



“They’re everybody’s, you know. They’re a big part of our school.”

Exploring the Impact of the Presence of Animals on Children and Young People in Special Schools.

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Summary

Paper A provides a detailed literature review, the main focus of which explores the presence of animals in educational settings but also refers to animals in therapeutic and other environments. An in-depth account of the impact animals can have on Children and Young People (CYP) (particularly those with a range of learning difficulties and disabilities) with a focus on social, emotional and behavioural impacts is explored. It also provides information on the theoretical frameworks and the psychology underpinning the rationale behind the presence of animals in school settings. Paper A concludes with an outline of the current research including aims and the research question.

Paper B comprises the empirical study. The aim was to explore the views of school staff and parents/carers from two special schools in Wales in relation to the impact of the presence of animals on CYP in the schools. Questionnaires were used to explore the views of school staff and parents/carers and semi-structured interviews were used to further explore the views of school staff. Descriptive statistics, content analysis and reflexive Thematic Analysis (TA) were used to analyse the results. A detailed account of the results is provided and implications for future Educational Psychologist (EP) practice are discussed.

Paper C provides a critical appraisal of the researcher's experience of conducting this research. The review critically explores how the literature informed the current research, provides a clear overview of the research process and how it contributes to knowledge and learning. It also provides information relating to the limitations of the research. Reflecting on the findings, the researcher discusses the implications for future research.

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List of Abbreviations

Abbreviation	Description
AAA	Animal Assisted Activities
AAI	Animal Assisted Interventions
AAT	Animal Assisted Therapy
ABC	Antecedents, Behaviour, Consequence
ADHD	Attention Deficit Hyperactivity Disorder
ALN	Additional Learning Need/s
ASD	Autism Spectrum Disorder
BPS	British Psychological Society
CYP	Children and Young People / Child and Young Person
EP	Educational Psychologist
EPS	Educational Psychology Service
ERIC	Education Resources Information Centre
HAI	Human-Animal Interaction
HCPC	Health and Care Professionals Council
LA	Local Authority
PERMA	Positive emotions, Engagement, Relationships, Meaning and Accomplishment
SEN	Special Educational Needs
TA	Thematic Analysis
TEP	Trainee Educational Psychologist
TSST-C	Tier Social Stress Test for Children
UK	United Kingdom
USA	United States of America



Doctorate in Educational Psychology

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Paper A: Major Literature Review

Word Count: 10,646

1.0 Structure of Literature Review

1.1 Introduction

The literature review begins with a broad overview referring to Human Animal Interaction (HAI) along with relevant psychological theory. The review then follows a funnelling approach; beginning with an examination of the research regarding companion animals, followed by an exploration of how animals are used within different settings, including schools, and concludes with the literature that has examined the impact of animals upon Children and Young People (CYP) with Additional Learning Needs (ALN). Throughout the literature review, the research was critically examined, whilst continuously assessing the findings with regards to the impact on CYP.

1.2 Search Strategy

A systematic search was conducted to identify studies specifically relating to the topic. In order to conduct a systematic search, words and phrases relating to a topic are searched within key databases to reveal the depth and breadth of a topic (Green et al., 2006). This found that there were a small number of papers that directly related to the presence of animals in special schools. Due to the limited specific research available, a narrative literature review was conducted to help to address the gaps in literature. Although research regarding the presence of animals in schools has increased, the literature specifically incorporating animals into special schools and similar settings is sparse (Kaufmann, 2015). It was thought that a narrative literature review would give a broad overview of the research whilst not excluding any research that might be relevant relating to the topic of focus (Green et al., 2006). Complementary manual searches of references, from the research found, were conducted and a snowballing technique was used.

1.3 Description of Search Terms and Key Sources

In relation to animals in special schools specifically, literature was obtained from six online databases. These included APA PsycINFO, Scopus, Web of Science, Education Resources Information Centre (ERIC) and ASSIA. These databases were selected because of their focus on social sciences and education which helped to

ensure a good coverage of relevant literature. Please see Appendix A for a table of search terms and Appendix B for a flow diagram of the search process.

1.4 Inclusion and Exclusion Criteria

The researcher reviewed titles and abstracts, and articles were excluded if:

- They were not relevant to animals in school settings or classrooms
- They were not written or available in English
- The full text was unavailable

It is important to note that international research was included despite the current research being conducted in the United Kingdom (UK). This is because there is more published research relating to animals in schools in other countries (particularly in America and Australia) and excluding it would have reduced the ability to include some interesting findings and perspectives. Research from a range of years was included as it was considered it would be beneficial to see the development of the topic over time.

1.5 Terminology

The term special school refers to an educational setting that caters for CYP with ALN. ALN is defined as a learning disability or difficulty that requires Additional Learning Provision (ALP) within educational settings which is different from or additional to that provided for CYP of the same age (Welsh Government, 2018). Special Educational Needs (SEN) is defined as a learning disability or difficulty that requires special education provision (Welsh Government, 2004). The current research is taking place in Wales and, since the introduction of the ALN Code in 2021, as part of ALN reform in Wales, the term ALN has replaced SEN in current publications. It was decided that, because of this, in both Paper A and Paper B, the term ALN would be used rather than SEN. In relation to the ALN Act and Code in Wales, the terms child/ren are used for those ages 0-16 and the term young people is used for those ages 16-25. As this research spans both age brackets, the term CYP will be adopted.

2.0 The Psychology Underpinning Human-Animal Interaction

HAI provides evidence of positive psychological benefits. It postulates that humans view animals as a form of non-judgemental social interaction as well as a source of support (Kruger & Serpell, 2010). Robinson (1995) suggests the interaction and relationship with an animal can fulfil the human need of companionship.

Wilson (1993) proposes that humans need to develop an understanding of HAI as it develops our awareness of nature and the relationships with animals. Further, Amiot and Bastian (2015) suggest that if humans have good insight into animals as a species, then they are more likely to develop empathy for others.

Amiot and Bastian (2015) reviewed research that focused on the interaction between animals and humans and concluded that psychology is well positioned to contribute insight into HAI. They argue that this interaction needs to be studied in more depth, addressing what they believe is a gap within psychological knowledge.

Melson and Fine (2015) highlighted that research based on HAI has not been defined into one clear theory but that a number of theoretical frameworks can help to explain HAI. Although various psychology theories have been drawn upon, the most prevalent and relevant to the presence of animals in special schools has been outlined in the chapter below.

2.1 The Biophilia Hypothesis

The biophilia hypothesis refers to a human's innate desire to be close to, and feel a connection to, other living organisms (Kellert & Wilson, 1993; Wilson, 1984). The biophilia hypothesis is known to be difficult to prove but there have been attempts to understand why humans appear to have an innate need to connect with other living things (Frumpkin, 2008).

In an attempt to provide global evidence for the biophilia hypothesis, a study by Chang et al., (2020) looked at social media profiles across 185 countries and found that photos that included nature within them were related to activities of enjoyment such as travel and positive life events rather than everyday routines. The research suggests that humans have a desire to experience nature for relaxation and to distance

themselves from the stressors of day-to-day life (Chang et al., (2020). Their study postulates, however, that this varies across countries and depends on cultural factors.

Shepard (1993) indicates that living closely with nature and animals promotes positive mental health. If the natural environment is destroyed then, as it is a defining element of human evolution, the psychological wellbeing of humans will suffer as a result (Wilson, 1993). More recently, Heerwagen (2009) reported that the value of nature to wellbeing is instrumental across different cultures, settings and across the lifespan from early childhood to late adulthood. The biophilia hypothesis suggests that humans' relationships with animals are driven by a biological need. Interestingly, Kahn (1997) suggests that the need is greater for CYP as they have a tendency to be interested in animals.

Specifically in relation to CYP, a number of studies have evidenced the biophilia hypothesis demonstrating that CYP were more attentive towards animals than inanimate objects, behaved differently towards the animals than toys and talked and asked more questions about the animals than toys (LoBue et al., 2013). A study by Nielsen and Delude (1989) observed how CYP (between the ages of 2-6 years) responded to a variety of live animals in their nursery or school setting. As well as the live animals, there were also realistic stuffed toy animals present. The findings concluded that 80% of the young children did not even look at the toy animals and that the live animals proved powerful stimuli. Furthermore, Melson (2003) evidenced that animals are interesting to CYP and encourage their curiosity especially from a young age.

2.2 Attachment Theory

Attachment theory provides an explanation of how close relationships with others contribute to emotion regulation, positive mental health as well as providing a sense of security and safety (Bowlby, 1973). There is evidence that pets can act as attachment figures for their owners (Amiot and Bastian, 2015).

Historically, attachment theory has been used to describe parent-child relationships but Bowlby (1982, 1988) suggested that attachment theory can be applied to close

friendships and romantic relationships throughout the life span as long as they meet the four criteria: proximity maintenance (preferring to be near the attachment figure), safe haven (the attachment figure provides comfort and support), secure base (the attachment figure provides support for development) and separation distress (this is caused when the attachment figure is unavailable). Other research has indicated that therapists, groups and symbolic figures (e.g. God) can be considered as attachment figures (Granqvist et al., 2010; Mallinckrodt, et al., 1995).

Humans act as caregivers for pets, providing them with their basic needs of food, water and exercise but pets can also provide a relationship that meets the four criteria described above. Attachment theory provides a powerful explanation behind positive social and emotional effects that animals can have on humans (Beetz et al., 2012).

A study by Zilcha-Mano et al., (2012) found that pets provide a safe-haven and a secure base for humans, the same way another human would. Within the study by Zilcha-Mano et al., (2012), the participants were split into three groups; pet physical presence (the participants' pets were present) pet cognitive presence (although pets were not present, participants were asked to think about their pet) and no pet presence (pets were not present and participants were not asked to think about their pets). Within these three groups participants were asked to think about their goals for the future. The blood pressure of all participants was then taken while they completed a difficult word-based task that was designed to elicit frustration in participants. The study concluded that participants within the presence of a pet, physical and cognitive, listed more life goals and were more confident in achieving them in the future indicating that pets can provide a secure base for humans. Additionally, pet's presence (physically and cognitively) reduced the blood pressure of participants during the difficult task compared to those in the no pet presence group. This suggests that a pet's presence can provide a safe-haven for humans and provide support at times of stress. This study provides evidence that attachment theory can potentially be an appropriate framework to describe human-animal relations.

Similarly, and more recently, during the COVID-19 pandemic, the presence of a pet in the home has been determined as a protective factor against stress and isolation by providing an attachment figure (Johnson & Volsche, 2021; Ratschen et al., 2020). In

the study by Johnson and Volsche (2021), participants were asked, via a questionnaire, a range of Likert-Scale questions relating to the roles of companion animals in the family home as well as focusing on isolation, coping and wellbeing. A study by Ratschen et al., (2021) also gathered participants views on the role of companion animals during lockdown and isolation, as well as views regarding wellbeing, loneliness and mental health using Likert-Scale questions. Both studies concluded that the presence of a pet in the home provided family members with emotional support and alleviated feelings of social isolation during lockdown. Further, Ratschen et al., (2020) found that owning a pet was associated with improved mental wellbeing during lockdown.

Both Johnson and Volsche (2021) and Ratschen et al., (2021) point out limitations to their studies. Firstly, both cohorts of participants were mainly female which, Wilson (2003) explains is a limitation to HAI research in general. Secondly, in the study by Ratschen et al., (2020) the participants who did not own an animal made reference to the fact that they were hoping to in future which suggests that the population of the participants could have a bias to what Ratschen et al, (2020) describe as 'animal lovers'. Lastly, Johnson and Volsche (2021) reported sampling bias in relation to participants who included their animals as family members and those who were willing to give their time to completing a questionnaire whilst in a pandemic.

It is important to note that the researchers recognised that the observed effects could be due to the presence of the animals in the home, not just about the attachment bond itself (Zilcha-Mano et al., 2012). Thus, an interaction with a friendly animal who is not necessarily a pet could potentially have had the same impact. In a study by Demello (1999) however, results concluded that participants who had an animal (not their pet) present during a stressful task did not have any effect on stress levels suggesting that having an emotional attachment to an animal is also important (Zilcha-Mano et al., 2012).

The attachment theory helps to provide an explanation for the beneficial effect that animals, in particular pets, can have on people. Literature also suggests, however, that animals can have a positive impact on educational outcomes for CYP in school. Within these studies, CYP will not necessarily have an emotional attachment bond to

the animal, which suggests that the benefits referred to may be due to the presence of the animal itself and the support that the animal provides for CYP.

2.3 Social Support Theory

A number of definitions of social support have been provided by different researchers (Dolan & Brady, 2012). Definitions by Cobb (1976) and McNicholas and Collis (2006) refer to social support as a term used for positive interactions that can enhance an individual's self-esteem and mental wellbeing, as well as encouraging feelings of being cared for and loved. Social support acts as a protective factor against poor mental health and social isolation (McNicholas and Collis, 2006). More often, research refers to human-human social support but there is a small body of research that suggests animals can also provide such social support (Melson, 2003). McNicholas and Collis (2000) proposed that having a pet can act as a social catalyst as they may enhance interactions between people and therefore facilitate human-human social interaction. Pets can act as an 'ice breaker' for initiating conversations as they provide neutral conversation openings (McNicholas & Collis, 2000).

A study by Beetz et al., (2012) examined the effects of social support from a dog on CYP with insecure attachment combining elements of attachment theory and social support theory. The rationale behind their study referred to the significant number of CYP with an ALN with insecure-avoidant or disorganised attachment patterns. Insecure and disorganised attachment patterns are linked to the inability to use others as support for stress. Thus, those CYP with insecure or disorganised attachment have learned that social support as a coping strategy is not available when they are faced with a stressful situation. The aim of the study by Beetz et al., (2012) was to explore whether a dog would act as a better form of social support compared with a human during a stressful task for CYP with these attachment styles. To determine the attachment style of participants (aged between 7-11 years), they were screened to clearly identify those with insecure-avoidant or disorganised attachment. Participants were randomly assigned to one of three social support conditions; support by a real dog, a toy dog or a friendly female student and the Tier Social Stress Test for children (TSST-C) was administered. The TSST-C involves public speaking and mental arithmetic tasks performed in front of a panel which, in this case, were two unfamiliar

adults. CYP could also relax and interact with the social supporter for 30 minutes after the task. During the task and relaxation time after the task, saliva glands were collected to determine the psychophysiological reaction to the TSST-C. The reaction was determined by levels of cortisol (a stress hormone) which is present in saliva. Findings concluded that levels of cortisol dropped significantly faster in CYP when they were supported by a dog during the stressful task. Cortisol levels also dropped to lower levels when CYP were supported by a dog in comparison to when CYP were supported by a toy dog or a friendly female student. Beetz et al., (2012) explained that this could be due the release of the oxytocin hormone which inhibits the release of cortisol and therefore facilitates relaxation whilst mitigating stress responses. This study provides evidence that animals, in particular a dog, is an effective way to provide support for CYP with insecure attachment styles which Beetz et al., (2012) suggests may readily be transferrable to a proportion of CYP in special schools (Beetz et al., 2012). It should be noted, however, that the sample of participants involved in this study are all male and, therefore, cannot be generalised to female participants of the same age.

Alternatively, Kruger et al., (2004) argued that a companion animal itself is an inferior replacement for a human as a source of support. Kruger et al., (2004) does suggest, however, that animals can support and act as a catalyst for interactions with other humans which they believe is a more beneficial way of looking at it.

2.4 Positive Psychology

Positive psychology is an area of psychology that can contribute to our understanding of the human-animal interaction. Positive psychology refers to the positive emotions that enable an individual to flourish. Literature that refers to the HAI often mentions the positive emotion associated with being around an animal (Fine, 2010).

Seligman (2011) introduced a model which suggests that there are five elements of wellbeing; positive emotions, engagement, relationships, meaning and accomplishment (PERMA). Seligman (2011) proposes that, in order to achieve optimum wellbeing, a person must develop in all areas of the PERMA model.

As previously mentioned, HAI can enhance the wellbeing of people and some studies relating to HAI have linked wellbeing to the PERMA model. A study by Yerbury and Boyd (2019) looked at the impact of dolphin interaction on human wellbeing. Participants involved in the study had dolphin experience whether that was in the wild or in captivity. The results comprised five themes; connectedness, relationships and reciprocity; emotion and aliveness; meaning and making sense; accomplishment and intention and harmony and engagement. From the analysis of the results, Yerbury and Boyd (2019) noticed parallels between their results and the PERMA model which can help to explain the effects of dolphins on human wellbeing and could be a way of future research to explain the impact of HAI. This study demonstrates how the PERMA model can be extended and applied when looking at HAI and the wellbeing benefits.

Similarly, Yerbury and Lukey (2021) found that when people interact with animals, particularly when the animals are in their natural environment, mental health and wellbeing improves. The study by Yerbury and Lukey (2021) explored how participants described their wild animal encounters. Results concluded that feelings of love, belonging, fulfilment and positive emotions were gained for the participants which have similar links to the PERMA model. Participants particularly referred to the positive emotions they felt during their encounters which ranged from intense positive emotions to calmness and inner peace (Yerbury & Lukey, 2021).

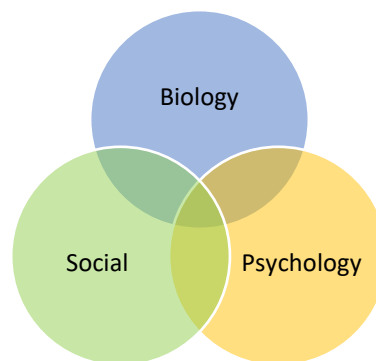
A theory of positive psychology that relates to HAI refers to the Broaden and Build Theory of Positive Emotions which describes the function of positive emotions (joy, interest, contentment and love) and how they can “broaden an individual’s momentary thought-action repertoire” (Frederickson & Cohn, 2008, p.1367). Experiencing positive emotions and broadening repertoires enable individuals to be curious, playful, creative and experimental which allow for opportunities to gain new skills and build on personal resources. For example, when CYP experience the positive emotion of joy this can encourage them to play which builds their social, physical and cognitive skills. From the perspective of this theory, the presence of an animal may elicit many positive emotions in humans, such as the four described by this theory, which may, in turn, encourage the development of positive mental health and wellbeing (Frederickson and Cohn, 2008).

2.5 The Biopsychosocial Model

The biopsychosocial model (Engel, 1981) examines the interactions between biology, psychology and social factors. Friedman and Gee (2017) have used this model to examine how each of these factors can influence health and wellbeing outcomes. The model can help explain the reasons behind some of the impacts of HAI from a biological perspective, a psychological perspective and a social perspective.

Figure 1

Visual representation of The Biopsychosocial Model (Engel, 1981)



In relation to biological factors, a number of papers reference the physiological benefits for people when in an animal's presence. Gee et al., (2015) reported on studies that propose the notion that an animal may buffer physiological responses to stress, including lower heart rates. For example, a study by Allen et al., (2002) found that people who owned pets had lower blood pressure and a lower heart rate than those who did not own pets. Additionally, pet owners are more likely to have lower levels of stress and less doctor and hospital visits (Headey et al, 2002).

Earlier research also supports the physiological benefits that an animal can have. In a study by Friedmann et al., (1983) findings concluded that CYP relaxing and reading in the presence of a dog reduced their blood pressure. Friedmann et al., (1983) speculated that the presence of the dog may have made the reading task less threatening which, therefore, resulted in a lower blood pressure compared with CYP reading without a dog being present. Similarly, Nagengast et al., (1997) examined the impact of the presence of a companion dog on CYP during medical examinations by a paediatric nurse. The medical examination included using a stethoscope and the assessment of reflexes, throat and abdomen using different equipment. Nagengast et

al., (1997) findings concluded that there were significant decreases in blood pressure and heart rate when CYP had a companion dog present compared to when there was no dog present. This indicates that the physiological arousal was moderated by the dog's presence, providing support for the study by Friedmann et al., (1983).

Research has also explored reciprocal soothing. Reciprocal soothing refers to the concept that the physical act of stroking an animal is calming for both animals and humans. A study by Odendaal and Meintjes (2003) found the level of oxytocin (a hormone often referred to as the 'happy hormone') doubled in people when stroking their pet dog. Additionally, the levels of cortisol reduced.

These findings propose that the presence of animals can reduce the biological responses that are associated with stress. Fine and Beck (2015) had a similar conclusion after reviewing biological research in HAI and found that those who spend time with pets have a more calm and relaxed physiological state.

Research often discusses the impact of HAI on psychological health and functioning (Gee et al., 2021). HAI has been linked to decreases in depression and anxiety. For example, a study found that owning a pet as an older adult may buffer the relationship between loneliness and depression; a pet may improve levels of loneliness which, exacerbate the feelings of depression, and therefore improve depressive feelings (Krause-Parello, 2012). Similarly, in relation to anxiety, Crossman et al., (2020) concluded that interaction with a dog appeared to boost positive emotions and reduce anxiety in CYP when undertaking a difficult task. Anxiety levels were assessed in relation to physiological arousal and reactions as well as a self-report anxiety inventory. Whilst these studies do refer to the psychological influences, biological and social influences are referred to interchangeably, further highlighting that these factors are interlinked. It should be acknowledged here that research relating HAI to lower levels of depression and anxiety is limited and findings are inconclusive (Gee et al., 2017). Whilst the impact of HAI on depression and anxiety is often reported as positive within research, it has not yet been concluded whether the benefits of HAI exceed common strategies to reduce anxiety and depression (Crossman et al., 2020).

From a social point of view, this model proposes that social influences such as culture, relationships and family dynamics can help to explain HAI (Gee et al., 2021). This part of the model also links back to the social support and attachment theories whereby connections have been made proposing that animals can act as sources of social support (Melson, 2003; Beetz et al., 2012) and a source of attachment (Zilcha-Mano et al., 2012; Johnson & Volsche, 2021; Ratschen et al., 2020).

A person's view of pets and animals can be influenced by their environment during childhood. For example, Kidd and Kidd (1990) suggested that attitudes towards animals develop in childhood and are acquired from parents, neighbours and peers. CYP who have pets have a good understanding of what it means to care for an animal (Kidd & Kidd, 1990). Wan et al., (2009) examined the difference between how dog owners in Hungary and dog owners in the United States of America (USA) care for their dogs. Findings stipulated two different ways; in the USA dog owners were more likely to keep their dog indoors at home and refer to them as pets compared to dog owners in Hungary where most dogs live outside the family home (Wan et al., 2009). The study found that dogs in Hungary were not always necessarily seen as a family member like they often were in the USA. Wan et al., (2009) highlighted that it is important that, whilst these results highlight some interesting findings based on the cultural implications of dog owners, the results must be taken with caution as there is not enough cross-cultural data to make inferences into robust conclusions. Additionally, in some cultures, animals are perceived as unclean and, therefore, creating a bond with an animal is deemed unimportant (Jalongo et al., 2004). These findings suggest that, depending on the parental attitudes towards animals, and the cultural environment, CYP will relate to animals in different ways and interest and interactions may be different.

This section has described some relevant psychological theories that underpin and support the understanding of HAI. The theories appear to provide evidence that the presence of animals can have positive impacts on humans across the age spectrum in relation to attachment, support, eliciting positive emotions, positively affecting wellbeing as well as helping to develop beneficial physiological symptoms.

The next section more specifically examines the presence of animals in different settings and, in particular, in school environments.

3.0 The Presence of Animals in Human Society

Evidence suggests that there appear to be benefits in having pets and engaging and interacting with wildlife, as previously mentioned. For example, wildlife documentaries appear to reach, and appeal to, a global audience helping to spread awareness in relation to the knowledge of the importance of animals in the natural world (Aitchison et al., 2021). Interaction with wildlife is a prominent part of the tourism trade which has often been driven and influenced by the media (Curtin, 2009). Additionally, activities involving animals such as bird-watching and whale-watching are sources of enjoyment for some (Curtin, 2009). Further, pet ownership is a well-accepted phenomenon in society and animals are an important part of owners' lives (Wells, 2009). Due to this recognised fondness of animals, there have been ways to include pets in the daily lives of humans such as pet-friendly workplaces (Foreman et al., 2017) and holiday accommodation (Wu et al., 2020).

For many years it has been recognised that animals can support CYP to learn about the world (Myers Jr & Saunders 2002). For example, having a pet in childhood can shape attitudes towards animals throughout life; exposure to affectionate relationships with animals and pets during childhood have been found to create a positive attitude towards animals later in life (Serpell, 1989; Paul, 2000; Serpell & Paul, 2002). A study by Serpell (1981) found that adults who developed relationships with animals in childhood perceived these relationships as having a lasting, positive impact on them. Further studies conclude that pet ownership decreases negative attitudes to non-pet animals (Bowd, 1984), increases feelings of empathy for animals used in fur and leather industries (Pagani et al, 2007) and elicits more interest in wildlife parks and television programmes (Kidd & Kidd, 1990).

Studies relating to CYP owning a pet, refer to providing them with social support. A study by Bryan (1985) concluded that CYP between the ages of 7-10 years were as likely to speak to their pets as with their siblings about sad, happy, angry and secret experiences. Similarly Covert et al., (1985) found that, during interviews with

participants aged between 10-14 years, 75% of them would turn to their pets when they were upset. Further, Melson and Schwarz (1994) reported that parents of 5-year-olds who turned to their pets for support rated their CYP as less anxious compared with those CYP who owned pets but did not turn to them for support.

Some studies evidence that the presence of animals in daily life can have positive impacts on humans. In some environments, animals are used in a more formal, therapeutic way to provide support for people or to enhance particular skills. Crossman (2017) identifies some of the settings where the presence of animals is used to support people, such as offices, prisons, schools and universities and therapeutic environments such as mental health facilities and hospitals. The following section will briefly focus on animals in therapeutic settings.

3.1 Animals in Therapeutic Settings

A therapeutic setting can be described as a physical, safe space that aims to encourage the healing process (Levinson, 1969). During the 1960s, Levinson (1969) began using his dog as part of his therapy sessions. Levinson (1969) found that the dog acted as a 'social lubricant' and introduced a more relaxed atmosphere in therapy sessions enabling more open self-disclosure. Levinson (1997) later found that it was easier to build a relationship with CYP with his dog present and noted the psychological benefits the dog provided. Due to this success, Levinson (1969) had his dog present for most of his therapy sessions. This led to Levinson writing articles on topics such as pet therapy and how animals can be seen as therapeutic aids. His articles, however, were reflective in nature and therefore did not have scientific evidence for his findings. Nonetheless, it is noted that much of Levinson's work is still referred to today which could be as a direct consequence of his work and reflections. Levinson (1969) is the founder of Animal-Assisted Therapy (AAT), which is used in different settings throughout the world. AAT is discussed further below.

More recently, Crossman (2017) reported that the presence of animals in therapeutic contexts can break the barriers of traditional medical treatments. The animals can reduce stigma as patients felt the animals are non-judgemental and accepting (Bardill & Hutchinson, 1997) and increase attendance (Schneider & Harley, 2006) whilst also

promoting rapport by portraying the therapist as less threatening and as less of an expert (Fine, 2014).

The therapeutic uses of animals are aligned with the social support theory. The examples above suggest animals can be used as support for people during stressful or emotional situations.

3.2 Animal-Assisted Therapy

Therapeutic and educational settings may choose to support CYP with animals in a structured way using a therapeutic approach like AAT. AAT can be defined as a positive interaction between a person and an animal within a therapeutic framework (Chandler, 2017). There are other terminologies for AAT such as Animal-Assisted Interventions (AAI) and Animal-Assisted Activities (AAA) but, for the purpose of this research, AAT will be the adopted terminology which will encompass AAI and AAA. The implementation of AAT can be different based on the school and the needs of CYP and given the broad scope of the definitions and terms it can be difficult to evaluate the effectiveness (Palley et al., 2010).

