

**Investigating The Relationship Between
Assistance Dogs And Their Owners With
Physical Disabilities: Complex Affection Or
Simple Attachment?**

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ABSTRACT

This study explores the bond between persons with physical or perceptual disabilities and their Assistance Dogs. It was hypothesized that these relationships would be different from relationships between pet dogs and owners, and that the bonds may resemble attachment relationships. The project utilized three questionnaires. The Human-Animal Attachment Measure (HAAM) instrument was created for this thesis to gauge attachment on Proximity Seeking, Secure Base and Safe Haven components. The Lexington Attachment to Pets Scale (LAPS) and the Relationship Questionnaire (RQ) were comparison measures. 162 participants reporting no disability, mobility disability or perceptual disability responded. Analysis consisted of reliability tests, factor analyses and multivariate analysis of variance (MANOVA) across the groups. Results demonstrated statistically significant differences between pet owners and Assistance Dog owners on attachment as measured by the HAAM, but not on the LAPS or RQ. Findings generally supported the hypotheses within the limitations of the study.

Keywords: Assistance Dogs, Service Dogs, Guide Dogs, Hearing Dogs, Attachment Dogs, Disabilities Attachment, Disabilities Dog, Human-Animal Bond, Attachment Adults Animals, Attachment Animals

DEDICATION

This thesis is dedicated to two instrumental people in my life.

For my brother Andrew Dunn, who in a life too short, lived fully.

You taught me to overcome and to cherish life.

and

For my husband Scott Holt,

who has shown me the joy of secure attachment.

You taught me to love freely and have fun while doing it.

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CHAPTER 1: INTRODUCTION

1.1 History of Human-Animal Interaction

Domesticated animals and their relationships with people have been an important facet of human life for thousands of years, most notably seen in historical accounts of early agriculture, religion and family life. This rich and varied history can be observed via records such as cave drawings, mummified royal felines and recent century's literature (Kidd, 1989). Dogs are believed to be the oldest of domesticated animals, with records indicating that the domestication of canis took place in the preagricultural Mesolithic period of human cultural and societal development (Messent & Serpell, 1981). Recent fossil recoveries in China indicate a probable domestic association between Peking Man and a canid 500,000 years ago. One early (and still evidenced today outside of North America) purpose of domesticating dogs was to establish a readily available food source. Other early uses of domesticated dogs included guarding, hunting and rodent control (Messent & Serpell, 1981). Outside of North America, particularly in underdeveloped nations, dogs are still placed in these marginalized roles and are not often kept as pets or companions. For example, in many areas of Africa, dogs are on the periphery of human life and provide a valuable life-saving service by protecting small settlements of humans and livestock from

large predators such as lions, leopards, cheetahs and hyenas. While they are not companion animals, many children living within these villages have a favourite dog and lavish attention upon them; however, these relationships with animals appear to be part of the children's world and do not extend to adult interactions with the village dogs (Kidd, 1989). There are no records evidencing when dogs began to be viewed as companions in general; this transition may have occurred naturally over time due to dog biological pack attributes and their unique, ingratiating ability to bond with humans as both companions and child-like dependents.

Looking at the history of animals used in therapeutic or physical interventions, one can see that scientific research on the topic was not formally documented until the 1960's, when Boris Levinson began to chronicle and evaluate his use of an animal in child psychotherapy (1997). This utilization of a dog for therapeutic intervention was discovered accidentally by Dr. Levinson, as he happened to have his pet dog with him during a session with a particularly uncommunicative child. The child began interacting with the dog and Dr. Levinson began to use his dog during therapy sessions on a regular basis, documenting and evaluating the dog's efficaciousness as he did so (Levinson, 1997).

Prior to the 1960's however, the historical use of animals as intervention agents was only casually documented, most notably at the English York Retreat in 1792 (Jones, 1985). In 1791, an English woman committed to an asylum died from maltreatment, and her outraged family

formed a society dedicated to the humane treatment of the mentally ill. This society culminated in the creation of the York Retreat residence, and the recorded therapeutic interventions included gardening, physical exercise and the nurturing of small animals such as rabbits and birds (Jones, 1985). The hypothesis was that having hospital residents interact with the natural world would have a calming effect on their behaviours associated with mental illness. By recorded accounts, this method of operation appears to have been effective (Messent & Serpell, 1981).

This was the beginning of documented animal use in therapeutic settings and eventually, Germany, France and the U.S. began to develop similar programs to that of the York Retreat (Jones, 1985). Although animals utilized in a therapeutic role are still not the norm in today's society, animals have grown to be one of the most valued and important additions to households, particularly in North America (Francis, 1976).

In modern North American society, animals in the role of household pets play an important part in the family lives of people at all socioeconomic levels. This can be seen in the enormous number of animals kept as pets; for example, as of 2003 there were more than 62 million pet dogs and nearly 77 million pet cats in the United States (Clancy & Rowan, 2003). Such numbers seem to reinforce the position that an important bond forms between humans and animals; research shows that more than 99% of pet owners classify their pets as family members (Clancy & Rowan, 2003) and one study highlighted that, amongst 500 hospital patients and long term care

residents, the most frequently missed 'thing' was a pet animal (Francis, 1976).

With pets beginning to assume and expand their role in the family life and general well being of people in Europe and North America in the early 1900's, an interest in using animal interaction in physical therapy also began to rise (Netting, Wilson & New, 1987). In World War I, the first use of temporary animal assistance for people with disabilities occurred when injured Allied soldiers recovering in Britain were assigned sessions of therapy time with dogs in order to facilitate both physical recovery and psychological adjustment to temporary or permanent disabilities (Hansen, Messinger, Baun & Megel, 1999). This use of animal assistance was continued in World War II at Pawling Hospital in New Jersey, where injured soldiers from the United States worked with dogs and farm animals as a prescribed rehabilitation. These rehabilitation patients used the resident animals as temporary assistance to aid in ambulation, recover physical strength, build cardiovascular health and reinstate a psychological sense of normality after the trauma of war (Netting, Wilson & New, 1987). Thus, dogs became adjuncts to rehabilitation programs, further valuing themselves in modern day culture.

One of the first documented programs of animals trained specifically to partner with and assist those with permanent or semi-permanent physical disabilities was in Germany in 1919; German Shepard dogs were trained to work with blind war veterans and to act as their visual guides on a

permanent basis (Eames & Eames, 2001). An American living in Switzerland observed this pairing of man and dog in an enduring assistance relationship and pioneered the world's first guide dog school in New Jersey; The Seeing Eye, established in 1929 (Eames & Eames, 2001). Decades later in 1973, the first association to train and place service dogs for people with mobility disabilities was created and christened Canine Companions for Independence, while 1976 saw the American Humane Society of Colorado develop the first hearing dog program for those with auditory disabilities (Zapf & Rough, 2002).

1.2 Animals and Persons with Disabilities

Within the population of people living with a disability and an Assistance Dog today, the relationship between human and animal entails a more complex and involved dyad than that of pet and owner or even that of physical assistant and patient as seen in veteran recovery at the Pawling base during World War II. Several types of assistance animals specifically trained to aid persons living with disabilities are recognized by governments, animal assistance associations, the disabled population and the general public. Although varying roles exist for animals to assist people in their daily lives, only one species is recognized as being legally defined as an assistance animal; the domesticated dog.

Within the population of working dogs, there are several categorizations based upon the work the dog may perform. These include rescue dogs, narcotic detection dogs, reading assistance dogs and therapy dogs working with counsellors and psychologists in hospitals, community facilities and private practice. Only three categories of Assistance Dogs are officially recognised by governments with varying degrees of public access rights that delineate the type of assistance provided and the type of disability warranting such assistance: the guide dog, the service dog and the hearing dog.

The category of Assistance Dog most prominent in the literature, training, public knowledge and funding support is that of the guide dog (Rintala, Sachs-Ericsson & Hart, 2002). Guide dogs are specifically trained to aid individuals who are blind or vision impaired. These animals assist their handler/owners with navigation, retrieval and safe travel outside their home environment. The first Assistance Dog program in North America was Seeing Eye Inc., which trained guide dogs and was founded in 1929 in New Jersey. The second category of Assistance Dog is the service dog. Service dogs assist people with mobility impairments and have two main functions with regard to physical tasks. First, they enhance mobility and second, they retrieve objects for their human partner. Service dogs are trained to pull wheelchairs, open doors, turn on/off lights, retrieve communication devices and pick up objects (Lane, McNicholas & Collis, 1998). Service dogs also assist with bracing and balancing during ambulation. The third category of Assistance Dog is the hearing dog, which assist individuals who are deaf or

hard of hearing. These trained animals are able to alert their owners to important daily sounds such as the ring of the door or telephone, smoke alarms, microwave and stove timers, alarm clocks, the calling of the individual's name and the sound of a baby's cry (Mowry, Carnahan & Watson, 1994).

The bond developed between a person with a disability and their Assistance Dog has been described as an intense, affectionate relationship defined by love, trust and interdependence (Steffens & Bergler, 1998). Guide dog owners in one study stressed that only other Assistance Dog users can truly understand the bond that develops, and that even Assistance Dog training organizations cannot comprehend the depth of this bond (Nicholson, Kemp-Wheeler & Griffiths, 1995). One of the most difficult times for most pet owners is the death of their pet. For owners of Assistance Dogs, the death of their animal must reflect a particularly trying period of grief and adjustment.

It is not just death that separates Assistance Dogs from their owners; retirement of their dogs, often to the family who raised the dog as a puppy, is a difficult and painful consequence of owning a working dog (Lambert, 1990).

Coupled with the loss of the Assistance Dog is the loss of independence that the dog provided their human partner. Without the dog as partner, many people with disabilities feel unable to function as well or as

efficiently as they did with the dog. This can bring about feelings of anger, depression, renewed reliance on family or professional physical support systems and grief at the loss of the freedom enjoyed when working with their Assistance Dog (Sanders, 2000). Many Assistance Dog owners have multiple dogs throughout their life, and this making and breaking of bonds is one of the issues Assistance Dog organizations are most concerned about (Arkow, 1993).

According to Lambert (1990), the average bonding time between a person and a new Assistance Dog is 28 days. This is the adjustment period, where person and dog learn to trust each other, read the other's body language and idiosyncrasies and create an emotional bond. If the person is grieving the loss of their previous Assistance Dog, it stands to reason that this would influence the bonding between the person and the new dog. Expectations, memories of the previous dog, feelings of loss and grief all take away from the necessary bonding with the new dog (Eames & Eames, 2001). Assistance Dog organizations are usually non-profit associations working and operating under extremely restrictive budgetary constraints and trainers, who are highly skilled animal handlers, empathic individuals and teachers, are often put in the difficult position of counselling clients with disabilities who are experiencing grief related difficulties, previously unresolved issues triggered by the loss or issues related to bonding with a new dog (Lambert, 1990).

According to the ethical guidelines of the Canadian Counselling Association, the situation of a person acting in a counselling capacity as well as another capacity such as a superior, educator or family member creates a dual relationship (Schulz, 2000), whereby the client seeking the counselling may not be comfortable with full disclosure of what they may be experiencing due to prior information or influence the person in the counselling role may have in the client's life. In a situation involving a client with disabilities seeking psychological support or emotional assistance, a trainer would act as both a trainer and a lay counsellor; this type of relationship also creates a power imbalance, as trainers often have the responsibility of ensuring the lifelong care and safety of the Assistance Dog and have the power to remove dogs from their disabled owners if warranted. This power imbalanced, dual relationship is a highly negative ethical minefield, according to the ethical guidelines of the Canadian Counselling Association (Schulz, 2000). For example, a client experiencing grief over the loss of their previous dog may have difficulty forming a bonded relationship with a new dog, but this same client may experience extreme reticence in being honest and open regarding emotional or other difficulties with a trainer for fear that the new dog could be removed from their partnership, rather than them being assisted through this adjustment period. In this light, it could be assumed that a trainer assuming the role of lay counsellor may inadvertently cause further distress to a client because of this imbalance in a dual relationship, rather than enable the Assistance Dog client to transition through whatever issues they may be seeking help for.

According to Lambert (1990), there are no Assistance Dog associations in the United States or Canada who employ or have contracts with mental health professionals to assist clients with their emotional and psychological needs. This author confirmed this point when piloting the instrument used in this study and when interviewing four trainers for the project. In attempting to provide a much needed and valuable service to the population with disabilities in the form of providing trained dogs to those who need them, Assistance Dog organizations may have overlooked and been under equipped to ensure the psychological health of their clients as it relates to their relationship with the Assistance Dog and the changed life and family dynamics arising because of the pairing with a dog; clarifying the relationship between Assistance Dog and human partner is in the best interest of both client and the assistance dog matched to them, especially if that relationship is found to mirror human to human bonds. Informal surveys suggest that there were more than 20,000 active Assistance Dog teams in North America in the year 2000 (Beck, 2000); clarifying the relationship between human and dog may enable organizations to apply for additional funding for counselling services, approach mental health professionals with regard to pro-bono work or fundraise for the specific need of counselling services for Assistance Dog owners and their families.

For such a sizeable population of working human-animal teams, there has been relatively little research done on the functioning, advantages or disadvantages of being a human or canine member of such a team. The research that has been undertaken has investigated the physical and

observable social functioning of the individual. Most of these studies have used retrospective methods without benefit of control groups (McNicholas & Collis, 2000). One study addressed the problems and benefits of using a guide dog from a dependence-independence conflict viewpoint (Lambert, 1990) and another explored the physical safety enhancement of having a guide dog, but did not investigate the psychological construct of safety or felt security (Steffens & Bergler, 1998). Despite exhaustive searches with Psychinfo, Eric and EBSCO, very few studies were found that explored the nature of the relationship between an Assistance Dog and their owner, the psychological needs the relationship may meet for the owner, possible issues developing because of changing family roles within the client's support system, or the psychological implications arising from the retiring or euthanizing of the Assistance Dog. This study will attempt to contribute to this new area of work by exploring the complexities of the Human-Assistance Dog Bond.

1.3 A Framework for Investigation

Throughout the available literature on the subject of people living with physical or perceptual disabilities, Assistance Dogs, pets and owners and the human-animal bond, the use of the term 'attachment' is used interchangeably with terms such as 'bond, relationship, affection and support' (Winnicott, 1965; Savishinsky, 1983; Corson & Corson, 1981; Johnson, Garrity & Stallones, 1992). However, the true nature of attachment does not

appear to be related to a person's relationship with a pet. Certainly, people are attached to their pet in an emotional sense of the word, as in feeling love or affection for their pet, but attachment as first defined by Bowlby (1969) and Ainsworth (1969), and as used in psychology, counselling and social work is something very different indeed.

This thesis is an exploration of a thus far overlooked possible attachment relationship between two populations; human and Assistance Dog; therefore, this paper provides a brief overview of attachment theory (Bowlby, 1969; Ainsworth, 1989). Stemming from theories of evolution and ethology, attachment theory is based upon the concept of a biological drive for physical and psychological safety and is first seen in infancy between a child and his/her primary caregiver (Sperling & Berman, 1994). These strong emotional ties are present "from the cradle to the grave" (Bowlby, 1969), and are distinguished from other affection bonds by the motivation of felt security (Bowlby, 1988). Bowlby's dedication to exploring the theory of human attachment was resolute, and to further the theory he eventually joined forces with Mary Ainsworth. It was Ainsworth's work that changed the parameters of attachment work; from theoretical inquiry to empirical research (Ainsworth, 1989). Ainsworth, working both beside and independent of Bowlby, began to create working operational definitions of human attachment behaviour with infants and later expanded the definitions to include adults, following Bowlby's lifespan approach to attachment theory (Ainsworth, 1989).

Several types of attachment behavioural styles were identified by Ainsworth in these early studies, and her pioneering work, along with Bowlby's complementary theories and writings paved the way for the ongoing adult attachment research seen in today's social sciences (Bartholomew & Horowitz, 1991). These styles of attachment were based upon the level of felt security of the infant towards the caregiver and were described as 'secure', 'avoidant' and 'anxious-ambivalent' (Ainsworth, 1985). These categories were later expanded by other researchers investigating adult attachment and were integral to the construction of measurements designed to explore the attachment styles used by adults in their peer, romantic and parental relationships (Sperling & Berman, 1994). In particular, Bartholomew (1990) designed a measure that categorized attachment styles into four styles, slightly changing the labels of the original styles designed by Ainsworth (1969). Bartholomew interpreted Ainsworth's avoidant classification as being two separate styles: anxious and dismissing, as persons in the avoidant classification display categorically different manners of avoidant behaviour (Colin, 1996). Avoidant-dismissive individuals downplay the importance of close relationships, put a strong emphasis on independence and hide emotional responses (Colin, 1996). Avoidant-anxious individuals tend to harbour a deep fear of rejection and avoid relationships because of a mistrust of others (Bartholomew & Horowitz, 1991). People who classify themselves as ambivalent are generally dependent upon the attention/love/affection of others in order to have self-worth, tend to idealize their relationships and are overly emotional (Colin, 1996). The classification

of secure attachment describes individuals who have a solid sense of self, have realistic expectations of others and are able to have close relationships without losing their autonomy (Bartholomew & Horowitz, 1991). Several research projects involving measures of attachment style in adults report similar distributions of respondent self-report scores. Approximately 45-53% of adults relate to the secure attachment style, 10-14% self-classify as ambivalent, 14-21% as anxious and 13-18% as dismissing (Bartholomew, 1990; Bartholomew & Horowitz, 1991; Sperling & Berman, 1994).

In 1989, after 20 years of working with Bowlby and others in the attachment field, Ainsworth clarified attachment and affection bonds in an attempt to keep the concept of attachment from becoming too general and losing explanatory power (Rholes & Simpson, 2004). Ainsworth suggested that a subset of adult human relationships are affection bonds if the relationship is based upon an enduring tie, with a motivation for the parties to come together (Ainsworth, 1989). According to Ainsworth, if an adult relationship has three or four of the following components it may be considered not just as an affection bond, but as an adult attachment bond. These components will be used as a basis for this investigation into the relationship between Assistance Dogs and their owner-handlers: Proximity seeking: if the adult has a desire to be with the relationship partner; Safe haven: if the adult seeks comfort from the relationship partner when feeling stressed or anxious; Protest separation: if the adult becomes anxious or distressed when the relationship partner is absent and Secure base: if the adult derives a sense of security and confidence to explore the environment

from the relationship partner (Ainsworth,1989; Weiss, 1991). If the relationship bond is broken, the adults involved experience distress, grief and adjustment to the loss.

