you

Steph wants to share with Rob her experience of holding her own bearded dragon.

Evan: It's really long and spiky at the top!

Evan is focusing on what the bearded dragon looks and feels like. This is interesting as usually they choose one thing to focus their senses on.

Tracy: Stroke him down his back.

Tracy is supervising Evan handling the lizard and instructs him on how to do.

Tracy: Wow!

Tracy is impressed with the bearded dragon

Evan: (giggles) he's really tickly!

Evan is laughing at how the bearded dragon feels on his hands, concentrating on the touch sensation.

Paul: Lizards are always happy, except when somebody is being mean

Paul shows empathy here and understanding of how an individual's behaviour may impact on an animal and they may subsequently become unhappy.

Tracy: We're here to watch more animals, sit down

Tracy is concerned Evan is becoming restless and enforces the rules as well as explaining why.

Rob: Have you stroked a bearded dragon before?

Zara: No

Rob: How does it feel?

Zara: Quite rough! Warm! Soft!

This is a new experience for Zara and she seems pleasantly surprised, using the exclamatives to describe how she feels.

Monty: He feels nice

Monty is reassuring the other children that the lizard feels nice, based on his previous experience.

Steph: It feels like plastic! Can she walk up there? Whoa that feels weird

Steph is interested in learning more about the millipede, and describing how it feels- not unpleasant, but very different to what she has experienced before.

Rob: Would you like to have a stroke?

Andrew: No

Rob: You weren't too keen on this one before were you? What is it you don't like about her?

Andrew: The legs!

Rob: all those legs! Yeah they look a bit weird

Andrew: They look spiky

*This is quite a long conversation for Andrew to have, and he shares his concerns with Rob. He seems worried that the legs will feel sharp on his hands, but it's interesting that he has explained why he doesn't want to hold the millipede rather than just saying no.*

Lily: Evelyn's brave isn't she!

Lily is impressed that Evelyn is holding the millipede and says this loud enough for her to hear; she's praising her for engaging fully with the experience.



Rob: feels like a snail shell?

Paul: No like your nail

Rob mishears what Paul says but he is quick to correct him, showing confidence in his presence.

Evan: Erm I like little spiders! Because they're tickly sometimes!

Evan: She feels a bit greasy! oh no it tickles! It tickles!

Evan enjoys things that feel tickly on his hands; he describes the bearded dragon and millipede as tickly and says he likes spiders that tickle; interesting that he focuses on the sensation on his hands and how things feel as opposed to how they look

Tracy: Gentle, gentle, gentle

Tracy is supervising Evan and instructing him on how to handle the animals safely. She says this as she's concerned Evan might drop the millipede as it is tickling him.

Steve: Does it feel weird Zara?

Steve and Zara are bonding over the animal handling experience and sharing their thoughts about the animals with each other. He is keen for her to share what it's like.

Zara: Like a hairbrush! It tickles!

Zara remembers Rob's description from the introduction and uses it here to help describe to Steve what it feels like.

Monty: It does feel like the hair on my mums brush

Monty remember Rob's description too and wants to validate to Rob that it's true based on his comparative experience at home.

Lily: Confidence I think

Rob: Do you think it helps that you've seen it twice?

Monty: Yeah!

Rob: Yeah so the more times you see it the happier you feel?

Monty: Yeah

*Monty confirms here that multiple viewings have helped him to engage further with the animals, and Lily believes Monty's confidence is growing.*

Paul: Yes. My guinea pigs love vegetables as well.

Paul: (squeaks like a guinea pig)

Paul shares his knowledge here of his guinea pigs at home and has fun doing impressions of them for Rob.

Lindsay: You've got to be gentle

Paul: I know how to stroke a guinea pig!

Lindsay is trying to assist Paul with the handling of the guinea pig but he doesn't want her advice, and wants to prove that he can do it by himself.

Lindsay: Go on Steph

Steph has become a little upset again (about her rabbits) and Lindsay is gently encouraging her to engage with the animals.

Paul: Oh this is heavy! I can feel her skin- its warm

Paul is surprised at how heavy the guinea pig feels and how warm she is, I think it must have felt different to his guinea pigs at home because of his surprise.