AAT involves a trained therapy animal and a therapy provider who guides the interactions between the person and animals with realistic intervention goals set (Friesen, 2010; Chandler, 2017). AAT can take place in a variety of settings such as hospitals, schools and mental health facilities and can involve a range of animals from dogs to llamas (Fedor, 2018). AAT stems from HAI as described earlier (Yap et al., 2017).

According to the Society for Companion Animal Studies (2013), there has been a steady increase of AAT in education over the past 20 years, particularly in the UK. It is important to note that AAT is not a new approach; dogs have been regarded as 'healers' (Fine & Beck, 2015) and have been utilised in roles such as social companions for centuries (Clutton-Brock, 1995). Kruger et al., (2004) described animals as "instruments of learning" (p.11). It is argued that animals used within AAT can promote positive cognitive and behavioural changes as well as supporting the development of skills such as nurture, social skills and responsibility. Supportively,

Stefanini et al, (2015) concluded that CYP receiving AAT were more likely to attend school.

3.2.1 Criticism of AAT

Friesen (2010) reported on concerns and criticisms of AAT, such as safety of CYP and animals, cleanliness and allergies being a general concern. According to Brodie et al., (2002) however, such concerns could be mitigated by choosing animals that do not shed hair, ensuring regular bathing of the animal, hand sanitisers for CYP and teachers as examples. Jalongo et al., (2004), while acknowledging that dog bites can be common, suggested helping CYP to understand empathy towards the dog and learning quiet and gentle interaction, as ways to prevent biting incidents. Informed consent from both the CYP and parents/carers for AAT is always necessary (Friesen, 2010). Information should be provided to the families indicating the type of interaction with the animal and how the interaction would be monitored. Good practice would be to invite the family to meet the animals involved in AAT, so an informed decision is made with regards to consent (Friesen, 2010).

Ensuring the animals' needs are met is another general concern identified by Friesen (2010) who considered appropriate monitoring of the animal's behaviour and ensuring water and safe housing/bedding is available would help to mitigate any issues. Friesen (2010) also reported on the involvement of other animals in AAT, such as horses and dolphins for example, which bring with them additional concerns such as costs, transporting CYP to sites which might be in rural locations and the ethical concerns around animals in captivity.

4.0 The Presence of Animals in Educational Settings

The presence of animals in educational settings is becoming more popular due to the increasingly reported evidence-based benefits animals have upon CYP (Leonard, 2017). This section will outline the different ways animals have been included in educational settings and the curriculum as well as the impacts on CYP. Educational settings refer to early years settings, mainstream primary and secondary schools, Pupil Referral Units (PRUs), Special Schools, Specialist Resource Bases (and variations of the term), further education settings and higher education settings. This

list is not exhaustive but typically in the literature, educational settings include those mentioned.

Through extensive research, Gee et al., (2017) found that animals may help to reduce levels of stress and anxiety through the activities in which the interaction with animals is embedded. Gee et al., (2017) argue that HAI can benefit both typically developing CYP as well as those with developmental difficulties.

The presence of animals in school is said to have a positive impact on CYP in terms of their motivation to learn (Fedor, 2018), attendance (Williams, 2017), self-efficacy, engagement (Gee et al., 2017), social skills (Kotrschal & Ortbauer, 2003), emotional regulation, behaviour (Fine, 2015) and psychological wellbeing (Rud & Beck, 2003). Additionally, Fedor (2018) points out that animals in school can strengthen feelings of connectedness which is a protective factor against risk taking behaviours. CYP who feel connected to others and have a sense of belonging in school are more likely to have positive mental health and wellbeing. Additionally, a sense of belonging in school is positively correlated with CYP's academic success (Fedor, 2017). Furthermore, Daly and Suggs (2010) reported that the presence of an animal in the classroom can support the development of CYP's empathy and compassion. Nicoll et al., (2008) provides support for this statement as they referred to animals in school playing a role in humane education designed to 'nurture respect, kindness, empathy and positive attitudes to people and other animals' (p.45). Firmin et al., (2016) states that empathy when interacting with others becomes less challenging for CYP once they have developed a connection with the animals and learn how to care for them.

4.1 Animals as Part of the Curriculum

Humane education is often described as aiming to foster positive attitudes towards animals, and more recently, its ethos has widened to include such values as compassion, integrity, honesty and empathy. Indeed, research has found that when CYP are taught kindness towards animals, they go on to show kindness towards people (Arbour et al., 2009).

Interestingly, laws have been brought into some American schools to ensure that they include humane education teaching programmes thus demonstrating their belief that such programmes promote empathy and morality in CYP (Thomas and Bierne, 2002).

Some research suggests that keeping a classroom pet is a way to foster humane education and, in particular, enhance the teaching and learning of science education which would be beneficial for CYP (Wagoner & Jensen, 2010). Classroom animals are said to nurture empathy towards others (Herbert and Lynch, 2017).

The potential to include humane education as part of the curriculum may be restricted due to individual teachers' values and perceptions of keeping an animal, as well as the ethical considerations that come with it (Herbert & Lynch, 2017). Herbert and Lynch (2017) refer to some of the ethical considerations as providing an additional level of responsibility for teachers which some participants in their study referred to as a "burden they would prefer to avoid" (p.120). Additionally, the need for sufficient space in the school classroom as well as financial costs would need to be considered. Rud and Beck (2003) explored reasons for and against the presence of animals in school and found concerns about insurance, housing the animals, and health and safety risks were common. Thomas and Beirne (2002), on the other hand, argue that excluding animals from humane teaching is detrimental to society as including animals actually promotes healthy character development.

On considering research around animals in the classroom, Daly and Suggs (2010) examined the topic from the viewpoint of the attitudes and experiences of teachers on the use of pets in classrooms. They specifically wanted to determine teachers' attitudes to pets in the classroom, how pets are used in classrooms and reasons why they are or are not present. Of the 75 participants, 14 (17.3%) reported keeping a pet(s) in their classroom while 61 (75.3%) kept none. 35 (47%), however, stated that they had pets visit their classrooms. Animals included fish, a frog, a guinea pig, a hedgehog, a hamster and rabbits. The findings by Daly and Suggs (2010) concluded that teachers believed that having pets in the classroom improved CYP's development in many ways, for example, socio-emotionally, academically, improved language development and encouraged creative writing. Teachers' general feedback included "...love to name the pets and write stories about them..."; "...student with behavioural

issues...stayed after school to help clean...'; "...a source of language development and increased ...social skills." Daly and Suggs (2010) further reported that some teacher participants confirmed that they taught a humane education programme using animals, either live animals or pictures, videos or visits to farms for example, within these programmes. Participants reported such impacts on CYP as teaching respect, compassion, care, improved vocabulary, connection. Daly and Suggs (2010) suggest that the teachers valued the presence of animals, whether living or in picture books. Daly and Suggs (2010) make further reference to studies that suggest discussing animals can have positive impacts on child development. Melson (2001), discusses that images, stories and ideas involving animals dominate, for example, dreams and interests in childhood. The number of positive results in the study, Daly and Suggs (2010) explain, might be due to the particular group of participants who volunteered for the study. An element of bias could be involved as participants may have only volunteered due to a desire to promote the use of animals in teaching.

4.2 The Impact of the Presence of Animals on CYP in Schools

This section aims to examine the impact of the presence of animals in school on CYP. The literature points to the main impacts as being social and emotional impacts and engagement and learning impacts that directly affect CYP in school in relation to animals. It must be noted that literature often refers to the presence of a dog in schools rather than other animals highlighting gaps in research.

4.2.1 Social and Emotional Impacts

From the literature, animals in schools appear to provide social and emotional support for CYP in schools. Melson (2003) suggested that animals can provide CYP with emotional support. It has been suggested that an animal can be a catalyst for social engagement and connectedness in large social settings such as schools and classrooms. Melson (2001) found that CYP interact with animals as a way of expressing themselves and such engagement can reduce anxiety. Further Friesen (2010), Anderson and Olson (2006) and Nimer and Lundahl (2007) noted that animals can have a positive influence on CYP's general wellbeing. Further, Friedmann and colleagues (Chapa et al., 2014; Engel, 1981; Friedmann et al, 2011) proposed views that animals can facilitate social and emotional development in relation to skill

development. They offer an explanation as to how animals can influence human response to stress and how animals can emphasise the interaction of biological, psychological and social domains which clearly link to the biopsychosocial model proposed by Engel (1969) referred to above.

Radcliffe (2015), a teacher, introduced guinea pigs into the classroom in an attempt to create a sense of belonging for the CYP and to develop positive relationships between them. Radcliffe (2015) noted that the guinea pigs provided opportunities for the CYP to care for another living being which in turn appeared to give the CYP a sense of accomplishment. The guinea pigs helped CYP who experienced difficulty attending school to improve their attendance as they felt a sense of responsibility to check on the guinea pigs. The presence of the guinea pigs supported CYP's emotional development by, for example, allowing them to have access to stroke a guinea pig if they felt upset which helped to calm and relax them (Radcliffe, 2015). A further example of positive emotional impact refers to the comfort and solace from the presence of the guinea pig to CYP who had experienced difficulties with friendships. According to Radcliffe (2015), in return for the love and care the CYP gave to the guinea pigs, the guinea pigs provided them with unconditional affection and attention that, for some CYP, others in their lives could not provide (Radcliffe, 2015).

Some research suggests that by interacting with dogs, CYP's social interaction with peers and adults is encouraged. Anderson and Olson (2006) found that unconditional support for CYP with severe emotional disorders could be provided by a dog. The study went on to note that the involvement of a dog provided lessons in respect, responsibility and empathy. Prothmann et al, (2006) reported that the dog's spontaneous enthusiasm for social interaction may stimulate a similar response in CYP.

Ascione (1992) undertook a study involving two cohorts of CYP. One cohort received teaching on animal-related lessons (e.g. story books) and the other cohort received lessons where animals were not mentioned. A follow up study was carried out a year later which indicated that the positive attitudes towards animals from the first cohort had translated into evidence of empathy towards humans (Ascione & Weber, 1996). These findings were supported by others, for example Hergovich et al, (2002) reported

an increase in animal-related empathy and social interaction and reduced aggressive and hyperactive behaviour related to the regular presence of a dog in a classroom.

Some of the most common presumptions about the impact on CYP of having animals in the classroom, is that CYP further develop feelings of compassion and empathy. Daly and Suggs (2010) found evidence for this. They reported an instance where a CYP used their pocket money to buy a Christmas tree for the pet lizard's cage and another where a CYP bought a sympathy card for the teacher when the hedgehog died. These examples show thoughtful, caring and kind behaviours. The question to follow this, as suggested by Daly and Suggs (2010) is whether animal-directed empathy translates to human-directed empathy. Some researchers have found evidence to corroborate this theory. As stated earlier, Ascione and Weber (1996) for example, found that attitudes towards humans improved following animal-based humane teaching. Similarly, Paul and Serpell (1993) found that people who kept pets as CYP went on to show greater concern toward other human beings later in life. Additionally, in Daly and Suggs' (2010) own research of the example of the CYP empathising with a lizard and buying a Christmas tree for his cage could be interpreted as the CYP feeling care for the lizard as they would a human. Daly and Morton (2006) found that relationships with animals seemed to increase empathetic attitudes in CYP. Similarly, Hergovich et al (2002) reported increases in empathy in CYP when dogs were introduced into the classroom. Empathy was assessed using a self-assessment form asking the CYP questions that refer to animals (e.g. do you believe animals can experience fear?). The self-assessment was compared with another class with no dog. Kotrschal and Ortbauer (2003) replicated the study a year later and similar results were reported. Interestingly, both studies also concluded that the social interaction between CYP was increased when a dog was present. The results from Hergovich et al (2002) and Kotrschal and Ortbauer (2003) must be taken with caution, however, as both studies occurred over a short period of time (three months) so it is not possible to make generalisations.

More recent research has identified robust psychological, emotional, social and physical benefits for CYP from interaction with animals in school (Odendaal, 2000), (Anderson & Olson, 2006), (Gee et al, 2007). A specific example is stated by Anderson and Olson (2006) where dogs have improved the emotional stability and

attitude towards school in CYP diagnosed with severe emotional disorders. Prothmann et al (2006), went on to describe raised alertness and increased openness in CYP whose therapy sessions involved dogs. Melson (2001) described another benefit as CYP being the nurturer in the relationship with the therapy dog.

4.2.2 Engagement and Learning Impacts

There is evidence to suggest that animals being present in school can positively impact the engagement and learning of CYP. Schuck and Fine (2017) found that classrooms that include interventions involving animals that target self-regulation elicited greater engagement and motivation in learning tasks. Reading to dogs is an intervention aiming to provide reading practice opportunities that feel less pressured than reading to an adult. Research into this intervention has been positively correlated with the engagement, motivation and self-efficacy of CYP and is popular in several countries (e.g. Australia, UK, Japan, US) (Gee et al., 2017).

The perceived non-judgemental nature of dogs could be seen as the main reasons that they are such a desirable intervention supplement (Friesen 2010). Gee et al, (2007); Prothmann et al (2006) cite the non-judgemental perception of dogs as support for their use in special needs classrooms. This perception, however, raises the question about whether CYP sometimes see teachers as being judgemental. As Friesen (2010) points out it is the teacher's recognised role to make judgements of how well CYP could perform a task and CYP will usually be expecting feedback even if it is generally positive and encouraging. Friesen (2010) points out that regardless of a teacher's best intention to be supportive and non-judgemental, this may not be helped due to the potential, hierarchical teacher-child relationship. CYP do not expect feedback from an animal on their ability and performance of a task so the interaction it is generally positive and fulfilling regardless.

A typical process for applying AAT as an intervention would be the special education teacher working with a CYP to understand the unique needs of that CYP and then deciding that AAT would be an appropriate intervention to help the CYP reach specific goals (Friesen, 2010). There are examples of where CYP are disinterested in achieving academic goals until the therapy dog joins the lessons. Widely reported

examples of this include where a CYP is reluctant to read but becomes inspired to read to a therapy dog (Freisen 2009a; Intermountain Therapy Animals 2008; Jango 2005).

Wohlfarth et al., (2013) argued that animals can increase intrinsic motivation whereby people engage in an activity for their own sake. The study by Wohlfarth et al., (2013) found that the presence of a dog during tasks in school appeared to make the tasks more pleasurable for CYP compared to those in the control group (no dog). CYP seemed to have increased motivation for completing the tasks and the dog acted like a catalyst. This research adds to the body of literature proposing that having an animal present in a school environment will increase motivation and task performance.

Findings by Gee et al., (2009) referred to the improvement of CYP's performance of motor tasks following a dog modelling the task first. This was compared to an adult modelling the motor tasks and it was concluded that performance improved more when following the dog. It is interesting to note, however, that when the same tasks were performed in conjunction/tandem rather than following modelling, CYP followed the instructions better with an adult or toy dog companion. Gee et al., (2009) suggested that this is understandable as it may be difficult to listen and copy when a real dog's behaviour can be unpredictable suggesting that for some CYP, AAT may not be the most appropriate intervention especially if they have concentration and attention difficulties.

In relation to the study by Radcliffe (2015) referred to above, the classroom guinea pigs provided CYP with unexpected learning opportunities. CYP referred to the guinea pigs as a 'study buddy' as they felt more able to complete learning tasks with a guinea pig nearby. It was noted that, in the classroom, there was a large proportion of CYP with poor reading skills, who were not motivated to read and had developed strategies to avoid practising their reading. In an attempt to re-engage these CYP, the teacher introduced the activity of reading to a guinea pig. It was reported that CYP's attitudes towards reading changed; they were more positive about reading, more willing to read and became significantly more interested in the books they selected to read to ensure that the guinea pig would like it (Radcliffe, 2015). Radcliffe (2015) highlighted that the animals appeared to provide a non-judgmental audience for the CYP when reading

one-on-one with them leading Radcliffe (2015) to report that CYP felt less pressure in those situations.

5.0 The Impact of the Presence of Animals on CYP with ALN

The following section specially refers to research relating to the impact of the presence of animals on CYP with ALN. As previously mentioned, literature explicitly referring to incorporating animals in special schools is limited. It was felt, therefore, that it was important to include research that refers to the impact animals have on CYP with ALN which can support the inclusion of animals in special schools.

Limond (1997) explored the impact of AAT on CYP with an ALN which was examined over a number of small-scale research projects. Limond (1997) found that the involvement of a live dog during activities in school was more successful in maintaining CYP's attention and focus than a toy dog - much like the research by LoBue et al., (2013) referred to in the introduction. The live dog also appeared to aid communication and CYP were more responsive. This research took place in the UK but was replicated in the Czech Republic which yielded similar results. Additionally, Limond (1997) explored the impact of the presence of a dog in the classroom during educational tasks of CYP with ALN. Findings concluded that during number and writing based tasks, the CYP were more likely to engage in work and cooperate with the tasks.

Animals can help and encourage communication in CYP with ALN who otherwise struggle with communication skills, suggesting the presence of animals in special schools and settings can be valuable and beneficial (Leonard, 2017). A study by Yap et al, (2017) reported findings that AAT helps the communication and social interaction of CYP with ALN. Similarly, Grandgeorge et al., (2012) advised that animals can often bridge the communication gap which was referred to as frequent with CYP with ALN.

A systematic review by Davis et al., (2015) identified 20 studies where AAT approaches and interventions were used with CYP between the ages of 3-16 with Autism Spectrum Disorder (ASD). Across the studies a range of animals were used within the interventions; dogs, horses, guinea pigs, llamas and rabbits. Of the 20

studies, Davis et al., (2015) reported that, overall, the interventions used had a positive effect on CYP, particularly on social skills, challenging behaviour and communication skills. Davis et al., (2015) pointed out that the interventions were often used alongside other therapies such as speech therapy and occupational therapy; consequently, it is difficult to attribute the positive results directly to the presence of animals alone.

A study by O’Haire et al., (2014), involved an eight-week AAT intervention programme for CYP with ASD. 64 CYP participated from 41 classrooms across 15 different schools. The animals used in the intervention were a pair of guinea pigs. As well as the guinea pigs living in the classrooms for the eight weeks, the CYP also had at least 40 minutes contact time a week which focused on animal care and animal interaction. Over half of the parents reported that there was an increased willingness from their CYP to attend school during the eight weeks. As previous research has found, the classroom can be a stressful environment for CYP with ASD and the presence of an animal in the classroom can create a happier and less threatening environment resulting in an increased motivation to attend (O’Haire et al., 2014). Moreover, over half of the teachers opted to keep the guinea pigs in the classroom following the intervention. Results concluded that following the intervention, parents and teachers noticed an increase in social approach behaviours and social skills and decreases in social withdrawal behaviours. This further supports the evidence that AAT and the presence of animals in the classroom has a positive impact on CYP with ALN (O’Haire et al., 2014).

A study by Boe (2008) examined of the effects of AAT on self-esteem and classroom behaviours of one pupil with an emotional/behavioural disorder who attended a special school provision. The research took place over a four-week period and, for an hour every day, the pupil was given specific tasks to complete with a dog. The tasks included walking, grooming and playing with the dog as well as learning basic training commands. Findings concluded that the self-esteem and attendance improved and impolite, off-task and noncompliant behaviours decreased for the pupil when AAT was included as part of the pupil’s daily programme (Boe, 2008). This appears to align with the suggestion that humane education could be incorporated into the curriculum for CYP but could particularly benefit those with ALN. However, it must be recognised that this study only examined the effects of one pupil and, therefore, the results cannot

be generalised to the entire special school provision that the research took place in. Nonetheless, the findings provide support for the use of animals for CYP with ALN and provide an insight into how and why AAT can perhaps be beneficial for CYP who struggle to manage their emotions.

Similarly, a study by Anderson and Olson (2006) explored how a dog's presence in an ALN classroom affected CYP's emotional stability and learning. CYP were observed in the classroom over an eight-week period, parents were interviewed and behavioural data, using the Antecedents, Behaviour, Consequence (ABC) analysis forms, was recorded when CYP were in emotionally dysregulated states. The presence of the dog in the classroom appeared to have positive emotional effects on all six CYP. Further, the dog appeared to enhance particular skills of the CYP such as respect, responsibility and empathy and also helped to promote positive attitudes to school.

A study by Kaufmann et al., (2015) explored how Green Chimneys, a special school, for CYP with a range of needs including ASD, Attention Deficit Hyperactivity Disorder (ADHD) and CYP who experienced difficulties with emotional regulation used AAT and HAI as part of their programme. The special school incorporates four animal-related teaching zones: the farm animal teaching barn, the horse barn, the wildlife centre and the shelter dog socialisation programme. Subjects are taught in these zones such as maths, science and reading, as the zones are said to increase CYP's motivation to learn compared with an ordinary classroom (Kaufmann et al., 2015). Interestingly, although all CYP are exposed to the areas during the school day, the school provides opportunities for CYP to volunteer to spend additional time with the animals and the majority of CYP regularly chose to. Kaufmann et al., (2015) refer to the attention, focus and concentration of CYP with animals. For CYP to be able to carry out tasks relating to the animals such as feeding them, they needed to listen to instruction first. The motivation of CYP to want to engage in the tasks increased, prompting them to focus. During some of the tasks, CYP needed to maintain concentration levels to ensure they were holding the animals in the correct way. The school reported that even CYP who were easily distracted had the ability to stay on task. The strategies and skills that CYP learned could then be applied to other academic learning in a classroom setting. Furthermore, Kaufmann et al., (2015) referred to the improvements in emotional regulation of CYP. The CYP were aware that if they displayed loud and impulsive

behaviour, they would not be allowed access to the animal areas. Therefore, CYP were shown to maintain control over their feelings and show understanding that the animals disliked loud noises. Kaufmann et al., (2015) suggested that incorporating animals into a learning environment, in particular for CYP with ALN, can enhance it in a number of ways. It provides a multi-sensory environment and can provide CYP with a variety of learning channels. The animals can help CYP express themselves and engage in learning at a pace suited to them. For example, if a lesson takes place in the chicken coop, CYP can decide whether they want to watch from outside the coop, go inside or actually touch an egg or chicken. Sessions involving an animal are strength-focused. Teachers can enhance the abilities of CYP rather than focusing on what they cannot do. It focuses on process learning (e.g. measuring feed, weighing food) and over time CYP can master these skills.

6.0 Summary

The literature review has highlighted that the presence of animals can have a range of impacts on CYP. The literature refers to these impacts across different settings, but the review focused particularly on educational settings. It is important to note that the cohort of participants involved in some of the studies mentioned may be animal owners or 'animal lovers' and therefore, there could be an element of bias in relation to the cohort of participants. It may also be difficult to attribute positive impacts directly to the animals as there may be other influencing factors involved.

The literature identified that animals are generally beneficial to CYP. For example, positive impacts were referred to in relation to CYP's engagement and learning (Schuck & Fine, 2017), social and emotional development (Radcliffe, 2015) as well as supporting CYP with ALN (Leonard, 2017). These impacts are supported by key psychological theories that underpin HAI such as the biophilia hypothesis, attachment theory, social support theory, positive psychology (PERMA model) and the biopsychosocial model.

Herbert and Lynch (2017) emphasise that much of the literature regarding HAI and the presence of animals in educational settings does not draw upon the potential

drawbacks and ethical considerations. Whilst this literature review did indeed reveal more beneficial impacts, there were some issues identified that schools would need to consider before including animals in the teaching environment. These included the cost and responsibility of keeping an animal (Friesen, 2010) and health and safety issues (Rud & Beck, 2003). Reference to these concerns, however, was limited. Herbert and Lynch (2017) further reported that the perceptions of the value of animals in educational settings vary; some schools are unaware of the researched benefits on CYP so animals are not considered a valuable addition which subsequently may make the staff less inclined to have them in school. It is, therefore, important that EPs and other educational professionals have an understanding of the impact of animals in educational settings, which will be further aided by increased research.

Additionally, literature highlighted that dogs appear to be the most commonly researched animal in educational settings and reference to the impact of other animals is insufficient. Research relating specifically to special schools is also limited. Formal therapeutic programmes of AAT were referenced more commonly than the less formal presence of animals in classrooms. Daly and Suggs (2010) state that even though there are reported benefits of the presence of animals in classrooms, there is still only a minority of classrooms with them. Daly and Suggs (2010) proclaim that given the evidence to date, it is in society's best interest to explore the presence of animals in classrooms and incorporating their use into more formal curricula.

The current study aims to explore the gaps in research and explores the impact of the presence of animals on CYP in special schools.

7.0 Implications for Educational Psychologists

Ensuring that the needs of CYP with ALN are met and supported within educational settings remains an essential role of an Educational Psychologist (EP) (Welsh Government, 2021). EPs' unique position enables them to draw on psychological knowledge and theories underpinning HAI. Further, EPs have access to current, relevant research and have a sound understanding of child development. EPs receive robust training and are required to have a detailed understanding of child development

and individual differences and the application of psychology to these. The role of the EP involves sharing their knowledge in relation to these and how individual differences may influence what a suitable or appropriate intervention for CYP with ALN would be. The Health and Care Professionals Council (HCPC) Standards of Proficiency (2015) state that EPs can support schools regarding decision-making as well as to identify and evaluate interventions that may be suitable for the needs of CYP. EPs have a role to facilitate and guide evidence-based interventions such as AAT.

There may be a role for EPs to undertake research in relation to animals and educational settings to address some of the gaps highlighted in the summary. For example, ethical considerations in relation to animals in schools. In addition, EPs could explore reported impacts in more detail such as engagement in the classroom when an animal is present.

As the presence of animals within educational settings is increasing in the UK it is important that EPs are informed on this expanding area of research, so that they are able to best support schools that have animals or that are considering getting them (Leonard, 2017). Families and schools may be aware of the reported benefits animals can have on CYP necessitating that EPs have adequate knowledge and understanding of the psychology around this topic to be able to discuss the psychological impact animals can have in educational settings (Leonard, 2017). Further, more recently, psychologists are being asked to certify and to give their professional view regarding the need for CYP to have animals present in educational settings (Younggren et al., 2016) and EPs are being utilised to help implement AAT within schools (Davison, 2015). EPs therefore will not only need to have a robust understanding of the beneficial impact animals have on CYP in school but also knowledge of the considerations such as health and safety aspects too. As Friesen (2010) highlighted above, the processes that are involved in having an animal in school and the aspects around consent for AAT programmes are essential knowledge for EPs.

8.0 Research Question

The literature review guided the formation of the research question below:

Figure 2

Research Question

What are the perceptions of school staff and parents/carers on the impact of animals on CYP in two special schools?

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Doctorate in Educational Psychology

“They’re everybody’s, you know. They’re a big part of our school.”

Exploring the Impact of the Presence of Animals on Children and Young People in Special Schools.

Paper B: Major Empirical Study

Word Count: 8,879

1.0 Abstract

Aim: The current study aims to explore the impact of the presence of animals on Children and Young People (CYP) in two special schools in Wales. Existing literature references a number of studies that have found that animals in school and classroom settings can positively impact CYP with Additional Learning Needs (ALN). Research highlights, however, that there are gaps in exploring the presence of animals in special school settings.

Design: A mixed methods design was used which combined both quantitative and qualitative data.

Methodology: Questionnaires and semi-structured interviews were used to explore the perceptions of parents/carers and staff across two schools. Data was analysed using descriptive statistics, content analysis and reflexive Thematic Analysis (TA).

Findings: Findings illustrate similar categories and themes across the data set which include educational impact, emotional impact, the development of qualities and values as well as elements schools should consider.

Conclusion: The study concluded that the presence of animals in both schools appeared to positively impact the CYP in relation to their education and social and emotional skills. It also highlighted that there are a number of challenges that schools may need consider including the responsibility of staff to care for the animals, the cost and health and safety concerns.

2.0 Introduction

Within existing literature, it appears that CYP benefit from the presence of animals in their lives and, in particular, in educational settings. Studies refer to the positive impact the presence of animals in school is said to have on CYP in terms of their motivation to learn (Fedor, 2018), attendance (Williams, 2017), engagement (Gee et al., 2017), emotional regulation, (Fine, 2015), wellbeing (Rud & Beck, 2003), empathy for others (Firmin et al., 2016) and social skills (Kotrschal & Ortbauer, 2003).