Bowlby and Ainsworth both regarded the attachment system as flexible and although the theory began with understanding the bonds that form between infants and their caregivers, they maintained that the attachment system is influential throughout life (Bowlby, 1988, Ainsworth, 1989). Attachment theory is now researched widely with adolescents and adults who may have attachment figures other than parents (Doherty & Feeney, 2004); these research projects appear to abide by the tenets described above as necessary facets of adult attachment relationships (Doherty & Feeney, 2004).

One facet closely aligned with the attachment system is the exploratory system; these systems are complementary because a secure base enables a person to explore their environment. In adulthood, the exploratory system is most easily seen when assessing work habits and leisure enjoyments (Carnelly & Ruscher, 2000). The function of the exploratory system is to extract information in order to master the environment (Bowlby, 1969). To extend on Bowlby's original posit, one could assume that this mastery of the environment is akin to self-efficacy, feelings of competence and estimation of independence. Within the population of persons with disabilities in North America, research has shown that feeling capable and independent are the two states most missed, desired and striven for (Lambert, 1990, Donovan, 1995; Eames & Eames, 1997; Lane et al, 1998).

One area of adult attachment relationships previously unexplored is that of person and animal. When considering the relationships between humans and animals, the most obvious group is that of the pet owner and pet. Yet, by the very definition of attachment, it would appear that virtually all these relationships are definitively affectionate and not attachment related. Despite this, there are several measures that purport to quantify human-animal attachment relationships, such as the Pet Attitude Scale (Holcombe, Williams & Richards, 1985), the Companion Animal Bonding Scale (Poresky, Hendrix, Mosier & Samuelson, 1987) and the Pet Relationship Scale (Lago, Kafer, Delaney & Connell, 1988). The Lexington Attachment to Pets Scale (Johnson, Garrity & Stallones, 1992) infers in the title that attachment is what the instrument measures, however, this tool, while psychometrically valid and reliable, does not measure attachment as it is defined throughout the social sciences. All of these measures quantify affection and other pet-related issues such as caretaking, familial roles and pet loss grief, but from the individual items, it can be seen that attachment according to Bowlby's theory and Ainsworth's operational definition is not addressed.

There may be little utility in attempting to gauge attachment for the pet-owner population unless looking at the differences between pet ownership and other animal-human relationships, assuming that pet and owner relationships are based upon social support and affection, rather than attachment. This study includes pet owners in its design, for the explicit purpose of comparing pet owners to Assistance Dog owners in both affection and attachment bonding. To address the issue that attachment, as

conceptualized by Bowlby, is not included in current measures of animal-owner bonding, a survey instrument was designed. This measure quantifies the concept of attachment as it may apply to Assistance Dog and human relationships; a deep and enduring bond which is predicated upon the internal motivation to acquire felt security from another being, and a secure base from which to safely explore the external environment (Rholes & Simpson, 2004).

Much of the anecdotal and retrospective studies involving the disabled population and working dogs stress the necessity of the formation of a deep and trusting bond between a person living with a disability and an Assistance Dog (Mowry et al, 1994, Valentine, Kiddoo & LaFleur, 1993, Roth, 1992, Mader, Hart & Bergin, 1989). These authors all point to the fact that unless a bond is made, the dog and owner do not understand each other, cannot trust each other and therefore cannot function as a working team designed to better the daily life of the person. The successful bonding of a person and an Assistance Dog is crucial to the success and safety of the disabled client who wants to work with a dog. Understanding what is involved in the formation and maintenance of the bond will enable professionals in the field to better address issues, plan for any needed intervention and provide mental health services if they become necessary.

Through a process of exploration, defining the relationship as either one of attachment or affection will enable mental health professionals and Assistance Dog training organizations to properly and sensitively address the

breaking of the bond by death or retirement, impact upon the client's family and work systems and the creation of a bond for new working teams of human and dog. If the bond is one of affection, then clients grieving over the loss of their Assistance Dog will in essence be involved in the normative grief process that bonded pet owners work through upon the death of their animal. This grieving-for-pet process has been found to be more short-lived and less intense than grieving the loss of a human (Wrobel & Dye, 2003). However, if the bond is found to resemble one of attachment, the process may resemble that of grieving-for-human loss and may be more complex; the ramifications for both mental health and daily functioning with a new Assistance Dog are great. For example, the owner/handler may have difficulty bonding with the new Assistance Dog because of unresolved issues surrounding their previous Assistance Dog, grief for the Assistance Dog or fear of repeating this painful process with the new Assistance Dog. The grief of losing their dog may also trigger other, unresolved issues from the client's life such as borderline depression, anxiety, hyper-independence or relational difficulties with others. By beginning the process of understanding the psychological profile of the Human-Assistance Animal Bond, professionals will be better able to work with people with disabilities who are grieving the loss of an Assistance Dog, respect the depth of their relationship with the Assistance Dog and promote the formation of this important working and emotional bond.

1.4 Research Questions and Hypothesis

The research problem involving the clarification or identification of the attributes of the bond developed between an Assistance Dog and an owner-handler is complex. There are patterns of behaviours, attachment styles, cognitive schema and emotional experience, as well as level and functionality of the disability the person lives with, which is the driving force behind the application for and obtaining of an Assistance Dog. It is beyond the scope of this project to thoroughly identify the complexities of this special relationship between human and animal; however, this study begins the process of clarifying the Human-Assistance Animal Bond. Three questions related to a hypothesis surrounding the topic of attachment theory applied to the Assistance Dog – owner bond are addressed in this study as follows:

- (1) Is the relationship involving an Assistance Dog and their owner/handler similar to or synonymous to attachment bonds as defined by Bowlby and Ainsworth?
- (2) Are the relationship bonds between Assistance Dogs and owners different than the bonds between pet dogs and owners?
- (3) Does self-categorized attachment style vary the strength of the bond developed between a person with a disability and their Assistance Dog according to the measures used?

The hypothesis for this project is that the relationships forged between pet dogs and their owners are deep bonds based upon affection, while the relationships developed between a working Assistance Dog and their disabled

owner is one that shares similarities with adult attachment relationships, and that these relationships may themselves be attachment relationships.

Measures used in exploring these hypotheses were the Lexington Attachment to Pets Scale (LAPS; Johnston et al, 1992), the Relationship Questionnaire (RQ; Bartholomew, 1994) and the Human Animal Attachment Measure. These measures compare Assistance Dog owners and pet dog owners on dimensions of general attachment style, affection for pets and attachment to owned dogs.

The remainder of this thesis is as follows: Chapter two reviews the existing and relevant literature regarding the Human-Animal Bond (HAB), pertinent literature on the subject of attachment in adults and studies examining issues related to living with a disability and working with an Assistance Dog. Chapter three examines the methodology employed for this study, including the development of a pilot instrument. Chapter four examines the results of the study. Chapter five discusses the project and provides suggestions for future endeavours in this previously underexplored area.

CHAPTER 2: REVIEW OF THE LITERATURE

2.1 Preface

The vast majority of literature on the human-animal bond is in the form of anecdotal reports in popular periodicals, with a smaller percentage of position papers, case studies and group design experiments. The existing research on the nature of the bond between Assistance Dogs and their owners includes retrospective studies of people's memories and changes in perception after obtaining an Assistance Dog (Sachs-Ericsson et al, 2002). Cross-sectional studies examine differences between individuals who have an Assistance Dog and those who are on waitlists to obtain an Assistance Dog (Beck, 2000) on measures of depression, self-esteem and resources spent on aid. The Assistance Dog relationship with a person with a disability is one of animal assisting human along several dimensions such as mobility, health, safety and independence. Together, these dimensions shape the day to day lives of persons who live with a disability; the assistance provided by the animal is meant to enhance the lives of their human partners.

For investigating the research conducted on the human animal relationships, it will be useful to create categories to differentiate and clarify the existing literature; some directly relate to the relationship between

Assistance Dogs and their owners, but most investigate pets or friendly but unfamiliar animals and their relationship to human functioning. Therefore, the next three sections of this literature review are divided into the following categorizations: physiological and general health effects, social experience and psychological effects of human-animal interaction, with studies focusing exclusively on Assistance Dogs categorized separately.

2.2 General Health Effects of Human-Animal Interaction

The first ground breaking study into the Human Animal Bond (HAB) was undertaken in 1980 (Friedmann, Katcher, Lynch & Thomas, 1980). In this longitudinal investigation, the researchers tested the hypothesis that the absence of animal companions interferes with people's ability to maintain healthy behaviours and normal activity levels, which in turn influences the progress of serious illness. Survival ratings of 96 subjects, 65 male and 31 female, who were hospitalized with a diagnosis of myocardial infarction were calculated (Friedman et al, 1980). Participants were randomly selected from a pool of cardiac patients from several hospitals in a large U.S. city and were identified as pet owners and non-pet owners. After one year, the researchers interviewed 92 of the original subjects; among these, 14 had died as a result of additional infarctions. Three of the 53 patients with pets had died (6%), and 11 of the 39 patients without pets had died (28%). Because the argument could be made that dog ownership is a proxy for a measure of physical health status (because dog ownership necessitates more

frequent walks and exercise, which in turn effects health) survival rates of non-pet owners and patients who owned exclusively indoor pets such as cats and birds were also compared (Friedman et al, 1980). All 10 patients with myocardial infraction who owned pets other than dogs survived over the one year period. The researchers conclude that pet ownership is an important variable related to one year survival rates irrespective of the sex of the patient, the severity of the myocardial infarction or the type of pet owned. These results were replicated twice in subsequent studies; again by Friedmann & Katcher in 1984 and by Reade in 1995 and paved the way for an explosion of animal – human bond investigations in regard to human health and physiology.

Katcher (1981) conducted a study to investigate the short term effects of animal interaction on human physiological responses. In this randomized controlled trial, 80 participants were assigned to one of three groups. One group interacted, petted and talked to their own pet dog while reading, one group read and interacted with a friendly but unfamiliar dog and one group read aloud alone with no animal present. Blood pressure and heart rate were monitored for all three groups over a one hour period. The group consisting of subjects interacting with their own pet showed statistically detectable decreases in both blood pressure and heart rate readings, as did the group paired with friendly but unfamiliar animals. The control group of readers without animals showed the least amount of decrease in either heart rate or blood pressure measurements. Unfortunately, this early study is not

replicable because the researchers did not provide inclusion criteria or baseline measures of blood pressure or heart rate.

Since Katchner's 1981 project, systolic and diastolic levels have been commonly used in investigations exploring the influence animal interaction may have on human health. For example, a physiological approach was used to compare both systolic and diastolic blood pressures in a study that was very similar to Katcher's study as described above (Baun, Bergstrom, Langston & Thoma, 1984). In this study, the researchers employed a repeated measures, within-subjects design, which effectively enabled the 24 subjects to serve as their own controls in three conditions. In the first condition, participants interacted with their pet dog; in the second condition, they interacted with an unknown dog and in the third condition, participants read in solitude. In order to prevent the possibility of practice effects, the investigators counter-balanced the presentation of the conditions. Results demonstrated that subjects had detectable decreases in blood pressure when paired with their own animal compared to the condition where they were paired with an unfamiliar dog or read alone without the presence of an animal.

One of the largest studies undertaken to investigate relationships between the animal-human bond and human health was conducted by Anderson in 1992. This project investigated whether risk factors for cardiovascular disease were present among 5741 people referred for screening to cardiac disease clinics in several large U.S. cities. Pet owners

(n=784) and non-pet owners (n=4957) were compared on physiological measures, body mass index, smoking habits and exercise habits. Across the sample, pet owners had significantly lower blood pressure and triglyceride values than non-pet owners. While the pet owner group scored significantly lower on measures of risk for cardiovascular disease, the researchers caution that socioeconomic status was not controlled. Anderson returned to the project data and measured for differences in socioeconomic status using participant groups matched on socioeconomic classes, family income and lifestyle. The new groupings yielded similar results: performance of pet owners on measures of risk were statistically lower than performance of non-pet owners (Anderson, 1992). Pet owners engaged in both healthy and unhealthy living conditions and life styles (ie; smoking vs non-smoking), yet they still showed lower blood pressure and plasma levels than non-pet owners in all compared groups. Anderson concluded that pet ownership can often be a variable for reducing the risk of cardiovascular disease (1992).

These first forays into investigating the possible effects of animal-human interaction highlighted the need for more controlled studies, with large samples and detailed accounts of sampling, measures and analysis in order to encourage replication. With more projects focusing on the physiological effects of human-animal bond, researchers began to question other possible means of measuring this bond and how it may impact upon the health of people involved in these kinds of interventions. One study exploring a possible relationship between animal-human interaction and health was conducted by Siegal in 1990. A random sample of 1232

households was obtained through the U.S. Medicare system and was studied to test the hypothesis that pet owners would have evidence of fewer doctor contacts than non-pet owners over a one year period. The mitigating factors in doctor contacts were overall health status, income and pet ownership, but pet owners did make fewer doctor visits than non-pet owners. This highlights the possibility that pet owners may feel social support in the form of their pet, which may in turn act as a buffer against frequent trips to the doctor's office. Siegal (1990), mentions that some isolated senior citizens view their doctors as a form of social contact and support, therefore it seems reasonable to assume that a senior who has social support in the form of an animal may not need their physician to play this role in everyday life.

Despite theoretical or methodological problems present in these studies, overall findings do suggest that animal-human interactions may have a positive influence on human physical health. With these physiological indications, researchers from other health and human service fields began to investigate the influence animals may have on other people-oriented issues.

2.3 Social Experience of Human-Animal Interaction

When addressing the possible roles animals play in their interactions with humans, researchers next looked to the social realm. Many studies have investigated the relationship between animals, humans and social experience (Hart, 2000; Serpell, 1991; Donaldson, 1987, Barba, 1995; Allen, Blascovich, 1996). Much of this research has taken place either in long term care facilities or inpatient psychiatric wards (Holcomb & Meacham, 1989; Walsh, Mertin, Verlander & Pollard, 1995; Perelle & Granville, 1993; Savishinsky, 1986; Connor & Miller, 2000). Because animals are able to bond with humans, several researchers (Bernstein, Friedmann & Malaspina, 1995; Geries-Johnson & Kennedy, 1995; Harker, Collis & McNicholas, 1997; Joubert, 1987) have investigated animals' roles in creating social buffers, as indicated in Siegal's work.

In 1986, Goldmeier investigated pro social behaviours and feelings among the elderly living alone in their homes. Goldmeier hypothesized that animals act as buffers against loneliness in the seniors' lives. For this project, 144 elderly participants were categorized into groups according to whether they lived alone, lived alone with pets, lived alone with people, lived with people and pets or lived with a newly acquired pet. This last group served the purpose of assessing whether or not a bond with an animal mediates social behaviour, or whether social behaviour increased with the presence of a friendly animal in the home environment (Goldmeier, 1986). Although it was not overtly stated, it may be that this condition was created

by the researcher to differentiate animal interaction from animal bonding, presuming that a difference in social experience or functioning would be found in support of the research hypothesis.

The composition of the five groups was stated to be demographically similar, although no details are provided in terms of gender, age, socioeconomic status or general health. Measures used were a morale questionnaire and a loneliness dissatisfaction scale created by Goldmeier (1986). Reliability and validity estimates are not reported by the authors. This study utilized a repeated-measures / within-subjects design, in order to have each resident serve as their own control and to gauge individual responses to varying conditions. The results of this work showed that the majority of residents demonstrated the highest number of the above defined social behaviours when in the presence of their own pet or the newly acquired pet. Results reported by Goldmeier suggest that animals did not exert as much influence over the social experience of seniors living with other people as animal presence did for those who lived alone. Also reported were higher morale scores of those who lived only with an animal, regardless of whether the animal was a beloved pet or a new, friendly animal in the home.

Robb and Boyd utilized the 'captive' population of residents living in a long term residential care centre to explore the impact of animate and inanimate stimuli on social behaviour of the aged population (Robb & Boyd, 1990). A total of 63 residents who were chronically ill were observed when

in the presence of a potted plant, a puppy and a control situation with no stimulus. This study employed the repeated-measures / within-subjects design, in order to have each resident serve as their own control and to gauge which stimuli elicited the greatest response for each. Observations were recorded by researchers and one blind rater in order to more accurately gauge inter-rater reliability. The observational measures included number of verbalizations, smiling behaviour, looking at the stimuli, opening the eyes and leaning forward toward the stimuli. The results of this work showed that the overwhelming majority of residents demonstrated the highest number of the above defined social behaviours when in the presence of the puppy. The authors also observed that the puppy appeared to serve as a catalyst for more frequent verbalizations between residents and staff. According to the results reported, hostility and repetitive statements also lessened when the puppy was presented to the residents. An unexpected outcome of the research project was that staff members at the facility reported less stressful encounters between themselves and family members of residents and with each other on days when the puppy was present in the facility (Robb & Boyd, 1990).

One weakness of the project was that it was carried out in a single facility, negating any claims of generalization. The study was valuable, however, in that it inspired other studies investigating human-animal bonds between patients and pets in long-term care facilities (Raina, Waltner-Toews, Bonnett, Woodward & Abernathy, 1999; Beyersdorfer & Birknhauer, 1990) and that it highlighted the unexpected factor of lessening interpersonal

conflict for a myriad of people involved in working, visiting and living in a residential care environment. This study seems to have played a role in developing animal visitation programs and indeed, creating an impetus for many care associations to have an animal living on the premises in order to positively influence the day to day lives of the people residing in care facilities of all kinds (Fritz, Farver, Hart & Kass, 1996; Neer, Dorn & Grayson, 1987; Fick, 1993).

Martin and Farnum (2002) provided animal interaction activities for children with Pervasive Developmental Disorder to investigate whether human-animal contact facilitates emergence of pro-social behaviour among children with social developmental disorders. Children in therapy were expected to display more frequent and extended sequences of pro-social behaviours and fewer incidences of non-social conduct when in the presence of a trained dog rather than a ball or stuffed toy (Martin & Farnum, 2002). The authors operationally defined social behaviours as: asking or answering questions, verbally engaging with the dog, toy or ball, attending to therapist requests and the non-displaying of tantrum or frustration behaviours. Measures of pro-social performance used in the dog presence condition included: giving treats to the dog, looking at the dog and talking to the dog. Ten children took part in the project that incorporated a repeated-measures/within-subjects design (Martin & Farnum, 2002).

By using such a design scheme, the children served as their own controls by participating in all conditions of the experiment. Since this design has a tendency to induce the practice effect (Shaughnessy & Zeigmeister, 2000), the authors counter-balanced the presenting of the conditions and therefore avoided the possibility of a serious confound. Results of the measurements showed statistically detectable increases of pro-social behaviours and decreases in non social behaviours when children were in the presence of the live dog, enabling the hypothesis to be supported (Martin & Farnum, 2002).