Zara: We have got two guinea pigs at school. Toffee and Nutmeg.

Zara hasn't got pets of her own but has been thinking about where else she comes into contact with animals like Rob's, as some time has passed since Rob asked about pets at home. She shares this information with Rob to show she has previous experience and remembers their names.

Rob: Are rabbits your favourite?

Zara: My favourite thing that you can have as a pet

Rob: What's your favourite animal of all the animals?

Zara: Dogs!

*Zara loves animals and wants to share this with Rob. She remains cryptic by saying 'favourite pet' as she wants him to ask her what her favourite is overall. She is excited to tell him that dogs are her favourite.*

Evelyn: Yess

Zara: Snake!

Excited chatter. Evelyn is looking forward to seeing the snake again and Zara seems excited too- she says this with mixed excitement/nerves.

Paul: Snakes can kill you, you know! Yeah by slithering around your face!

Paul could be concerned that the snake could be harmful, but says this excitedly- he likes the element of danger.

Tracy: Like this Evan

Tracy is guiding Evan on how to handle the snake and showing him what to do

Andrew: It feels like slippy n stuff. [Have you stroked one before?] No. [Do you like stroking him?] Yeah! [Would you like to hold him as well?] Yeah!

*This is quite a long exchange for Andrew as he is normally so shy, but he is excited to be handling the snake and even brave enough to hold him- this is a big step for Andrew, especially as Rob is unfamiliar to him.*

Evelyn: (whispers) Yeah

Rob: yeah. DO you like him?

Evelyn: (whispers) yeah

Evelyn has gone the other way to her brother; normally quite confident, she's gone quiet and is in awe of the snake round her shoulders. She's talking softly so as not to alarm him.

Paul: Nice!

Paul likes the snake and is enjoying watching him go around everyone's shoulders.

Tracy: we've got to sit still

Tracy is concerned Evan is becoming restless and enforces the rules for animal handling.

Evan: He feels scaly!

Evan is concentrating on how the snake feels on his hands- the touch sensation.

Zara: he feels really soft and smooth

Zara seems pleasantly surprised at how the snake feels and doesn't appear anxious any more.

Monty: Second time!

Monty is excited to hold the snake for a second time and wants to tell everyone that it is his second go.

Ruby: Well done Monty!

Joanna: Yeah! Wow!

The staff and parents praise Monty for his positive interaction with the animals.

Monty: What does he do with his skin?

Monty is curious to learn more about the snake and asks Rob questions about him.

Monty: I hold all of them! I love.. I love the snake! It just feels... Have you done the snake?

Monty is still buzzing from his interaction with the snake. He is telling the group that

he loves it and seems keen to connect with the other kids over this shared experience by asking them if they did it too.

Evelyn: Yeah it did that when I was holding it!

Evelyn is still excited by her experience and wants to share this with the other kids, they connect over what the snake did when they held it.

Outside

J: [what did you want, was it a bearded dragon? (Nods)

J is essentially non-verbal but manages to communicate that he has previously wanted a bearded dragon. M is encouraging him to engage with the animals by drawing on this memory and J nods to confirm that it was correct. He watches the bearded dragon carefully as I identify the features.

M: If I touch it will you touch it?

J: No

M tries to encourage Jai to touch the millipede but it seems a step too far for him. He watched intently while I help it and identified the features.

M: Just touch it!

J: No!

M tries to push J to touch the millipede in the hope that he will relent but he refuses. He does watch with interest but isn't prepared to engage with touching.

## Appendix 7- Ethical Approval

SREP Approval - Google Chrome  
https://outlook.office.com/owa/projection.aspx

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**From:** Alison Holmes (SHUM)  
**Sent:** 02 October 2014 14:48  
**To:** 'Rosie Marrow'  
**Cc:** Kirsty Thomson  
**Subject:** SREP Approval

Hi Rosie

Dr Karen Ousey, Chair of SREP has reviewed your revisions and is satisfied that you have addressed the reviewers comments. Please note that you have put the start date of your research as 01/10/13 please review this as we presume you mean 2014.

You now have full SREP approval - we wish you every success in your project.

Best wishes,

Karen

Dr Karen Ousey

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