In relation to CYP who are identified as having ALN, the presence of animals in schools, including Animal-Assisted Therapy (AAT), can have a significant and positive impact. Yap (2017) reports that contact with animals particularly helps CYP with developmental disabilities, physical disabilities and social and communication difficulties. Indeed, CYP who develop trusting relationships with animals are more likely to confide and communicate with the animal which can, in turn, increase human-human communication (Bryan, 1985; Covert et al., 1985; Melson and Schwarz, 1994; Kurdek, 2008; Parish-Plass, 2008). Additionally, O'Haire et al., (2014) suggest that an animal present in the classroom setting can significantly improve the social functioning of CYP with Autism Spectrum Disorder (ASD). Further, Friesen (2010) reported that, whilst a dog in the classroom can encourage social interaction, it can also encourage social risk taking for those CYP who otherwise have difficulties or a reluctance to engage socially. Evidence from Kaufmann et al., (2015) concluded that animals had positive impacts on the CYP relating to attention, focus and motivation as well as their emotional regulation. Kaufmann et al., (2015) further provided evidence outlining the benefits of having animals part of a special school.

Many psychological theories appear to underpin these findings. The Biophilia Hypothesis refers to the desire for humans to be close to nature which includes the natural landscape, plants and animals. Studies by Chang et. al., (2020) and Kaplan and Kaplan (1989) provided support for this hypothesis as their findings correlated with the participants in their studies who had a tendency to prefer natural environments especially during stressful times.

Authors have concluded that the Attachment Theory (Bowlby, 1973) could be expanded to evidence that animals can act as attachment figures for humans providing them with a form of social and emotional support (Beetz et al., 2012) and a safe-haven and secure base (Zilcha-Mano et al., 2012). More recent evidence is provided through research in the COVID-19 pandemic where the presence of a pet has been described as protective factor against stress and isolation (Johnson & Volsche, 2021; Ratschen et al., 2020).

The Social Support Theory outlines that support from others acts as a protective factor against poor mental health and social isolation. Melson (2003) suggested that animals, as well as humans, can provide social support. A study by Beetz et al., (2012) examined the effects of social support from a dog on CYP with insecure attachment. Findings confirmed that children were less anxious during a stressful task when they received the support from the dog.

Reference to positive psychology was also made which helps to explain the positive emotions associated with being around an animal (Fine, 2015). Some studies relating to Human-Animal Interaction (HAI) have linked findings to the PERMA (positive emotions, engagement, relationships, meaning and accomplishment) model, a positive psychology model introduced by Seligman (2011). For example, Yerbury and Boyd (2019) explored the impact of human interaction with dolphins and themes that emerged were connectedness, relationships and reciprocity; emotion and aliveness; meaning and making sense; accomplishment and intention and harmony and engagement.

The Biopsychosocial Model (Engel, 1981) helps explain the reasons behind some of the impacts that animals can have on CYP from a biological perspective, a psychological perspective and a social perspective. From a biological perspective studies propose the notion that an animal may buffer physiological responses to stress, including reduced heart rates (Gee et al., 2015) and lower blood pressure (Allen et al., 2002). From a psychological perspective HAI has been linked to decreases in depression and anxiety (Krause-Parello, 2012; Crossman et al., 2020). From a social point of view the model proposes that culture, relationships with others and family dynamics can help to explain HAI (Gee et al., 2021).

2.1 Rationale for Current Research

Following the literature review, it was concluded that more insight, knowledge and theory was needed for professionals who work with CYP regarding animals in special schools. It was clear from the literature examined, that much of the research was from outside of the United Kingdom (UK), was based on dogs rather than a wider range of animals and focused largely on positive impacts. Additionally, the research appeared to lack evidence regarding the impact of the presence of animals on CYP in special schools specifically. It is hoped that this research addresses a number of these factors and, therefore, set out to explore the impact, positive or otherwise, of the presence of any animals in special schools. The research is based within two special schools in Wales.

The views of school staff and parents/carers were explored. It was initially intended that the views of CYP could also be explored but this was not possible due to COVID-19. The challenges related to this are further outlined during this paper. The perceptions of parents/carers were particularly important as it was hoped that their feedback would include some insight and representation of CYP's views.

It is hoped that the results from this research will help to inform the work of EPs; the results may help to build upon evidence that supports the impact animals have on CYP ensuring EPs can give informed advice and aid the families they work with to make educated decisions regarding the support for their CYP.

2.2 Research Question

Based on the gaps in the literature it was considered important to further explore the presence of animals in special schools inside the UK, with the aim of addressing the following research question:

Figure 3

Research Question

What are the perceptions of school staff and parents/carers on the impact of animals on CYP in two special schools?

3.0 Methodology

3.1 Ontology and Epistemology

This research lies within a critical realist theoretical perspective. A critical realist approach assumes an ultimate reality exists, but this is shaped by subjective, socially constructed knowledge (Braun & Clarke, 2013). Critical realism uses components from both positivist and constructionist paradigms which provides a comprehensive explanation of ontology and epistemology (Fletcher, 2017). An important element of critical realism is that the nature of reality (ontology) is not reducible to the knowledge of reality (epistemology) as human knowledge only captures a small part of a vaster reality (Fletcher, 2017). In relation to the current research, the participants involved have their own reality which related to their own perspectives and experiences.

3.2 Research Design

Initially the current research was planned as a case study design. The challenges of the COVID-19 pandemic limited the amount of in-depth data that could be gathered and therefore, a case study was not possible. A mixed methods approach was deemed more appropriate.

Grounded within a critical realist approach, a mixed methods approach was used to gather quantitative and qualitative data. McEvoy and Richards (2006) suggest that a critical realist position is compatible with mixed method approaches. Research that involves mixed methods approaches can be defined as research that “integrates the findings, and draws inferences using both quantitative and qualitative approaches” (Tashakkori & Creswell, 2007, p.4). Additionally, mixed methods can offer a balanced perspective of findings (McEvoy & Richards, 2006) and, although can be time consuming, they can provide a rich and broad understanding of phenomenon (McCrudden et al, 2019). Mixed methods ensure the triangulation of data can occur which captures multiple voices of participants in relation to a topic (Braun & Clarke, 2013). A critical realist position is compatible with methodological triangulation (McEvoy and Richards, 2006).

Contextual information was gathered in the form of observations at the schools. Although this information was not analysed, it helped to build a picture and understanding of the schools involved in the research. Questionnaires were used to gather the views of school staff and parents/carers which comprised part one of the research. Semi-structured interviews gathered the views of school staff which made up part two.

3.3 Special School Recruitment

In order to answer the research question, special schools in Wales were recruited. To recruit the special schools for this research, an email was sent to all special schools in Wales (Appendix C) outlining the research. The email included information about the research and invited the recipients to express an interest in participating. The inclusion criteria for the research was that the schools had a wide range of animals and CYP had regular contact with the animals. Five special schools expressed an interest but only two schools (that will be referred to as School A and School B) were selected based on the closest link to the criteria. Of the three other schools that expressed an interest, two schools did not have animals and one school had only one animal. The views of staff and parents/carers from those three schools, therefore, may not have been generalisable to the topic of this research.

School A is a special school in Wales. It is a school for CYP ages 11-19 (approximately 118 pupils) with complex learning difficulties which include ASD, moderate to severe difficulties, physical difficulties and behaviour, emotional and social difficulties. There are approximately 40 members of staff.

School B is a special school on the outskirts of a city in Wales. This school caters for approximately 320 CYP with similar needs to those from school A but it is for CYP from ages 3-19. There are approximately 170 members of staff.

3.4 Data Collection Methods

3.4.1 Contextual Information

Two observations took place at school A and one at school B. Parental Information sheets were sent to the schools to forward to parents/carers of those CYP who were

likely to be present during the observations (Appendix D). The number of observations undertaken was less than expected due to the ongoing COVID-19 pandemic and associated restrictions on visitors to special schools.

The two observations in school A (each an hour long) were during an animal care session for CYP between the ages of 14-16. The observation at school B was during an animal care session involving CYP between 14-19 years old.

It is important to note that the researcher observed a snapshot of the CYP and animals in their school settings so observations could not be taken as truth and should be considered as a contextual element to the overall research findings.

Notes were made during the observations relating to the three points below and no identifiable information relating specifically to the CYP and anyone present during the observation was recorded.

The following was observed:

- How school staff utilise animals within the school environment with CYP
- In what capacity the animals were utilised with CYP (e.g. a therapeutic intervention or as part of a curriculum subject such as an animal care session)
- The perceived responses and reactions from CYP during their time with the animals

3.4.2 Part One: Questionnaires

Bespoke online questionnaires were designed using the Qualtrics Software; one for school staff (Appendix E) and for one parents/carers (Appendix F). Questions were designed to gather the perceptions of school staff and parents/carers regarding the impact of animals on CYP within the schools. Questionnaires offer a high level of anonymity meaning the response rate is usually high (Braun & Clarke, 2013). The questions were based on some of the key literature as well as some contextual information gathered from the schools.

3.4.3 Part Two: Semi-structured interviews

The semi-structured interview questions were designed to gather information from members of staff at the schools regarding their perceptions of the impact of the animals within education. The questions were based on some of the key themes/areas of interest that arose from the questionnaires. Please see Appendix G for the interview schedule.

Although interview questions were set, there was scope for participants to talk about other relevant issues. Semi-structured interviews encourage participants to provide detailed and in-depth responses as open-ended questions are preferred (Braun & Clarke, 2013).

The interviews took place virtually on Microsoft Teams and were audio recorded. Braun and Clarke (2013) state that online interviews are a viable alternative as it can make the recording and transcribing elements of interviews easier.

3.5 Participant Information

3.5.1 Part One: Questionnaires

The participants in part one comprised an opportunity sample obtained from the two special schools recruited for this research. Participants were school staff and parents/carers. Both groups of participants were provided with an information sheet (Appendix H), asked to provide their consent (Appendix I) and were provided with a debrief form after completing the questionnaire (Appendix J). A gatekeeper letter, including the links to the questionnaires, was sent to the Head Teachers of the schools (Appendix K). The school disseminated the link of each questionnaire in the way they deemed most appropriate to the participants (e.g. a secure link from the school website).

School staff and parents/carers from the selected special schools were asked to complete the questionnaire. The questionnaire was open to all staff, regardless of role and all parents/carers. Gender and age were not stipulated.

Staff participants were allocated a code (SQ) followed by a number (1-31). Parent/carer participants were allocated a code (PQ) followed by a number (1-42). These participants will be referred to by the codes throughout the results.

3.5.2 Part Two: Semi-structured Interviews

For part two of the research, participants were recruited through the questionnaire; school staff were asked via the questionnaire if they wished to take part in an interview. If they selected yes, they were taken to an information sheet (Appendix L), a consent form (Appendix M) and asked to provide their email address to be contacted by the researcher. Following this, participants were provided with a debrief form (Appendix N).

Three members of staff were recruited for interview (one from school A and two from school B). Table 1 displays the interview participants' code and their roles in the schools at the time of the interviews.

Table 1

Participants' Roles (Semi-Structured Interview)

Interview Participant Code	Current Role
SI1	Headteacher of a primary school / secondment position at school B
SI2	Teacher/Lead of animal care at school B
SI3	Higher Level Teaching Assistant/Lead of animal care at school A

3.6 Inclusion and Exclusion Criteria for Part One and Part Two

Table 2

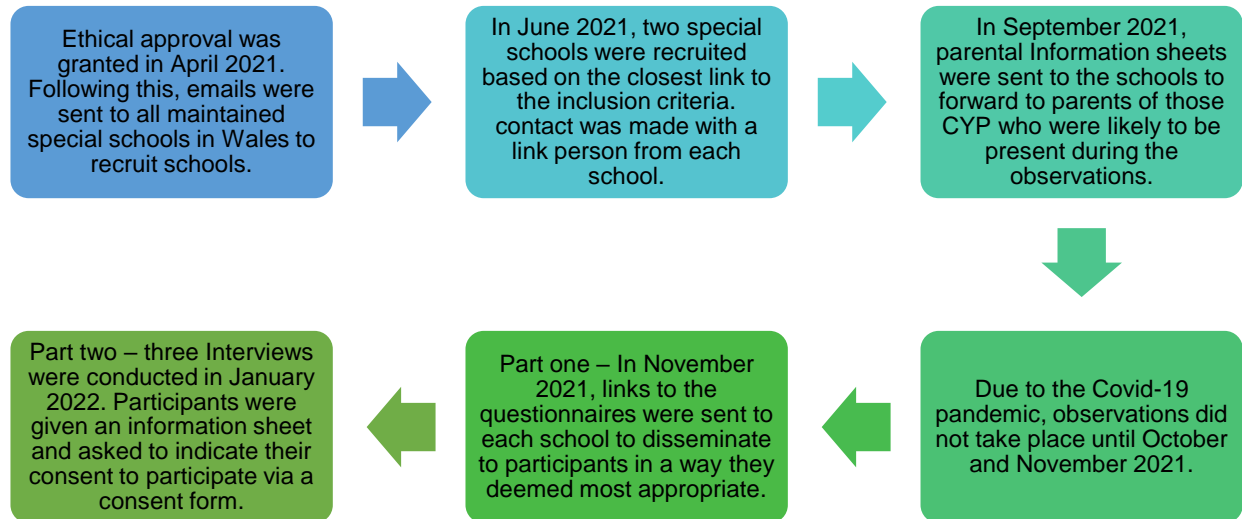
Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
The schools recruited for the study are Special schools.	The school is a mainstream primary or secondary.
School staff are from one of the two recruited special schools	School staff are not from one of the two special schools.
Parents/carers have a child within one of the two recruited special schools.	Parents/carers do not have children who attend either special school.

3.7 Procedure

Figure 4

Procedure Process



3.8 Pilot Interview

The first interview that took place acted as pilot interview. The participant was asked to remark on their experience of the interview process to which adjustments could be made accordingly. The participant remarked on the positive experience of sharing their thoughts and views and did not provide any points of improvement.

3.9 Data Analysis

3.9.1 Part One: Questionnaires

The quantitative data gathered from the questionnaires was analysed and reported using descriptive statistics. The qualitative data gathered from the questionnaire in part two was analysed using qualitative content analysis.

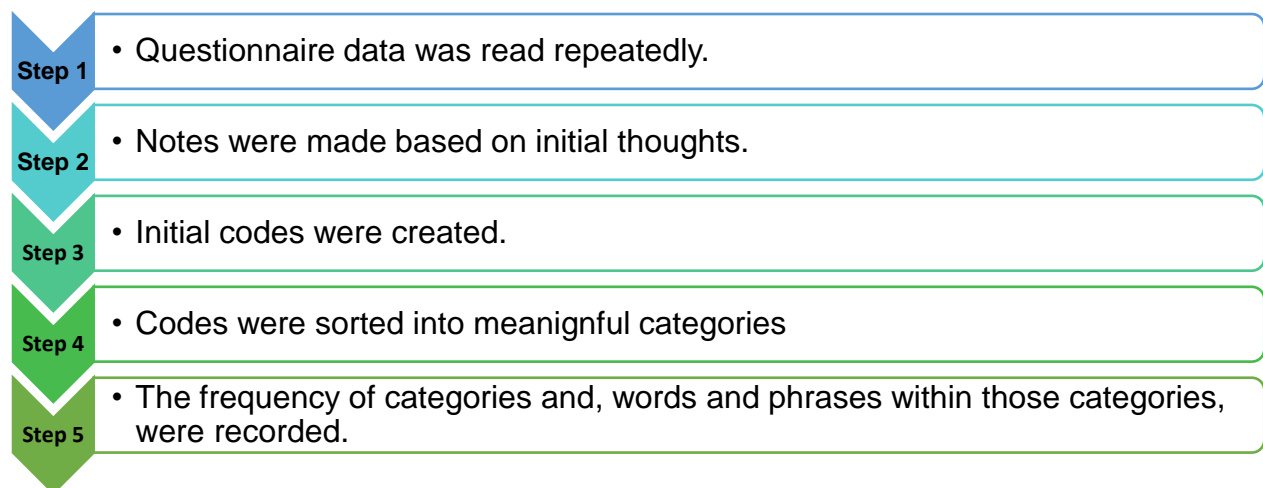
Content analysis became a popular form of data analysis in social sciences in the twentieth century (Robson, 2002). It has most commonly been used to analyse the contents of newspaper articles, textbooks and other publications but the approach can be readily adapted to analyse qualitative data from questionnaires (Robson, 2002).

Qualitative content analysis is generally used when research literature on a phenomenon is limited (Hsieh & Shannon, 2005). This research adopts the conventional approach to content analysis, which involves inductive category development, as it allows for direct information from participants meaning that preconceived categories were avoided (Mayring, 2000). Qualitative content analysis is a mixed methods approach as it assigns categories to text but also analyses the frequencies of categories (Mayring, 2014).

The steps were followed based on those outlined by Mayring (2014) and Hsieh and Shannon (2005):

Figure 5

Content Analysis Process



The qualitative questionnaire data was read through repeatedly to ensure familiarisation with the data. Initial notes and codes were made in relation to the responses (see Appendix O for an example of this). The codes were sorted and formed into meaningful categories that aligned with the research question in relation to the impact of animals on CYP in special schools and the frequency of the categories were recorded.

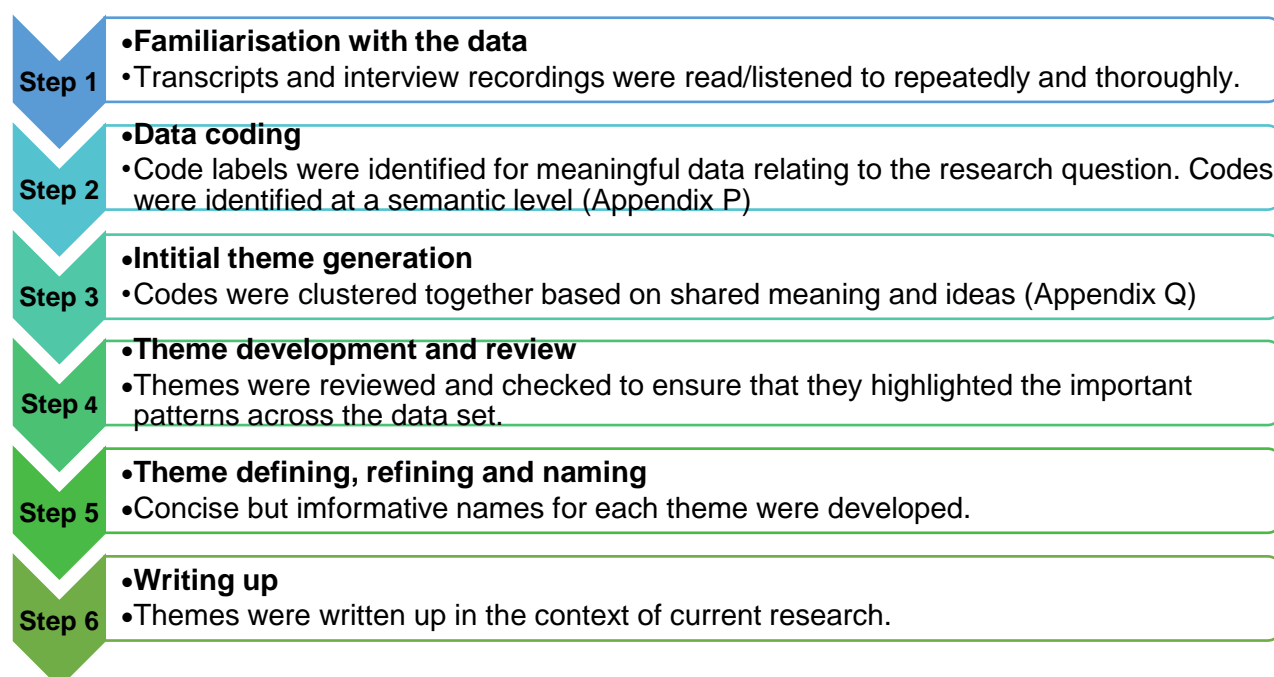
3.9.2 Part Two: Semi-structured Interviews

TA is a method used to identify themes and patterns within a data set (Braun & Clarke, 2013). Braun and Clarke added the term 'reflexive' to TA in 2019 as they felt the term recognised the role of a researcher as "subjective, situated, aware and questioning" (Braun & Clarke, 2021, p.5). TA is widely used and is a flexible research tool which provides a rich and detailed account of complex data (Braun & Clarke, 2013).

Themes were identified at a semantic level, whereby the researcher analysed the surface meaning of the data and did not look beyond anything the participants had said at this stage. The six steps of reflexive TA as outlined by Braun and Clarke (2013,2021) are:

Figure 6

Six Step Process of TA



Most recent guidance from Braun and Clarke (2022) outlines that, whilst there is no right answer as to how many themes, it is difficult to justify more than six themes for an 8000-word report. Braun and Clarke (2022) recommend a maximum of three levels to a theme; overarching themes (umbrella term that includes a number of themes), a theme (captures a single concept) and a subtheme (sits under a theme and focuses on one aspect of that theme). It is advised, however, that overarching themes and

subthemes are used sparingly in reflexive TA as it is important to report the complexity and richness of the data and that layers of a theme do not always make for a better analysis of data (Braun & Clarke, 2022).

3.10 Transcription

The interview recordings were transcribed within two weeks of the interviews taking place. This was to ensure that, if participants had wanted to withdraw from the research, they had adequate time to do so (as outlined in the information sheet). Participants names were replaced with codes and personal names and locations were left out of the transcription to maintain anonymity.

The researcher selected an orthographic style of transcription which focuses on transcribing words (Braun & Clarke, 2013). This style of transcription was favoured over other styles that include paralinguistic features because the research focused on what the participants said rather than how they said it (Braun & Clarke, 2012). The transcription notation system for orthographic transcription was followed as outlined by Braun and Clarke (2013). This system ensured all interviews were transcribed consistently. Once the interviews were transcribed, the recordings were deleted. A copy of sample interview transcripts for all three participants can be found in Appendix R.

3.11 Ethical Considerations

This research was approved by Cardiff University School of Psychology Ethics Committee in April 2021. Additionally, the research was undertaken in accordance with the British Psychological Society Code of Ethics and Conduct (British Psychological Society [BPS], 2017) and the Health and Care Professionals Council Standards of Conduct, Performance and Ethics (Health and Care Professionals Council [HCPC], 2016).

Participants were provided with information to ensure they were fully informed of the research and were aware of their right as a participant. Due to the Covid-19 situation the interviews were conducted online and, therefore, particular effort was made to

ensure participants wellbeing throughout. Key ethical considerations and how they were addressed is outlined in Appendix S.

3.12 Validity and Trustworthiness of Data

3.12.1 Part One: Questionnaires

The questionnaire questions were informed by the current literature, contextual information and were further refined and revised during supervision sessions. The questionnaire was piloted by a number of Trainee Educational Psychologists (TEPs) to ensure that the elements of the questionnaire worked effectively (e.g. skip logics). Additionally, the Qualtrics software generates a score to determine the accessibility for users. Both the questionnaire for staff and for parents/carers was rated as 'good'. The Qualtrics software also provides an estimation of questionnaire completion time to share with participants.

3.12.2 Part Two: Semi-structured Interviews

Yardley outlines four principles which assess the validity and trustworthiness of qualitative data. These are presented in Appendix T including information regarding the attempts to address each principle.

4.0 Results

This section presents the results from both parts of the research and are organised in the following way:

- Contextual information gathered during the observations.
- Analysis of the questionnaire data:
 - Descriptive statistics for the quantitative data of which the most pertinent will be presented using visuals and others will be explained in the narrative.
 - Content analysis for the qualitative data.
- Analysis of the semi-structured interviews using reflexive TA.

The steps of Content analysis were followed as outlined by Mayring (2014) and Hsieh and Shannon (2005).

The reflexive TA process was followed as outlined by Braun and Clarke (2013, 2021) when analysing the semi-structured interviews. The themes will be referred to with supporting quotes. Refer to Appendix U for examples of further supporting quotes.

As previously mentioned, participants having been given a code to ensure anonymity. The staff participants involved in the questionnaires will be referred to as SQ followed by a number between 1-31 (e.g. SQ3). Parent/carer participants will be referred to as PQ followed by a number between 1-42 (e.g. PQ8). Staff interview participants will be referred to as SI followed by a number between 1 -3 (e.g. SI2).

The results from part one must be taken with caution as not all participants answered every question. Therefore, the results represent some, but not, all participants.

4.1 Contextual Information

The observations provided additional, contextual information regarding the schools and how the animals are utilised in the school environment which ensured a robust understanding of the context within which the research was undertaken.

The observations within school A took place within the animal house, a shed-like structure and houses rabbits and guinea pigs, and outside is a large chicken coop. CYP appeared to be assigned a task (e.g. cleaning cages or chopping food) and, although guided by staff, CYP mainly completed the tasks independently. After the tasks were completed, CYP were able to spend time with the animals (e.g. sitting, stroking and feeding them). CYP often made 'shhhh' sounds as an approach to comfort the animals. Some CYP communicated with each other often referring to the animals (e.g. "look at this rabbit"). It was noted that CYP presented as calm throughout.

At school B, the observation began at the pet shed housing rabbits as well as African land snails. Outside the pet shed were larger enclosures housing ducks, chickens and tortoises. The task of the session was to carry the rabbits to the classroom so the CYP could spend time and interact with them. Staff discussed with the CYP what they needed to remember to bring to the classroom for the rabbits (cage, food, water

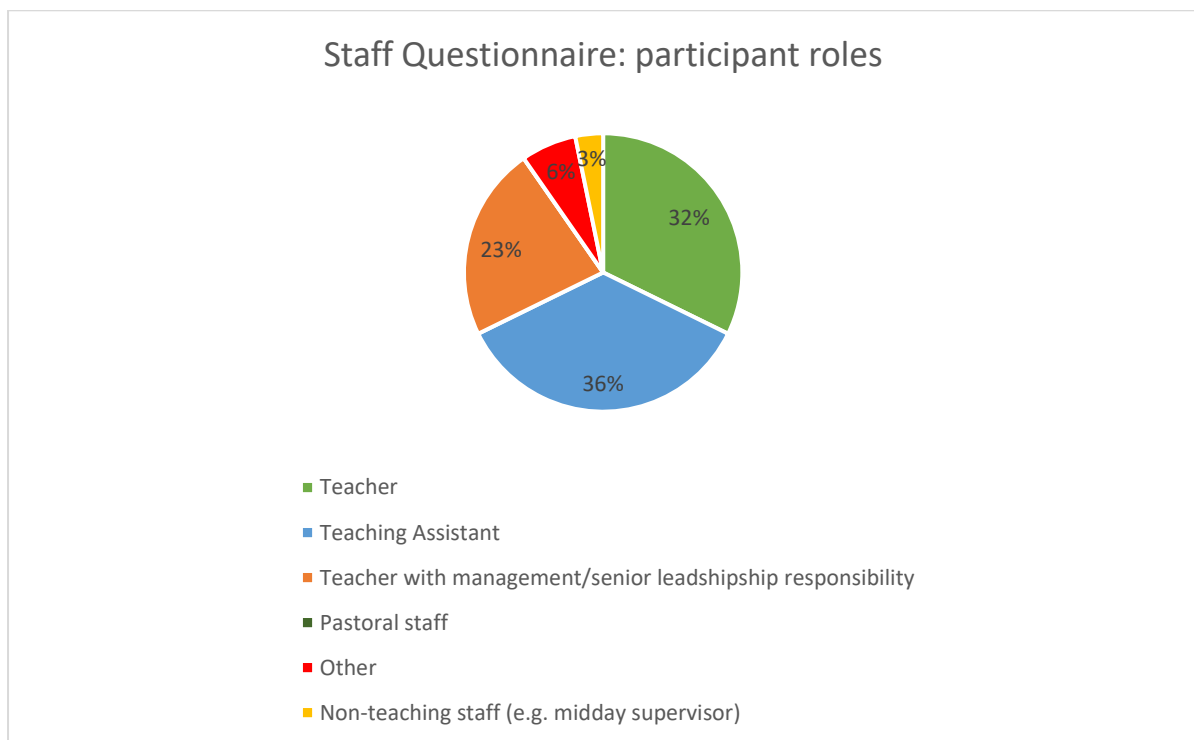
etc). In the classroom the animals appeared to encourage turn-taking. It was noted that staff incorporated the animals into other lessons to enhance the teaching of other subjects (e.g. “if you added one rabbit to that cage, how many rabbits would you have altogether”).