However, limitations of the study require discussion. Although each participant experienced 45 sessions across 15 weeks, the locations of the sessions differed from child to child. This fact creates a concern regarding constancy across conditions and across subjects. Most sessions occurred in rooms set aside by each child's school, and the reader is not informed of how many schools this entailed. The noise level within the rooms, the level of school co-operation and the familiarity of the rooms to the children would all have been categorically different; this may have influenced the responses of the participants across conditions. In this particular investigation, equal testing environments were not ensured, which may have decreased the ability to measure a true treatment effect. Despite these limitations, the study also had methodological strengths. Martin and Farnum (2002), included three different breeds of dogs trained as therapy animals, allowing for the assumption that it was interaction in general rather than interaction with a specific dog that accounted for the measurements of social behaviour

in the live dog condition. In addition, all therapists followed the same pre-determined protocol with all conditions to encourage internal reliability. Lastly, the authors were careful to not generalize the results beyond the narrow parameters of children with PDD who are already taking part in interventions with therapists (Martin & Farnum, 2002).

2.4 Psychological Effects of Human-Animal Interaction

The third category of experimental research available involving the human-animal bond is that of psychological effects; there are many anecdotal reports concerning the effects of animals on human psychological health, but being a relatively new field of study, there are fewer studies published in peer reviewed journals. Although most of the studies involving animal-human interaction are not psychologically based, the results do imply an impact on psychological functioning or mental health. For instance, studies concerned with blood pressure or heart rate measurements can be seen as measuring not only these physiological symptoms, but also a general psychological stress level or relaxation level.

Studies looking at social experience are certainly aligned with the psychological constructs of social functioning, and could be extended to include the psychological states of anxiety, loneliness or depression. However, it appears to be rare for a journal highlighting psychological or educational research to include studies of animal-human bonding or

interactions related to psychological functioning or experience. Published studies of the psychological effects of animal-human bonding focus on anxiety or depression, measured in captive populations such as prison inmates, long term care residents and psychiatric units; these are included within this review. An additional issue concerning studies that investigate psychological effects of human-animal bonding is that measures utilized tend to be self-report instruments and observational ratings which bring valid concerns regarding bias, influence of untested variables, reactivity to observers, expectancy effects, demand characteristics and in some cases, the Hawthorne Effect (Shaugnessy & Zechmeister,2000).

The first reported attempt to investigate the possibilities of human-animal interaction in psychology was Dr. Boris Levinson's observation in 1961 of a naturally occurring interaction between a dog and a child. Dr. Levinson was in session with a child client who refused to speak or interact with therapists while in session (Levinson, 1972). Purely by chance, Levinson had his own pet dog in the office that day and the dog was present during the session with the uncommunicative client. The child began to engage and interact with the dog, and Dr. Levinson saw an opportunity to use his animal as a therapeutic tool for building trust, rapport and increasing the comfort levels with his young clients. He continued to record and evaluate his interventions, despite the fact that this foray into unexplored intervention possibilities was poorly reviewed by peer clinicians and researchers in the field of psychology (Levinson, 1972).

Barker and Dawson (1998) conducted a study that focused on the possible effects of human-animal bonding on the anxiety ratings of hospitalized psychiatric patients. Possible eligible participants (n=313) were approached by the researchers and 230 of these newly admitted patients volunteered to participate in the study. Using a pre and post-treatment crossover study design, researchers compared the effects of a human-animal bonding intervention with those of a regularly scheduled recreation session on short-term inpatients. During the human-animal bonding sessions, a dog interacted with patients and demonstrated obedience activities with the patients acting as coaches. The therapeutic recreation session consisted of art activities and presentations on community resources. Using the State-Trait Anxiety Inventory (Spielberger, 1983), researchers measured pre and post test levels of anxiety for each therapeutic session. The internal consistency for the State-Trait measure is .93 (Barker & Dawson, 1998), and the format consists of a 20 item self-report rating of anxiety. Using a mixed-models, repeated-measures analysis, the pre and post-treatment scores were compared between the human-animal bonding sessions and regular therapeutic sessions. Study results show that in the recreation session, only those patients with diagnoses of mood disorders demonstrated a decrease in anxiety levels (Barker & Dawson, 1998).

In the human-animal bonding sessions, however, statistically detectable decreases in anxiety were seen in patients with mood disorders, psychotic disorders and "other" disorders. These other disorders are not clarified by the writers. The conclusion drawn by the research team was that

short-term intervention involving animal interaction reduces anxiety for a wider range of psychiatric patients than conventional therapeutic recreation sessions (Barker & Dawson, 1998).

Nagengast, Baun, Megel, & Leibowitz (1997), investigated anxiety in children undergoing a painful medical examination and how a distractor in the form of a friendly but unknown dog would influence physiological and behavioural indicators of childhood distress reactions.

Although this project had a medical focus, recognizing possible anxiolytic factors for the child population has value stretching across the helping professions. For example, children involved in trauma counselling or physical therapy commonly experience high levels of stress response at some point during treatment (Nagengast et al, 1997). A total of 34 children under the age of six participated in the project, with baseline measures of blood pressure, galvanic skin response and the Observational Scale of Behavioural Distress (Jay & Elliott, 1984) recorded by volunteer testers. Seventeen children underwent the physical examination while in the presence of a friendly dog, with the instruction to interact as much or as little with the dog as they wanted. Most of the children chose to pet the dog and have direct tactile interaction. The rest of the participants (n=17) had their examinations without the animal (Nagengast, et al, 1997). The investigators reported the results of the physiological and observational measures to be statistically insignificant between the groups, although

parents provided anecdotal reports indicating decreased behavioural distress for the children who did interact with the friendly canine.

2.5 Human-Animal Bond and Persons with Disabilities

In researching the field of human-animal bonding, it became clear that peer reviewed research has been undertaken in the area of psychological effect, emotional well-being or psychological functioning related to the construct of bonding with an animal, but that there are still many areas to investigate and studies which need replication to increase acceptance of Human-Animal Bond research within the social science community. When the term 'disability' was included in the search of human and animal bonding, few studies were applicable. The research that does exist has been criticized for having small sample sizes, low possibility of generalization and methodology or instrument inadequacies (Hooker & Freeman, 2002). For example, many projects investigating the effects of Assistance Dogs on the psychosocial or physical functioning of their new owners are retrospective in design, without benefit of control groups and rely on the memories of participants; results may be due to factors such as the passage of time (Sachs-Ericsson, Hansen & Fitzgerald, 2002). The following research overviews reflect the studies investigating psychological or psychosocial functioning in people with disabilities who acquire Guide Dogs, Service Dogs or Hearing Dogs.

It appears that the most widely researched hypothesis revolves around the hypothesis that an Assistance Dog may act not only as a mobility or sensory aid, but also as a social lubricant, enabling strangers or acquaintances to engage in conversation or social acknowledgement with the dog's disabled handler (Mugford & McComisky, 1975; Messent; 1983, Mader, Hart & Bergin, 1989; Eddy, Hartz & Boltz, 1988). Each of these studies demonstrated that the presence of an Assistance Dog with a disabled handler resulted in more eye contact, conversation, greetings, questions and positive feelings of belonging on the part of the Assistance Dog owners than experienced by the group of participants without Assistance Dogs. Without exception, each of these studies had very small samples, with a mean of N=11 across the projects.

One of the larger studies observed twenty adults who used mechanized wheelchairs as mobility aids. Ten of the participants had Assistance Dogs and the other ten acted as a control (Eddy, Hartz & Boltz, 1988). Observations were made in shopping malls, parks and on college campuses, where observers blind to the study recorded smiles, gaze aversion, path avoidance, conversation and zero response reactions from strangers passing within a ten foot radius of the participants. Conversations with the participants who had Assistance Dogs occurred significantly more often than conversations with the control group participants with mean respective scores of 7.2% and 1.5%. Gaze aversion and path avoidance occurred with nine of the ten participants without dogs and two of the ten participants with dogs. Perhaps the most dramatic contrast was in the

observance of smiles; 25% of all recorded observations of the Assistance Dog group included smiles, while none of the control group recorded any smile observations (Eddy, Hartz & Boltz, 1988).

In a study very similar in design to that of Eddy, Hartz & Boltz (1988), Mader, Hart and Bergin (1989) explored the role Assistance Dogs may play as social lubricants for children with disabilities; particularly those who rely on wheelchairs to increase their mobility. The authors observed six children who used wheelchairs with service dogs by their sides and observed five children who used wheelchairs without service dogs (Mader et al 1989). Locations utilized were schools and playgrounds and observations were naturalistic; observers recorded specific behaviours of each passerby within five feet of the participant for one hour periods. Children with service dogs attracted more friendly glances defined as smiles at dog and /or child (66.2%) and more and longer conversation times than children without service dogs (8.2%) (Mader et al 1989). The results from this exploration and others like it indicate that Assistance Dogs offer not only mobility, sight or auditory assistance, but socializing support as well.

Several general articles written on the subjects of Assistance Dogs and disabilities of all kinds cite the problematic methodological issue of not having appropriate control groups for projects; necessitating the use of the somewhat weak retrospective design (Sachs-Ericsson, Hansen & Fitzgerald, 2002; Hooker & Freeman, 2002). One possible population from which to form control groups for research involving Assistance Dogs are people with

disabilities who are waiting or have applied for an Assistance Dog. This sample would be as diverse as the population of persons with disabilities, and also share many of the same issues people with Assistance Dogs may live with, such as public access, self-efficacy, costs associated with living with a disability and coping mechanisms.

One project investigating the financial implications of service or hearing dog partnerships utilized a sample comprised of 44 participants; 21 of them paired with an Assistance Dog and 23 on a waitlist for an Assistance Dog; researchers involved were interested in gauging the amount of paid assistance individuals with mobility disabilities need with and without Assistance Dogs (Collins, 2004). The working hypothesis was that due to the additional assistance provided by service dogs, participants with dogs would experience a decreased need for additional paid human assistance when compared to those without an Assistance Dog. Individuals recently partnered with a service dog were compared with those waiting to receive a dog through the use of a mailed questionnaire and budget sheet (Collins, 2004). The questionnaires were completed at the commencement of the study, three months into the project and again after nine months. Results did not indicate a significant change in assistance expenditure for either the Assistance Dog group or the control group waiting for placement with a service dog. The investigator noted that the large attrition rate (52%) may have played a part in the lack of significant findings (Collins, 2004). An additional factor not explored by the author may have been the project time line. Nine months is a relatively short period of adjustment for a person who

has acquired an assistance dog, and additional costs of owning a dog may not have been encountered, such as yearly licensing fees, vaccinations and flea control (Lambert, 1990). The study did not clarify whether costs of paid human assistance, ie; a care aid, were exchanged for animal care, ie; veterinary costs or whether paid human assistance was still needed after the acquisition of the Assistance Dog.

A project investigating the psychosocial implications of service or hearing dog partnerships utilized a questionnaire with fourteen people with hearing dogs and the same questionnaire in verbal form with ten people who partnered with a service dog (Valentine, Kiddoo & LaFleur, 1993). This study also included interviews with seven trainers of service and hearing dogs in order to obtain information on the observable perceived psychosocial changes in people who acquire Assistance Dogs; this inclusion of trainer observations is unusual for projects involving Assistance Dogs, but valuable in that trainers offer a unique perspective of developing bonds and issues arising between clients and their new dogs. Results of the questionnaire and interview sets indicate that persons with Assistance Dogs perceive their lives to be better since they obtained their dogs (Valentine, Kiddoo & LaFleur, 1993).

One result highlighted by the authors was that 100% of the participants with service dogs felt 'more freedom', less loneliness and more independent since being partnered with their dogs. 80% of respondents indicated that they felt an increase in self-esteem and experienced more

friendliness from strangers; this last result appears to mirror the results from the afore-mentioned observational studies of Assistance Dogs serving as social lubricants. Hearing dog participants felt safer because of the alerting capabilities their dogs displayed (93%). Clients with hearing dogs (79%), also indicated that they felt more independent and more content (Valentine, Kiddoo & LaFleur, 1993). Both service and hearing dog handlers cited the cost of caring for their dog as the major disadvantage of owning a service or hearing dog.

The professional Assistance Dog trainers interviewed reported that the placement of an Assistance Dog resulted in the disabled clients feeling more independent, becoming more active and seeming less depressed. The trainers also noted that for some handlers, the responsibilities of caring for a dog promoted competence and independence, while for some handlers, caring for the physical needs of their dog were almost overwhelming (Valentine, Kiddoo & LaFleur, 1993). Two trainers mentioned an increase in family stress when the dog was partnered with the handler; it was hypothesized that this may have been a result of family members feeling less important in fulfilling the day to day needs of the disabled member (Valentine, Kiddoo & LaFleur, 1993). Although this study was completed with a relatively small sample size (n=24), it is one of very few projects to invite observations from the Assistance Dog trainers who place dogs with clients; this provides valuable insight into observed psychosocial changes after obtaining an Assistance Dog, rather than the oft-used retrospective

studies, which while interesting and valuable in their own right, do not provide a more objective perspective on these changes.

Retrospective studies do appear to be the type of research design most often utilized in projects involving Assistance Dogs or disabilities in general. One such study explored Assistance Dog owners' psychosocial functioning before and six months after receiving a service dog (Allen & Blascovich, 1996). Using Likert-type scaled questions and standardized measures, the disabled handlers showed dramatic positive changes in psychosocial and health functioning variables. However, the validity and reliability of this study has been often and repeatedly questioned (Beck, 2000, Eames & Eames, 1997, Rowan 1996). The absence of methodological information needed for replication, the magnitude of effect sizes and the statistically improbable response rate have all been cited as issues with the study (Beck, 2000).

Most research projects and endeavours focus on service and guide dogs, as these Assistance Dog categories are the most well known, common and publicly accepted Assistance Dogs (Lambert, 1990). Projects involving hearing dogs, however are more unusual. This may in part be due to hearing dogs assisting what is called a hidden disability; people who experience a hearing loss or disability are more able to mask their disability than a person who has a vision or mobility disability. Within the deaf community, an aversion towards the concept of utilizing a hearing dog is noticeable (Eames & Eames, 2001). The use of a hearing dog for assistance outside the home

environment involves the animal wearing a cape or harness that identifies them as a hearing dog with rights to public access. This public admission of deafness runs contrary to the value within the deaf community of remaining inconspicuous. Deafness is a hidden disability, and many in the community wish to remain hidden themselves (Eames & Eames, 2001). It then makes sense that there are fewer hearing dogs working with partners when compared to service or mobility dogs, resulting in fewer hearing dog participants in research projects.

Interestingly, one of the largest studies involving Assistance Dogs and their owner/handlers did focus on the population living with a hearing disability and paired with a hearing dog (Mowry Carnahan & Watson, 1994), The impact of hearing dogs on their handlers' (n=95) activities of daily living was explored with the use of a retrospective design (Mowry, Carnahan & Watson, 1994). Among participants who reported problematic health, 86% then reported that their HD had helped with their health, although specific details are not provided as to how handlers believed this occurred.

Participants also reported that they felt more physically safe since the acquisition of their HD and that their dogs alerted them to the sounds of the telephone, their name being called, kitchen timers and doorbells on a daily basis, which in turn made the participants feel more physically safe and independent (Mowry et al, 1994). It appears from this study that people owning and working with hearing dogs experience more assistance from their dog while in their home environment, effectively keeping the hidden disability of deafness inconspicuous to the external world. Service and guide dog

owners would most likely report more assistance from their dog in the public environment, where mobility and sight support may be more vital for safely and efficiently accessing external surroundings outside the home.

Canine Companions for Independence is the largest Assistance Dog training centre in the world, with 1,154 active Assistance Dog partnerships in North America (CCI, 2005). CCI has participated in several projects since its inception in 1975; offering participants, statistics and information to researchers (Sachs-Ericsson, Hansen & Fitzgerald, 2002). One such project was undertaken with a large sample of CCI clients (n=202) who had received a service dog for assistance with mobility disabilities (Fairman & Huebner, 2001). This retrospective study reported that 60% of participants stated that their service dog assisted them with health maintenance activities such as physical exercise and hygiene assistance including getting into and out of showers, fetching supplies and providing balance during ambulation (Fairman & Huebner, 2001). A total of 84% of participants reported that their SD helped them in exploring their community, getting around the house and fetching communication devices, which led to greater feelings of independence and of being capable. The investigators also asked participants to rate the assistance their dogs provided in a social context. Another 76% of respondents stated that their SD assisted them with shopping trips and with socializing with strangers (Fairman & Huebner, 2001). This project highlighted the positive lifestyle changes experienced by people who have an Assistance Dog, but did not investigate the emotional bond developed between the partners.

A similar project prior to the Fairman and Huebner study (2001), was undertaken in 1998; this project expanded upon presumed positive lifestyle changes of living with an Assistance Dog by including items on the emotional connection felt by the owner/handlers towards their Assistance Dogs (Lane, McNicholas & Collis, 1998). The researchers stated an interest in exploring the level of satisfaction, commitment to owning a service dog and level of social integration people with disabilities experienced with their service dogs (Lane, McNicholas & Collis, 1998). Fifty-seven owner-handlers of service dogs participated in a questionnaire survey that contained items designed to gauge the above constructs, in addition to items pertaining to the well being of both the dog and the handler. This study is one of the few that took into account the length of ownership and level of affection felt for the animal. Disabilities of the participants included paraplegia, multiple sclerosis, arthritis, limb amputation and thalidomide injury, but not hearing or vision disabilities. Subjects were partnered with their dogs for an average of 2.5 years, and reported very close emotional ties to their animals. A total of 72% of respondents felt that their Assistance Dogs were more than a working animal; family member and friend were roles most quoted (Lane, McNicholas & Collis, 1998). From the sample, 59% of the participant owners expressed that they told their dog about issues they were facing, shared their feelings and turned to the dog for comfort when feeling sad. Results described by the authors indicate that the longer the client had the dog, the closer these emotional ties were, although measures and methodologies were not described (Lane, McNicholas & Collis, 1998). All participants in the

project had irreversible or degenerative medical concerns and the investigators related the surprising result that 51% of participants felt their health had improved since being partnered with an Assistance Dog. It was hypothesized by the authors that enhancements to psychological health through increased self-esteem and efficacy, independence and social integration may have resulted in improved coping and positive acceptance of the participants' disabilities and abilities (Lane, McNicholas & Collis, 1998). This project is one of the few that attempted to integrate the concepts of living with an Assistance Dog and the impact on the internal psychological experience of the person being paired with a dog; in particular, the influence an Assistance Dog may have on self-efficacy. If placed in the realm of living in and navigating through the external environment, self-efficacy may be termed as a feeling of capability or independence and a willingness to explore; constructs which are closely aligned with attachment theory as developed and described by Bowlby and Ainsworth (Colin, 1996).

With interest growing in the psychological challenges faced by people living with physical disabilities, research began to shift from the sole focus of physical functioning to include psychological functioning, as anecdotally, differences in coping, depression symptoms and self-confidence were observed in people after they had acquired an Assistance Dog (Lambert, 1990). Researchers also began to utilize well established measures as part of their designs, rather than purely retrospective reports from Assistance Dog owner/handlers. One of these studies was designed to explore depressive symptoms, acceptance of disability, levels of self-esteem and quality of life in

people who were about to be placed with a service dog (Donovan, 1995). This was a four month longitudinal project with pre- and post test measures of depression (Center for Epidemiologic Studies Depression [CES-D]; Radloff, 1977), self-esteem (Coopersmith, 1979), acceptance of disability (Attitude Towards Disabled Persons scale [ATDP]; Yunker & Block, 1996) and quality of life (RAND; Sherbourne & Hays, 1991). Participants were volunteers with disabilities (n=43) who had just been matched with a new service dog from Canine Companions for Independence (Donovan, 1995). No differences over the four month time period were found for any of the measures used; the author pointed out that four months of service dog ownership is likely too short a time frame for substantive psychosocial changes to occur in addition to this time being a period of great adjustment to routine and lifestyle, which may have explained the insubstantial results (Donovan, 1995).

In a review of the benefits of Assistance Dog ownership and existing research, Sachs-Ericsson, Hansen and Fitzgerald (2002) highlight the need for more extensive research to be conducted on the subject of the psychological health implications of owning and working with an Assistance Dog. The authors cite problematic issues with existing research, including small sample sizes, selection bias due to the unavailability of matched control groups, lack of longitudinal projects and the reliance on retrospective design (Sachs-Ericsson, Hansen & Fitzgerald, 2002).

There are few existing research projects or studies involving the relationship between Assistance Dogs and their owner-handlers, little

research investigating short- or long-term psychological effects from the loss or retirement of an Assistance Dog and very few explorations of the nature of the relationship bond that develops between a disabled person and their Assistance Dog.

2.6 Adult Attachment

This review of relevant literature focuses on research investigating adult attachment relationships, composition of adult attachment networks, the role adult attachment styles may play in explaining coping with illness and how attachment style may influence explorations of the environment such as work and leisure activities. The studies reviewed here were chosen to represent a sample of the diversity in adult attachment research, with an emphasis on attachment style and how the varied styles influence the lifestyles and functioning of adults throughout the lifespan.

With projects designed to explore adult attachment, there are several measures of adult attachment available for use and analysis by researchers and social scientists (Fraley, 2002). Stein and his colleagues (2002) investigated current measures of adult attachment style in an attempt to define the theoretical underpinnings of the Revised Adult Attachment Scale (RAAS; Collins & Read, 1990), Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991), Relationship Scales Questionnaire (RSQ; Griffin & Bartholomew, 1994), Attachment Style Questionnaire (ASQ; Feeney & Noller,

1996) and the Adult Attachment Scale (AAS; Simpson, 1990) and found that rates of disagreement between ratings made by participants on comparable measures varied from 21% to 35% (Stein, Koontz, Fonagy, Allen, Fultz & Brethour, 2002). The authors suggest that although the measures when compared have varied results, the constructs of attachment styles appear to be well matched across the measures; in particular, measures that utilize categorical styles appear to match well, while those which operationalize attachment style along a continuum are more varied. It is suggested that instruments that avoid discrete categories and use rating scales may be more indicative of the varied attachment style as seen in adults, as adults have various attachment relationships from which to draw when responding to attachment items (Stein et al, 2002). At the same time, however, instruments which are categorical in nature are often used because of their ease of use, simple scoring and statistical operations and uncomplicated structure for participant responses (Stein et al, 2002). Most of the studies reviewed within this section have utilized categorical measures because of this ease of use, especially in projects also using a questionnaire format for other measures.

Considering that there are millions of North Americans with physical disabilities, it is surprising that not many studies have investigated attachment within this large population (Olkin, 1999). One of the few studies attempting to explore attachment styles in the population of North Americans with disabilities compared fifty profoundly deaf adults to fifty non-hearing impaired adults on a measure of attachment (McKinnon, Moran & Pederson,

2004). As part of the study, the researchers modified the Adult Attachment Interview (Main, 1995) for use with American Sign Language rather than spoken English. The distribution of attachment classifications found in the sample was not significantly different from that of the non-disabled population, despite the fact that many of the hearing impaired participants spent their formative years in residential schools for the deaf, rather than at home with primary caregivers (McKinnon, Moran & Pederson, 2004). However, the study did not explore whether the attachments formed by the deaf group, such as the bonds forged between the adult participants and their parents, spouses, children and friends, were different than the hearing group.

As research has expanded in the adult attachment arena, several projects have indicated that attachment bonds may differ substantially between adults and the significant people in their lives (Weiss, 1991; Freeman & Brown, 2001; Fraley & Davis, 1997). For example, an adult may seek different attachment interactions with their parents (ie; safe haven) than they might with their spouse (i.e.; proximity seeking). Exploring any differences between the hearing and hearing impaired groups may have shed new light on how the levels of attachment relationships vary; for example, if a person raised in a residential school forms attachments with less depth when compared with a person raised within their family of origin, regardless of their attachment style.

A large study (n=812) of adult attachment networks was recently conducted by Doherty & Feeney (2004) to investigate the hypothesis that adults develop bonds with a variety of attachment figures and whether differences are found in the relative strength of the attachment bond to each of these figures. Attachment figures refer here to parents, siblings, peer friendships and romantic relationships (Doherty & Feeney, 2004). The network of relationships among these attachment figures was expected to vary across age groups and life situations. The criterion for a relationship to be classified as one of attachment was held consistent with previous work in the field involving attachment behaviour: safe haven, secure base and separation protest. Full attachment was defined as having substantial agreement for each of the three criterion. For subjects with romantic partners, 74% met the criteria for full attachment relationships. For those without partners, 40% were fully attached to their mothers, 16% to their fathers and 30% to a close friend. Moreover, 55% of the participants reported two or more full attachment relationships, indicating support for the hypothesis that adults do develop and maintain a network of attachment relationships, regardless of attachment style (Doherty & Feeney, 2004).

The results of this large project indicate that adults may indeed form attachment relationships, of differing degrees, to various important others in their lives. This lends support to other researchers who posit that adults may form attachments to various people and non-humans as well; for instance, an attachment relationship to an abstract God figure.

Because the present project is concerned with a possible attachment relationship between a person and a non-human (dog), a search was conducted to determine if other attachment research regarding attachment bonds that may not have a human being as the attachment figure exist. It was found that various researchers have posited that God or a God-like figure may serve as an attachment figure for some people (Kirkpatrick, 1998, 1999; Hazan & Shaver, 1990; Feeney & Noller, 1996, Granqvist & Hagekull, 2000). Cicirelli (2004) designed an investigation to query whether God was an attachment figure for 109 older adults (93 female, 16 male). A sample was drawn from voter records, senior citizen centres, retirement complexes and church groups. The age of the sample ranged from 70 – 97 years, with a mean of 80.7 years of age. One index used was the Instrumental Activities of Daily Living scale (IADL; Lawton, 1972). No measure of attachment was used in this project; instead, in-depth interviews were conducted with the subjects of religion, God and death serving as open ended questions and used to determine possible attachment to God (Cicirelli, 2004). In coding the interview protocols, the following working descriptions of secure attachment were used as coding categories: proximity seeking through prayer, feeling that God provides comfort and warmth, feelings of distress at the thought there may be no God, looking forward to reunion with God in the afterlife and believing that God helps with problems and gives strength. Each item on the interview was coded on a 3 point scale, with 3 being a strong statement and 1 being a negative statement with respect to the category of interest (Cicirelli, 2004). The protocols were coded and

scored by two raters, with 86% inter-rater reliability. Internal consistency reliability was .68 for items across participants.

The author suggests that this measure of attachment to God represents a quantitative strength of secure attachment, rather than a type of attachment. Results show that 5.5% of participants had chronic illnesses, but few had limitations in their activities of daily living. Of the sample, 63% were widowed, 16% married, 18% divorced and 3% had never married. The majority of respondents (82%) gave the highest coding (3) to the item 'proximity seeking through prayer', while 63% gave a coding response of 3 to 'feeling that God gives comfort and warmth'. 30% felt distress at the thought of there being no God and 23% felt that 'God helps with problems and gives strength'. The lowest response rate resulted from the item, 'looking forward to reunion with God in the afterlife' (Cicirelli, 2004). Without having a cut-off point or score where an individual could be characterized as highly attached to God, Cicirelli defined a high level of attachment as having scores of 3 on at least four of the measured items. A total of 20% of the participants had a score code of 3 on at least four of the items. The author offers this result as an indication that some older adults appear to have a strong attachment relationship to God, and that this relationship developed as they aged rather than one that was continuous throughout their lifespan (Cicirelli, 2004).

This lifespan view of attachment and attachment relationships coincides with the theory developed by Bowlby and operationalized by Ainsworth, although they are most recognized for their work involving infants and the attachment process (Ainsworth, 1989).

Research involving this lifespan approach to attachment gained credibility as more research was conducted involving adults utilizing not only attachment measures, but also retrospective elements to gauge changes in attachment relationships from childhood to adulthood (Freeman & Brown, 2001; Howes, 1999; Weiss, 1991). In addition to research exploring attachment relationships over time, researchers also began to consider possible changes in attachment style during lifespan development (Cicchetti & Barnett, 1991, Baldwin & Fehr, 1995; Hammen, 1991).

Davila, Burge and Hammen (1997) conducted a study to investigate attachment styles and the possibility that they may change over time. In order to hold the construct of change constant across participants, the researchers gathered responses from 155 young women making the transition from high school to their first year of college (Davila, Burge & Hammen, 1997). The researchers hypothesized that people, regardless of background and individual differences, may change their primary attachment style given the right circumstances during the course of their lives. With this view, the authors followed the suggestion first offered by Bartholomew and Perlman (1994) that the mechanism of attachment change may best be examined in a sample facing a common stressful life event or transition

(Davila, Burge & Hammen, 1997). As already stated, the hypothesis that attachment style may change appears to be an increasingly well supported and well documented one throughout the attachment field (Baldwin & Fehr, 1995; Hammen, 1991). To gauge any change in attachment style, the 155 participants completed the Hazan and Shaver (1987) single-item attachment measure twice; immediately after high school graduation and two years later while attending first year classes in college. Participants were also interviewed using the Structured Clinical Interview for the DSM-III-R (SCID; Spitzer, Williams, Gibbon & First, 1990).

Results indicated that some attachment change could be attributed to life transition, with 28% of respondents showing a change in attachment style over two years of college. However, 80% of the participants who had a change in attachment style also showed more instability in their individual differences of susceptibility to change, in addition to displaying insecure attachment styles (Davila, Burge & Hammen, 1997). These individual differences were measured via data from the participants' life history interviews. Additionally, the authors report a possible bidirectional relationship between scores on the Structured Clinical Interview and susceptibility to attachment style change; the higher the SCID score, the higher the likelihood of attachment change (Davila, Burge & Hammen, 1997). Davila and his colleagues concluded that their study created more questions than answers, with some people appearing to fluctuate in attachment style due to life transitions or stressors, while others do not.

The authors did not discuss the possibilities for future research, but a logical step may be to conduct studies exploring how/why insecure attachment styles change or how they correlate with life changes and psychological health in general. This may be of great value in therapeutic fields, as clients could possibly be assisted to shift from an insecure to secure attachment style if these transitions were better understood.

Another project to investigate possible correlations between attachment style and psychological health was Gages's (1992) correlational study, which examined the association of attachment behavior with demographic variables and psychological adjustment to illness in persons with multiple sclerosis. A total of 116 participants, 32 males and 84 females, completed the project in a single sitting; one of the larger samples found in research focusing on people with physical disabilities. The possible correlates of attachment behavior chosen for exploration by the researcher were relational functioning, self-esteem, anxiety, and depression as measured by the Personal Response Questionnaire-85 (Weinert & Brandt, 1978), Rosenberg's Self-Esteem Inventory (Rosenberg, 1965), State-Trait Anxiety Inventory (Spielberger et al, 1983), and Beck's Depression Inventory (Beck, Steer & Brown, 1996). Adjustment to illness was measured by the Psychological Adjustment to Illness Scale-SR (PAIS; Derogatis & Derogatis, 1990). Randomly combined questionnaire packets were distributed by the investigator, so that all tests were completed in different order by different participants. The findings were consistent with the hypothesis that participants with secure attachment style would score lower on depression

and anxiety scales while scoring higher on self-esteem and coping mechanisms, while those participants with avoidant or anxious attachment styles would record scores lower in both self-esteem and coping, while scoring higher on depression and anxiety measures (Gage, 1992). High relational functioning and high self-esteem were inversely related to the PAIS ($p < .005$) while low state and low trait anxiety ($p < .005$), and low depression scores ($p < .005$) were positively related to the PAIS. These findings suggest that having a supportive, available person decreased depression and anxiety, and increased feelings of self-esteem (Gage, 1992). These results show that having a strong social support system with the inclusion of at least one attachment figure may influence a person's attachment behaviour and overall psychological health.

A group of researchers explored possible relationships between attachment, interpersonal connections and social skills in a similar study to Gage (1992). This study investigated the relations among variables of attachment, loneliness and social skills among 183 university students, (118 female and 65 male,) from first year Psychology courses (DiTommaso, Brannen-McNulty, Ross & Burgess, 2003). Of the participants, 42% were married or in a long-term romantic relationship, 44.9 were casually dating and 13.1% indicated no interest in dating. Measures used for data collection were the Relationship Scales Questionnaire (RSQ; Griffin & Bartholomew, 1994), the Social and Emotional Loneliness Scale for Adults (SELSA; DiTommaso & Brennan-McNulty, 2002) and the Social Skills Inventory (Riggio, 1986). Participants completed the three measures in the same

sitting, with demographic information collected first. The effects of gender were documented as part of the data analysis, with females reporting higher ambivalent attachment style, higher emotional sensitivity and expressivity and lower romantic loneliness levels.

The authors do not provide statistical information, but report that with the effects of gender partialled out of the association, results showed higher secure attachment ratings in relation to lower reported family, social and romantic loneliness ratings, as well as higher scores of emotional and social sensitivity and expressivity (DiTommaso et al, 2003). Higher anxious attachment ratings were reportedly correlated with higher loneliness ratings and high ratings of emotional sensitivity but lower social control. Higher ambivalent attachment scores were related to greater feelings of both romantic and family loneliness, low social ties but high social sensitivity. Higher dismissive attachment ratings correlated with higher scores on the social loneliness subscale, as well as lower emotional expressivity and social ties (DiTommaso et al, 2003). The authors indicate their results support the hypothesis that attachment styles are linked to social competence and loneliness factors, and suggest that attachment theory may provide a useful framework for exploring social competence and adjustment (DiTommaso et al, 2003).

Although the authors mention adjustment, they do not clarify what participants may be adjusting to. The sample population used in the project was first year university students; a population well documented in

experiencing stress, adjustment and life change in a relatively short period of time (Geldard, 1999). Adjustment is often a stressful and difficult experience, but neither stress nor stressors were factored into this project.

Kemp and Neimeyer (1999) developed a study to explore the possible relationship between attachment style and coping with stress. By buttressing their study on previous research that indicates a tie between emotional well-being and the quality of a person's close relationships (Cutrona & Russell, 1987; Lee & Robbins, 2000), the authors hypothesized that secure attachment would be associated with less distress and more adaptive coping after a stress event, with less psychological symptoms of distress. They also hypothesized that people demonstrating ambivalent attachment style would be associated with the most distress. Participants for the study were 193 students enrolled in the same university, with a mean age of 18.70 (SD = 1.8). Participants received experimental credit for their participation in the project.

The respondents were asked to write a narrative account of a stress experience that involved at least one other person and to include the outcome of the event. Once this task was completed, participants finished two additional instruments. Distress related to the event was assessed with the Impact of Events Scale (IES; Zilberg, Weiss & Horowitz, 1982); a 15 item self-report instrument that assesses signs of intrusion and avoidance in cognition and affect related to a designated stressor (Zilberg, Weiss & Horowitz, 1982). The intrusion portion of the measure reflects cognitive and

affective preoccupation with the event, while the avoidance subscale reflects avoidance of thinking or feeling anything about the event. Also used for data collection and analysis was Ways of Coping (WOC; Folkman & Lazarus, 1988), a self-report scale designed to assess the array of thoughts and behaviours a person may use to cope with a particular stressful event. The prediction that individuals with an ambivalent attachment style would display the highest levels of intrusive symptoms was supported ($M = 22.7, p < .05$). Participants who indicated a dismissive attachment style also scored high on the IES ($M = 20.2, p < .05$), with anxious attached next ($18.7, p < .05$) and the secure group with the lowest scores for intrusive symptoms ($16.2, p < .05$).

The researchers confirmed that student participants with ambivalent attachment style experience and show more psychological distress than individuals who rated their response to a stressful event as secure, avoidant or dismissive attachment behaviour. The prediction that the secure group would indicate higher levels of support seeking was not supported, but results did indicate that women, regardless of attachment style, sought out social support more than men after the stressful event. The authors suggest that the stressful events recorded by the secure group may not have been severe enough for them to elicit assistance from their support networks, and that this may indicate that securely attached individuals only seek out social support when in higher stress situations.

It would be extremely interesting and informative to explore the social support seeking behaviour within the population of people living with a disability and an Assistance Dog; for example, do people with Assistance Dogs seek out social support more or less than people living with a disability without an Assistance Dog. This would be of benefit in defining the role an Assistance Dog plays in the emotional and social life of their human partner.

Although not an area of attachment much investigated, the complementary exploratory system is an important part of attachment theory (Bowlby, 1988). When attachment needs are fulfilled, an individual feels free to explore the environment; this function is to seek mastery over the environment and with adults, this exploration and mastery are many times manifested in the work and leisure environment (Hazan & Shaver, 1990; Hardy & Barkham, 1994).