4.2 Part One: Questionnaire Results

4.2.1 Staff Questionnaire Results: Quantitative

Figure 7

Participant Roles (Staff Questionnaire)



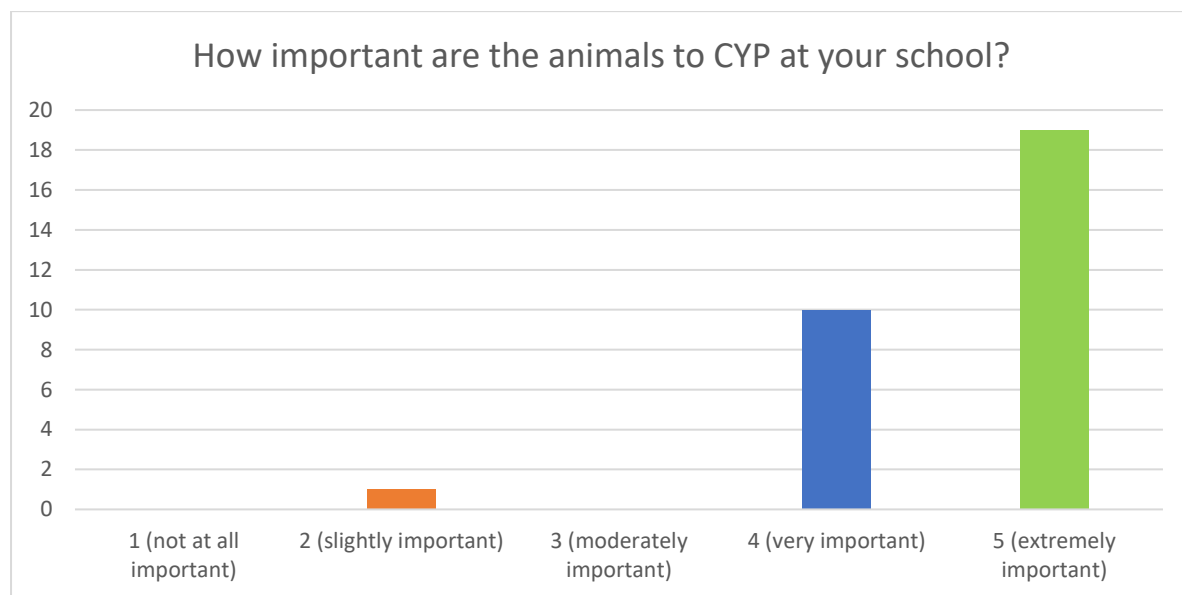
A total of 31 staff participants completed the questionnaire, of which:

- 14 (45.2%) said they had regular contact with the animals
- 30 (96.8%) would encourage other schools to consider getting animals
- 19 (65.5%) report that parents/carers have expressed an interest or provided feedback about the animals in school

In the question asking how important the animals are to CYP in school, staff were asked to rate this on a scale from 1-5 (1=not at all important, 2=slightly important, 3=moderately important, 4=very important and 5=extremely important). Out of the 30 responses, the mean result was 4.57 suggesting most staff deem the animals important to CYP. Figure 8 below displays a visual representation of this question.

Figure 8

Staff Views Regarding the Importance of Animals in School for CYP



In summary, the majority of staff participants would encourage the inclusion of animals in special schools. Additionally, most staff participants deemed the animals as extremely important for the CYP.

4.2.2 Staff Questionnaire Results: Qualitative

Using qualitative content analysis, categories were formed using inductive category formation. Category refers to a short formulation of the text (Mayring, 2022). The table below displays the definitions and the frequencies of the categories within the data. Frequency refers to the number of occurrences of words or phrases that meet the category definition. Additional illustrative detail is included in the narrative following the table.

Table 3*Category Definition and Frequency (Staff Questionnaire)*

Category	Category Definition	Frequency
Emotional Impact	Participants highlighted a number of emotional impacts in relation to how CYP feel and what influences how CYP feel when they are around the animals in school. References included calm, comfort, regulation, stress, anxiety, mental health and wellbeing as well as reflection and communication.	71
Educational Impact	This category represents responses from staff referring to the educational impact that the animals in school have upon CYP. This category includes reference to increased focus, engagement, inclusivity and motivation as well as the learning of new skills.	37
Qualities and values	The category qualities and values has been used to group together traits and characteristics as referred to by participants. Words and phrases that referred to care, empathy and compassion were categorised here.	34
Self-esteem	Increases in self-esteem was highlighted by participants. This includes the building of confidence, a sense of achievement and responsibility.	23
Considerations	Participants highlighted a number of considerations that should be referred to when having animals in special schools. Words and phrases including safety, animal welfare, responsibility, cost and the sharing of information was mentioned.	16

4.2.2.1 Category 1: Emotional Impact

Staff referred to mental health and wellbeing improvements: “Lots of possible positive outcomes from working with the animals one of the most important is that the majority of pupils who work with the animals have improved wellbeing” (SQ4) and “They bring a huge sense of wellbeing” (SQ10). Some participants referred to the animals acting as stress and anxiety relief: “It takes their mind off stress...” (SQ3) and “...reduced his anxiety and stopped what would have become a violent incident...” (SQ13).

Staff responses referred to the sense of calm that the animals bring to CYP as well as the relaxation and therapeutic benefits. “Animals have a calming effect and can increase the levels of oxytocin in the young people” (SQ7). This participant mentions their knowledge regarding physiological changes in the body as a result of being with the animals. Another participant referred to the stroking of an animal’s fur can help to calm CYP: “They have found them very calming and stroking their fur” (SQ25). Other participants’ responses mentioned the calming effect helping diffuse a situation: “I have used animals in the past to help calm children down who may be on the verge of a meltdown. Introducing the animal causes a distraction and can defuse the situation” (SQ13).

Some responses specifically referred to how the animals help to regulate the emotions of CYP and one participant referred to the animals as “Regulators” (SQ5). SQ20: ‘I used to work with a CYP who would sit with the chickens when she was dysregulated and angry - it was her go to safe space and it helped to calm her’. This suggests that the CYP understands the animals (specifically the chickens) helps to calm feelings. Another participant stated the importance of having the animals in the classroom: “...it is amazing having them in the classroom to help the children regulate themselves.” (SQ10). A participant also referred to the animals helping to regulate staff, which is important to note, although only referred to once.

CYP will talk about their needs: “...will communicate his feelings. He will ask to go and see the animals...when he is unsettled” (SQ27). Another participant referred to how an animal acts as another person: “really good as the third person in the room when talking” (SQ3) and how CYP discuss “issues and concerns” (SQ12).

A number of responses referred to how animals develop reflection skills in CYP: SQ7 explained that spending time with the animals encourages time for reflecting on personal skills: “Reflecting on self-development and self-care”.

4.2.2.2 Category 2: Educational Impact

In relation to educational impact, it appears that animals play a significant part in the curriculum: “Helps children to engage with a practical curriculum” (SQ2) and

“...animals in school are a really positive addition for our curriculum and students” (SQ16). Animals appear to also help CYP maintain focus and engagement: “More engaged and focused in class when petting an animal” (SQ11) and “There was significantly better engagement in class when animal was present” (SQ23).

Staff made reference to how the animals have increased CYP’s knowledge and understanding of animal care: “Knowledge about animals (how does it feel to touch an animal, what the animals sound like, unpredictability of animals, how do animals feed/drink etc)” (SQ3). SQ19 mentioned that: “Knowledge and understanding: many children have not seen animals from a close distance” suggesting that CYP are provided with an opportunity to learn about animals from a real-life perspective. Further, a participant’s response mentioned a specific way the animals are utilised within the school: “Some pupils can carry out accreditation in animal care and are very motivated to achieve in this area.” (SQ26). Responses suggest the skills CYP learn by having an animal present or learning about animal care can be transferred to other parts of their life. For example, SQ20 states: “...caring for an animal and the skills involved and can then transfer these skills across...”. Further SQ3 mentioned that CYP “...learn to be caring and how to look after others (animals but transfers to peers and family)”. Responses from staff also referred to new experiences that the animals provide for CYP: “Animals bring an outside world to a pupil that they may not experience at home” (SQ5).

Attendance was referred to in staff responses when they were asked to think about a particular CYP who has benefitted from having animals in school. SQ4 explained that “they are no longer late for school as they have to feed the animals”. SQ23 explained that a “Pupil would enter room and remain in class engaging with work” and SQ4 explained that “they want to come to school and school is a positive place for them”. Participants views also referred to the impact of animals having an effect on the CYP’s outlook for the future. “...now has a positive outlook and is considering college after he leaves school.” (SQ4).

Participants referred to the different cohorts of CYP that benefit from the animals in school and that animals are “inclusive to all” (SQ10). SQ6 commented on the fact that animals can benefit “children with behavioural issues and trauma the list is endless”.

Other participants made reference to how the animals benefit CYP with sensory disorders and those with Profound and Multiple Learning Difficulties (PMLD): “The sensory interaction with animals is really important and having close interaction with other things, not just people and object as it can be quite limiting on what children with PMLD can do” (SQ28). Responses also referred to how animals in schools are “beneficial for children of all ages” (SQ24).

4.2.2.3 Category 3: Qualities and Values

The theme includes subthemes of empathy, compassion and care. These qualities and values are recognised as important for CYP’s development (Daly & Suggs, 2010).

In relation to empathy, staff referred to the presence of animals in school as encouraging and increasing the empathy of CYP: “...and have an awareness of how others living things feel.” (SQ19). Similarly, staff responses often listed compassion as something CYP learn and develop as a result of the animals in school.

CYP developing care skills were also mentioned as a positive impact of the animals in school. Care skills in relation to themselves: “When looking after animals they also learn the importance of self-care.” (SQ7). In relation to others: “learning greater care and empathy for others” (SQ20) and in relation to the animals: “..showing children how to care and love an animal” (SQ14).

4.2.2.4 Category 4: Self-esteem

Participants’ responses indicated that the animals in school help to develop CYP’s self-esteem, confidence, sense of achievement and responsibility. SQ2 mentioned: “The increased responsibility they develop helps to raise their self-esteem and sense personal worth”. This statement suggests that CYP’ self-esteem relies on them having a sense of responsibility in order for CYP to feel good about themselves. A significant number of staff responses referred to the animals in school giving CYP a sense of responsibility, achievement and confidence: “Help children to develop their understanding of responsibility” (SQ2) and “can help build confidence by looking after them, feeding/cleaning. Gives them a sense of purpose” (SQ3).

4.2.2.5 Category 5: Considerations

Some participants appeared concerned that the animals may get accidentally hurt during the interactions with CYP: “I do feel anxious that the animals might get hurt. They are living beings which should also benefit from the experience too.” (SQ25). Further, “The welfare of the animals isn’t often a consideration when deciding to have animals in schools” (SQ20). Additionally, another response mentioned the lack of understanding that CYP at school have regarding animals: “Some pupils wish to cause harm as they do not understand” (SQ2). Other responses referred to ensuring the correct risk assessments are in place in school: “Proper risk assessments should be put in place and disseminated across school.” (SQ22).

Staff responses also highlighted the safety elements surrounding animals at school and the potential risks for CYP’s safety: “Just the small risk of getting scratched or bitten if there were unexpected loud noises.” (SQ24). Another response mentioned that if an animal was accidentally hurt, it could affect CYP: “...animals getting accidentally hurt can be traumatising for the children involved and others.” (SQ12).

Responses emphasised the significant responsibility it is for a school to have animals. Staff referred to the responsibility of the animals during school holidays: “It can be difficult ensuring that care is provided throughout the school holidays and we rely on staff to volunteer for this.” (SQ19).

References were also made to the cost of keeping the animals in school. One participant however, whilst recognising the cost could be an issue, expressed views that the benefits outweigh the costs: “Even the cost of having the animals in school isn’t an issue due to the impact the animals have in the pupils” (SQ4).

4.2.2.6 Summary of Qualitative Responses: Staff Questionnaire

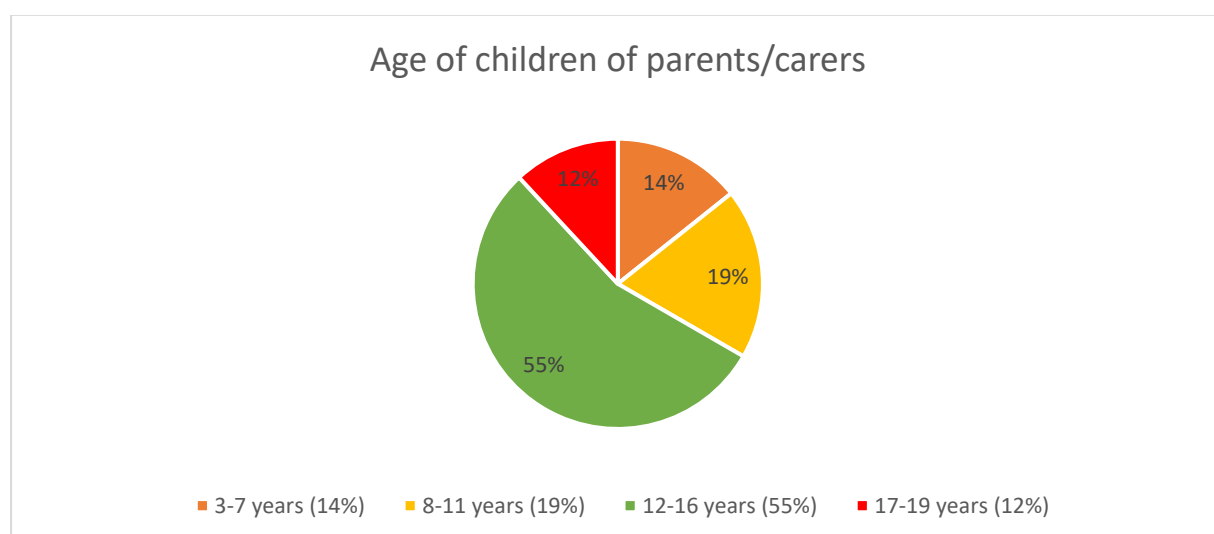
In summary, five categories were developed as a result of content analysis; emotional impact, educational impact, qualities and values, self-esteem and considerations. The frequency of words associated with the categories were recorded (Table 3). It was apparent that words associated with the emotional impact that animals have on CYP was referred to the most by staff participants.

4.2.3 Parent Questionnaire results: Quantitative

A total of 42 parent/carer participants completed the questionnaire. Parents/carers of CYP that attended the two special schools were asked their views regarding animals in school. Parents/carers were asked the ages of their CYP and the data is as follows:

Figure 9

The Age of CYP of Parent/Carer Participants



Not all parents/carers answered the question relating to the school their CYP attended which the researcher assumed was due to worries regarding anonymity. The approach to anonymity and how it would be managed, however, was outlined in the information sheet.

The responses from parents/carer participants highlighted the following:

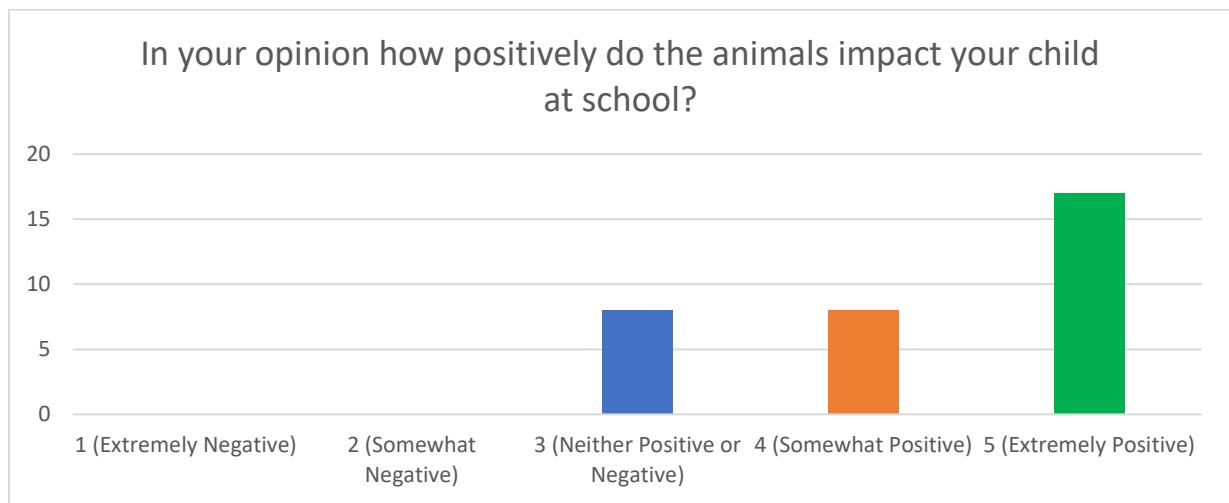
- 21 (54.9%) said their CYP had direct contact with the animals
- 30 (71.4%) stated that they had not discussed the presence of animals in school with staff
- 23 (54.8%) reported that they had enough information on how animals were utilised at school; 19 (45.2%) reported that they had not
- 26 (65%) said their CYP expresses an interest in the animals

- 27 (65.9%) responded that they were aware of the benefits that animals have on CYP in school
- 38 (90.5%) said they would promote having animals in school to others

In relation to the question ‘In your opinion, how positively do the animals impact your child at school?’ most parents/carers said the animals ‘extremely positively’ impact their CYP (Figure 10).

Figure 10

Parents/Carer Views Regarding the Impact of Animals in School



In summary, the majority of parent/carers would promote the inclusion of animals in special schools and feel that the animals extremely positively impact their CYP at school. Generally, it was felt that improvements could be made in the sharing of information regarding the animals in school and the associated benefits.

4.2.4 Parent/Carer Questionnaire Results: Qualitative

Using qualitative content analysis, categories were formed using an inductive category formation. The table below displays the definitions and the frequencies of the categories within the data. Additional illustrative detail is included in the narrative following the table.

Table 4*Category Definition and Frequency (Parent/Carer Questionnaire)*

Category	Category Definition	Frequency
Emotional Impact	Calm, improved mental health and wellbeing, emotional regulation and physiological impacts were included in participant responses relating to how CYP feel regarding the animals comprising this category.	44
Considerations	Consideration and challenges were referred to by participants in relation to the impact of animals on CYP in school. References to safety of the animals and CYP was mentioned as well as the nerves of some CYP associated with being around animals. Communication issues were also mentioned as not all participants felt they had enough information regarding the animals.	24
Qualities and Values	Participants highlighted increases in empathy, responsibility, respect and care in CYP.	22
Educational Impact	Participants highlighted a number of educational impacts that the animals have on CYP in school. References including learning, skills, enjoyment and attendance.	17
Interaction	Increased interaction between CYP and animals and examples of conversations between CYP others as they talk about the animals was referred to by participants as a positive impact.	16

4.2.4.1 Category 1: Emotional Impact

In response to the question, “What do you think about there being animals in your child’s school?”, PQ39 stated, “I think it’s really beneficial for the children and supports them emotionally and educationally.”

Responding to the question, “How does your child generally respond to being around animals?”, PQ40 fed back: “Loves them but wants them to love her back and is disappointed when they don’t necessarily.” which identifies an emotional reaction.

Generally, descriptions of calming, relaxing, and improved mental health and wellbeing emerged from the questionnaire results. Parents/carers reported the calming influence of being around animals more strongly than any other emotional impact; calm/calming was mentioned in 22 responses with the words often being used more than once in each response. For example: “...are a calming influence and reduce behaviours.” (PQ28) “...calming, distraction from stress...” (PQ14) “...improve mental health bring happiness.”(PQ15) and “Can help them with emotional regulation....”(PQ24).

Parents/carers reported evidence of the physiological impact of stroking the animals and sensory benefits from touching, for example, the fur of an animal. “By stroking the animals it can help children calm” (PQ9). “..animals have a calming effect. I also believe they are a natural anti depression.” (PQ20). References were made to the animals having a calming effect and helping to lower heart rate. “Calming effect on him lows heart rate...” (PQ16).

4.2.4.2 Category 2: Considerations

In general, participants seemed pleased that animals were present in the school environment. Some concerns were raised, however, in relation to safety and communication.

Safety issues related to both the safety of CYP and that of the animal. Comments included: “...nervous due to allergies” (PQ2) “...child is very boisterous and can scare them which could result in bites.” (PQ30) “Can get stressed out if the animal doesn't behave as expected or is not calm” (PQ23).

A number of comments were received from parents/carers which related to them wanting more information: “I don’t really know what animals are in school....” (PQ4). “I don’t know if any animals are used” (PQ8).

Of the respondents, three parents/carers acknowledged that they had been shown around the school and made aware of the animals that way. Additionally, some parents/carers suggested ways to improve communication between the school and families on the presence and use of animals in the schools such as a leaflet, newsletter and an open day.

4.2.4.3 Category 3: Qualities and Values

Parents'/carers' responses included many words to express the impact of their CYP being around animals such as empathy, respect, responsibility and care which has been categorised as qualities and values. For example:

"...teach younger adults tolerance, patience, as well as responsibilities...." (PQ13)

"Helps with empathy and understanding" (PQ18)

"....an insight into respecting and treating others with respect...." (PQ20)

"....."shows them how to be caring and nurturing." (PQ3)

4.2.4.4 Category 4: Educational Impact

In relation to educational impact participants stated a number of benefits relating to their CYP's learning: "...children like to care for the animals and they are educational" (PQ24). "...gives an opportunity for my child to learn animal welfare..... which can in turn be applied to other areas of life." (PQ20). Enjoying going to school is recognised as conducive to regular attendance and some parents/carers commented:

"He enjoys being around animals" (PQ18) "He enjoys the fact there are animals at school..." (PQ8).

4.2.4.5 Category 5: Interaction

In response to a question about potential benefits that animals have on CYP, one parent/carer used the term non-judgemental in a list of responses. There is research and evidence to support the notion that the non-judgemental presence of animals increases communication and socialisation skills in CYP (Kruger & Serpell, 2010).

Social skills and communication were referred to and an extract of relevant comments from the questionnaires include: "...helps with....body language and

communication.” (PQ23). “My child interacts well with animals both at school and around the community” (PQ20). “They talk about them all the time after spending time with them that day” (PQ19).

4.2.4.6 Summary of Qualitative Responses: Parent/Carer Questionnaire

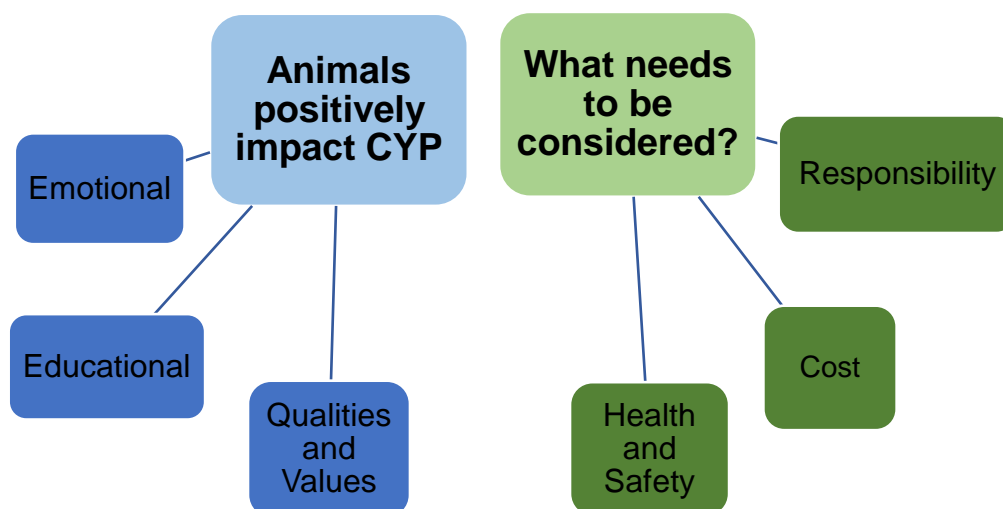
In summary, five categories were developed as a result of content analysis; emotional impact, considerations, qualities and values, educational impact and interaction. It was apparent that words associated with the emotional impact that animals have on CYP was referred to the most by parent/carers participants aligning with that of the staff participants.

4.3 Part Two: Semi-structured Interview Results

The semi-structured interviews were analysed using reflexive TA. The interview of each participant was initially coded separately and then the shared views and perceptions were jointly explored. This ensured that the views of individual participants remained central to the process which resulted in two overarching themes and six subthemes.

Figure 11

Thematic Map



4.3.1 Theme 1 – Animals positively impact CYP

Table 5

Theme 1: Animals Positively Impact CYP

Theme 1: Animals positively impact CYP		
This theme comprises the views of participants that related to the positive impacts that the animals have on CYP in school. The interviews with the three participants highlighted a significant number of positive impacts which are best described as three subthemes: educational impact, emotional impact and qualities and values.		
Subtheme	Description	Illustrative Quotes
Educational Impact	Participants identified positive educational impacts that the presence of animals in school have on CYP. Participants referred the increased focus and attention of CYP's learning when an animal is present as well as an increased desire to attend school and remain at school after they turn 16.	<p>"...because they can focus with a rabbit on their lap or Guinea pig, and I just think, well, put a rabbit on his lap in class while he's doing his maths" (S12).</p> <p>"If she was struggling in lesson, we would pull her out of lesson and take her down the animal house for five minutes....It's...a..reflection sort of thing. She comes back to where she should be then..." (S13).</p> <p>"...and definitely an incentive for some of our...really anxious and...highly challenging children to make that transition each day into school..." (S11)</p> <p>"...the Thursday group is the post 16 group....they're in education 'cause they want to be...not because they've got to be, you know" (S13)</p>
Emotional Impact	Participants identified that the presence of animals in school have positive emotional impacts which relate to	"...our emotionally vulnerable children really...are those that could massively benefit from having an animal permanently, you know" (S11)

	<p>feeling of calm, developing emotional regulation skills and physiological benefits.</p>	<p>“...it's really powerful because you've got these pupils that can't understand their emotions and all of a sudden they see a rabbit and they hold a rabbit or guinea pigs or whatever and they're just like, oh OK, yeah, I'm good now” (S12)</p> <p>“...the children would be far more open because they were distracted and regulated and comforted by the dog so they would be more open with me. Sometimes they would talk through the dog.....” (S1)</p>
<p>Qualities and Values</p>	<p>Participants referred to the development of personal qualities and values that the animals appear to help develop. Participants referred to empathy and being able to understand others' feelings.</p>	<p>“Yeah, when...my students are with the animals they are...from boisterous to...motherly they....want to look after this animal” (S13)</p> <p>“So then there's that whole theory of mind with somebody else and how they're feeling” (S12)</p> <p>“...that those are skills that they can transfer to people and to other children as well. So if you've got children who are learning how to care for an animal, that can be passed to their peers and to other people as well” (S1).</p>

4.3.2 Theme 2: What needs to be considered?

Table 6

Theme 2: What Needs to be Considered?