The concept of exploration within the community of people living with a disability is an important one. The most often cited desire stemming from this population is that of independence (Lambert, 1990); independence indicates mastery of the environment and the freedom to explore that environment. Carnelly and Ruscher (2000) investigated the concept of exploration within attachment theory, although their population of interest was not persons with disabilities. These researchers expected different adult attachment styles to correlate with the function and choice of leisure activities in a study of responses from 148 individuals (104 female, 44 male) to a 142 item attachment measure (Brennan, Clark and Shaver, 1998), and

to subscales of thrill and adventure seeking on the Sensation Seeking Scale (SSS; Zuckerman, 1984). Only the results showing a slight correlation between anxiety and avoidance attachment style were provided ($r = -.21$ $p, < .05$) Gender was not related to avoidance or anxiety. Participants who indicated anxious attachment showed an avoidance of thrill and adventure seeking in leisure activities, and those who showed an avoidant attachment style indicated higher scores in engaging in leisure for a gain of social approval (i.e.; volunteering). These results show that different attachment styles may predict a different understanding or use of leisure and general exploratory behaviour.

A study by Granqvist, Lantto, Ortiz and Andersson (2001) explored the role attachment style may play when patients suffering from Tinnitus are coping with their condition. This study, as it explores a physical disability, coping style and attachment is important to the field of disability research, as the more attachment behaviour is understood, the more it may be used to develop therapeutic modalities to assist in coping with a disability for both the individual and their families. Tinnitus is the perception of sound in the absence of any external stimuli, is often described as ringing or buzzing sounds (McKenna & Andersson, 1998), and is disturbing or disruptive to everyday activities for approximately 10-15% of the North American and European populations (Granqvist et al, 2001). Approximately 10% of Tinnitus patients suffer from symptoms enough to be significantly disabled, and the condition is often linked to anxiety, depression and passive coping (McKenna & Andersson, 1998).

Granqvist and his colleagues examined relations between adult attachment style, tinnitus-related problems and perceived support from family members in a sample of chronic tinnitus patients. It was hypothesized that secure attachment would be negatively correlated to tinnitus related problems and positively related to perception of family support, while insecure attachment was hypothesized to be positively correlated with tinnitus-related problems and negatively related to family support. Tinnitus-related difficulties were defined as depression and / or anxiety (Granqvist et al, 2001). Perceived family support was defined as solicitous attention or distracted illness response. In total, 144 participants were contacted, with a response rate of 102 (71%), with a mean age of 58 years and a mean duration of tinnitus symptoms of 10.5 years with varying levels of severity. The 26 item Tinnitus Reaction Questionnaire (TRQ; Wilson, 1991) was used for assessing distress caused by tinnitus and is designed as a 5 point rating scale in reaction to items such as 'my tinnitus has made it hard for me to relax'. Family support was measured by the Family Support Scale of the West Haven-Yale Multidimensional Pain Inventory (MPI; Sullivan, 1994). This 7-point scale measures perception of family support in relation to family members who suffer from an illness.

The authors measured for secure or insecure attachment type with the Adult Attachment Scale (AAS; Collins & Read, 1990), which is an 18 item, 9-point scale that characterise attachment patterns in close relationships. Although tables are not supplied in this article, the authors report that insecure attachment type was linked to higher reports of tinnitus-related

problems such as anxiety and depression as well as lower ratings of positive family support, while secure attachment was unrelated to all outcome measures. This outcome supports other research indicating that insecure attachment type, especially avoidant, is associated with tinnitus-related distress (Hallberg, 1991; Budd & Pugh, 1996). The connections found between insecure attachment style and perceived negative family support responses also agree with previous findings and theorizing of individual differences in inner working models associated with beliefs and expectations of support from others (Hazan & Shaver, 1987; Simpson, 1990).

In literature searches encompassing attachment, Assistance Dogs and disabilities, the only project found to include animals, humans and attachment theory was an unusual study by Topal, Miklosi, Csanyi and Doka (1998). These researchers wanted to explore possible attachment behaviour activated between dogs and humans, with the canine attachment behaviour as the response of interest. The authors utilized Ainsworth's Strange Situation test (Ainsworth, 1989), which is the seminal behavioural observation paradigm in human attachment research. This measure operationally defined attachment types and it brought attachment theory to the forefront of research on the development and manifestation of human attachment behaviour (Ainsworth, Waters, Blehar & Wall, 1978).

With the exception of primate studies, very few researchers have explored the topic of animal attachment (Miller, Bard, Juno & Nadler, 1990), making this present study very unusual. The authors wished to measure

possible attachment-like behaviours in pet dogs and their primary owners. The authors posit that because the dog-human relationship is slightly similar to infant-parent relationships in the sense of dependency, dog attachment may give valuable information for socializing, training and understanding the domestic canine (Topal, Miklosi Csanyi & Doka, 1998). The researchers hypothesised that it is not only the separation from the attachment figure (owner), but also the reunion, that activates dogs' attachment behaviour. Fifty-one owner-dog dyads volunteered for the project from local kennel clubs. The dogs were representative of twenty pure breeds and seven mixed breeds and ranged from 1-10 years of age. The human participants ranged from 16-60 years of age.

The experimental procedure (Strange Situation Test) lasted 14.5 minutes and consisted of seven experimental episodes which were videotaped for analysis, consistent with the procedures outlined for the experimental paradigm well researched and described by Ainsworth (1989). Two trained observers analyzed the 51 videotaped sessions using eight behaviour categories: exploration in presence of owner, exploration in presence of stranger, playing in presence of owner, playing in presence of stranger, passive behaviour in presence of owner, passive behaviour in presence of stranger, physical contact with the owner and physical contact with the stranger. The greeting behaviour of the dogs toward their owners was also analyzed during each reunion episode and toward the entering stranger (Topal, Miklosi Csanyi & Doka, 1998). Inter-observer agreement was assessed between 88-100% for all episodes across the participants.

Results showed that dogs tended to play more and spent more time exploring when in the presence of their owners. During the separation episodes when owners were absent, dogs stood by the door more often than when the owner was present, and showed higher levels of contact seeking toward the entering owner compared with the stranger. The experimenters calculated a hierarchical cluster analysis, which revealed that the dogs could be divided into three groups, with the third group consisting of two subgroups. A total of 30 dogs were in group one, five dogs were in group two, nine dogs were in the first subgroup of group three and seven dogs were in subgroup two of the third main group (Topal, Miklosi Csanyi & Doka, 1998). The independence of these categorizations was supported by ANOVA tests performed on the behavioural variables using the groups as independent variables. These categories also concur with other research on the distribution of attachment types among humans, both adults and children (Ainsworth, 1969; Connel & Goldsmith, 1982). Dog sex, owner sex and dog breed had no effect on any variable. Dogs in group one were characterized by low anxiety in the stressful situation, high levels of acceptance of their owner and medium levels of acceptance of the stranger; this group appears to resemble the secure attachment type (the three types as explored by Ainsworth are used in this study in order to duplicate Ainsworth's study). Dogs in group two had high anxiety reactions related to the strange situation, high levels of contact maintenance towards the owner, high levels of acceptance and contact seeking towards the stranger and high acceptance towards the owner. These dogs seem to strongly match the insecure

resistant attachment type. The animals in group three were characterized by medium levels of anxiety and acceptance.

As previously stated, there were two apparent sub-groups within this third category. Dogs in subgroup 3a showed low levels of attachment toward the owner, while group 3b dogs showed significantly more attachment to the stranger. These dogs seem to mirror the attachment category of insecure avoidant/dismissive, based upon their behaviour during the Strange Situation test (Topal, Mikłosi Csanyi & Doka, 1998). The authors suggest the results of the project could be used for examining the effect of socialization on dogs as well as in the development of positive bonds with owners. This suggestion involving the development of training concepts, styles and methodologies would be valuable in the training and placement of Assistance Dogs, as the information could be used for both the teaching of skills to individual animals and in the formation of a strong bond between the dog and owner/handler.

When reviewing the relevant literature concerning the Human-Animal Bond, people living with disabilities and adult attachment, it became clear that very little research has been conducted with all three domains of interest, although all three areas have quite robust bodies of research independent of the others, with both quantitative and qualitative studies and projects evident. With the rationale for this project already described within chapter one and the relevant literature outlined within this section, the next chapter will describe the participants, instruments, procedures and methodologies used within the study.

CHAPTER 3: METHOD

3.1 Research Design

This research project is a cross-sectional survey design (Shaugnessy & Zechmeister, 2000), with owners of Assistance Dogs as the primary focus group and owners of pet dogs acting as a control group. The survey design in research is not without methodological issues (Shaugnessy & Zechmeister, 2000); however, when conducting research with international participants, many of whom have a physical disability, a survey may be one of the better suited methodologies in terms of convenience and accessibility. In addition, cross-sectional survey designs appear to be a conscientious choice for an exploratory project whose main goal is to discover if a difference is evident between two groups (Gall, Gall & Borg, 2003). In the case of this research project, the possible difference of interest is the relationship developed between a person and their dog; either pet, guide, hearing or service dog.

A composite of three measures of pet affection, human-dog attachment and an attachment categorization test formed the survey that was made available to study participants online, by mail, or via phone interview; this approach enabled participants with disabilities to choose the

most suitable way to participate with regard to their disability; phone, internet or pen and paper.

Attachment style, affection to animal and attachment to animal were gauged with the instruments fully described in the measures section of this chapter. Attachment style was addressed by the completion of the Relationship Questionnaire (Bartholomew & Horowitz, 1991), a self-report measure using four short paragraphs describing possible ways of relating to self and others. A full description of the measure is included in the measures section. Although the Relationship Questionnaire is not the most recent or advanced measure of adult attachment, it was chosen because it is frequently used in studies of attachment and it is relatively brief for participants to complete (Griffin & Bartholomew, 1994).

Attachment to the owned dogs was measured by the Human-Animal Attachment Measure. This measure was created due to the gap in existing literature and research concerning the nature of the relationship between Assistance Dogs and their handler-owners with a physical or perceptual disability. The HAAM was created specifically for this thesis project and is fully described with development and piloting information later within this Methods chapter. Affection to animal will be measured by the Lexington Attachment to Pets Scale (LAPS; Johnson et al, 1992).

The LAPS is a 24 item survey instrument concerning pet affection that was developed based upon a theoretical standpoint of social support. This

measure was chosen due to the rigorous psychometric evaluations performed on it, the extent of use of this measure in Human Animal Bond literature and its ease of use for participants. A full description of the measure is contained within the measures section of this chapter.

3.2 Participants

An effort was made to recruit a large number of participants who are either Assistance Dog owners or pet dog owners, for the explicit purpose of comparative analysis. In general, only disabled persons older than age 17 obtain Assistance Dogs, according to the organizations approached and online information accessed (IAAD, 2004). Therefore, only respondents over the age of 17 are included in the analysis from the Assistance Dog group and the pet owner group. A total of 19 Assistance Dog organizations were contacted from a number of countries, including Canada (4), the United States (5), New Zealand (1), South Africa (2), Australia (2), Britain (2), Germany (1), Ireland (1) and Japan (1), representing more than 2000 successfully placed Assistance Dog teams. Of the 19 organizations approached, 10 agreed to pass on the information regarding this study to their clients for voluntary participation. These 10 Assistance Dog centres are located in Canada (1), the United States (5), South Africa (2), New Zealand (1) and Australia (1). In addition, one Assistance Dog support group from the United States consented to participate with their members. The organizations who agreed to participate have a client base representing

approximately 500 clients from the above countries placed with an Assistance Dog; either Hearing, Guide or Service.

Pet owners were recruited for the study via international online pet association email groups, notices placed on bulletin boards in five veterinary offices and posters placed in local community centres in British Columbia, Canada. Pet email webring groups from Holland, Canada, United States and Australia agreed to post the information regarding the project to their membership. With the international availability of online email groups devoted to the subject of dog ownership, the respondents from this group were expected to correspond to the international sample from the Assistance Dog group.

By opening the study to international participation, the attitudes and culture of participants is not restricted to North America, as citizens from Canada and the United States are recognized internationally as being 'animal lovers' (Clancy & Rowan, 2003). By including Assistance Dog teams and dog owners from around the world, this study enables more generalization of findings about Assistance Dog partnerships across cultures, as well as those found to reflect pet dogs and their owners.

3.3 Measures

Three measures were utilized for this project: The Lexington Attachment to Pets Scale (LAPS; Johnson, Garrity & Stallones, 1992), created to measure affection, care-taking and attitudes of pet owners and the Human-Animal Attachment Measure, an instrument designed by the author to investigate attachment in human-animal relationships. In addition, the Relationship Questionnaire (Bartholomew & Horowitz, 1991) was used to gauge the general attachment style of all participants included in this study across four categorizations of attachment relating style.

The Lexington Attachment to Pets Scale is used in studies of the bonds created and maintained between people and their pets (Johnson et al, 1992). The developers note the gap in the field for scales assessing emotional "attachment" of individuals to their pets and designed their instrument accordingly (Johnson et al, 1992). Previously developed and used instruments suffered from low internal consistency or non-representative samples. The LAPS is a survey instrument with pet affection items that were developed based upon a review of the available instruments and a theoretical standpoint of social support. 42 items were created with response categories of 0 = strongly disagree, 1 = somewhat disagree, 2 = somewhat agree and 3 = strongly agree and were analyzed with a two-parameter binary logistic IRT model (Johnson et al, 1992). Analysis revealed an internal consistency for the 42 items was 0.93 using a coefficient alpha; as the purpose of the creation of this instrument was for practical use, the

corrected item-total for each of the 42 questions were examined, with 25 of the items having values greater than 0.50 (Johnson et al, 1992). One item was dropped from the scale after chi-square values indicated that it was not a good fit to the latent concept of pet affection and the finalized instrument then consisted of 24 items (Mogul, 2004).

The creators of LAPS also conducted a principal-components analysis to identify any factor groupings in the instrument; a varimax rotation procedure was performed and examination of item loading was undertaken (Johnson et al, 1992). Three orthogonal factors were identified from this analysis: general attachment dimension, people substituting and animal welfare. Cronbach's alpha coefficients for these were 0.90 for general attachment dimension, 0.85 for people substituting and 0.80 for animal welfare (Johnson et al, 1992). This instrument was chosen for the current study because of the thorough psychometric evaluation and reputation within the field of Human-Animal Bond research for being an accurate gauge of the affection bonds present between people and their pets.

The Relationship Questionnaire (Bartholomew & Horowitz, 1991) for adults assessed the participants' general attachment style according to the four types outlined by Bartholomew. This self-report measure is used with large samples because of its ease of use and simple scoring procedure along a continuum. It is not a categorical model or matter of kind, but a continuous construct of matter of degree in attachment styles. The measure instructs respondents to denote which of four illustrative paragraphs most

accurately describes how they experience close relationships. The four paragraphs separate and characterize secure, ambivalent, anxious avoidant and dismissive avoidant attachment styles. Bartholomew & Horowitz (1991) reported that the four Relationship Questionnaire self-classifications established moderate stability ratings over a 2-month period: secure, .71; anxious, .64; ambivalent, .59 and dismissive, .49. An investigation utilizing the college population sample that the four attachment styles related in theoretically consistent ways with both self-reports and friend-reports of participants' sociability and self-esteem levels (Bartholomew & Horowitz, 1991). In another, more recent project with a college sample, it was reported that the self-classified attachment style remained constant over an eight month interval for 56% of the men and 63% of the women sampled (Bartholomew & Horowitz, 1991). Those young adults who were classified as having secure attachment style were especially stable, with 71% of women and 61% of men maintaining their secure attachment status across the eight month timeline. The stability coefficients for the Relationship Questionnaire were also comparable to those recorded through interviews and continuous self-report measures in this same study by Bartholomew and Horowitz (1991). Because the present study is not investigating attachment style, but the presence and/or strength of attachment relationships between people and their Assistance Dogs, the Relationship Questionnaire was utilized as a categorical indicator of participant attachment style, rather than a flexible style based upon a continuum as it is usually used within attachment research.

The Human-Animal Attachment Measure (see Appendix A) was designed to measure the presence of an Attachment relationship between Assistance Dog owners and their animals. It was necessary to develop items simple for participants to respond to in a questionnaire format containing other measures. For this reason, the instrument replicates the style of survey used in the LAPS for simplicity of use by participants.

The purpose of creating this new measure was to a) generate a set of items to assess possible attachment relationships between people and animals, b) document relevant constructs of possible contextual attachment-behaviour motivations for Assistance Dog owners as outlined in the framework for investigation: secure base, protest separation, safe haven and proximity seeking, and c) refine item content and instructions during the pilot testing phase. Recommendations outlined for content validation (Haynes, Richard & Kubany, 1995) were followed and a multi-step process was utilized to achieve these goals.

Step 1

Items constructed for the survey were designed to tap the constructs of attachment behaviour first broached by Bowlby (1969) and investigated by his colleague Mary Ainsworth (1969) with the Strange Situation test, from which form the basis for the operational definition of an attachment relationship as defined in attachment theory (Ainsworth, 1989). The Strange Situation test served to operationalize the concept of

attachment styles and relationships by defining relevant behaviour related to the construct. As stated previously, most adult attachment relationships should have three or four of the components necessary in order to label a relationship as one of attachment or of attachment-like (Ainsworth, 1985). Because adults have numerous complex, dyadic attachments, their relationships may not have obvious behaviours linked to all four factors, but should have at least three of the behaviour classifications present within each attachment relationship (Freeman & Brown, 2001; Fraley & Davis, 1997). These four components in attachment behaviour are proximity seeking, protest separation, safe haven and secure base (Ainsworth, 1989), all of which were explored by Ainsworth and supported by Bowlby as elements of his theory of attachment (Bartholomew, 1994).

In order to design the pilot instrument, attachment surveys intended to detect levels of attachment in adults were studied for valuable content information and the above four factors. Surveys studied included the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1985), which is based upon a narrative approach to derive the attachment styles of participants in a 60- to 90-minute time frame. The researcher asks participants to choose 5 appropriate adjectives to describe their childhood relationship with their mother and 5 adjectives to describe their childhood relationship with their father. The respondents are then asked to supply anecdotes explaining the chosen adjectives and speculate about why their parents behaved as they did (Main, 1995).

Also studied in preparation for the design portion of the new survey was the Attachment History Questionnaire (AHQ; Pottharst & Kessler, 1990), an instrument designed to measure retrospective reports of significant childhood relationships. In essence, this measure accesses similar information as the Adult Attachment Interview, but with quantitative data amassed on a 52 item paper and pen questionnaire, rather than personal coded narrative. The AHQ reports reliability coefficients of .89 for secure attachment base, .85 for parental discipline and .75 for peer affection support (Kessler, 1994). Trinke and Bartholomew designed the Attachment Network Questionnaire (1997) to assess adults' multiple attachments. Participants must list all relevant people in their lives in accordance with each item and then rank them in order of importance for the four attachment components forming an attachment relationship (Trinke & Bartholomew, 1997).

The Attachment Network Questionnaire was the most influential in the linguistic style of the newly designed survey for this study, as the items are simply worded, easy to understand and follow the tenets of the four compositional factors in attachment bonds. For example, the item contained in the ANQ, "Who do you feel will always be there for you if you need them", (Trinke & Bartholomew, 1997), inspired the HAAM item, "I trust my dog to help me when I need it". Hazan and Shaver designed the first adult attachment measure (Baldwin & Fehr, 1995). This instrument is a single-item self-report classification based upon three attachment styles: secure, avoidant and ambivalent and is rated on a 9-point scale. The scale has

endured over the years of adult attachment research because, despite its simplicity, it may be scored categorically or along a continuum of attachment styles and is considered an appropriate measure of current attachment orientation (Baldwin & Fehr, 1995).

Reports and research articles outlined in the literature review portion of this thesis regarding the challenges facing people with disabilities were also studied extensively to define contextual challenges, physical needs, bond formations and pros/cons of Assistance Dog ownership. Four interviews were conducted with training staff from three Assistance Dog organizations; two in person and two via email interview formats.

These information gathering forays assisted the author in clarifying Assistance Dog terminologies, such as the correct terms for the dogs involved: service, hearing or guide and the use of the title of 'client' rather than 'recipient' to describe the person who is matched with an Assistance Dog. The use of client denotes a more active, consumer-oriented role instead of recipient, which is viewed as more passive. Once the dyad is formed, the person is deemed an owner/handler.

Interviews also clarified the function of service dogs, hearing dogs and guide dogs as outlined in chapter one, the steps taken in the acquisition and placement of the dogs, length of the working life of an Assistance Dog, breaking and forming of working relationships, the issue of trainers being placed in a counselling role, negative associations felt by some disabled

persons and other miscellaneous information pertinent to this study but not necessarily needed for item design. For a comprehensive dissemination of these interviews, please see the Appendix A, Ancillary Findings portion of this paper.

A pilot instrument was constructed for the purpose of gauging attachment-like relationship factors between Assistance Dogs and their owner/handlers. The four components of attachment relationships described in Chapter one was used as a structure by which to create items. As shown in Table 1, a minimum of four items were designed to echo each of the four components of attachment to ensure that enough items were developed for each component of attachment relationship behaviours. The category of Secure Base was assigned a total of 6 items to reflect the importance of this particular component in attachment relationships, as outlined by Ainsworth (1989). Items were answered by respondents in the following manner: 1 = strongly agree, 2 = agree, 3 = disagree and 4 = strongly disagree with the item statement as it applied to the respondent's current relationship with their pet or Assistance Dog. Thus, scores indicating a strong attachment bond should be lower than those indicating a weak attachment bond.

Table 1 – Creation of HAAM items across four attachment relationship components

Proximity Seeking

4. I am nervous when my dog is not with me.
 10. When my dog is not with me, I feel insecure or less capable.
 13. I feel less confident in public when my dog is not with me.
 16. Being without my dog makes me feel anxious.
-

Secure Base

6. When out in public, I feel more secure when my dog is with me.
 7. I feel independent when I am with my dog.
 12. I trust my dog to help me when I need it.
 14. I know that my dog is always ready to help me.
 11. When I am with my dog, I am more comfortable trying new activities
 17. I feel more capable and competent when with my dog.
-

Safe Haven

2. My dog makes me feel safe emotionally.
 5. I often need my dog's help to accomplish tasks
 8. I want to spend as much time as possible with my dog.
 9. When I am sick, tired or in pain, time with my dog makes me feel better.
-

Protest Separation

3. I am almost always with my dog.
 15. When my dog is not with me, I don't like to try new things.
 18. If nervous or feeling anxious when in public, I reach for my dog.
 1. I miss my dog when he/she is not with me.
-

Step 2

A set of 18 items was developed using the information garnered from the sources as described above, in addition to a section devoted to the collection of demographic information. To ensure that relevant items about the Human-Assistance Animal Bond and pet dog owner relationships were included, and that items had no erroneous or extraneous information, a panel of Assistance Dog trainers and pet dog trainers evaluated the questionnaire. Ten Assistance Dog and pet dog trainers were identified through a search of the disability literature and Assistance Dog association websites and through a search of local pet dog obedience training programs. These professionals were approached for participation because of their experience in working with dogs and in observing the interactions between dogs and their owners. These ten Assistance Dog and pet dog trainers were emailed the items along with an introductory letter explaining the goals of this study and the author's desire for expert opinion on the formation of the items to be included in the instrument. Of the ten people contacted, four (40%) replied with information, suggestions for inclusion, and recommendations for rewording and terminology clarification. The four animal professionals also indicated which 12 items they felt best pinpointed components of the relationship between owner/handlers and their Assistance Dogs or pet dogs from the original 18 items given to them. These helpful and facilitative responses were used to guide a revision of the preliminary instrument.

Step 3

The instrument consisted of two sections and was piloted with pet dog owners (7) and Assistance Dog handler/owners (4). Goals of the pilot test were to ensure question wording was clear and unambiguous, that items were similarly interpreted by the respondents and that the questionnaire was both motivating to take part in and finish. The first section is concerned with the collection of demographic information such as age, gender, type of disability, length of ownership of the current dog and breed of dog. These items were both continuous and categorical in nature, with age and length of ownership forming the continuous portion. The second section of the measure contains the items concerned with the relationship between owner and dog. All items are in the format of forced choice strongly disagree, somewhat disagree, somewhat agree and strongly agree.

The final instrument includes one write-in response item for owners to communicate anything they wish to share about the relationship they have with their dog. The participants of this pilot test were asked to comment on the clarity of the instructions and the clarity of the items themselves. The feedback received resulted in two items being re-worded and the instructions changed to point form rather than paragraph format. Additionally, feedback from two participants resulted in a structural change to the measure. One participant with a perceptual disability in the form of profound vision loss recommended that the format for the demographic questions be changed to the same simple forced choice format. For example, rather than asking for

participant age, the format should have forced choices such as 20 up to 30 years, 30 up to 40 years, etc. The reasoning behind this recommendation was that the software program most used by people with vision loss can be 'told' that a form will be filled out; this format is a user friendly option for people and makes the completing of questionnaires easier. One participant with a mobility disability also recommended this change in format for a different reason: people with severe mobility impairment would find a 'point and click' questionnaire much more accessible than a 'type in the answer' questionnaire. In order to best accommodate participants, the continuous demographic variables of age and length of dog ownership were changed to a categorical 'point and click' format that matched more closely the rest of the questionnaire design.

3.4 Procedure

The finalized version of the HAAM containing the 18 refined items was distributed on a web-based platform with versions available in pen-paper and telephone interview formats. No requests were made for these alternate forms; all responses were completed via the online web-based survey format. Please see Appendix B for the complete instrument. The Lexington Attachment to Pets Scale followed the HAAM within the online survey format, with the Relationship Questionnaire representing the final component for respondents to complete, and are also placed within the Appendices of this paper.

Responses were collected over a 7-week timeframe via a secure website. Alternative forms of the test were made available to all participants and included a verbal/telephone version and a paper/pen version of the instruments. Participants were also informed that their responses could be recorded by another person if that would assist them in completing the survey. All participants responded anonymously and confidentially. The platform used was constructed to register responses without recording or taking any identifying information from participants accessing the survey via the internet. Upon the completion of the 7-week data collection period, all responses were downloaded as raw data and placed into a prepared data matrix for further analysis by the statistical program, SPSS. Descriptive and inferential statistical operations were performed to illustrate sample age, gender, type or presence of disability, length of dog ownership, general attachment categorization and the relationships between these variables; the following chapter provides dissemination and statistical analysis results.

CHAPTER 4: ANALYSIS AND RESULTS

4.1 Overview

The goal of this thesis was to begin the exploration, identification and clarification of the bond developed between an Assistance Dog and their owner/handler living with a physical or perceptual disability. This fourth chapter provides the descriptive and statistical analysis information pertaining to the hypothesis that relationships forged between pet dogs and their owners are different from those formed between Assistance Dogs and their owners, and that the Assistance Dog/owner bond may be similar to adult attachment bonds or be attachment relationships themselves. It was speculated that general attachment styles of participants with disabilities would be distributed in a similar fashion to the attachment styles of pet owners and would not play a part in the development of the bond between the Assistance Dog and handler. Also included in this chapter is the analysis and validation of the new instrument developed to test the above hypotheses: the Human-Animal Attachment Measure (HAAM).

4.2 Description of Sample

A total of 162 pet dog and Assistance Dog respondents from dog ownership groups, the general public, ten Assistance Dog training centres and one support group participated in the survey; all responses were obtained from a secure web platform, with no requests made for the available alternative survey formats. Table 2 presents frequency distributions on demographic variables. The sample of 162 adults consisted of 102 females (63%) and 60 males (37%). These respondents ranged in age from below 20 to between 60 and 70 years, with 1.2% (n=2) aged 10- up to 20, 22.8% (n=37) in the 20- up to 30 year category, 25.3% (n=41) in the 30- up to 40 age category and 25.3% (n=41) in the 40- up to 50 years old category. Respondents between 50- up to 60 years old represented 19.8% (n=32) of the sample, with 5.6% (n=9) representing participants between 60-70 years of age.

The demographic information concerning disability status is also included in Table 2, with 38.3% (n=62) of the sample reporting no physical disability, 35.8% (n=58) confirming a mobility disability, 20.4% (n=33) reporting a vision disability and 5.6% (n=9) confirming a hearing disability. When looking at gender division for each category listed, there were 12 males (19.4%) and 50 females (80.6%) with no reported physical disability. Among participants with a disability affecting mobility, gender was distributed with 19 males (32.8%) and 39 females (67.2%). Gender

distribution among respondents reporting a vision disability was 25 males (78.8%) and 8 females (24.2%), while participants with a hearing disability were divided between 4 males (44.4%) and 5 females (55.6%).

Demographic information regarding dog ownership resulted in two sets of data; 64.2% (n=104) stated that the dog they presently own/handle is not their first dog, while for 35.8% (n=58), their current dog is the first they have owned. Also recorded was the length of ownership for their current dog. Of the sample, 49 respondents (30.2%) reported that they have owned their dog for less than two years, 40 (24.7%) have lived with their dog for a total of two to up to four years, 41 (25.3%) have had their animal four to up to six years and 32 participants (19.8%) reported current dog ownership of between six and eight years.

Table 2 – Sample Characteristics

Variable	Pet Dog Owners		Assistance Dog Owners	
	N	% of total sample	N	% of total sample
Gender				
Male	12	7.4	48	29.6
Female	50	30.9	52	32.1
Age				
10- up to 20 yrs	1	0.6	1	0.6
20- up to 30 yrs	12	7.4	25	15.4
30- up to 40 yrs	15	9.3	26	16.0
40- up to 50 yrs	23	14.2	18	11.1
50- up to 60 yrs	9	5.6	23	14.2
60- up to 70 yrs	2	1.2	7	4.3
Length of Ownership				
0- up to 2 yrs	24	14.8	1	0.6
2- up to 4 yrs	16	9.9	25	15.4
4- up to 6 yrs	7	4.3	26	16.0
6- up to 8 yrs	15	9.3	18	11.1
First Dog				
No	55	34.0	49	30.2
Yes	7	4.3	51	31.5
Disability Status				
Mobility disability	0	0	58	35.8
Vision disability	0	0	33	20.4
Hearing disability	0	0	9	5.6

4.3 Results of the Relationship Questionnaire

Results of the Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991) were examined with the category of disability status and are displayed in Table 3. Of the sample with no disability, 28 (45.2%) recorded a secure attachment style, 9 (14.5%) were categorized with an insecure ambivalent style, 5 (8.1%) with an insecure anxious style and 20 (32.8%) recorded an attachment style of insecure dismissive. These results generally coincide with the distribution of attachment styles among adults as reported by other researchers (Bartholomew, 1990; Bartholomew & Horowitz, 1991; Brennan, Shaver & Tobey, 1991), with the exception of the insecure dismissive attachment category, which for this sample is more than usually observed. Other projects show this attachment style to represent 13-18% of respondents' self-reports (Bartholomew, 1990; Bartholomew & Horowitz, 1991; Brennan, Shaver & Tobey, 1991). In the sample of participants with a mobility disability, 20 (34.5%) recorded a secure style, 11 (19.0%) reported an insecure ambivalent style, 5 (8.6%) reflected an insecure anxious style and 22 (37.9%) categorized themselves as insecure dismissive.

This group had a larger than average categorization for the insecure dismissive attachment style when compared to projects undertaken by other attachment researchers (Bartholomew, 1990; Bartholomew & Horowitz, 1991; Brennan, Shaver & Toby, 1991). For those reporting a vision disability, 12 (36.4%) categorized themselves as secure, 10 (30.3%)

reflected an insecure ambivalent style, 2 (6.1%) reported an insecure anxious style and 9 (27.3%) identified as anxious dismissive. Again, this group had a larger distribution of anxious dismissive attachment style recorded. Among respondents with a hearing disability, 3 (33.3%) identified themselves as secure, 1 (11.1%) as insecure ambivalent, 1 (11.1%) as insecure anxious and 4 (44.4%) classified themselves as insecure dismissive. This group, although extremely small, showed a similarly large distribution of people self-classified in the insecure dismissive attachment style.

Table 3 – Relationship Questionnaire Results

Variable	Value	N	%
No disability	secure	28	45.2
	insecure ambivalent	9	14.5
	insecure anxious	5	8.1
	insecure dismissive	20	32.3
Mobility disability	secure	20	34.5
	insecure ambivalent	11	19.0
	insecure anxious	5	8.6
	insecure dismissive	22	37.9
Vision disability	secure	12	36.4
	insecure ambivalent	10	30.3
	insecure anxious	2	6.1
	insecure dismissive	9	27.3
Hearing disability	secure	3	33.3
	insecure ambivalent	1	11.1
	insecure anxious	1	11.1
	insecure dismissive	4	44.4

4.4 Validation of the Human-Animal Attachment Measure

The Human-Animal Attachment Measure (HAAM) is comprised of two sections. Section 1 was developed to collect demographic information such as gender, age, disability status and length of dog ownership. Items in this section were not part of the item count and were not included in statistical analysis. Section 2 consisted of 18 statement items that were distributed among the following four categories pertinent in attachment theory and used as behavioural indicators of attachment relationships between adults: proximity seeking, safe haven, protest separation and secure base. Items were coded by respondents in the following manner: 1 = strongly agree, 2 = somewhat agree, 3 = somewhat disagree and 4 = strongly disagree with the statements regarding their relationship with their current dog. The small amount of missing data in the form of skipped or missed items answered were dealt with through the means imputation procedure, whereby item means were inserted for the items containing missing data. According to Allison, Gorman and Primavera (1993), this strategy of filling in missing data with the mean of an item results in the smallest amount of information and statistical power lost.

A Cronbach's Alpha analysis procedure was performed on the second section of the measure in order to measure reliability approximation through the number of items and the average inter-item correlation and included all 18 items for analysis. The resulting alpha coefficient was .96 based upon

standardized items and .97 when not based upon standardized items; this result may seem higher than might be expected, but it does correspond to the Lexington Attachment to Pets (Johnson et al, 1992) factor analysis, which resulted in an alpha coefficient of .90 on the dimension described by the authors to be general attachment/affection (Johnson et al, 1992).

To gauge the appropriateness of conducting an exploratory factor analysis, the Bartlett Test of Sphericity ($df=171$, $N=162$, $p<.001$) was executed in addition to the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (.96); results of both of which indicated that the degree of intercorrelations among the second section items justified an exploratory factor analysis. In order to gain insight into the structure or underlying processes of the HAAM, an exploratory factor analysis was performed with 3, 4 and 5 factors. The Kaiser-Guttman rule, which states that only factors with eigenvalues greater than 1 should be used by a researcher to interpret the number of factors present within a set of items, was selected as the final identifier for defensible factors contained within the measure (Gall, Gall & Borg, 2003). The data was subjected to a principal components analysis with varimax rotation with the result of three factors emerging with eigenvalues greater than 1. A moderate correlation cut-off was set at $r=>.40$, as the items constructed all represent attachment and some split loading could occur at a lower cut-off such as $r=>.30$. Even with this decision, a total of 9 of the 18 items did split load and were seen to be moderately related to two or three factors. Additionally, an oblique promax with maximum likelihood factor analysis was conducted and displayed very similar results to the

orthogonal varimax analysis first conducted. These factor patterns were equivalent, with a number (7) of items changing their loading numbers. However, neither the number of split loading items nor the loading hierarchy of these split loadings were different between the two factor analyses. As this is a pilot instrument and the first to explore a possible relationship between attachment theory and Assistance Dog ownership, items were considered part of the factor on which they had the highest loading. The four components of attachment relationships are very closely related in language, nuance and behaviour and as such, the language used to describe each item may have been too homogenous.

As seen in Table 4, Factor 1 (eigenvalue=12.44) accounted for 65.5% of the common variance. Factor 2 (eigenvalue=1.16) accounted for 6.1% of the common variance, while Factor 3 (eigenvalue=1.10) accounted for 5.7% of the common variance. Interpretation of the factors was based upon the four components of attachment behaviour; as shown in Table 4; Factor 1, with its 7 loaded items represents the attachment behaviour category of Proximity Seeking, with items appearing to relate to both Proximity Seeking and Protest Separation. These items are as follows: I am nervous when my dog is not with me, When my dog is not with me I feel insecure or less capable, When out in public I feel more secure when my dog is with me, When I am with my dog I am more comfortable trying new activities, I feel less confident in public when my dog is not with me, When my dog is not with me I don't like to try new things and If nervous are feeling anxious when in public, I reach for my dog. As outlined in Chapter One, Proximity

Seeking is the desire to be with the relationship partner in order to create or maintain a secure base and Protest Separation reflects feelings of distress when the relationship partner is absent.

Factor 2, also with 7 items appears to coincide with the classification of Secure Base, meaning that the adult derives a sense of safety and security from the relationship and because of this, feels confident to explore and experience their surrounding environment. The items that loaded onto this factor are as follows: I am almost always with my dog, I often need my dog's help to accomplish tasks, I feel independent when I am with my dog, I trust my dog to help me when I need it, I know that my dog is always ready to help me and I feel more capable when with my dog.