Theme 2: What needs to be considered?		
This theme highlights participants' concerns regarding the presence of animals in school. The theme comprises of three subthemes; Health and Safety, Responsibility and Cost.		
Subtheme	Description	Illustrative Quotes
Health and Safety	Health and safety elements were mentioned and the procedures and processes needed to enable animals to be present in school environments. Interestingly, one participant pointed out that they feel health and safety procedures in relation to animals in school have become too strict.	<p>"...Because it's not that easy with all the laws and everything you know' (SI3)</p> <p>"Once I know that I can handle them, I can call them, I can feed them by hand and they're not biting or scratching... that can take six months in itself, sometimes just to get into that stage, and then I put them in carry boxes in different parts of the school so they get used to the noises." (SI2)</p> <p>"...And I think you've also got to be very aware of the wellbeing and emotional wellbeing of the animal as well...because within the school setting you can have that dog swamped" (SI1)</p> <p>"So everything took a back seat 'cause I had to take the animals home because we didn't know if COVID was transmitted through animal fur and all the rest of it" (SI2)</p> <p>"I think I what I worry about is that we have risk assessments that are so ridiculous that the children lose the opportunity to have these wonderful experiences. Life is a risk, you know. Everything we do is a risk" (SI1)</p>
Responsibility	Participants highlighted the level of	"...and then tortoises. I look after the tortoises in the winter" (SI3)

	<p>responsibility when having animals in school and how they have personally taken on that responsibility. This includes going on pet bereavement courses and retiring the animals when they are getting old.</p>	<p>“...like what I've got left surplus I fetch to school anyway but in summer holidays I buy the fresh veg....Because I want to” (SI3)</p> <p>“I think they think my house is a zoo because they all the animals go there. But to be fair I have got staff in school that will say... when he's a bit old, could it come and live with me” (SI2)</p> <p>“...we went through some of this....the scenarios from the pet bereavement course and we talked about it and actually then it settled them both down and they were able to get back on track” (SI2)</p> <p>“I do retire the rabbits when they get grouchy...”</p>
<p>Cost</p>	<p>The cost of keeping the animals was mentioned by the participants as a challenge for the school.</p>	<p>“We try to get local pet foods yeah 'cause it's like... Obviously we tried to use the local sellers, but sometimes they're too expensive” (SI3)</p> <p>“I think for management side it's the cost. Because I'm not scrimping and saving, I mean if they need it, they need it and I'm gonna get what they need. But the rabbits and animals are here and they need to be looked after properly” (SI2)</p>

5.0 Discussion

The current study aimed to explore the impact of the presence of animals on CYP in special schools. The presence of animals in classroom settings is becoming more popular (Leonard, 2017) but, as noted by Kaufmann et al., (2015), research regarding animals in special schools specifically is limited. Literature more often refers to a number of positive impacts of HAI, AAT and the presence of animals in educational settings for CYP with ALN.

Using descriptive statistics, content analysis and reflexive TA, the perspectives of school staff and parents/carers from two special schools were explored in relation to the impact of animals on CYP in special schools. The results from part one and part two of the study will be discussed in relation to the research question and related theory and evidence from relevant literature will be drawn upon. There was some commonality in responses across both parts of the study and, therefore the quantitative and qualitative data is synthesised to attempt to create a holistic understanding of the impact the animals have on CYP in special schools. Future research potential and implications for Educational Psychologist (EP) practice are then considered along with the potential strengths and limitations of this research.

5.1 Research Question: What are the Perceptions of School Staff and Parents/Carers on the Impact of Animals on CYP in Two Special Schools?

5.1.1 Educational Impact

All interview and questionnaire participants made reference to the educational impacts the presence of animals in the schools have on the CYP. This was particularly referred to in relation to CYP's increased focus and engagement when learning if an animal was present. Some participants referred to the fact that the animals act as an incentive for CYP to attend school as well as an increased desire to stay in school post-16. This corroborates with research relating to learning based outcomes in relation to AAT and the presence of animals in the classroom and in educational settings. Findings from studies indicated more engagement and cooperation with learning tasks (Limond, 1997) as well as increased attendance at school when animals had been present in

the classroom (O'Haire et al., 2014; Stefanini et al., 2015). Findings by Schuck and Fine (2017) concluded that interventions involving animals in the classrooms promoted greater engagement and motivation in learning tasks. Furthermore, a study by Radcliffe (2015) concluded that the presence of a guinea pig in the classroom appeared to increase the motivation and attitudes of CYP towards reading when the activity of reading to a guinea pig was introduced.

Furthermore, participants referred to CYP learning new skills relating to the knowledge and understanding of animal care. Similarly, findings by Kaufmann et al., (2015) refer to the ability of these skills being applied to other areas of learning and how learning is enhanced when CYP are with the animals as it focuses on what CYP can do rather than what they cannot do.

5.1.2 Emotional Impact

Participants across both parts of the study made reference to the positive emotional impact the animals appear to have on CYP in the special schools. Reference was made to mental health and wellbeing, improved emotional regulation and feelings of calm and comfort. Indeed, the words and phrases 'calm', 'calming' and 'calming effect' were used significantly throughout responses relating to the positive impact the animals have on CYP. Additionally, most staff questionnaire participants deemed the animals as 'extremely important' for CYP and most parent participants felt that the animals 'extremely positively' impact their CYP. Similar findings from Radcliffe (2015) noted that the presence of an animal in the classroom support the emotional development of CYP as they could interact with the animal if they felt they needed to. Further findings from Radcliffe (2015) concluded that an animal in the classroom can provide comfort and solace for CYP who have experienced friendship difficulties. This appears to align with the research based on attachment theory and HAI which proposes that animals can provide a safe-haven and a secure base for humans (Zilcha-Mano et al., 2012). Similarly, the findings from the social support theory and HAI suggest that animals can act as a form of support for CYP (Beetz et al., 2012; Melson, 2003).

In addition, the biological changes were noted where some participants explained that the effect of stroking the animals can reduce blood pressure and settle breathing. These findings relate significantly to the literature on HAI. Friedmann et al., (1983) concluded that CYP's blood pressure is lowered during interaction with a dog. Additionally, Friesen (2010) reported that the anxiety of CYP is reduced when they are in the presence of an animal and Krause-Parello (2012) suggests that the presence of animals can decrease the feelings of depression.

5.1.3 Qualities and Values

All participants shared views relating to the positive impact the animals have upon, what has been described as, the qualities and values of CYP. Terms such as empathy, care, compassion, respect and responsibility were key terms mentioned by participants. In particular, empathy and care were referred to a significant number of times in responses. This supports the research that refers to CYP developing caring skills and empathy as a result of AAT and the presence of animals in school. Daly and Suggs (2010) found that having an animal in the classroom increased the CYP's compassion and empathy. Similarly, Paul and Serpell (1993) concluded that CYP who owned pets are more likely to be empathetic to humans and animals in adulthood and Firmin et al., (2016) states that empathy skills are further developed for CYP when they learn to care for animals. Additionally, the inclusion of animals as part of the curriculum and school ethos can develop values such as empathy, compassion and kindness (Arbour et al., 2009).

5.1.4 What is to be Considered?

'What is to be considered?' was an overall theme as a result of reflective TA of the semi-structured interview responses. Similarly, the content analysis of the staff and parent/carer questionnaire responses also referred to issues and concerns and these were categorised as considerations. Both of this will be discussed in this section.

Participants made reference to a number of challenges involving the animals being in school. There was a particular mention of safety by both groups of participants. This was in terms of the animals' safety along with the safety of the CYP. Reference was made to the welfare of the animals if CYP were to accidentally hurt them. Friesen

(2010) reported on similar concerns, suggesting that the monitoring of the interactions between CYP and the animals is essential. It is also important for the animals' behaviour to be monitored to ensure their wellbeing and that they are provided with safe housing and appropriate bedding (Friesen, 2010). During the interviews, participants did refer to 'retiring' the animals when they become too old or if they appear to not enjoy the interaction with humans. Jalongo et al., (2004) stated that informed consent from parents/carers for animals in schools is always necessary. This provides parents/carers with the opportunity to make decisions regarding how appropriate or safe it would be for their CYP to interact with the animals. It is clear, however, that not all parent/carers felt they have enough information regarding the animals in school. Other responses included concerns regarding allergies and that it should be a whole school community decision when deciding to have an animal in school. Brodie et al., (2002), however, suggested way of mitigating concerns such as selecting animals that do not shed hair, ensuring regular bathing of the animals, and the use of hand sanitisers for CYP and staff.

Similar to the findings reported by Friesen (2010), staff participants mentioned the cost of keeping animals in school. In addition, Rud and Beck (2003) reported on some of the reasons against the presence of animals in school which included concerns regarding cost and insurance. This proposes ideas that obtaining animals in school should be a carefully considered and a planned process to ensure budgeting can accommodate them.

Additionally, the responsibility of keeping the animals at schools was mentioned. Participants discussed how animals are cared for in the school holidays and how it is very much a staff responsibility. Some participants did highlight, however, that parents/carers will often volunteer to care for an animal during the holidays too. Herbert and Lynch (2017) discovered that for some teachers the level of responsibility the animals require would be too much of a burden and, therefore, some schools tend to avoid getting animals.

Nonetheless, findings from Thomas and Beirne (2002), Arbour et al., (2009), Herbert and Lynch (2017) and Daly and Suggs (2010) appear to suggest that the benefits of the presence of animals in school outweigh the potential costs. Further Thomas and

Beirne (2002) suggest that by excluding animals from teaching could be detrimental to society as animals appear to promote healthy character development.

5.1.5 Interaction and Communication

Content analysis highlighted interaction as a category from the parent/carer questionnaire. This category refers to increased interaction and communication between CYP themselves as well as between CYP and the animals. Interaction was not identified as a category or theme within the staff questionnaire or the interviews but reference to developing CYP's communication skills and building relationships did appear in responses across questionnaires and interviews. This provides support for the research by Leonard (2017) and Yap et al., (2017) as findings concluded that animals support CYP who may find it difficult to communicate and interact. Indeed, Grandgeorge et al., (2012) advised that animals can often bridge the communication gap for CYP with communication difficulties.

5.1.6 Alignment with Psychological Theory

It is clear from the findings that there appear to be clear links to some of the psychological theory discussed in paper A. Firstly, some of these findings link to the positive psychology PERMA model (Seligman, 2011) particularly in relation to positive emotions, engagement and relationships.

The biopsychosocial model (Engel, 1981) proposes how biological, psychological and social perspectives support the explanation of the impacts of Human-Animal Interaction (HAI). From a biological perspective, participants made reference to the physiological benefits. A psychological perspective highlights how animals can increase mental health and wellbeing which participants made reference to with the emotional impact category and theme. From a social perspective reference was made to animals as a source of support for CYP.

5.2 Future Research and Implications for EP Practice

It is clear that future research could focus on the views of CYP. As this study attempted to gather views from two groups, the specific views of CYP were not included, although, participants often provided examples of CYP's individual comments

regarding being with animals at school. Future research could be carried out from the perspectives of each group gaining more in-depth findings at each level.

Future research could also focus on a larger sample size. Methodologies that include surveys and focus groups could reach a wider range of schools. This would help to reveal whether the findings of this study can be generalised to the wider population of schools.

The role of the EP was not mentioned in the main body of literature in relation to animals in special schools and schools more generally. This is somewhat surprising as an EP is often involved in whole school approaches and the upskilling of staff in particular areas relating to psychology and CYP in schools. As Amiot and Bastian (2015) point out, the use of psychology is well positioned to support the findings as well as expand on the psychological understandings behind some of the impact animals have on CYP particularly the educational and emotional impacts and the development of qualities and values. This research has, therefore, highlighted a need for future research to focus on the EPs role in helping support schools to have animals. Additionally, EPs unique psychological knowledge can support schools with intervention implementation and evaluation if they are considering AAT methods. It may also be helpful for EPs to observe in classrooms or during sessions where there are animals present so they can apply psychological knowledge to situations and advise schools appropriately on findings.

Further, the findings of this research postulate that there are a number of elements schools should consider before having animals on site. It will be important for EPs to have an understanding of the health and safety legislation that comes with having an animal in school so they can appropriately advise.

5.3 Strengths and Limitations

Table 7

Strengths and Limitations of the Current Research

	<u>Strengths</u>	<u>Limitations</u>
Methodology: mixed methods	This approach allowed for the research question to be explored in a variety of ways which enabled the researcher to capture a range of data and triangulate the data as a result.	Focusing on one method of data collection may have added more depth to the research.
Design: Part One - Questionnaires	Due to the simplicity of distributions of online questionnaire, the researcher was able to gather the views of both staff and parents/carers more readily.	The questionnaires for both staff and parents/carers were not designed to require responses to all questions. As a result, some participants did not answer all questions which left some gaps in the data.
Design: Part Two – Semi-structured interviews	The semi-structured interviews provided rich and detailed data about the individual perspectives of participants. They allowed further exploration of questionnaire responses. Additionally, the interviews were virtual which may have made them more accessible for participants.	It may be more difficult to engage participants as there is a certain lack of anonymity with semi-structured interviews. The interviews were virtual which made it more difficult to pick up on non-verbal cues.
Contextual Information	The additional contextual information provided personal experience of the settings that the research took place within. This ensured an element of understanding was gained regarding the context.	Observations can be difficult to analyse as they are subjective to the interpretation of the data. Therefore, the observations did not provide any additional information to be analysed.
Participants	A range of participants were involved in the study across two different groups. It allowed the researcher to gain a range of perspectives relating to the topic.	Perhaps a more detailed and in-depth account in relation to outcomes may have been concluded if the research just focused on one group of participants. Additionally, of the three interview participants, two of them were the animal care leads at both schools. Those in different roles would have,

		perhaps, highlighted some other interesting results.
Findings	Encouraging outcomes were found in relation to animals in special schools which linked back to literature and psychological theory. Outcomes also referred to some potential challenges and considerations.	As the findings relate to two special schools in Wales, the findings are difficult to generalise to larger populations. Similarly, the majority of results were qualitative, so the results are subjective interpretations of the participants that took part.

In addition to the limitations described above, it must be noted that the study was conducted during the context of the COVID-19 pandemic. The effect of the pandemic on educational settings and, in particular, specialist provisions has been significant. The effect of illness and isolation resulted in difficulties conducting both parts of the research to the optimum level. The pandemic also affected the initial design of the research. As previously mentioned, a case study design had been planned but due to the restrictions visiting special schools around the time of data collection, in-depth data needed for a case study design was unable to be collected. Due to the design of the research beginning as a case study approach, the sample size of the research was small and therefore it may be difficult for results to be generalised to the larger population of special schools.

5.4 Conclusion

The current study sought to explore the impact of the presence of animals on CYP in two special schools. The views of staff and parents/carers were explored using a mixed methods design. The views of staff and parents/carers were gathered using a bespoke questionnaire. Additionally, views of school staff were investigated using semi-structured interviews.

The views of all participants highlighted a number of key challenges and significant positive impacts that the presence of animals in special schools have on the CYP. The challenges included health and safety, cost and the responsibility of keeping the

animals at school. Key findings in relation to the impact on CYP included the emotional and educational benefits, the development of key qualities and values and increased interaction and communication with peers, staff and animals.

A poignant quote that resonates is: '...because they can focus with a rabbit on their lap....I just think, well, put a rabbit on his lap in class while he's doing his maths.' (SI2).

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Doctorate in Educational Psychology

“They’re everybody’s, you know. They’re a big part of our school.”

Exploring the Impact of the Presence of Animals on Children and Young People in Special Schools.

Paper C: Critical Appraisal

Word Count: 6,921

1.0 Overview

This critical appraisal will provide a reflective and reflexive account of my research journey. The appraisal will begin by discussing my role as a researcher during each stage of the process; conducting the literature review, the considerations of the methodology used, the participants, data collection, data analysis and results. The appraisal will then focus on considerations regarding the unique contribution this research makes to existing knowledge. This will be discussed in relation to the origin of the current research, the findings and the relevance to Educational Psychologist (EP) practice.

I will write in first person emphasising my role as the researcher as an active participant in the research itself rather than an observer. This ensures that the researcher is seen as embedded in the process (Pellegrini, 2009).

2.0 Critical Account of the Research Practitioner

2.1 Conducting the Literature Review

The process of conducting the literature review felt daunting at first as I had not reviewed the amount of literature in as much depth as is expected for a doctoral research project before. I sought support from the Cardiff University Psychology librarian as well as through supervision with my research supervisor. During the supervision sessions, I developed my knowledge and understanding regarding the different databases as well as the difference between various types of literature reviews. Two of the most common literature reviews are narrative and systematic. A narrative literature review provides a broad perspective of a topic often discussing the history and development of the research focus, whilst a systematic literature review is focused around a particular question (Green et al., 2006).

2.1.1 Rationale for a Narrative Literature Review

Whilst I did consider a systematic literature review, a narrative literature review was selected due to the limited amount of existing research specifically focusing on the presence of animals in special schools. Examining the literature from a broader lens

was deemed more appropriate to ensure the review captured differing perspectives and to look at the topic's development over time. I found conducting the narrative literature review further developed my understanding of the topic area more broadly. I did, however, find it more of a challenge to ensure that the research I included within the review was completely relevant to the topic. My interest in the topic area meant that I, sometimes, found myself exploring tangents which therefore resulted in my literature review becoming too long. I found it helpful to reflect on this during supervision which enabled me to come to decisions regarding what was relevant to include and what was not.

A limitation of using a narrative literature review is the element of researcher bias when selecting the papers to use for the review. In an attempt to mitigate this, I ensured I used a systematic method to search for papers initially. Green et al., (2006) highlight that, often, narrative reviews fail to use a systematic method to identify literature which they suggest can create 'an insignificant knowledge base from which to draw a conclusion' (p. 104). In addition to the systematic search, I used a snowballing technique as well as manual searches specifically relating to the topic.

The search terms used for the selected databases yielded a number of results. Many, however, were not relevant to the topic. This could reflect the search terms selected and perhaps highlights that internationally the terms 'special schools' and Additional Learning Needs (ALN) and similar phrases are not referred to in the same way across the United Kingdom (UK). On reflection, additional manual searches proved extremely beneficial as a wider range of research was found as a direct consequence of this additional search technique.

2.2 Methodological Considerations

2.2.1 Ontology and Epistemology

Ontology refers to the relationship between the world and our interpretations of what is reality (Braun & Clarke, 2013). Willig (2013) suggests that a key question of ontology is "what is there to know?" (p.12). Epistemology refers to the nature of knowledge and what it is possible to know (Braun & Clarke, 2013). My research was underpinned by a critical realist ontological and epistemological approach which uses components

from both positivist and social constructionist paradigms (Fletcher, 2017). A critical realist approach is best understood by combining the ontological approach realism with the epistemological approach relativism which retains a concept of truth but recognises how humans shape and experience this will be different. Therefore, the stance of critical realism reflects my stance as a researcher, as I understand and value the perspectives of all participants.

I considered other ontological and epistemological positions such as a pure realism ontological position. This stance assumes there is one truth (Braun & Clarke, 2013). Braun and Clarke (2022), however, propose that a pure realism position is difficult to match when recognising and valuing subjectivity within data. Additionally, I considered a relativist epistemological approach. This stance assumes that all knowledge is based on perspectives and there is not one, single truth (Braun & Clarke, 2013). I felt, therefore, that a critical realist paradigm was a more appropriate lens through which to view my research as this stance understands that whilst there may be some truth it is shaped by humans' different experiences and perspectives.

Ontology and epistemology were terms I was introduced to during my first year as a Trainee Educational Psychologist (TEP) and these concepts took me a while to fully understand. As I undertook some research projects in year one and two of training, I began to understand the importance of ontological and epistemological stand points and how each person has their own knowledge and understanding of the world, which can be influenced by a number of factors such as culture, experiences and interactions (Burr, 2015). I began to understand how my knowledge and understanding of the world would influence how I would undertake this research and therefore I valued the importance of identifying an ontological and epistemological stance.

2.3 Research Design

Initially a case study design had been considered and planned. Consequently, I sought to recruit two special schools to take part as case studies. I had initially intended to use a mosaic approach to begin to explore the use of animals in school from the perspective of Children and Young People (CYP). The mosaic approach is typically used to collect data from CYP who may experience challenges with traditional data

methods (Clark and Moss, 2017). The CYP at special schools often have significant learning needs so it felt important to use an approach accessible for them. Additionally to this, I had planned to gather the views of parents/carers and staff from the schools. Due to the Covid-19 pandemic, however, I was not able to complete the research as initially planned. Therefore, further consideration led to a mixed methods approach that, instead, focused on exploring the presence of animals from the perspective of staff and parents/carers from both schools. It is important to note here that only two schools that fitted the inclusion criteria volunteered and, whilst I perhaps could have chosen to survey special schools more widely, I felt it was important to only involve schools that have animals present on the school premises on a regular basis.

As a result of my ontological and epistemological stance, a mixed methods research design was selected. Mixed methods allow for the triangulation of data which Tashakkori and Teddlie (2009) describe as ensuring a completeness to the data and thus creating a full picture of the research question. McEvoy and Richards (2006) suggest that mixed method approaches, which involve methodological triangulation, are compatible with a critical realist approach.

2.4 Participants

2.4.1 Recruitment of the Special Schools

Once ethical approval was granted by Cardiff University Ethics Committee, I was able to start the recruitment process. I sent an email to all maintained special schools in Wales and asked them to express an interest if they wished to participate. Initially, although I received some emails expressing an interest to participate, the schools who replied did not have animals present at the time so did not fulfil the inclusion criteria to participate in this research. I sent a follow up email attempting to recruit again and two schools that matched the criteria volunteered to take part in the research.

I realised that some of the emails I was using were the standard admin/office emails taken from the school websites and so I may have not been using the email address directly linking to the Head Teacher of the schools. Therefore, I started to make contact with the Educational Psychology Service (EPS) of each Local Authority (LA) and the

EPs were able to provide me with the relevant email addresses of schools they knew had animals. On reflection, if I had noticed this at the beginning of the recruitment process, it would have been a smoother process. This process was also helped by the fact that my research supervisor knew some special schools with animals that could be contacted directly and so I specifically targeted them.

On recruitment of both schools, I made regular contact with their nominated link person during the process of the research. I found it difficult being reliant on one member of staff in each school and experienced challenges in contacting them during the process regarding each element of my research. The pandemic further exacerbated these difficulties as online methods of communication (phone and email) were heavily relied upon. If the initial discussion with each link person happened in person, I believe communication would have been easier as rapport would have been built. In support of this, I did find that once I had completed the initial observation in the schools and some rapport was built, they were more likely to reply to email queries.

In addition, as the research was conducted in schools, I was restricted to school term time. This meant that data collection could not begin until after the summer holidays. I recognise that after I had recruited the schools, I should have started data collection immediately which would have helped to reduce the pressure for both me and the schools.

On reflection, as the research was conducted during the Covid-19 pandemic, I do wonder if collecting data would have been easier if more schools had volunteered to be involved in the study. The onus was on the two schools which might have added pressure at such a challenging time. There may have been potential advantages of using a mixed methods approach from the outset as I could have sent the questionnaire link to a larger number of special schools although there were risks with this as, as explained earlier, a number of the schools did not have animals present on their sites. It was important for the purpose of my research that the special schools involve animals regularly in school so that participants were able to share their perceptions from a position of understanding and experience. This, therefore, may have limited the number of possible participants anyway.

2.4.2 Recruitment of Staff and Parent/Carer Participants

The online questionnaire link was sent to the Head Teacher of each of the special schools allowing them to disseminate the links to all staff and parents/carers of CYP at the schools in a way most appropriate for them (e.g. via email). The staff questionnaire was also the way through which the participants were recruited for interview: there was a question referring to interview participation. Those who volunteered for interview were asked to provide their email addresses and then I contacted them to arrange a date and a time for interview. It was important to ensure that, for those who volunteered for interview, their questionnaire responses remained separate to the email they provided which guaranteed the anonymity of their questionnaire responses. I was hoping for between three and five interviews and three participants volunteered. If there had been more than five volunteers, participants would have been selected based on a first come first serve basis.

2.4.3 Inclusion and Exclusion Criteria

As previously mentioned, the special schools that were considered for the research had to have a wide range of animals on site and CYP had to have regular contact with them which was important for my research as I wanted to explore the impact of the presence of animals on the CYP themselves in special schools. Only two schools met the criteria which may have limited the research potential.

For both parts of the research, parents/carers and staff had to attend or work at one of the two special schools. The first participant that I interviewed had a seconded position at school B and was employed by the school at the time of data collection. The participant did have valuable knowledge and experience of the presence of animals on CYP but some of their experiences related to the other setting. The original case study design led me to consider the validity of their participation as not all of their reflections were based on experiences in the current selected special school. However, a benefit of the transition to a mixed methods approach, was that it was possible to include their interview data, which offered potentially valuable insights into the involvement of animals in another school.

The two other interview participants were the animal care leads of each school. Whilst this highlighted some interesting results, I have since reflected that perhaps the views of participants that were situated elsewhere in the school would have been beneficial and may have emphasised points that were not mentioned. I recognise, however, that this was out of my control and that the participants may have been more likely to participate because it was their area of expertise, they were directly linked to the research topic, they had met me and had a high level of knowledge of the topic. These two participants were likely to speak from a position of knowledge and experience on the topic which in itself provided valuable information. I recognise that if the Covid-19 pandemic had not occurred, more participants may have volunteered. Conversely, however, this may highlight that the members of staff that are involved with animal care sessions are the staff that spend the most time with the animals and other members of staff may have felt they could not comment on the impact of the animals on CYP in enough depth for an interview.

2.5 Data Collection Methods

Parents/carers and staff views were gathered using a questionnaire (part one) and further staff views were collected via semi-structured interviews (part two). Additional contextual information was gathered as I observed some sessions in both schools when CYP had access to the animals.

2.5.1 Contextual Information

The design of this research initially began as a case study with two schools and a use of the mosaic approach to explore the views of CYP regarding the presence of animals. As part of this I had planned to observe a number of sessions in both schools when CYP had access to the animals. The purpose of this was to further my understanding of how school staff utilise the animals within the school environment with CYP (e.g. a therapeutic intervention or as part of a curriculum subject such as an animal care session) and the perceived responses and reactions from CYP during their time with the animals. The observations were going to be an integral part of the mosaic approach. However, restrictions regarding visiting special schools, as a consequence of the Covid-19 pandemic, together with difficulty accessing staff to obtain the necessary information, meant this was not possible. I consequently had to

revisit my design and decided instead to do a mixed methods approach. The contextual information gathered provided beneficial information increasing my understanding of the presence of animals in both schools. Therefore, the information obtained during these observations, felt important to report. I'm hoping the information set the scene for the subsequent data which followed.

Greenfield (2011) highlights that the perspectives of CYP are understood better if the researcher spends time in the setting. I hope that the contextual information gathered provides an additional, beneficial insight into the impact of the presence of animals on the CYP. I had hoped to observe more than I was able, and the restrictions of the pandemic meant organising the observations was difficult.

2.5.2 Part One: Questionnaires

Questionnaires were used to collect data from school staff and parents/carers for part one of the research. It was intended that the data gathered from the questionnaire would guide the semi-structured interview questions for part two of the study. Questionnaires are an efficient way to collect data from a wide range of participants and they typically get a higher response rate than interviews or focus groups due to the fact they are anonymous (Braun & Clarke, 2013). Additionally, questionnaires are particularly suitable when research questions are perception or experience-based questions, so I deemed this method of data collection appropriate (Braun & Clarke, 2013). Questionnaires do, however, lack flexibility, as responses cannot be probed further which may have offered a perhaps more in-depth response (Frith & Gleeson, 2008). I used open-ended questions in an attempt to gather in-depth responses but, often, participants' responses were fairly short. The use of semi-structured interviews in part two of the research allowed me to expand on key elements which were mentioned in the questionnaire and so I felt that the questionnaire fulfilled the intention and informed part two.

The questionnaire link was sent to the Head Teacher of each school for them to disseminate to staff and parents/carers in a way most appropriate for them. Saleh and Bista (2017) identified that if a questionnaire link is sent to participants from a familiar person, then response rates are generally higher. I acknowledge that this was during another wave of the pandemic meaning heightened stress during an already stressful

time. I believe this had an effect on the amount of results yielded as, understandably, staff and parents/carers had other priorities. Regardless, I was satisfied with the results I did obtain.