The 4 items loaded onto Factor 3 correspond with the attachment behaviour category of Safe Haven, whereby the adult seeks emotional comfort and closeness from the relationship partner when in their presence. The items loaded onto this factor are as follows: I miss my dog when he/she is not with me, My dog makes me feel safe emotionally, I want to spend as much time as possible with my dog and When I am sick, tired or in pain, spending time with my dog makes me feel better.

Table 4 – Principal Components Analysis of HAAM

Item	Factor 1 Proximity Seek	Factor 2 Secure Base	Factor 3 Safe Haven
1. I miss my dog when he/she is not with me.	.30	.21	<u>.82</u>
2. My dog makes me feel safe emotionally.	.31	<u>.42</u>	<u>.65</u>
3. I am almost always with my dog.	<u>.42</u>	<u>.65</u>	.34
4. I am nervous when my dog is not with me.	<u>.72</u>	.35	.39
5. I often need my dog's help to accomplish tasks	<u>.55</u>	<u>.58</u>	.25
6. When out in public, I feel more secure when my dog is with me.	<u>.50</u>	<u>.50</u>	.30
7. I feel independent when I am with my dog.	<u>.46</u>	<u>.74</u>	.20
8. I want to spend as much time as possible with my dog.	.21	.29	<u>.92</u>
9. When I am sick, tired or in pain, time with my dog makes me feel better.	.23	.19	<u>.83</u>
10. When my dog is not with me, I feel insecure or less capable.	<u>.79</u>	.34	.23
11. When I am with my dog, I more comfortable trying new activities	<u>.61</u>	<u>.49</u>	.31

Item	Factor 1 Proximity Seek	Factor 2 Secure Base	Factor 3 Safe Haven
12.I trust my dog to help me when I need it.	<u>.48</u>	<u>.78</u>	.19
13.I feel less confident in public when my dog is not with me.	<u>.83</u>	.27	.21
14.I know that my dog is always ready to help me.	<u>.48</u>	<u>.81</u>	.28
15.When my dog is not with me, I don't like to try new things.	<u>.84</u>	.19	.27
16.Being without my dog makes me feel anxious.	<u>.82</u>	.28	.25
17.I feel more capable and competent when with my dog.	<u>.48</u>	<u>.67</u>	.28
18.If nervous or feeling anxious when in public, I reach for my dog.	<u>.72</u>	.33	.34
Eigenvalue	12.44	1.16	1.10
% of Variance	65.5%	6.1%	5.7%

4.5 Results of the Human-Animal Attachment Measure

After performing an exploratory factor analysis on the Human-Animal Attachment Measure, as described within this chapter, composite scores were calculated through the statistical program SPSS, utilizing the three factors found during this factor analysis and explained in the previous section: Proximity Seeking (with some items appearing to also represent the component of Protest Separation), Secure Base and Safe Haven. Due to the very small number of participants with a hearing disability (n=9), this group was combined with the participants with a vision disability for purposes of comparison and small cell size control during data analysis and relabelled 'perceptual disability'.

In order to further gauge the reliability through the average inter-item correlation for the number of items on the HAAM, a Chronbach's alpha was also computed for each composite score on the Proximity Seeking, Secure Base and Safe Haven factors (.96, .94 and .80, respectively).

Having established groups representing the composite scores of the three found factors underlying the HAAM, a one-way multivariate analysis of variance (MANOVA) was employed to test the hypothesis that factor scores on the HAAM would differ between the participants with and without disabilities, with the HAAM representing the presence of a possible attachment relationship. As this project is one of the first to explore the

theory of attachment as applied to animal and human relationships, a strict effect level was set at $p < .001$ in order to reduce the possibility of a Type 1 error. It was believed it would be a more serious error to imply a possible attachment relationship when there is none present. For this MANOVA, the independent variable of interest was disability status, with the three composite scores of Proximity Seeking, Secure Base and Safe Haven representing the dependent variable. The results of the MANOVA are presented in Table 5. The Wilk's Lambda test statistic was used to indicate an overall effect of disability status on the measure and displayed as follows: $F(6,290) = 54.37, p < .001$; Wilk's Lambda = .22, indicating a significant effect.

The three factors of Proximity Seeking, Secure Base and Safe Haven also had statistically strong results as shown in Table 5: on Proximity Seeking $F(2,147) = 63.23; p < .001$, Secure Base $F(2,147) = 198.32; p < .001$ and Safe Haven $F(2,147) = 26.64; p < .001$. All three post-hoc Tukey analyses for the HAAM were likewise statistically significant, indicating that participants in the non-disabled group recorded scores higher than the mobility or perceptually disabled participants on the three factors of Proximity Seeking, Secure Base and Safe Haven.

Questions on the HAAM are structured as 1=strongly agree, 2=agree, 3=disagree and 4=strongly disagree. When viewing scores for the HAAM from all participants, a lower score signifies a greater attachment relationship with the dog, while a higher score indicates a weaker level of attachment

with an owned dog. For all three factors, differences between the mobility and perceptual disability groups were not at all significant, while differences between the non-disabled group and both disabled groups were significant at the $p < .001$ level, as shown in Table 5.

Table 5 – Multivariate Analysis of Variance (MANOVA): HAAM by Composite Factors

Multivariate Test for Human-Animal Attachment Measure (HAAM): $F(6,290)=54.37;p<.001$

Groups	no disability (ND)	mobility disability (MD)	perceptual disability (PD)	F	Sig
number of cases	54	55	41		
Proximity Seeking mean	4.19	2.99	2.77	63.24*	ND>(MD=PD)
SD	(.50)	(.79)	(.72)		
Secure Base mean	3.97	2.44	2.37	198.33*	ND>(MD=PD)
SD	(.51)	(.41)	(.43)		
Safe Haven mean	2.95	2.36	2.40	26.65*	ND>(MD=PD)
SD	(.49)	(.42)	(.47)		

Note: * $p<.001$

4.6 Results of the Lexington Attachment to Pets Scale

As part of a design plan to test the hypothesis that pet dog owners and Assistance Dog owners develop different relationships with their dogs, and that owners of Assistance Dogs may experience attachment relationships with their dogs, the Lexington Attachment to Pets Scale (LAPS; Stallones et al, 1992) was utilized as a base measure to compare results with those gleaned from analysis of the Human-Animal Attachment Measure.

It was believed owners of pet dogs and Assistance Dogs would not differ greatly on their scores of the LAPS, as this instrument measures affection, care-taking and attitudes of animal owners. To test this portion of the project hypothesis, an analysis of variance (ANOVA) was performed using disability status as the independent variable and scores on the Lexington Attachment to Pets Scale from the entire sample (LAPS; Stallones et al, 1992) as the dependent variable of interest. The alpha level was set at .001 in order to be comparative with results from the Human-Animal Attachment Measure. As previously described, the hearing disability group was combined with the vision disability group and labelled the perceptual disability group to control for its small cell size (n=9). Differences in the results of the ANOVA for the participants in the no-disability, mobility disability and perceptual disability groups were not statistically significant: $F(2,151) = .74; p > .05$.

These results show that unlike the scores recorded for the Human-Animal Attachment Measure, the project participants scored similarly on the LAPS, regardless of disability status, indicating high levels of affection felt by all owners towards their dogs, regardless of disability status or the functionality of the dog owned.

CHAPTER 5: DISCUSSION

5.1 Preface

The purpose of this research project was to investigate the relationship bonds that develop between persons living with disabilities and their Assistance Dogs providing them with support for mobility, vision or hearing impairments. The main hypothesis for the project stated that the relationships generated between pet dogs and their owners are bonds based upon affection, while the bonds between a working Assistance Dog and their owner with a disability is one that shares similarities with adult attachment relationships or may themselves be attachment relationships.

Attachment theory was utilized as the underlying theoretical basis for the project and the created measure was developed to gauge attachment across three dimensions as it may apply to the relationships present between people with disabilities and their Assistance Dogs. Vital to the design of the Human-Animal Attachment Measure and providing the impetus for this study were the four components described first by Ainsworth (1985) as being indicators of adult attachment relationship behaviours: Proximity Seeking, Secure Base, Safe Haven and Protest Separation. This fifth chapter reviews the findings from the data analysis performed and how this data relates to

the hypotheses, describe the limitations of the study, discuss the project in general, provide conclusions and the implications gleaned from the project and offer recommendations for further research investigation regarding the subject matter of attachment as it relates to the bond present in Assistance Dog/owner-handler relationships, compared to pet dog owners.

5.2 Summary of Hypotheses and Results

Before summarizing the results of the data collection and analysis, it would be helpful to discuss the measure created for this thesis, the Human-Animal Attachment Measure, as any results pertaining to the hypotheses must be couched in the validity and reliability of this measure. The purpose of this thesis was not to develop an instrument, but rather to explore the question, are the relationships between Assistance Dogs and their owners similar to or synonymous with adult attachment relationships? As such, the measure was developed as a means of gauging the presence of relevant attachment behaviours for the sample, as no other apparatus was found to measure attachment between humans and animals during literature reviews and searches of instrument indexes.

It is important to emphasize the point that this measure was not created to develop a thesis; it was created as a means to explore a previously unexplored emotional and psychological bond developed between a person with a disability and their Assistance Dog. Had the project been

solely concerned with the development of a new instrument for the social sciences, this thesis would then be a much different piece of work, focused upon the psychometric evaluation of said instrument. Instead, this Human-Animal Attachment Measure served its purpose of gauging whether or not there are differences in relationships between pet dog owners and Assistance Dog owners, and gauging the utility of further exploration of the bonds concerning Assistance Dogs and their owner/handlers. It would be a logical next step to thoroughly and exhaustively evaluate the HAAM for both reliability and validity, as well as revamping items that resulted in split loading during factor analysis.

Validation of any instrument is an ongoing process, and this thesis begins the process with the piloting and introduction of the instrument specifically designed to measure attachment or attachment-like behaviour between people and animals. A very high (.96) Cronbach's alpha coefficient is explained by the finding that there was little variance in responses to the questionnaire by either pet dog owners or assistance dog owners. Pet dog owners consistently responded with a forced choice of 4 (disagree) and AD owners responded with a choice of 2 (strongly agree) to almost all items.

5.2.1 Attachment between Assistance Dogs and their Owners

Assistance Dog owners rated their relationships with their dogs in very similar ways across proximity seeking, secure base and safe haven factors on the HAAM instrument. Scores on the HAAM reflected forced choice scores of 2 (strongly agree) and 3 (agree) on all items for people with Assistance Dogs. This implies that Assistance Dog owners have similar feelings for their dogs, regardless of their type of disability. The similarities of scores indicate that although the HAAM has not been fully developed as an instrument to measure attachment between people and animals, it does appear to measure a common set of feelings and behaviours towards an owned animal. These emotional and behavioural items were designed specifically to reflect attachment indicating behaviours as seen in adults and investigated by many researchers for more than forty years (Ainsworth, 1989).

5.2.2 Group Differences in Dog-Owner Relations

The results of the HAAM suggest that the relationship bond between Assistance Dogs and their owner/handlers appears to be very different than those developed between pet dogs and their owners. With regard to this bond, the results of the Human-Animal Attachment Measure (HAAM) suggest that the relationship as it was measured for this sample appears to be either closely similar to an adult attachment relationship or an attachment

relationship in its own right. Ratings by pet dog owners indicated a weak level of attachment as defined by Bowlby (1969) and Ainsworth (1985), to their dog. In contrast, all the participants reporting any mobility, vision or hearing disability indicated a high level of attachment towards and about their guide, service or hearing dog as gauged by the HAMM instrument.

Because most research exploring the relationships between animals and humans involve pets and owners, it was decided that using pet dogs and their owners as a comparison group on a well-known pet affection measure and a measure created for this thesis would help to delineate these bonds. The Lexington Attachment to Pets scale (Johnson, Garrity & Stallones, 1992), was utilized in this study to provide the comparison measure of affection for an owned animal across the self reported with and without disability groups and second, to provide a comparison with the results of the Human-Animal Attachment Measure across these same groups. The LAPS was developed due to the gap in the field of psychology and social work to accurately assess the emotional attachment of people to their pets (Johnson, Garrity & Stallones, 1992). The measure is not based upon attachment as defined by Bowlby (1969) and Ainsworth (1985), but is built upon the theoretical foundation of social support. In this project, levels of felt affection, attitudes towards animal welfare and caring were solidly high, representing very affectionate, caring relationships between owners of pet dogs and owners who live and work with Assistance Dogs.

5.2.3 Attachment Style

The attachment styles reported by pet owners and Assistance Dog owners for the most part reflect other attachment research results, in terms of percentage of respondents for each style (Sperling & Berman, 1994). For example, the reported secure attachment style represented 33 – 45% of Assistance Dog owners, while other research has reported 45 – 53 % participant self-categorization in the secure style (Bartholomew, 1990; Bartholomew & Horowitz, 1991; Sperling & Berman, 1994). In contrast, while previous attachment style research has shown that approximately 13 – 18% of participants self-categorize themselves in the insecure dismissive category (Bartholomew, 1990; Bartholomew & Horowitz, 1991; Sperling & Berman, 1994), this attachment style reported by pet owners and AD dog owners in this sample appear to be skewed in terms of category representation for the style of insecure dismissive, also labelled in some attachment literature as insecure avoidant dismissive. With results showing between 27 – 44 % of Assistance Dog owner respondents relating to this style, there appears to be over-representation of this attachment style for the sample of Assistance Dog owners. This was an unexpected result, and possible reasons for this over-representation will be explored.

In general, people who self-categorize themselves as having an insecure dismissive attachment style may show behavioural characteristics that downplay the importance of close relationships, put a strong emphasis on independence and hide emotional responses (Colin, 1996). This is not to

say that people with insecure attachment styles, whether those styles may be dismissive, ambivalent or anxious, are neurotic individuals who are unable to have healthy relationships or are in some way inferior to people who reflect a secure attachment style. Attachment style is a way of relating to the people who play a vital and formative role in a person's life and who provide a person the emotional support needed to explore, enact and experience the external world with confidence and independence.

With felt independence such an important goal and state for people with disabilities (Lambert, 1990), could some individuals develop an insecure dismissive style in response to living with a physical or perceptual disability and putting such extreme focus on the drive to become or remain independent? Or, could a possibility exist that people who are strongly bonded to their animals feel a lesser drive to create and maintain close relationships as adults? The third possibility is that people who have an insecure dismissive attachment style may foster extremely close relationships with their pets or assistance animals, as they offer unconditional love and affection; conditions that research suggests avoidant individuals lack in their formative childhood years (Bartholomew, 1990; Bowlby, 1982; Bowlby, 1988; Fraley, 2002).

These possible explanations beg the question, do the people attached to an Assistance Dog who have an insecure dismissive attachment style have a stable attachment style or is this style developed through life events and experiences or the attachment to the dog itself? As such, this third question

of the thesis concerning attachment style as it may relate to level of attachment to an animal was partially answered, but the results found only created more questions.

5.3 Limitations of the Study

As with all research, this project had limitations and upon hindsight, displayed lost opportunities for the collection of more and better data. The main limitation is that the study as designed was exploratory in nature and involved a relatively small and non-random sample. The possibility of confounding due to an inability to partial out background variables, such as level of disability or functioning, level of human social support or number of human adult attachment relationships certainly exists. To control for these possible confounds, the study could have employed a qualitative element in interview format in order to assess background variables across a percentage of the sample. Another solution to this issue would have been to include questions about number of adult attachment-like relationships, level of physical and occupational functioning and social support structures on the existing survey; this would have lent both valuable additional data to the study and allowed for the control of the above mentioned confounds.

One of the most obvious limitations is the sample of participants as a whole. This sample, although delineated by disability status, was relatively homogenous, as seen in the similarity of scores on the LAPS regardless of

disability. The HAAM also showed very similar scoring for the groups when separated according to disability status. On the one hand, this could be seen as a positive trend, in that the instruments did accurately measure what they were intended to gauge; level of attachment behaviours and affectionate bonds with pets or assistance animals. On the other hand, the fact that this sample of participants is so homogenous certainly does not encourage generalization to pet owners outside the sample group. Assistance Dog owners are to some extent, a homogenous group, in that they share the status of having the label of physical or perceptual disability, the willingness to work with a trained dog and a group membership with the organization that their particular Assistance Dog was obtained from.

In essence, the results of this project are not generalizable to the greater population of people with disabilities, but may be somewhat generalizable to the segment of this population who live and work with Assistance Dogs; a population with deep commitment and bonds to their dogs. As one Assistance Dog owner stated in the write-in response text box contained on the HAAM inviting them to share thoughts, feelings or experiences about their dogs, "Any opportunity to talk about or take part in anything to do with service dogs is great; we love to brag about our dogs!" Another respondent wrote, "Having a guide dog is not like having a pet. It takes commitment and constant training to keep the skills up, and those skills are what keep me and my dog alive and safe". Therefore, this sample of the Assistance Dog population while homogenous, may still be representative of that greater population, which in itself may be somewhat

homogenous along lines of disability status, Assistance Dog application and training experiences, Assistance Dog ownership, experiences with public access issues, loss or retirement of their dogs, desire to have a dog and other experiences or issues exclusive to living with a disability and working with an Assistance Dog. However, this sample may not represent the Assistance Dog owners who are unhappily matched with their dog, owners who for a variety of reasons choose to relinquish the dog or AD owners who do not have computer access. With more thorough planning, these owners may have been reached through mailed information packages rather than emails sent by the AD organization they are or were affiliated with.

The homogeneity of the pet owner group is more problematic, although admittedly they were utilized only as a comparison group to the sample representing people with disabilities. The pet owners who consented to participate were contacted through email groups of pet dog owners, kennel clubs, veterinary offices and community centre flyers. As such, they are not only self-selected, but may also not be representative of the average pet dog owner. The average owner may not belong to web ring email groups dedicated to dog ownership, they may not pay much attention to signs posted at their vet clinics or local community centres, nor may they regularly attend meetings at their local kennel club. These pet owners, by accessing the advertisement for project participants, immediately set themselves apart from the average dog owner by their high level of interest in forming circles of contacts to exchange dog related information, social interaction with like minded dog owning individuals and a dedication to their dogs that may be

greater than average. It is for this reason that this portion of the sample cannot be generalized to the population they were intended to represent: that of a dog owner without a physical or perceptual disability. This is a serious limitation of the study, and recruitment for the pet dog owner participants may have been better served with an approach designed to reach a broader more representative sample of owners, such as a newspaper advertisement or door to door recruitment.