It must be noted that not all participants chose to answer the first question relating to the school attended or worked at, so I was unable to report the results. I recognise that it may have been interesting to look at the differences and similarities across both schools and, perhaps, I should have stipulated that participants must answer that particular question. I acknowledge, however, that I may not have had as many responses if I had made it a requirement to answer the question as it may have reduced the assurance regarding anonymity.

2.5.3 Part Two: Semi-structured Interviews

Semi-structured interviews were used to gather data from school staff for part two of the research. Selecting this style of interview meant that I could cover, in more depth, some pertinent areas that were important to explore for the purpose of my research, while also allowing for participants to raise issues that I had not anticipated (Braun & Clarke, 2013). This enabled participants to share and reflect on their own experiences regarding the impact of animals on CYP.

Braun and Clarke (2013) state that a key part of successful interviews is for the researcher to remain non-judgemental and show a genuine interest in what the participant is saying. Open questions that are non-directive are important for a semi-structured interview and are ideally used (Braun & Clarke, 2013). I have since reflected on this and wondered if I occasionally asked questions that were potentially leading which led participants to sometimes repeat what I had said. As a fairly new researcher, I wanted to ensure the participants felt comfortable and I was careful to respond in a way that demonstrated understanding of their perspective which felt right in that moment. This is something I will continue to reflect and work on for future research.

Additionally, communication and active listening skills are key components for a successful interview. As a TEP, communication and active listening skills are fostered in my work with CYP, families and school staff as well as skills I use during

consultations. I reflected on my experience as a TEP and I feel this facilitated the interview process in a positive way.

It is also important to remain silent when someone has finished speaking as it will usually encourage them to expand on what they have said. On reflection I found this difficult and possibly rushed to ask the next question during the interview. I did, however, improve at this as the interviews went on demonstrating my reflexivity as a researcher.

The interviews were conducted online via Microsoft Teams. I recognise that virtual interviews may have provided me with less information than face-to-face interviews as some elements of body language and visual cues were not as noticeable (Braun & Clarke, 2013). Consequently, the conversational aspect of an interview may have been lost as there is a fear of interrupting one another because of the lack of visual body language. Braun and Clarke (2013), however, outline some advantages to virtual interviews. Virtual interviews are more convenient and accessible for participants which was especially important whilst conducting research during the Covid-19 pandemic. It allowed for participants to take part either from their own home or in school. Consequently, online interviews are more time and cost effective as no time or money is spent on travelling to a location for the interview. Furthermore, Deakin and Wakefield (2013) state that virtual interviews are a viable choice and should not be considered a back-up option.

2.6 Transcription

Before data analysis could begin, it was important I prepared my data to be analysed. For the interviews, it was essential to transcribe the data. Initially, I thought transcribing data was a simple, although time consuming, part of the process. I soon realised this was not the case and that substantial thought and consideration had to be given. When reading wider, I realised that there are a range of ways to transcribe data such as an orthographic, conversational or styles that use paralinguistic features (Braun & Clarke, 2013). I felt that an orthographic way to transcribe was the most appropriate for my research as it records exactly what the participants say rather than also recording how they say it. An orthographic transcription method captures enough data for the use of

content analysis and reflexive Thematic Analysis (TA). For other forms of data analysis such as Grounded Theory (GA) it is important to comment on how participants say things which provides some explanation behind the words people say. As my research was not exploring the meaning behind participants words an orthographic transcription method was most appropriate. The transcription notation system for orthographic transcription was followed as outlined by Braun and Clarke (2013).

2.7 Data Analysis

2.7.1 Part One: Questionnaires

Descriptive statistics were used to analyse the quantitative data from the questionnaire and the qualitative questionnaire data was analysed using content analysis. One of the aims of descriptive statistics is to determine the frequency and/or percentage with which something has occurred Walker (2005). Visual graphs and percentages are easy to interpret and can therefore increase the accessibility of research (Taylor-Powell, 2003).

I initially found the process of conducting content analysis difficult as there does not seem to be one structured process to follow. It was important for me to use supervision to discuss my thoughts in relation to how to approach the analysis. The main aim of content analysis is to code data into meaningful categories and record the frequency of the categories (Mayring, 2022). Krippendorff (1980) points out, however, that how categories are defined “is an art and little is written about it” (p.76). In an attempt to overcome this hurdle of feeling overwhelmed, I read wider and began to develop a good understand of the process of content analysis that would fit my data and therefore followed a similar process to that outlined by Mayring (2014) and Hsieh and Shannon (2005).

2.7.2 Part Two: Semi-structured Interviews

Reflexive TA was used to analyse the data yielded from the semi-structured interviews which is compatible with a critical realist research paradigm (as well as descriptive statistics and content analysis) as it allowed me to access participants perceptions of

the presence of animals in special schools whilst recognising that their perceptions are shaped by what they have experienced (Braun and Clarke, 2021).

Whilst reflexive TA was considered to analyse the qualitative results from the questionnaire, I felt that the responses did not offer enough depth to be identified as themes and could therefore be described as 'meaning-thin' which, Braun and Clarke (2021 pg. 13) identified as a common problem with TA in general. The responses may not have provided rich 'meanings, perspectives or experiences' to explore patterned meaning which ensures data quality for reflexive TA (Braun & Clarke, 2022 p. 28). Data quality is an essential part of reflexive TA that must be considered before analysing the results. Therefore, I felt that content analysis would be more appropriate.

Braun and Clarke (2013) describe TA as an analysis method for identifying themes across a data set and I followed their suggested six stages of analysis which I previously outlined in paper B.

TA is the most widely used form of data analysis for qualitative data although it was not formed into a specific method until 2006 (Braun and Clarke, 2013). Braun and Clarke (2013) highlight that one of the main strengths of TA is the flexibility it offers and the fact it can be used to answer most research questions. It can also be used with large or small datasets and produces rich and detailed accounts of data. Braun and Clarke (2006) argue that TA is one of the first analysis techniques that a researcher should learn as it encompasses core skills that are useful for many other data analysis methods. Recently the term reflexive has been added to TA as the role of a reflexive researcher is paramount to quality TA (Braun and Clarke, 2021).

There are different forms of TA: inductive TA, theoretical TA, experiential TA and constructionist TA. I used inductive TA due to the fact it analyses the data from the 'bottom-up' and therefore the data is not shaped by existing theory. Researcher bias is limited when using this form of TA as the analysis is shaped purely by what the participants say.

I did consider alternative methods to analyse the data such as IPA. This type of analysis relies on how people make sense of their lived experiences and is a tool to

provide in-depth data based on these experiences. I decided against this form of analysis however, as my research did not focus on participants having had previous experiences of working with animals in educational settings. Additionally, I felt my research findings would not produce the level of depth needed for IPA.

I found this part of the research process the most challenging and time consuming. On reflection, I think that having had experience of using TA before (for a small-scale research project) benefitted the process. I was able to reflect on the elements I found difficult previously and ensured I had adequate time to familiarise myself and immerse myself in the data. As I conducted interviews later than expected during the research process, I applied for an extension to my thesis draft deadline to ensure enough time was given to the analysis process.

2.8 Ethical Considerations

Ethical approval was gained from Cardiff University Ethics committee. This was a fairly smooth process as I only received feedback of minor amendments for my initial proposal of research.

As with most research, anonymity and confidentiality are paramount and I ensured my research was undertaken in accordance with the British Psychological Society Code of Ethics and Conduct (British Psychological Society [BPS], 2017) and the Health and Care Professionals Council Standards of Conduct, Performance and Ethics (Health and Care Professionals Council [HCPC], 2016). Using information sheets, consent forms and debrief forms ensured that my participants were appropriately informed of the research as well outlining their right as a participant to withdraw up until the point the data had been transcribed and anonymised. Participants did not raise ethical issues before, during or following data collection. My research was low risk to participants as the topic did not intend to talk about sensitive issues. Regardless of the low risk, I aimed to make participants as comfortable as possible during the interview process.

As previously mentioned, the interviews were conducted virtually, and this can be seen as a strength as they are more convenient for participants. There are, however, some

ethical concerns. The interviews took place in participants' homes, such as dining rooms, and open classrooms. These settings are not private and could have been overheard by family members and colleagues and, therefore, this potentially impacted on confidentiality. On reflection, this highlights the lack of control that I had over this and puts the responsibility on the participants to choose a place where they felt comfortable for the interview to go ahead.

2.9 Researcher's Position

Prior to becoming a TEP, I worked in different educational settings including a Specialist Resource Base. During this time, I became aware that animals were often included in the education of CYP both academically and therapeutically and I noticed a number of potentially beneficial impacts. I am aware that I may have had a biased view regarding the impact of the presence of animals on CYP in schools having experienced the positive impacts personally, which may have affected how I interpreted the data. That said, because of where I had worked, I was also aware of the concerns from school staff regarding the care of the animals and health and safety for example. This ensured, I hope, that I explored all aspects of impact – not just positive. I made every effort not to ask leading questions during the semi-structured interviews.

3.0 The Context of the COVID-19 Pandemic

The research was conducted during the covid-19 pandemic which, as referred to previously, resulted in a considerable number of challenges. The research was based within two special schools during a time where the environment had changed and where staff and CYP were adjusting to the new working environments. I understand that research was not necessarily a priority and a considerable amount of time was given by the schools to ensure my research could be conducted. It is possible that the views of participants reflected the pandemic and how the presence of animals in school reflects that context. I reflected that perhaps results may have been different if the time at which the research was conducted was during more 'normal' times.

4.0 Contributions to Knowledge

4.1 Development of the Research Idea

Before I started training to become an EP, I worked in a variety of educational settings and I became aware of the presence of animals in some of these settings. During my first-year placement as a TEP, a school I worked with had a school-based dog as well as rabbits. When discussing this with school staff they talked about how the animals helped to support CYP, with emotional and social difficulties, engage in learning. The support provided from the animals was not in a formal or therapeutic way but, just by them being present and the CYP having the opportunity to interact with them during the school day. Similarly, a school that did not have animals often invited an organisation that brought a range of animals to schools to show the CYP and provide them with the opportunity to learn about animals as well as interact with them.

I was aware of previous theses that had focused on specific animal interventions in school or the impact of AAT. It encouraged me to reflect that if schools do not use the animals for formalised interventions such as AAT, what are their reasons for having animals in school?

Having grown up with animals myself, I have some understanding of the potential benefits of CYP being around animals. I was curious as to why animals may be used with CYP in schools and for what purpose.

4.2 Gaps in the Literature

Literature highlighted that there has been limited research on the use of animals in special school settings. Although there is ample literature on the impact of animals on CYP with a range of needs such as social communication difficulties (Davis et al., 2015; O'Haire et al., 2014) and emotional difficulties (Boe, 2008; Beetz et al., 2012), very little referred to the impact they have in special school environments specifically. I recognised, therefore, that more insight and knowledge was needed to ensure the professionals working with CYP were aware of the reason behind including animals in school settings. Thus, it may be more than helpful for EPs to have an understanding

of whether it is potentially beneficial to have animals in special school settings and, if so, what the benefits may be and what potential difficulties may be useful to consider. Additionally, most of the research found was conducted outside of the UK so I felt there was a gap in research that was specific to the UK, particularly the Welsh school system.

4.3 Development of the Research Question

As a consequence of changing the design to mixed methods, I narrowed my research questions to one question as I felt I was no longer able to adequately answer the planned research questions in as much depth. Braun and Clarke (2022) point out that expanding, narrowing or adjusting research questions is often part of the research process as analysis takes form. The views of participants were an essential component in relation to their perceptions of the presence of animals in special schools. It was important that I did not propose a leading question by just asking for the positive and/or negative impact. I wanted to keep the research question as open as possible and to explore the perceptions of school staff and parents/carers in general including the impacts on CYP, whether they were positive or negative. I felt the question was broad enough to allow for exploration within them but also specific enough in relation to the study aim and topic.

4.4 Contributions of Findings to Existing Research

The study identified a number of interesting results over parts one and two. Although descriptive statistics, content analysis and reflexive TA was used to separately analyse the data from part one and two, I did draw similarities across them. These themes were Educational Impact, Emotional Impact, Qualities and Values, Considerations. I found it useful to reflect on how these themes linked back to the psychological underpinnings of Attachment Theory (Bowlby, 1973) the Biophilia Hypothesis (Wilson, 1984) Social Support Theory and Biopsychosocial Model (Engel, 1981). Thus, it is hoped that my research provides further evidence for the existing knowledge base linking these theories to the impact animals have on humans. These findings appear to align with existing research relating to the impact of animals on CYP increasing engagement in the classroom, empathy towards others and helping to regulate emotions. My research also contributes to the research that referred to the

beneficial impacts of animals in school for children with ALN (Yap, 2017; Kaufmann et al., 2015; Friesen 2010; Limond (1997); Leonard, 2017). It will be important for EPs to be aware of this as it could be something to consider in relation to interventions for CYP and as a way to support CYP who have ALN.

Findings also highlighted that there are a number of considerations and concerns regarding the wellbeing of the animals, the cost and responsibility of keeping them (Kaufmann et al., 2015; Friesen, 2010). Whilst the literature did highlight these concerns, it was only brief and I, therefore, did not expect the category/theme to appear so strongly across the data. Novel learning is part of the doctorate learning process, however.

4.4.1 Future Research

As I collected both staff and parents/carers views, I do wonder if some of their perspectives were lost. Future research could specifically focus on the views of one of the two participant groups across different schools. Additionally, exploring the perceptions of CYP themselves in an accessible way, such as drawing, feels important. It would be interesting to gain their perceptions of animals in school and how they think the animals impact them. It would be interesting to see if the views of staff and parents/carers regarding their perceptions of the impacts of animals in special schools correlate with those of CYP.

As my topic was fairly broad and, although beneficial, it was difficult for me to navigate at times. It may be useful for future research to focus on more specific elements (e.g. exploring animal care with the post-16 cohort in special schools). Similarly, perhaps exploring the use of animals with regards to a specific intervention such as to improve concentration for CYP with particular needs (e.g. ADHD). This could potentially involve action research.

As mentioned earlier, the sample size of my research was small. A larger sample size of special schools may help to reveal if the findings of my research can be generalised to a wider population of special schools. This may provide more scope for the use of animals in special schools.

Additionally, and very interestingly, the role of the EP was not mentioned in most of the literature I reviewed regarding animals in educational settings and I found this surprising considering EPs are usually involved in the implementation of whole-school approaches. I felt that as a result of the literature review as well as the findings, future research could focus on the EPs role in supporting schools where the animals are used specifically to mitigate particular learning, social, emotional or communication needs of CYP. This could concentrate on the mitigation of certain challenges such as health and safety, responsibility and cost.

4.5 Relevance to EP Practice

It is important for EPs to be mindful of the different approaches that special schools use to support their CYP. The position of the EP is unique as they are able to apply psychological knowledge to support schools in relation to child development and individual differences as well as systemic decision making.

It is important for EPs to have an awareness of the literature-base that exists around the presence of animals in schools. My research highlights that staff and parents/carers are aware of the impact animals can have in school settings which proposes that EPs should have adequate knowledge on the topic to draw on the psychology when discussing the presence of animals in school settings. It is becoming more common for EPs to be asked about the processes involved in having animals in schools (Younggren et al., 2016; Davison, 2015). Therefore, it postulates that EPs are in a position to consider whether, based on current research, the use of animals would be helpful with certain cohorts of CYP or with specific cases. They may also be able to offer support and advice for schools considering the decisions of having animals in their school. It could be something that training and awareness raising sessions could be developed around.

4.6 Approaches to Dissemination

My research has implications for both the role of EPs as well as staff, parents/carers and their CYP in special schools. Therefore, dissemination must be considered for each group. I understand that my research may not be presented in the most accessible way for all and considerations must be made to ensure audiences can

clearly understand the findings. For example, for CYP this could be in the form of a poster. As the research was based on the views of participants from two special schools, it is important to share the findings with the school communities. Staff within the schools that may not have been aware of the impact of animals on CYP may now consider how the animals could support CYP in particular lessons. The findings may stimulate interesting conversations regarding the benefits but also regarding the considerations and concerns of animals in special schools. CYP remain central to this research and, whilst their views could not be obtained, it is important some of the key findings are shared with them.

In relation to EPs and school staff, dissemination at a LA level may be beneficial. My research may provide some useful considerations that EPs can draw upon when making recommendations for educational settings and for CYP with ALN. Additionally, the research may provide further evidence for schools to consider animals within their setting, especially to meet the needs of CYP with ALN.

5.0 Concluding Reflections

To conclude, this critical appraisal considers and evaluates the choices I made during my research journey as well as making reference to the contribution my research makes to the existing knowledge base. This included my ontological and epistemological position, and how this influenced my decision regarding research design and methods. Alternative choices have been discussed as well as what I could have done differently if I were to conduct the research again.

I have enjoyed conducting the research and, although, challenging at times, it has developed my skills as a researcher. I have furthered my understanding of key psychological theory that underpins HAI and feel I am better equipped in my knowledge of the impact of the presence of animals on CYP in special schools.

This critical appraisal has provided me with an opportunity to reflect on the process as a whole and consider my growth as a researcher over the course of the doctorate.

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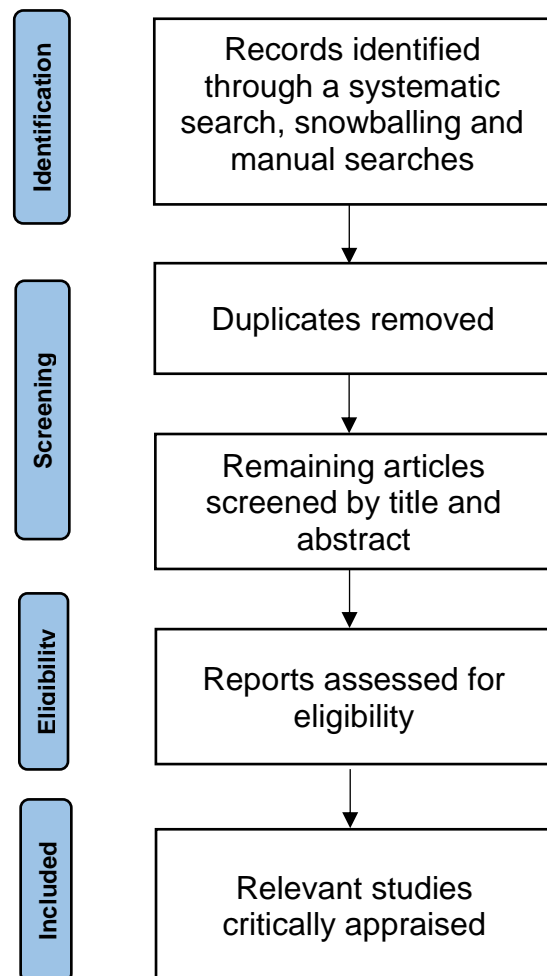
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Appendices

Appendix A – Search Terms

Database	Search Terms	Number of Results
APA PsycInfo	animal assisted therapy OR Animals OR Pets OR Pet OR animal* AND special education OR special needs OR special* school* OR special* OR additional learning need*	120
Scopus	animal* OR pet OR pets AND "special* education" OR "special* school*" OR "additional learning need"	80
Web of Science	animal* OR pet OR pets AND "special* education*" OR "special* school*" OR "additional learning need*"	56
Education Resources Information Centre (ERIC)	animal* OR pet OR pets AND ("special* education*" OR "special* school*" OR "additional learning need*")	91
British Education Index	animal* OR pet OR pets AND "special* education*" OR "special* school*" OR "additional learning need*")	8
Applied Social Sciences Index and Abstracts (ASSIA)	animal* OR pet OR pets AND "special* education*" OR "special* school*" OR "additional learning need*"	16

Appendix B - Flow diagram of Literature Search Process



Appendix C – Email to Special Schools for Potential Recruitment

Dear [Head Teacher],

My name is Lizzie Brooks and I am a trainee Educational Psychologist. I am in the process of starting my research as part of a doctoral thesis in Educational Psychology at Cardiff University.

The aim of my research is to explore, in-depth, how animals are involved in the education of children and young people. I hope for my research to take place in two Special Schools and would be really grateful if you would consider allowing your school to take part. The criteria for recruitment is based on the following:

- There are a range of animals in your school;
- Children and young people have regular contact with the animals.

My thesis title is: **Exploring the Impact of the Presence of Animals on Children and Young People in Special Schools: A Case Study Approach.** I am hoping to answer the following research questions:

- How are animals utilised within education at the selected special schools?
- What are the perceived impacts (positive, negative or otherwise) that the animals have on children and young people?

As part of the research I am intending to:

- Observe some sessions in your school where the children and young people have access to animals in order to understand how the animals are utilised in school.
- Collect some information regarding the views of CYP of animals in their school in the form of drawings and photographs some of children and young people have produced.
- Gain the views of school staff and parents on animals in education via questionnaires.
- Gather further views from school staff via interviews with myself.

The findings will be used to form my thesis and I will submit this as a requirement for my doctorate. I hope the outcomes of the research will inform Educational Psychologists' practice in supporting children and young people in special educational settings.

I will be closely supervised throughout the research by Hayley Jeans, a professional tutor on the Cardiff Doctorate in Educational Psychology programme and her contact details can be found below. The Research Ethics Committee at the School of Psychology at Cardiff University has granted ethical approval for the research and their contact details are also below.

If your school currently has animals and you would be interested in taking part in this research or have any further questions about what the research would involve, please let me know.

I look forward to hearing from you,

Regards,

Lizzie Brooks

Contact Details of Researcher:

Lizzie Brooks: BrooksE4@cardiff.ac.uk

School of Psychology, Cardiff University, Tower Building, 70 Park Place, Cardiff, CF10 3AT.

Contact Details of Research Supervisor:

Hayley Jeans, Professional Tutor, Doctoral Educational Psychology training course:

JeansH@cardiff.ac.uk

School of Psychology, Cardiff University, Tower Building, 70 Park Place, Cardiff, CF10 3AT.

Contact Details of Cardiff University's Research Ethics Committee:

School of Psychology, Cardiff University, Tower Building, 30 Park Place, Cardiff, CF10 3AT.

Appendix D - Information Sheet for Parents/Carers (Regarding Observations)

Who is carrying out this research?

My name is Lizzie Brooks and I am a trainee Educational Psychologist. I am carrying out this research as part of a doctoral thesis in Educational Psychology at Cardiff University. I am being supervised by Hayley Jeans who is a Professional Tutor on the Doctoral Educational Psychology training course at Cardiff University.

What is the aim of the research?

Using a case study approach, the aim of this research is to explore how animals are involved in the education of children and young people in special schools. The findings will be used to form my thesis and I will submit this as a requirement for my doctorate.

What will the research involve?

I am hoping to observe a range of sessions involving animals in the school to gather information and gain a better understanding of how and why the animals are involved in the education of children and young people.

More specifically I will be observing:

- How school staff utilise animals within the school environment for pupils
- In what capacity the animals are utilised with pupils (e.g. a therapeutic intervention or an animal care session)
- The perceived responses from pupils during their time with the animals

I will be asking school staff to support the pupils to draw and/or photograph the animals before the observations and I will collect this information when I am at the school. Please note that school staff will be advised to support the pupils to photograph the **animals only** and no photographs of pupils will be included. The drawings I will collect will not include any identifiable information. I will not be working directly with the pupils. I will be making notes during the observations about how the pupils respond to the animals and what sessions the animals are involved in - but no identifiable information will be recorded.

Covid-19

I will follow the school risk assessments and policies in relation to Covid-19. I will only observe in person if it is considered safe to do so and will otherwise gather information virtually.

If you do not wish for your child to be present during the observations, please contact [first point of contact/Head Teacher].

How to find out more information

If you have any questions or would like more information, please contact:

The Researcher:

Lizzie Brooks: BrooksE4@cardiff.ac.uk

School of Psychology, Cardiff University, Tower Building, 70 Park Place, Cardiff, CF10 3AT.

The Research Supervisor:

Hayley Jeans, Professional Tutor, Doctoral Educational Psychology training course:

JeansH@cardiff.ac.uk

School of Psychology, Cardiff University, Tower Building, 70 Park Place, Cardiff, CF10 3AT.

Contact Details of Cardiff University's Research Ethics Committee:

School of Psychology, Cardiff University, Tower Building, 30 Park Place, Cardiff, CF10 3AT.

Thank you for taking the time to read this information

Appendix E – Staff Questionnaire

1. Which school do you work at?

- School A
- School B

2. What is your role in school?

- Teacher
- Teacher with management/senior leadership responsibility
- Teaching assistant
- Pastoral staff
- Non-teaching staff (e.g. midday supervisor, caretaker etc).
- Other

3. Do you have regular contact with the animals in your school?

- Yes
- No

4. In your opinion, how important are the animals to CYP in school? Please use the slider below (1=not at all important, 2=slightly important, 3=moderately important, 4=very important, 5=extremely important)

5. In what ways do you think the children and young people benefit from the animals in school?

6. Can you think of a particular child that has benefitted from the animals in school? Please describe this in terms of what you noticed.

7. In your opinion, are there any negatives to having the animals in school?

8. Have parents expressed an interest or given any feedback on the fact that there are animals in your school?

- Yes
- No

If yes, please provide further information about the interest/feedback from parents.

9. Would you encourage other special schools, that have no animals, to consider having some animals in their school?

- Yes
- No

Please explain your reasons for your response.

Appendix F – Parent/Carer Questionnaire

1. Which school does your child/children attend?

2. How old is your child?

- 3-7
- 8-11
- 12-16
- 17-19

3. How does your child generally respond to being around animals? (inside or outside of school)

4. What do you think about the fact that there are animals in your child's school?

5. Have you ever discussed the presence of animals in school with school staff?

- Yes
- No

If yes, please provide details.

6. Do you feel you have enough information about how the animals are utilised at the school?

- Yes
- No

If no, please describe what would improve your knowledge and understanding of how the animals are used.

7. Does your child have direct contact with the animals at school?

- Yes
- No

If yes, please describe the nature of your child's contact with the animals in school.

8. Does your child express an interest in the animals at school?

- Yes
- No

If yes, please describe.

9. Are you aware of any potential benefits that animals have on children and young people in school?

- Yes
- No

If yes, please list below.

10. In your opinion, how positively do the animals impact your child at school?
Please use the slider below (1=extremely negative, 2=somewhat negative, 3=neither positive nor negative, 4=somewhat positive and 5=extremely positive)

Please explain your reasons for your rating.

11. Would you promote having animals in schools to other?

- Yes
- No

Appendix G – Semi-Structured Interview Schedule

- What is your role within school?
 - Can you tell me what this involves?
- What do you notice when the CYP are around the animals? Have you noted any changes in their mood or behaviour?
 - Is there one particular child that stands out who reacts in a specific way? Could you briefly talk me through that.
- In terms of impacts of the animals on CYP, in your opinion what do you think these are? Positive, negative etc?
 - Refer to self-esteem, confidence, calming effect, responsibility (things that come up in part one).
 - Questions relating to case examples involving CYP who appear to have changed as a consequence of the involvement of animals (e.g. exploring the impact of animals in relation to the learning/development/attendance/engagement/attitude of CYP in school.
 - Could also explore emotional and behavioural presentation).
- So from your experience, is there a particular cohort of children that seem to really benefit from the presence of animals in school?
 - (e.g. age, particular needs or disabilities)
- Some of the responses in the questionnaire highlighted some difficulties of having animals in schools. In your personal opinion, tell me a bit about the difficulties (if any) that the presence of animals in your school has caused?
- What other ways do you think animals could be utilised in the education of children and young people? (therapeutic intervention, therapy, classroom pet?)
- Is there anything else that has come to your mind that would be beneficial for me to know or consider?

Appendix H – Participant Information Sheet (questionnaire)

Who is carrying out this research?

My name is Lizzie Brooks and I am a trainee Educational Psychologist. I am carrying out this research as part of a doctoral thesis in Educational Psychology at Cardiff University. I am being supervised by Hayley Jeans who is a Professional Tutor on the Doctoral Educational Psychology training course at Cardiff University.

What is the aim of the research?

Using a case study approach, the aim of this research is to explore how animals are involved in the education of children and young people in special schools. The findings will be used to form my thesis and I will submit this as a requirement for my doctorate.

What will taking part involve?

Participation in this research is completely voluntary. If you agree to participate, you will be asked to complete a consent form stating that you have read and understood this information and that you consent to take part in this questionnaire. Completion of the questionnaire should take approximately 15-20 minutes.

What will happen to the information I give?

You can choose to answer as many questions as you wish when completing the questionnaire. You do not have to complete all questions.

You can withdraw from the questionnaire up until the point that your questionnaire is submitted. When you press submit, the answers you have given will be sent to me immediately and anonymously.

The data will be stored on a password protected computer. I will use the data from the questionnaires in my thesis and this will be shared with the University. All information submitted in the questionnaires is anonymous and therefore, any information shared with the university will not be directly linked back to you.

How can I find out more information?

If you have any questions or would like more information, please contact:

The Researcher:

Lizzie Brooks: BrooksE4@cardiff.ac.uk

School of Psychology, Cardiff University, Tower Building, 70 Park Place, Cardiff, CF10 3AT.

The Research Supervisor:

Hayley Jeans, Professional Tutor, Doctoral Educational Psychology training course:

JeansH@cardiff.ac.uk

School of Psychology, Cardiff University, Tower Building, 70 Park Place, Cardiff, CF10 3AT.

Contact Details of Cardiff University's Research Ethics Committee:

School of Psychology, Cardiff University, Tower Building, 30 Park Place, Cardiff, CF10 3AT.

Thank you for taking the time to read this information.

Appendix I – Participant Consent Form (Questionnaire)

Please read the following statements and tick the appropriate answers.	
I have read and understood the information provided.	Yes/No
I understand that my answers will be used as part of the research described in the information sheet.	Yes/No
I understand that taking part in this research is my choice and that I can choose to not take part.	Yes/No
I understand that it will not be possible to remove my responses once they have been submitted.	Yes/No
I understand that my responses will be anonymous.	Yes/No
I understand that I am free to contact the researcher or the research supervisor to talk about the questionnaire.	Yes/No
I consent to take part in the questionnaire as part of the research.	Yes/No

Privacy Notice:

The information provided will be held in compliance with GDPR regulations. Cardiff University is the data controller and Matt Cooper is the data protection officer (inforequest@cardiff.ac.uk). The lawful basis for processing this information is public interest. This information is being collected by Lizzie Brooks.

The information on the consent form will be held securely and separately from the research information. Only the researchers will have access to this form and it will be destroyed after 7 years. The research information you provide will be used for the purposes of research only and will be stored securely. Only Lizzie Brooks will have access to this information. After 14 days the data will be anonymised (any identifying elements removed) and this anonymous information may be kept indefinitely or published.

Appendix J – Participant Debrief Form (Questionnaire)

To participants,

Thank you for completing the questionnaire. Your participation is greatly appreciated.

The aim of this research is to explore how animals are involved in the education of children and young people in special schools. The findings will be used to form my thesis and I will submit this as a requirement for my doctorate.

The anonymous information you have shared with me, will be held confidentially in a secure location to which only myself (the researcher) and the research supervisor will have access to.

If you have any questions or would be interested in receiving further information regarding the results of the research, please get in touch with me or my research supervisor using the email addresses below.

Regards,
Lizzie Brooks

Contact details of Researcher:

Lizzie Brooks: BrooksE4@cardiff.ac.uk

School of Psychology, Cardiff University, Tower Building, 70 Park Place, Cardiff, CF10 3AT.

Contact Details of Research Supervisor:

Hayley Jeans, Professional Tutor, Doctoral Educational Psychology training course:

JeansH@cardiff.ac.uk

School of Psychology, Cardiff University, Tower Building, 70 Park Place, Cardiff, CF10 3AT.

Contact Details of Cardiff University's Research Ethics Committee:

School of Psychology, Cardiff University, Tower Building, 30 Park Place, Cardiff, CF10 3AT.

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The information on the consent form will be held securely and separately from the research information. Only the researchers will have access to this form and it will be destroyed after 7 years. The research information you provide will be used for the purposes of research only and will be stored securely. Only Lizzie Brooks will have access to this information. After 14 days the data will be anonymised (any identifying elements removed) and this anonymous information may be kept indefinitely or published.

Appendix K – Gatekeeper letter to Head Teachers

Dear [Head Teacher],

Thank you for agreeing to take part in my research.

The research is designed to explore how animals are utilised within the education of children and young people. This research is being carried out as part of my Educational Psychology doctoral studies at Cardiff University and it is part of the requirements for my doctoral qualification.

I am keen to explore the views and perceptions of parents/carers and school staff. The research would involve both parents/carers and school staff completing a short online questionnaire taking approximately 15-20 minutes. There are links to the questionnaires for both parents/carers and school staff attached. Access to a device, such as a computer, smart phone or tablet, will be needed to answer the questions.

I am writing to enquire whether you would be willing to distribute anonymous questionnaire links; one to parents/carers and one to school staff, in whatever way is most convenient for you.

Please be assured that I will not have access to any personal information relating to the parents/carers and school staff and their responses will be completely anonymous. The questionnaires will have no personal or identifiable information and consequently it will not be possible to make a link between the participants and the answers provided.

I hope the outcomes of the research will inform Educational Psychologists' practice in supporting children and young people, particularly in better understanding the presence of animals in special school settings.

I will be closely supervised throughout the research by Hayley Jeans, a professional tutor on the Cardiff Doctorate in Educational Psychology programme and her contact details can be found below. The Research Ethics Committee at the School of Psychology at Cardiff University has granted ethical approval for the research and their contact details are also below.

Please let me know if you have any questions or require any further information.

Thank you for your support with this research and I look forward to hearing from you,

Regards,

Lizzie Brooks

Contact Details of Researcher:

Lizzie Brooks: BrooksE4@cardiff.ac.uk

School of Psychology, Cardiff University, Tower Building, 70 Park Place, Cardiff, CF10 3AT.

Contact Details of Research Supervisor:

Hayley Jeans, Professional Tutor, Doctoral Educational Psychology training course:

JeansH@cardiff.ac.uk

School of Psychology, Cardiff University, Tower Building, 70 Park Place, Cardiff, CF10 3AT.

Contact Details of Cardiff University's Research Ethics Committee:

School of Psychology, Cardiff University, Tower Building, 30 Park Place, Cardiff, CF10 3AT.

Appendix L – Participant Information Sheet (Semi-Structured Interview)

Who is carrying out this research?

My name is Lizzie Brooks and I am a trainee Educational Psychologist. I am carrying out this research as part of a doctoral thesis in Educational Psychology at Cardiff University. I am being supervised by Hayley Jeans who is a Professional Tutor on the Doctoral Educational Psychology training course at Cardiff University.

What is the aim of the research?

Using a case study approach, the aim of this research is to explore how animals are involved in the education of children and young people in special schools. The findings will be used to form my thesis and I will submit this as a requirement for my doctorate.

What will taking part involve?

Participation in the semi-structured interviews is completely voluntary. If you choose to partake, the interview should take no longer than 45 minutes and take place face-to-face or virtually on Microsoft Teams dependent on the coronavirus restrictions at the time of data collection. You can answer as many or as few of the questions as you wish. You can decide to withdraw at any point during the interview.

What will happen to the information I give?

The interview will be audio recorded, which will be stored on a password protected computer. After two weeks, the audio recording will be transcribed. Once the data has been transcribed, the recording will be destroyed and deleted. Transcripts will be anonymous and kept in a secure place. It is important to note that once the audio recording has been transcribed and made anonymous it will not be possible to withdraw from the research as data will not be identifiable.

I will use the anonymised data from the interviews in my thesis, and this will be shared with the University.

What do I do next?

If you agree to take part, please read and tick the consent boxes below. At the end of the interview, you will be provided with a debrief form.

How can I find out more information?

If you have any questions or would like more information, please contact:

The Researcher:

Lizzie Brooks: BrooksE4@cardiff.ac.uk

School of Psychology, Cardiff University, Tower Building, 70 Park Place, Cardiff, CF10 3AT.

The Research Supervisor:

Hayley Jeans, Professional Tutor, Doctoral Educational Psychology training course:

JeansH@cardiff.ac.uk

School of Psychology, Cardiff University, Tower Building, 70 Park Place, Cardiff, CF10 3AT.

Contact Details of Cardiff University's Research Ethics Committee:

School of Psychology, Cardiff University, Tower Building, 30 Park Place, Cardiff, CF10 3AT.

Thank you for taking the time to read this information.

Appendix M – Participant Consent form (Semi-Structured Interview)

Please read the following statements and tick the appropriate answers.	
I have read and understood the information provided.	Yes/No
I understand that my answers will be used as part of a doctoral thesis in Educational Psychology described in the information sheet.	Yes/No
I understand that taking part in this research is voluntary and that I can withdraw from the interview at any time.	Yes/No
I understand that I am free to contact the researcher, the research supervisor or the Ethics Committee to talk about the research or discuss any concerns at any time.	Yes/No
I understand that the interview will take no longer than 45 minutes and it will be audio-recorded.	Yes/No
I understand that all personal data (contact name and email) will only be known to the researcher and will be stored confidentially on a password protected computer to which only the researcher has access to.	Yes/No
I understand that, following transcription, my responses will be made anonymous.	Yes/No
I understand that once my data has been made anonymous it will not be possible to trace my answers back to me. It will not be possible to withdraw my interview data from the research after this point.	Yes/No
I consent to take part in the interview as part of the research.	Yes/No

Privacy Notice:

The information provided will be held in compliance with GDPR regulations. Cardiff University is the data controller and Matt Cooper is the data protection officer (inforequest@cardiff.ac.uk). The lawful basis for processing this information is public interest. This information is being collected by Lizzie Brooks.

The information on the consent form will be held securely and separately from the research information. Only the researchers will have access to this form and it will be destroyed after 7 years. The research information you provide will be used for the purposes of research only and will be stored securely. Only Lizzie Brooks will have access to this information. After 14 days the data will be anonymised (any identifying elements removed) and this anonymous information may be kept indefinitely or published.

Appendix N – Participant Debrief Form (Semi-Structured Interview)

To participants,

Thank you for taking part in the interview. Your participation is greatly appreciated.

The aim of this research is to explore how animals are involved in the education of children and young people in special schools. The findings will be used to form my thesis which I will submit as a requirement for my doctorate.

I hope that the experiences, views and perceptions you have shared with me will help Educational Psychologists to better understand the involvement of animals in special school settings to support children and young people in education.

The information you shared with me during the interview will be stored securely on a password protected device that only I (the researcher) will have access to. The audio recording of the interview will be transcribed and made anonymous meaning it will be impossible for any of your answers to be traced back to you. If you wish to withdraw from the research this can be done up until I have transcribed and anonymised your interview which will happen two weeks after the interview. If you would like to withdraw, please contact me by [date] which is within two weeks of the interview.

If you have any questions or would be interested in receiving further information regarding the results of the research, please get in touch with me or my research supervisor using the email addresses below.

Regards,
Lizzie Brooks

Contact details of Researcher:

Lizzie Brooks: BrooksE4@cardiff.ac.uk

School of Psychology, Cardiff University, Tower Building, 70 Park Place, Cardiff, CF10 3AT.

Contact Details of Research Supervisor:

Hayley Jeans, Professional Tutor, Doctoral Educational Psychology training course:

JeansH@cardiff.ac.uk

School of Psychology, Cardiff University, Tower Building, 70 Park Place, Cardiff, CF10 3AT.

Contact Details of Cardiff University's Research Ethics Committee:

School of Psychology, Cardiff University, Tower Building, 30 Park Place, Cardiff, CF10 3AT.

Privacy Notice:

The information provided will be held in compliance with GDPR regulations. Cardiff University is the data controller and Matt Cooper is the data protection officer (inforequest@cardiff.ac.uk). The lawful basis for processing this information is public interest. This information is being collected by Lizzie Brooks.

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Appendix O – Example of Content Analysis Coding and Categorisation (Questionnaires)

Question 5 - In what ways do you think the children benefit from the animals in school?

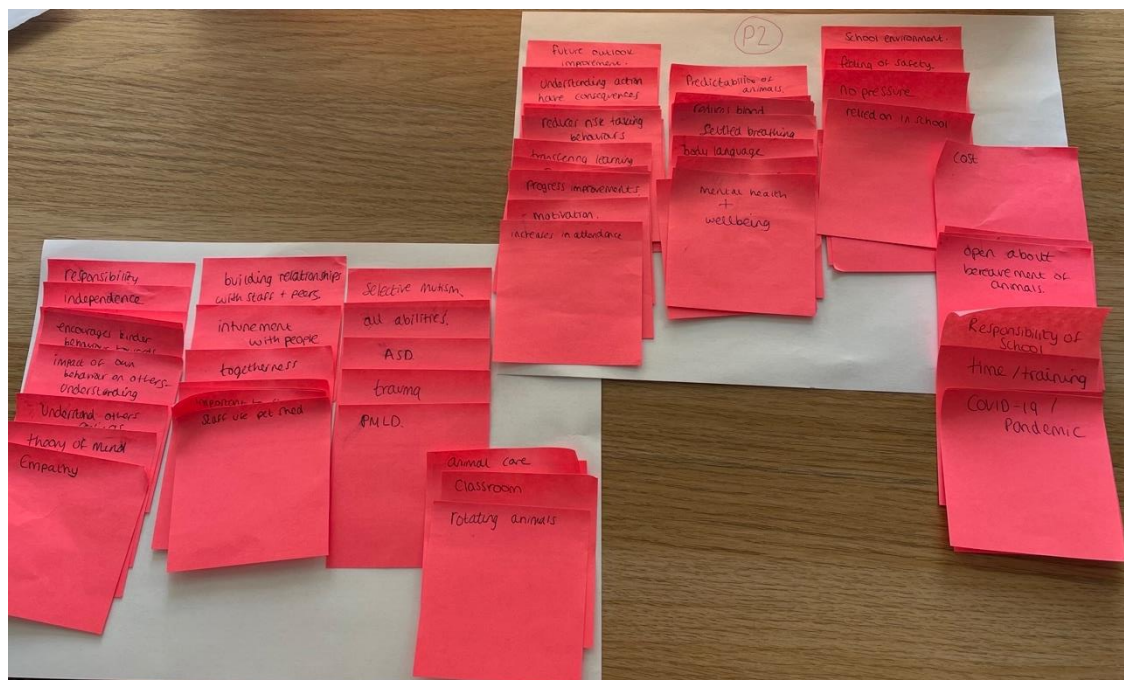
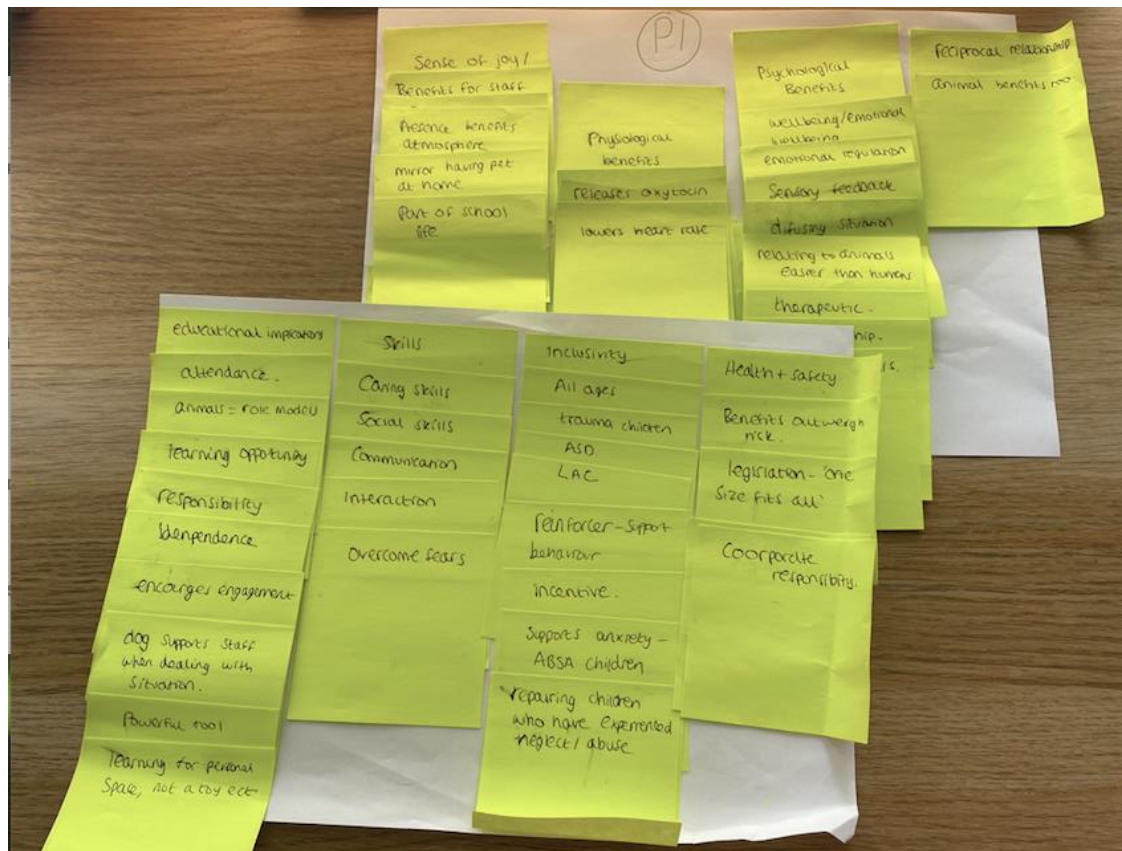
Categories - Emotional Impacts, Educational Impacts, Qualities and Values, Self-Esteem, Considerations

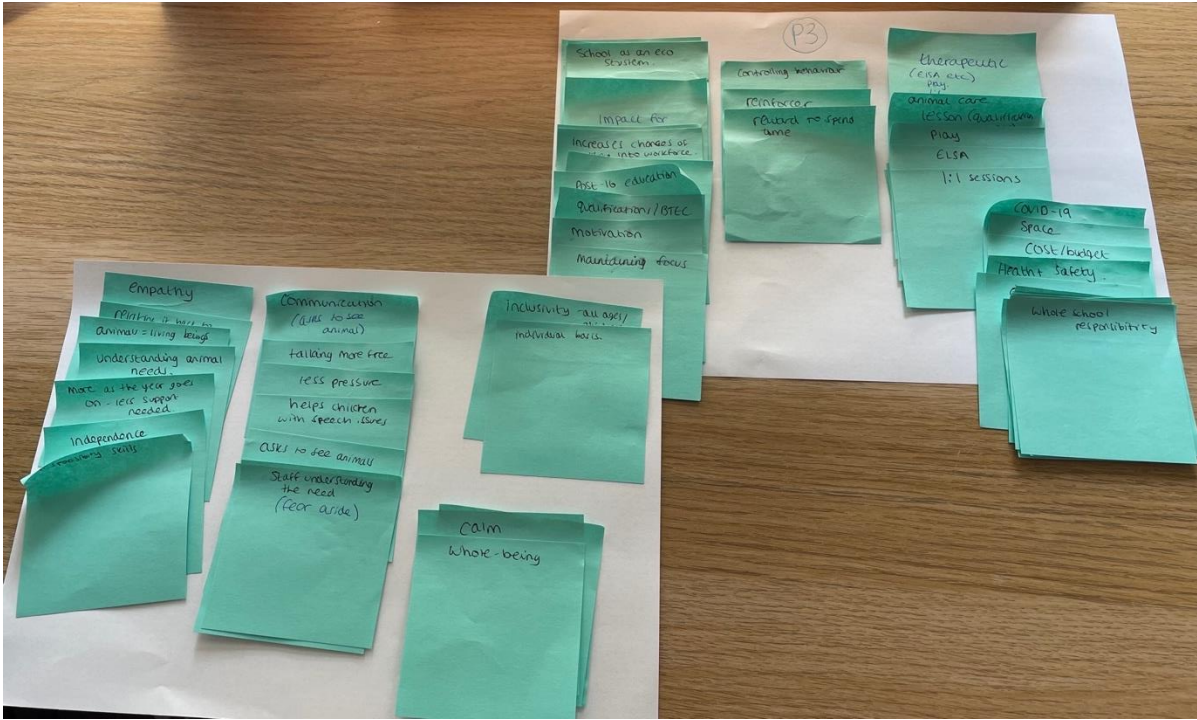
	RESPONSES	INITIAL CODES
1.	Helps children to engage with a practical curriculum. Help children to develop their understanding of responsibility. Give pupils valuable animal care skills. Help to regulate children. The increased responsibility they develop helps to raise their self-esteem and sense personal worth.	Engaging with curriculum/learning Understanding/increased responsibility Caring skills Raising self-esteem and self-worth
2.	calms some children and can help build confidence by looking after them, feeding/cleaning. Gives them a sense of purpose.	Calming effect Building confidence Sense of purpose
3.	the children are regulated by the animals, they learn to be caring and how to look after others (animals but transfers to peers and family) really good as the third person in the room when talking therapeutically, or generally. We use these animals in our qualification pathway.	Emotional regulation Looking after others Skills transfer to peers and family Third person Qualification pathway
4.	The pupils benefit in many ways from having the animals in school, some pupils feel calm around the animals, others feel safe and some just enjoy the being with the animals as it's a pleasurable activity. Lots of possible positive outcomes from working with the animals one of the most important is that the majority of pupils who work with the animals have improved well being.	Calming Safety Enjoyable activity Improved wellbeing
5.	Comfort	Comfort
6.	It teaches many life skills and responsibilities, it has a calming aspect for children with behavioural issues and trauma the list is endless.	Teaching life skills Responsibility calming benefits those with behavioural issues and trauma
7.	Animals have a calming effect and can increase the levels of oxytocin in the young people. When looking after animals they also learn the importance of self-care.	Calming effect Physiological changes in the body Development of self-care skills
8.	Nurture skills, Empathy, Care giving, Responsibility skills, Compassion, Reflecting on self development and self care. Balanced nutrition.	Self-care, Life skills Compassion Responsibility Care and empathy

Question 7 - Are there any negatives to having the animals in your school?

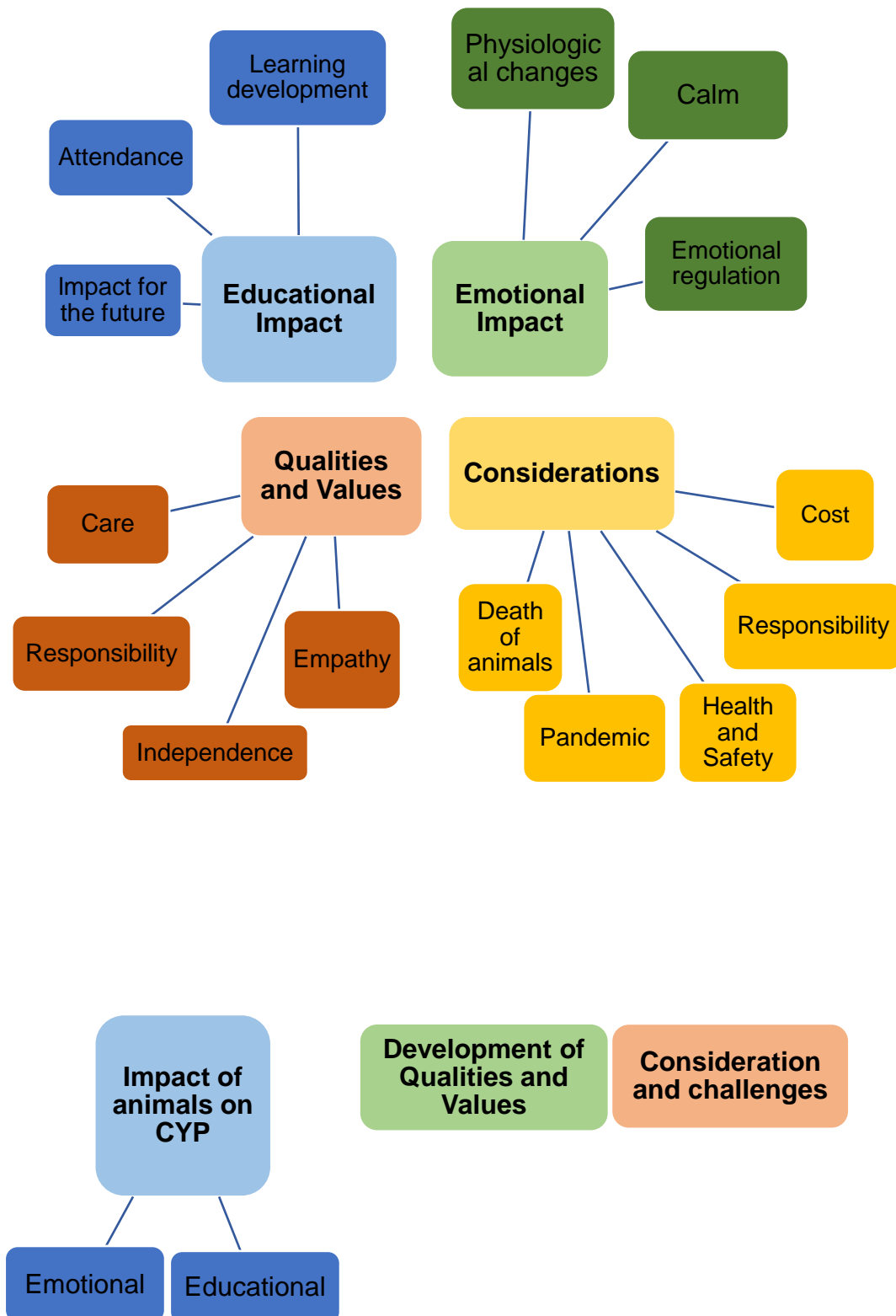
	RESPONSES	INITIAL CODES
15	The only negative thing is that someone has to volunteer to care for them during school holidays .	Responsibility during holidays Relies on volunteers
16	None	
17	Over population.	Too many of them
18	It can be difficult ensuring that care is provided throughout the school holidays and we rely on staff to volunteer for this.	Responsibility during holidays Relies on volunteers
19	No	
20	Negative for the animals, not the children. The welfare of the animals isnt often a consideration when deciding to have animals in schools.	Animal welfare
21	No unless the child suffers from allergies	Allergies
22	Proper risk assessments should be put in place and disseminated across school. The impact on the animal should be part of the discussion.	Risk assessment and procedures Whole school approach
23	no	
24	Just the small risk of getting scratched or bitten if there were unexpected loud noises.	Risks of CYP becoming hurt
25	I do feel anxious that the animals might get hurt. They are living beings which should also benefit from the experience too. They need to be cared for very well. It is a great responsibility.	Anxiety regarding animals getting hurt Responsibility

Appendix P – Theme development (step 2 as outlined by Braun & Clarke, 2013, 2021)





Appendix Q – Theme Development and Refining process (Steps 3, 4 and 5 as outlined by Braun & Clarke, 2013, 2021)



Appendix R - Sample of semi-structured interview transcripts

Sample of Transcript (Participant 1)

Int: Yeah that seems to be one of the little barriers or difficulties at the moment with getting animals into schools, and in particular probably special schools even more so. What do you think?

Participant 1: Yeah, yeah.

Participant 1: Yeah, and and you know, to a certain extent I I can see that I mean [dogs name] in some respects is very unique because she was the first one in the [place] and she's incredibly, erm you know, temperament is incredible and we will get her assessed as a, uh, uh, a wellbeing dog, and I think you know there's also the side that you need to think about the dogs wellbeing as well and and that you need to make sure that the dog has, you know the right bedding in a quiet area that they can go to and that was very much the way [dogs name] stayed in in my room with me. The door was open and she would go off and she would have a wander on her terms if she wanted to see the children. So during assembly times and that she would come out and she would wander round, sit on the child's lap and then if she wanted to move she would get up and she would walk away. But that's also I think education or for the children as well. That you are teaching the children about personal space about liberty, you know, and that those are skills that they can transfer to people and to other children as well. So if you've got children who are learning how to care for an animal, that can be passed to their peers and to other people as well. You know to understand that the dog is not a toy or a rabbit is not a toy. They are a living animal and you can't just pick them up and drag them around. You can't just pick them up and cuddle them if they don't want to be cuddled that that those are the kinds of social skills that we need to have with other people and other children as well. So for a child to be able to have an animal erm to to develop those skills that they are naturally developing those skills with within their social setting as well. And I don't know why, it just seems to come easier for them to relate to an animal, and because I think you know, maybe an animal hasn't got those complex emotional responses that humans have.

Int: Yeah, less pressure

Participant 1: Yeah yeah. And and because animals I suppose are more simplistic in in the emotional literacy erm it's far easier to read an animals mood than it is to read a humans mood. Because if the animal doesn't want to be picked up they will growl and instantly you know you've got that, you've got that feedback and so it's you know I. I think it's a very easy and simple way for children to be able to learn how to maybe socialise and interact and learn that that that sense of personal space and care and nurture. Obviously there comes a health warning with that because you have to make sure that you've got the adult there at all times with the dog who can make sure that the child is safe, because again, they are animals, you know. The other great thing that we found is we had a couple of children who were scared of dogs and I spoke to the parents before erm, we had [dogs name] in school and the response from the parents was fantastic, you know. And and when I left the school, the little boy who oh my gosh, he was petrified. We got to the point where he would now come in. pick [dogs name] up for a little cuddle and he

was so proud of himself and and mum had said that she was at the point now where she was able to take him to the island. Still a little bit nervous of dogs he didn't know. But you know, now he didn't have that incredible fear either. So it it it actually helped him to overcome and to overcome his fears as well so so massively beneficial. And we found that helping children to regulate erm. Animals I think have got this instinctive ability to be able to sense when you are out of sorts when you're not well.

Int: Yeah.

Participant 1: and when you're upset and I would notice regularly that if a child...my, my door was always open and I didn't care whether I had meetings with advisors or whoever if a child needed me, they know that they could come into my room, and quite often I'd up children bursting in, dump on the settee, floods of tears erm or screaming and shouting and [dogs name] would get up and would go straight to them and and it was quite magical to watch that she would jump up on them and want to lick the tears on their face and instantly you could see the child was distracted, you know then you know you could see the the the stress and the tension come down and the healing started. You know the the child started it become regulated and then you could start to to support the child in whatever it happened. And and I also found that by having the dogs there it was that that third person in the room. So when we were talking about a difficult situation, if the dog was there playing with the child or sat on their lap and they were stroking, it was easier for the child to be able to talk. It's like talking into it... It's like you know when you've got when you're in a car and you're talking through the mirror to the person in the back, it's easier to actually speak and be honest, and that's what I found with with the dog was that the children would be far more open because they were distracted and regulated and comforted by the dog so they would be more open with me. Sometimes they would talk through the dog so they would talk to dog and I I would say, you know, will tell [dogs name] what's happened and it would blahblahblah

Int: all come out, yeah

Participant 1: You know, and I would say well, [dogs name]'s been wondering if you know if this happened yet, or this that and the other or [dogs name]'s been wondering you know if so and so upset you and then that's why you did what you did. So you know it it's a really powerful tool and far more powerful than a puppet or a toy? Because it is a living animal.

Int: Yes, yeah.

Participant 1: You know, and you get that sensory feedback.

Int: Yeah, definitely.

Participant 1: You do get that sensory feedback from from an animal, so.

Sample of Transcript (Participant 2)

Int: Okay. Okay. Erm so just sort of a general sort of question to start off with so what do you kind of notice when the young people are sort of around the animals? Have you noticed any changes in the mood or behaviour?

Participant 2: It's the calmness okay. It's the complete calmness. Its from the screaming outside the shed and running to the shed to opening the doors of the shed and everyone goes okay and walks quietly, and the running stops and the noise stops. They're like, Okay, gotta get to the animals. Okay, great. You know, we've walked across the school, where they're running and I'm trying to keep...and then they go into the animals and they're like nah no we've gotta be quiet now. I've had animals in class in like, the carry box. And I've had one pupil who go shhhh and he'll walk outside and then starts swearing and kicking. And I'll go what are you doing and he'll go I don't want to upset the bunny. And then he'll go back inside. I'm like, Well, you've got enough control to do that. Why are you doing that?

Int: Yeah.

Participant 2: And he'd actually be like shhhh as he walked out the door. And then as soon as you shut the door and he wouldn't if we opened the door, he'd stop. So it's that amount of control.

Int: Yeah.

Participant 2: Because we expect things from them, don't we? We expect things from pupils and we ask them to do stuff, but the apparently the rabbits don't, so that's OK. So the rabbits, they're not gonna upset them because they don't expect anything and it's like. OK, alright, that's fine.

Int: Ah, yeah

Participant 2: But it is, like there's a you've been into animal care. So one of them in that group

Int: Yeah.

Participant 2: Uhm, is known to behaviour support team and spend a vast amount of time down there.

Int: Yeah.

Participant 2: erm in the week she'd be down there two or three hours in the day.

Participant 2: On Friday she goes down after 15 minutes and we have reduced that to nothing now already. So by Christmas she wasn't even going down at all. She was just staying class with us all day, which is amazing 'cause you think....She's just engaging. She's doing everything. And what I like about working with the animals is you give them a worksheet, or you ask him to write what they've done....you write diary entry. And they're like OK yeah yeah yeah yeah. And they're all like how do I spell this and how do I do that? And then all of sudden

miss we haven't done any work again and I was like, yeah, OK, yeah, OK fine, you know 'cause they don't see it as work.

Int: Yeah.

Participant 2: And I think isn't just... that's just a joy for everybody because they're not stressed. I'm not stressed and everybody is really calm but they're completing so much and it just is that no pressure environment all of a sudden. You put an animal in there and there's no pressure they're going OK, we're just gonna play with the bunnies. Well what do you think about this? And they're answering questions and doing all their work and they're just going ah OK yeah we working miss yeah yeah yeah but it's like I'm I'm OK here, I'm safe. I don't know whether the rabbits and the animals like make them feel safe in the environment or... and I don't know... something happens.

Int: Yeah, something happens...I noticed as well when I was there, like with some of the young people you were doing sums and stuff, sort of like, oh, if you took one of those rabbits, how many would be there and things? And they were like openly answering those you know. Different subjects were brought into it from what I saw.

Participant 2:

Well we had, we got a boy. I don't know if he was in when you were there, but he's amazing...like if I say to him write a story. He's like no, not doing it. So he wrote a whole WJC unit on the Guinea pigs for English...you know like how to look after them, a Guinea pigs, a poem written about them, and he got this whole qualification. This in entry ((pause)) uh English qualification on stuff he'd written about the Guinea pigs.

Int: Wow so good.

Participant 2: Oh, it's it's totally amazing 'cause they weren't....well why you doing it that way...becasue you said I could write about anything you said they can, write. It was a narrative unit....I was like. Well, here's my narrative. This is what we've done. Here is my poem. This is what we've done and he did it. And you know, I just think that. That's magical for him because he's....He's a child with some trauma issues. He's got a lot of family issues at home. He doesn't live at home. He lives with Nan because of all the trauma and and he just comes in and he's there most delightful person. He talks rubbish....We we talk about it with his class team. He goes in and says oh I'm gonna go down the pub, I'm gonna do drugs and then when he comes with the animals he's like what you want me to do and he's really quiet. They just look at me and go oh I don't know. This is what happens.

Int: Yeah.

Participant 2: He's like up here. Like completely wired, you put a rabbit on his lap and he's like yeah what do you want me to do [name of Participant 2:]? Complete change it is.

Sample of Transcript (Participant 3)

Int: Can you think about an example of like one child in particular that stands out that has like I had a positive interaction with the animal or a positive response as a result of the animal. Like you know changes in behaviour or like attendance or anything like that like an example you can share.

Participant 3: Yeah we've got a little girl in now for an example who's fairly difficult. Very demanding. And we've put her on a rota system because she was erm very challenging in the beginning. Very.

How can I say? Ummm... Couldn't listen to instructions. Couldn't take instruction. Couldn't wouldn't engage. It was basically her way or the highway. We like obviously we put a one to one in place because she needed a one to one support. But then we done a little rota system of behaviour. So if she was doing well and then at the end of the day she would go down to the animals and spend some time with the animals. If she was struggling in lesson, we would pull her out of lesson and take her down the Animal house for five minutes just for her to come back. It's like a Uh a reflection sort of thing. She comes back to where she should be then, you know. And that was very successful. We've we, I've got like what I said now on a Tuesday I got I got two students on a Tuesday and one of them is severely autistic. This boy is absolutely loving his time down in the animal house 'can we have pet time, can we have pet time'. So that is just like stroking a rabbit and being with a rabbit do you know what I mean. I say, like again, I'd say yeah, have they got a clean bed, make sure they got water and things like that..then we'll have pet time, you know and he comes to school because he has animal care. He comes on a on a Friday morning as well see. So he comes twice a week. Comes on Tuesday and Friday and he's very excited by it. And he always says to me 'I'm coming today, you know, and if see him on Monday he knows that he's coming on Tuesday.

Int: Yeah, from what you're saying it almost like motivates him for school the next day.

Participant 3: Yeah. I think, and I would never say this to him, but like if he was really really naughty you know perhaps someone would say to him there's no animal house today. I think he would be distraught.

Int: Yeah.

Participant 3: You know he would definitely pull himself back because he is loving his time down there and he gets in there and does it you know. He goes in and cleans their beds and you know so. They've moved forward a bit now because, like in the beginning, I sort of did tasks with them. Whereas now I do a list of what needs doing first, second, you know up to five say that like we need to do. Take all the dirty bed out, mop it out, clean bedding you know then they need water, feed and hay. So I write that now and every time I do one of those tasks they go back to the paper and tick it off. You know, so it. Independently they are sort of doing it now with the with the lists or like perhaps after Easter I'll try with no list so they sort of know. I would say to him right this one needs doing today and hopefully they will get on and. It's independence, you know I relate it back to them. I'd say 'cause you know sometimes, obviously they don't wanna clean, didn't want to clean up, they

did just want to be with Rabbits so I'd say 'if you went home tonight and your bed looked like that...how would you feel? How'd you think those rabbits are feeling at the moment?'

Int: Yeah, that's good, yeah

Participant 3: Yeah, so I like sort of reflect back 'what if you didn't give him water? What if you didn't have water for 24 hours? How would you feel?' You know with food you know it's sort of relates back to them.

Int: Yeah it helps helps, put the feeling back on them like to create like it's almost like they're

Participant 3: Yeah, it's it's their basic way of living they they've got to have a clean bed, well they haven't got to but everyone likes a clean bed. Yeah, to be looked after so they have clean bedding. Feel warm, safe. Yeah gives you that perspective in life. You know, I know, sounds silly, but and they've got to have water and food to live. So what if they didn't have that for 24 hours? You know, 'cause like, nobody's gonna see them now until tomorrow or so what if they didn't have no water or food for 24 hours. How do you think they're gonna feel. How do you think you would feel?

Int: Yeah, and what do they say? How do they react?

Participant 3: You know they they are sort of mortified, and they're like, 'oh', do know I mean. Because especially like the one boy he fetches his own pack lunch obviously, his own drink. You know, it's one of those traits that they are, you know, an autistic child has. I said I'm gonna, what if I take it back now with your lunch in and your water and I don't give it back to you until tomorrow or this time tomorrow. How are you gonna feel?

Participant 3: You can imagine can't you, you know? Mortified.

Int: Yeah, it's like it's like from what you're saying it's like empathy. Those empathy skills like it's helping to develop them.

Participant 3: Yeah, yeah, yeah, yeah. Oh definitely, definitely ERM empathy. Self-worth because they're looking after something. They need you know what I mean. They need to look after something and give that gives them a bit of self-worth.

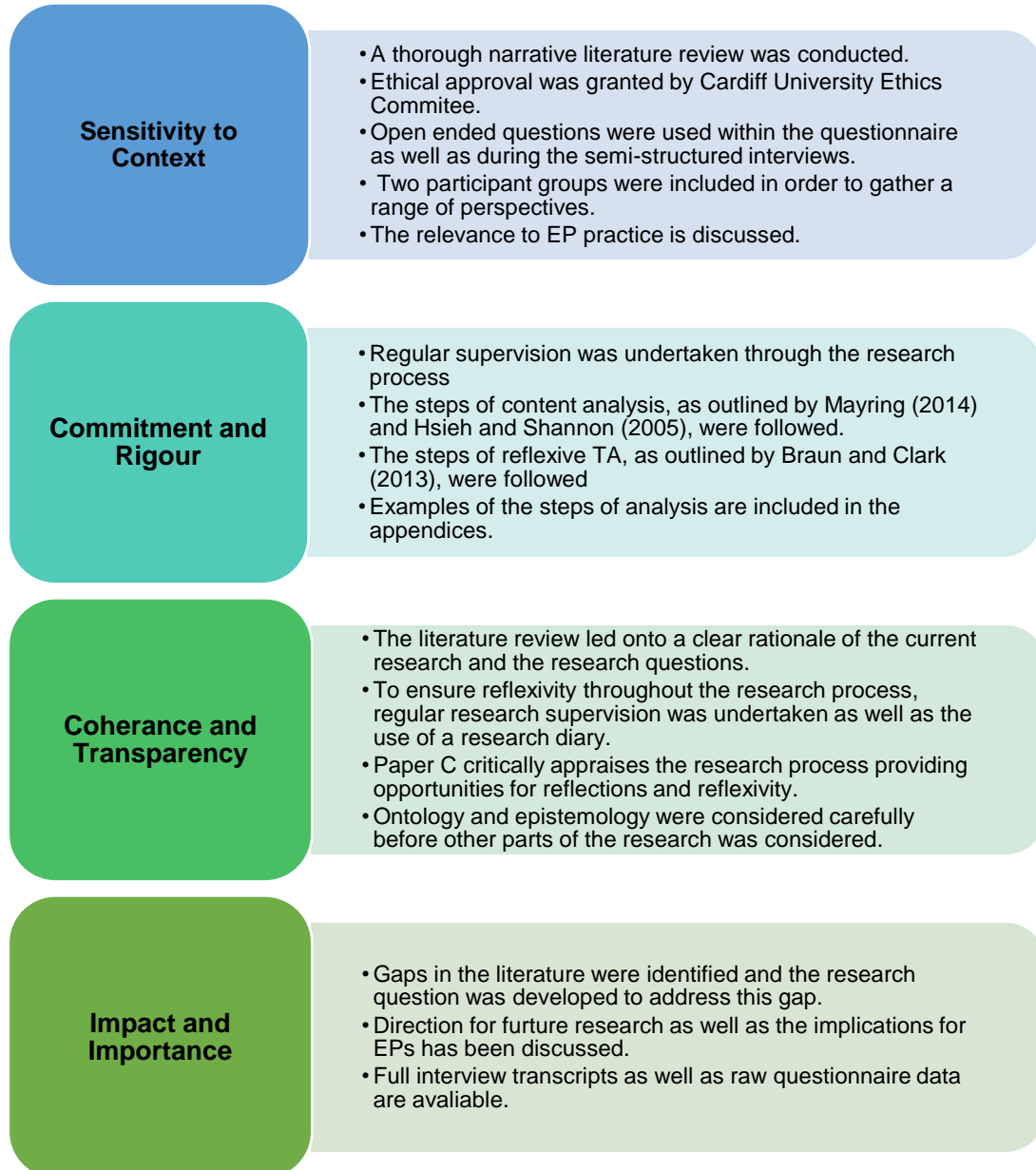
Int: Yeah definitely, and I know you said before that they talk more when they're with the animals. Is that between themselves or to you?

Participant 3: The animal. They talk to the animals, to us...it brings out something in them, I know it sounds silly, but it's sort of, you know. Uhm, yesterday for instance was. Uh the the boy in question. He had the bunny yesterday, the little'un. And he had it wrapped in scarf on his chest, this boy speaks a lot but loses words...So he can be speaking to you now for instance, he could be saying 'last night I...uh uh uh and then I watched uh ah uh' you know, the it's the flow it seems to, you know.

Appendix S - Ethical Considerations

Ethical Consideration	Explanation		
	School Recruitment/Contextual Information	Part One	Part Two
Consent	<ul style="list-style-type: none"> The researcher liaised with the Head Teachers and/or the link person to arrange initial observations. Staff and pupils were made aware that the researcher was observing. Parents were sent an information sheet outlining the research and they were able to opt their child out from the observed sessions if they wished to. 	<ul style="list-style-type: none"> A gatekeeper letter and the questionnaire links were sent to the Head Teacher of each special school who disseminated the questionnaire. An information sheet was presented to participants at the beginning of the questionnaire. Participants gave their consent by explicitly ticking 'Agree'. If they ticked 'Do not agree' participants were redirected to the end of the questionnaire. 	<ul style="list-style-type: none"> The questionnaire for school staff included a question asking them if they would like to participate in a semi-structured interview with the researcher. If they wanted to partake, they were forwarded to a link including an information sheet and consent form. They were asked to provide their name and email address so the researcher could contact them to arrange an interview date.
Confidentiality and Anonymity	<ul style="list-style-type: none"> The researcher made notes during the observations, but these were completely anonymous and no identifying information was recorded. The anonymity of the schools and individuals was retained when this information discussed. 	<ul style="list-style-type: none"> Participants were sent an anonymous link to the questionnaires. The questionnaires did not request any identifying information related to the participants and IP addresses were removed. It was therefore not possible to make a link between the participants and the responses. 	<ul style="list-style-type: none"> Participants were reminded at the start of each interview that any identifiable information will not be shared. Both the audio recordings and the transcription were securely stored on a password protected computer. Once transcribed the audio recording was deleted.
Right to withdraw	<ul style="list-style-type: none"> The schools had the right to withdraw from the research at any point. Once the research had been collected, anonymised and transcribed, the schools were made aware that it would be impossible to remove data. 	<ul style="list-style-type: none"> Participants were informed that they could withdraw from the research at any time, without having a reason, up until they submitted their responses. Participants were only expected to answer questions they felt comfortable with. 	<ul style="list-style-type: none"> Participants were reminded that they could withdraw from the interview at any time prior to the transcription and anonymisation of the data.
Debrief	<ul style="list-style-type: none"> All participants were provided with a debrief form at the end of the questionnaire and the interviews. For further information or if concerns arose, participants were given the contact details of the researcher, the supervisor and the ethics committee. 		

Appendix T – Yardley’s (2000) Principles for Assessing Validity and Trustworthiness of Current Research



Appendix U – Example of Supporting Quotes for Theme 1 and 2

Theme 1: Animals positively impact CYP	
Subthemes	Example Supporting Quotes
Educational	<p>‘...And that set him to to engage again and reset to engage again.’ (SI2)</p> <p>‘Like by the summer, they’ll be cleaning out the rabbits and everything and I’ll be just sit back, with my tick sheet for their qualification and they’ll be doing it. And then people say, but you’re not actually teaching. I said no, but I’ve taught. Now I’ve taught the skill, we’re putting everything into practice.’ (SI2)</p> <p>“I thinkanimals can be great role models as well ...inthe love andthe playfulnessand what they give to us as well, that that can be a lovelyrole.” (SI1)</p> <p>‘I’ve I’ve got a class of ASD boys which you wouldn’t think would engage, but even if I bring the box in now, they all take it in turns to have a look in the box to see what’s in it.’ (SI2)</p> <p>‘...and we’ve got a new base now for pupils that weren’t engaging in school....And the rabbits go in there three times a week as well...and the girls have come to class.’ (SI2)</p> <p>‘...I think for older children you know there comes that that time as well where you you can have children being supported maybe to train an animal or understand the psychology of how animals work’ (SI1)</p> <p>‘They used to love it, I used to teach Welsh with the animals. And...these kids have still remembered all the welsh on animals but every other Welsh lesson they’ve never remembered.’ (SI2)</p> <p>‘...And our gardener grows a lot of cabbage, you know carrots and some lovely stuff for our animals, so that’s you know, that’s a help as well. We also got compost bins where our animals mess goes into. And then when it comes out it goes back into the ground.’ (SI3)</p> <p>‘And he went on to go and do some, catering services and went to work with them. So actually it changed his path slightly.’ (SI2)</p> <p>“But that’s alsoeducation for the children as well.you are teaching the children about personal space about libertyand those are skills that they can transfer to people and to other children as well.if you’ve got children who are learning how to care for an animal, that can be passed to their peers and to other people.....” (SI1)</p> <p>‘...so you know it’s getting our students into the workplace.’ (SI3)</p>
Emotional	<p>‘Whereas yesterday when he was there with the animal and calm knowing that you know ‘cause he had this animal on him...’ (SI3)</p> <p>“....to support her emotional development to help her to learn to careand to actuallynot be so self-centred in respect of everything her own way.it took a couple of years ...but she did develop so much</p>

andbecame a very, very caring child who wanted to nurture.....we saw that sort of shift fromthe dog onto other people.instead of wanting to brush the dogs hair, she then wanted to brush the teachers hair, she wanted to open a beauty salon so she that she could groom others and help others and help them to feel relaxed...” (S11)

‘It’s the complete calmness. Its from the screaming outside the shed and running to the shed to opening the doors of the shed and everyone goes okay and walks quietly, and the running stops and the noise stops.’ (S12)

‘I said well your friends here, waffle which is the rabbit.....And I said here and I just handed it to him in this mix state of all these emotions going on like the police brought him into school...there was a whole rigmarole around him and he literally held the rabbit and he just slid down the wall until he was on the chair and was just like I’m I’m OK now.’ (S12)

‘We got like reflection time in the afternoons where the students go back to their class for 10 minutes and they reflect on the day. What was good about the day and wasn’t good about the day and I thought if we put an animal in place as well they could ‘cause believe it or not when they’re sort of with an animal, stroking the animal or playing with the animal they talk a lot more.’ (S13)

‘Then there was a knock on effect that they were nicer to each other. The pupils were nicer to each other.’ (S12)

“...I don’t know why, it just seems to come easier for them to relate to an animal, and because I think you know, maybe an animal hasn’t got those complex emotional responses that humans have” (S11)

“...his whole being was just calm...” (S13)

‘So I’m still me wherever I am, but it’s only animals you get this like plateau of stillness and calmness’ (S12)

“I think it’s a very easy and simple way for children to be able to learn how to maybe socialise and interact and learn that sense of personal space and care and nurture”. (S11)

“....we saw emotions coming out from him that we’d never seen before.....He started to want to communicateabout the dog, so we started to hear words coming from him and we started to notice in the classroom that he would.....start to communicate that he wanted to come and see the dog” (S11)

‘...hits your your opioids and your oxytocin levels instantly, so it can’t help but give you that little bit of an Instant boost of happiness’ (S11)

‘You know they say that if you stroke a dog at it can actually reduce your blood pressure. There’s lots of evidence, isn’t there? That says it can do all these things, but you can actually see it happening, and I try to tell people how amazing it is, but until they’ve seen it, they think I’m making it up, I think.’ (S12)

Qualities and Values	<p>‘...’cause they knew, oh, hang on a minute. If I upset the rabbit it might upset someone else. So then there's that whole theory of mind with somebody else is how they're feeling.’ (SI2)</p> <p>‘...it's it's it's life. And if you can reflect something as hard core as life with something else so adorable, then let's let's give it a go.’ (SI3)</p> <p>“I think it's a very easy and simple way for children to be able to learn how to maybe socialise and interact and learn that that that sense of personal space and care and nurture” (SI1)</p> <p>‘You know, but as for coming down, they've gotta. They've got a responsibility and they they take it very seriously.’ (SI3)</p> <p>‘...But also to give you know, children experience of handling a pet and experience of being trusted with a living animal as well’ (SI1)</p> <p>‘...so it helps me in my job to do what I do because I can build relationships and it is built on trust and respect and everything else because they're like, oh, you're [Participant 1 name], you bring the rabbits, I like the rabbits, therefore we've got to have a relationship. Therefore this is OK.’ (SI2)</p>
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Theme 2: What needs to be considered?	
Subthemes	Supporting Quotes
Health and Safety	<p>‘So I'll take them home...and I will make sure they handleable. Make sure that I can handle and make sure my children can handle them. And my brother's got autism, so I'll take them to my parents before I even think about bringing them into school’ (SI2)</p> <p>“...there's also the side that you need to think about the dogs wellbeing as well and and that you need to make sure that the dog has, you know the right bedding in a quiet area that they can go to and that was very much the way [dogs name] stayed in in my room with me. The door was open and she would go off and she would have a wander on her terms if she wanted to see the children” (SI1)</p> <p>‘Obviously we’ve got a rota system down in the animal house as well. It's not like a rota system but we specify who fed when, because what was happening was if I had animal care that day, obviously we were cleaning out, feeding. Then if they have relax kids in the afternoon, they were going down to have relax time, feeding....So you know like if you see my bunnies, they they like more like little puppies ((laughs))’ (SI3)</p> <p>‘Then like the useage of it you know...bubbles. Key stage 3, key stage 4. Key stage 3 and 4 can't be there together. You know?’ (SI3)</p> <p>‘...over that time over the time of COVID, animals have got used to being at home, not being handled so much. Not, you know, running around in a run if they want to all day and night. And I now know that I've got to replace some of them because they are too comfortable.’ (SI2)</p>

	<p>“...we do have to be mindful and we do have to be careful. Then of course there needs to be some consideration and some health and safety formats and check to it or you can't just take any dog into a school and I think you know it does need to be regulated, but don't over regulate that you spoil what can be such a lovely environment” (S11)</p> <p>‘...with COVID-19, it's done a lot to...we can't all go in the shed...and if it's raining then they can't stand outside either.’ (S13)</p> <p>“I think if you've got the right risk assessment and health and safety is risk assessed the dog and you've got the right temperament then” (S11)</p> <p>“They are a living animal and you can't just pick them up and drag them around. You can't just pick them up and cuddle them if they don't want to be cuddled that that those are the kinds of social skills that we need to have with other people and other children as well” (S11)</p>
Responsibility	<p>‘...Luckily I don't go abroad in it. We do I do in the six weeks holidays try and spread them out with parents. So letters go out to say that our animals needs a little home for six weeks and we have had some success with that.’ (S13)</p> <p>“But he could see within about three to four weeks like the following week...the pupil didn't even bother pulling his hair. He wanted it to eat the dandelion he had, and but even the behaviour of that pupil changed towards the rabbit, 'cause he knew” (S12)</p> <p>‘There's life and there's death. You know, I never lie. If the animals has died, the animal has died.’ (S13)</p> <p>‘So we wrote nice things, made did a plaque, we did some other things for the rabbit.’ (S12)</p> <p>‘But it prepares our students for death and I don't care what anyone says because they are, they are informed that you know, like us animals do pass away.’ (S13)</p> <p>“So it was that sense of of corporate responsibility erm as well so” (S11)</p>
Cost	<p>Like we're so blessed in the school where we we've got a budget of so much so that they can have fresh veg every week. You know [shop name] deliver fresh veg for us every day. When they do their order in school for like home economics, cookery basically and things like that..bread for the kitchen uh we've got a little budget where we can have fresh veg delivered every Monday.’ (S13)</p> <p>‘They're not, you know, they're not a breeze. They are quite expensive to keep for a school.’ (S13)</p> <p>“...we've got the vivarium you saw in shed and I need carry boxes for classes so it is a costly, costly venture, but actually when I see everything that comes out the other side” (S12)</p>