Perhaps the most serious limitation of this study is the fact that a measure was designed to tap the possibility of attachment behaviours indicating an attachment relationship between a person with a physical or perceptual disability and their Assistance Dog. This measure underwent a process of development adequate for this pilot study at the graduate level, but the limitation of its validity and reliability are obvious and therefore colour the positive support resulting from the use of the measure regarding the hypothesis that Assistance Dog/owner relationships may be attachment relationships and are certainly different than the relationships experienced by the owners of pet dogs. Ideally, this thesis would have comprised two separate studies; one a complete piloting and psychometric evaluation of the Human-Animal Attachment Measure, complete with test-retest components, and second, a study similar to the present project, with statistical tests applied to gauge differences between groups of dog owners and possible mediating effects of age, gender and length of ownership on the scores of that measure for the group comprising participants with disabilities.

It was not the intention of this project to infer causation, nevertheless it is important to reiterate that although there appears to be a possible attachment relationship between Assistance Dogs and their owners, it is impossible to speculate upon the causation of these relationships or assess the depth of their correlation from this thesis project.

5.4 General Discussion and Conclusion

Despite the limitations this project, the hypotheses were generally supported, although admittedly analyses of the results raise further questions. For a person with a disability, negotiating the external environment involves a complex interplay of physical, social and functional components (Crisp, 2002). When a person obtains an Assistance Dog, this negotiation can become one of an independent person with an extension of their own abilities in the form of the dog. Operating in the external world can also become more complicated with a dog when the owner/handler is faced with access issues, transportation challenges and undertaking the physical care of the Assistance Dog. Defined by function, the relationship between an Assistance Dog and their owner/handler with a disability is one of support, enabling the individual to become more independent or maintain current independence. What the relationship does not imply by definition is the deep, inter-dependent and complex bond that develops between these interacting beings. This thesis begins the exploration, identification and clarification of the bond between a person with a disability and their

Assistance Dog, using the theoretical standpoint of attachment theory first developed by Bowlby (1977) and operationalized by Ainsworth (1985).

When Bowlby began to develop the theory of human attachment, he included the concept of exploration and its place in development and attachment. In Bowlby's terms, the exploratory system is closely aligned with the attachment system, in that a person (infant or adult) with a sense of a secure base would feel a drive to explore their environment and gain a sense of mastery (Bowlby, 1982). In adulthood, this exploration is most easily seen in work and leisure pursuits. The mastery over one's environment could be seen as feelings of self-efficacy and estimation of independence for people living with a physical or perceptual disability; independence is the state most striven for in persons with disabilities (Lambert, 1990; Fairman, 1998). Individuals working with Assistance Dogs feel more confident, more capable and more independent when with their dogs in the external environment. If a person derives a sense of independence and a feeling of self-efficacy in exploring and navigating the external world because of the connection to their Assistance Dog, it would stand to reason that this is an indication of a sense of secure base and a component of an active attachment relationship, or a relationship that shares attachment traits.

Results of this project do indicate attachment-like behaviours and emotions on the part of the Assistance Dog owners; these behaviours align with attachment behaviours seen in adult attachment relationships and comprise indicators along four dimensions, including that of the secure base. Proximity seeking is the dimension concerned with a person having a strong desire to be in the presence of the attachment object, in this case, the dog. Safe haven is the component of attachment relationships that manifests in the person seeking comfort from the relationship partner when experiencing anxiety or stressors from the environment. Protest separation involves the triggering of feelings of anxiety or distress when the attachment relationship partner is absent. Secure base is represented by the person feeling safe and secure and as a result, feeling the drive and the confidence to explore the external environment. From these descriptions, results of the HAAM factor analysis with split loadings and the analysis along these dimensions contained on the HAAM for the sample population, one can see that the four components are very closely related to each other and in many instances they may be difficult to prise apart into their separate behaviour categorizations. In order to illustrate these components of attachment behaviour in 'action', the following is a quote from a participant from this study. It describes, in layman terms and with heartfelt sincerity, the attachment-like relationship that seems to exist between person and Assistance Dog.

"I was diagnosed with MS a few years ago. I had given up and didn't want to keep on struggling to try to work and live the way I was. My wife convinced me to apply for a service dog and eventually I was placed with Milly¹. Milly gives me a reason to keep going. She is always beside me and I know that I will be ok if she's around. I feel like I can go out again and have a life and have even gone back to work part time with Milly helping me at my desk. Last year she had to have surgery and I didn't go out at all until I went to pick her up from our vet; I felt lost without her even though my wife was helping me. On bad days, Milly makes it better by lying down with me, without her I don't think I would have stuck around much longer".

This quotation also gives credence to the posit that the loss of an Assistance Dog would be devastating and life altering for the person owning the dog, as it would effect virtually every aspect of their life, from work functionality to state of mind to the feeling or state of independence. A person experiencing the loss of their Assistance Dog would have an enormous adjustment to navigate through and as evidenced by trainer exopits, the person would most likely turn to their AD trainer for assistance, comfort and advice.

This raises ethical issues concerning the situation of a trainer engaging in counselling type activities with clients. First and perhaps most importantly, the vast majority of trainers do not have formal education in psychological theory, counselling skills or ethics involved in the field, despite

¹ Dog's name has been changed to protect anonymity of participant.

their caring deeply about clients and the dogs placed with those clients. This brings questions regarding the level of expertise a trainer would be able to offer a client and skill at detecting possible issues that may exist outside their area of expertise such as suicidality. Second, the situation of a trainer counselling a client with regard to issues with the Assistance Dog, familial difficulties, financial problems or emotional states gives the trainer an insight into an area of the client's life that could unintentionally cloud judgement of how fit the client is to obtain or keep an Assistance Dog. This insight, coupled with the legal right to remove the dog if deemed necessary, creates a power imbalance within the trainer-client connection. As such, a client may not be as honest with a trainer as they might be with a mental health professional or their physician; resulting in serious issues not being dealt with or dealt with in a superficial manner which would not assist the client and in fact may harm them. Third, the client enters into a relationship with the Assistance Dog trainer as soon as the application interview takes place and the connection continues for the life of the Assistance Dog through contact and continuous training or skills upgrades for the team. This connection is vital to the safety and happiness of both the Assistance Dog and the client. To attempt to bring a counselling facet to that relationship would create a duality that would damage the primary association meant to support the client and their dog as a working team through ongoing training, education and advocacy.

The information gleaned from the four trainer interviews, fully disseminated within Appendix A, supports the idea raised by this thesis that the relationships forged between Assistance Dogs and their owners are complex and very different than those formed between pets and their owners. The interviews also support the conjecture that trainers find themselves unwillingly filling the role of counsellors and thereby engaging in power imbalanced, dual relationships with clients because of their admirable sense of empathy, lack of funds to employ professionals and few, if any mental health professionals offering their services to Assistance Dog organizations.

Perhaps one of the reasons professionals in the mental health fields do not offer sliding fee programs or volunteer hours to Assistance Dog organizations is that so little is known about the relationship between a person with a disability and their Assistance Dog. It is hoped by this author that through further research and exploration, this complex bond will be better understood and will result in additional funding to contract professionals through fundraising or supplemental government funding and the forging of volunteer commitments to clients experiencing life with an Assistance Dog in all its ups and downs. The interviews detailed in Appendix A provide readers and other researchers a qualitative illustration of how these relationships affect clients and their families and first hand observations of what the relationship between a person living with a disability and their working dog truly encompasses.

5.5 Implications of the Study

The goal of this project was to begin the process of defining and clarifying the relationship bond that develops between a person with a physical or perceptual disability and their Assistance Dog, be it a guide, service or hearing animal. In order to examine or infer the possible implications of the results of this thesis project, it will be useful to separate them into the populations involved: Assistance Dogs and their owners, Assistance Dog organizations and the mental health field.

For Assistance Dog organizations and the instructors who work with Assistance Dogs in training and clients, there are important implications to be gleaned from this project. First, organizations do a great human service by training and placing highly skilled dogs with people with varying types and degrees of disabilities. This in and of itself is a blending of the science of animal behaviour and the art of matching two personalities and needs in order to create a team that will enhance and enrich a person's life. Perhaps by beginning to understand the psychology of the bond developed between a person and their Assistance Dog, this knowledge can be applied to the process of matching dogs with potential handlers. Second, instructors and administrators may be able to offer more information to potential and current clients in form of newsletters, workshops or worksheets and as part of the training process; this information regarding the type of bond that forms is important and could be taught as part of the normal training classes for puppy raisers, clients and apprentice instructors learning the trade. Last

and most pertinent for trainers and Assistance Dog organizations, the knowledge that engaging in lay counselling or counselling-like activities with clients may in fact be harmful could encourage the active recruitment of volunteers from mental health fields to offer counselling and adjustment support to clients during different stages of obtaining, training, living with and retiring or euthanizing their Assistance Dog.

One implication for the mental health field revolves around raising interest in the attachment bonds developed between Assistance Dogs and their owners. By raising interest in this previously unexplored area, perhaps more mental health professionals will be motivated to volunteer time or provide sliding fee scales for working with Assistance Dog owners or to offer debriefing services to trainers and clients at the retirement or death of an Assistance Dog.

Other possibilities include professionals volunteering to impart psycho-educational information regarding ethics, attachment, adjustment, family dynamics and grief/loss issues; this volunteerism would give Assistance Dog organizations not only information regarding the psychological processes their clients encounter, but also the knowledge of when to refer clients to outside support systems such as physicians or therapists.

For Assistance Dogs and their owner/handlers, the implications involve knowledge, and knowledge encourages power. A person living with a disability forms a very special relationship with their assistance dog; one that

many clients state nobody else can understand (Nicholson et al, 1995). Knowing that researchers are beginning to explore this relationship should be empowering, in that people with Assistance Dogs do form unusually strong bonds, bonds that are important enough to be properly defined and honoured.

Assistance Dog owner/handlers knowing that the relationships with their Assistance Dogs resemble attachment relationships should be confirmatory; the confirmation that the bond felt is indeed different than any other human-animal relationship and is similar to the connections adults make with extremely important or pivotal people and that the bond with their dog is not dependence based (ie; based upon weakness), but independence based (ie; based upon security). The knowledge that such a powerful relationship will have a large impact upon the emotional life of the client is also an important implication, both for owners working through the grieving or loss process involving their dog and for potential clients to consider before obtaining an Assistance Dog.

Understanding the depth and psychological import of the relationship may also result in more Assistance Dog owners talking to their physicians or other health professionals when faced with issues either pertaining to or triggered by the working with, obtaining of or loss/retirement of an Assistance Dog. Perhaps the most important implication for this group concerned with the project is the knowledge and understanding that the level of feelings felt for the Assistance Dog is normal and natural, and that the

relationship developed is not only healthy, but a part of human evolutionary design to explore and master our environments, creating self-efficacy and confidence in living life according to goals rather than abilities or disabilities.

For students, academics and researchers in the social sciences, perhaps this first foray into the territory of attachment theory related to relationships people with disabilities form with their assistance animals will heighten curiosity and encourage others to explore and investigate this fascinating bond.

5.6 Recommendations for Further Research

With regard to this particular project, the main recommendation for additional research would be for further investigation and improvement of the Human-Animal Attachment Measure designed for this study, and to replicate the methods and measurements utilized in the present project in order to further validate the HAAM and increase estimations of reliability.

In particular, longitudinal projects which gauge attachment styles, bonds formed between the dog and the client and other variables such as level or type of disability and social support would be most helpful in further investigating the results found within this study and deepening the knowledge base regarding the topic of attachment as it applies to the human-animal relationship. The design and implementation of a longitudinal

study to investigate the bond present between Assistance Dogs and their owner/handlers would be an ideal forum to study the bond from the day the dog and future handler meet, through team training, the adjusting to life with an AD, changing family dynamics and the approaching retirement or death of the AD partner. With this type of long term, intensive, qualitative and quantitative data project, the bond could be closely monitored through a variety of theoretical lenses such as family systems, attachment, developmental or perhaps psychological constructs such as Maslow's Hierarchy of Needs (Shaughnessy & Zechmeister, 2000).

Another recommendation for further research would be to include or focus exclusively on qualitative data derived from Assistance Dog owners, family members and instructor/trainers. This would provide a richness in depth and detail simply not possible with quantitative research designs. Due to the variance in disability type, level of functioning, level of assistance needed from an Assistance Dog, organizations involved in training and placing the dog, socioeconomic variables and other unknown influences, a qualitative component or design may offer data important to the identification and clarification of the bond developed between person and dog.

One future direction with implications for both research and practical use would be the development, implementation and evaluation of a program specifically designed to impart active listening and empathic response skills to Assistance Dog trainers, while also giving them the knowledge of how to set boundaries with clients and when to recognize that a client may need referral to a mental health professional to assist them. The design of this program for Assistance Dog trainers and staff may benefit from borrowing the structure of the development and implementation of peer support programs commonly seen in education and health care settings. For this training, however, the skills learned would be largely utilized with Assistance Dog clients, rather than a traditional peer support program where trainers would learn how to support other trainers. However, peer support could be an additional focus of a training program, as outlined in the trainer interviews contained in Appendix A of this project, trainers stated that they often feel that they would benefit from speaking with a counsellor when an Assistance Dog fails the program, clients experience difficulties and seek their support or advice and when the removal, retirement or euthanizing of a dog is necessary. With skills learned within a program involving the structure of peer support, AD trainers could be better equipped to support each other, volunteers and AD clients, while mastering the knowledge of how and when to refer a peer, volunteer or client for further professional level assistance.

Like any under-explored or new area of research, many studies of varying design will need to be undertaken over an extended period of time in order to bring any sense of affirmation for the implication that the bonds developed between a person and their Assistance Dog is one of attachment. It is hoped by this researcher that others in the fields of psychology, counselling, disability management, social work, occupational therapy and animal science will be interested enough to replicate, elucidate and further the work begun during this project, whether the HAAM, attachment theory or other theoretical lenses are used is not of import; what is of import is the determination to explore the relationship formed between a person with a disability and an Assistance Dog that transcends the functionality of the relationship and delves into the psychological and emotional structure of the bond.

For this researcher, the investigation into the Assistance Dog-owner bond clarified existing knowledge of attachment, disabilities and counselling ethics and built new understanding and respect for what trainers and clients do on an everyday basis with Assistance Dogs. The bond developed between a person with a disability and their trained Assistance Dog is, by its very title, a supportive and independence achieving relationship. What is not obvious from this functionality is the emotional and psychological impact the bond has on both the owner/handler and the dog, as well as the people connected to the partners through AD organizations or family.

The posit that the relationship has a profound impact upon the psychological and emotional life of the client seems to be one of common sense, and yet it is a relationship that has not been explored or confirmed other than the function of the partnership itself. The project has instilled in this author a determination to further explore and clarify the human-assistance animal bond through research endeavours. It has also emphasized what mental health professionals may be able to offer this community of some 20,000 Assistance Dog teams when emotional, psychological or adjustment issues arise and clients, trainers or family members seek assistance.

APPENDICES

Appendix A – Ancillary Findings: AD Trainer Interviews

While the data supporting the hypothesis that Assistance Dog – owner/handler relationships closely resemble adult human attachment relationships and may themselves be attachment relationships, the data does not address the larger impact the building, maintaining and grieving these relationships have on the person involved in such a relationship. In addition, the data does not explore the role of the Assistance Dog trainer in fostering the relationship between client and dog, nor does it explore the viewpoint of the trainers with regard to the bond developed between a client and their Assistance Dog; after all, it is the trainers who spend the most time with these teams. It is for this reason that the following interviews with four Assistance Dog trainers were undertaken.

It is important to learn, from the trainers who work with dogs and clients every day, how the bond is viewed and the possible counselling role the trainer takes on in order to further understand and clarify both the bond and the implications for the emotional and psychological health of clients. The remainder of this section will describe these viewpoints, illustrate the

beliefs trainers have regarding the bond between human and Assistance Dog and communicate suggestions and concerns that these trainers have with regard to their adjunct role of counsellor.

In September of 2005, a total of four trainers were interviewed; two in person and two via email. The Assistance Dog trainers had a mean experience level of six years, with one trainer having less than one year of official trainer status and one trainer amassing 12 years of experience. Using a semi-structured interview process, this investigator attempted to determine their knowledge and beliefs about the human-animal relationships and their role in assisting clients, to further researcher awareness of the practical issues surrounding Assistance Dog training and placement, and to explore the role of psychological and emotional health promotion for clients and their families.

The participating trainers answered a series of five questions (designed to keep the interviews less than the trainer requested 40 minutes in length). The resulting section of this thesis reflects a richness of detail, observations and feelings regarding the relationships between people and their Assistance Dogs that has not been possible to replicate within the data analysis phase of the study.

A strict protocol was followed to ensure anonymity of participating trainers, and each trainer has had the opportunity to read this report as prepared by this author to ensure the accurateness of the writing and fair

representation of the views expressed within the oral and email interviews. This section has been written in the format of the questions presented to the trainers in order to aid in the process of organization.

1. How would you describe the relationship that develops between your clients and their Assistance Dog?

The answers to this question were very similar in the trainers identifying the relationship as they observe to be inter-dependent, trust-based and life-changing for the client. All four trainers stated at times during the interview that the relationships forged between dog and client are unique and do not resemble pet/owner bonds, trainer/Assistance Dog bonds or puppy raiser/Assistance Dog relationships. Trainers do form strong bonds with the Assistance Dogs in training, as they take on the leader/trainer role for the dog in order to teach the advanced skills the dogs must learn in order to graduate from being an Assistance Dog in training to a working Assistance Dog. Puppy raisers rear the dogs from when they are whelped until they enter advanced training. As such, the relationships formed between pups and their puppy raisers are ones of great affection and as one trainer commented, many times the puppy raisers are emotionally distraught and in need of counselling when the time comes to give up their puppy to advanced training.

The trainers all stressed that while these different bonds are all important for the training, socialization and development of the Assistance Dog, they do not 'hold a candle to' the bond that forms between the dog and their permanent human partner. One trainer stated that the relationship between a client and their dog resembles one that a person may have with their most trusted friend or parent, confidant and supporter. Another who one would call upon to help with physical support and manual tasks, a friend who would always be by your side, a friend who asks nothing in return but love and an occasional toy or dog treat. Another trainer stated that one client had shared the role they believed their dog to fulfil: at once a parent, sibling, child, best friend, jailer and key to independence.

2. Approximately how often in your work do you find yourself acting in a counselling capacity with clients and how comfortable are you in such a role?

This question brought out strong opinions among the trainers, and uncovered the unexpected issue that trainers do engage in counselling, not sporadically, but on a regular basis with clients. Two of the trainers estimated that they find themselves 'counselling' during almost every interaction with a client, from the initial interview application to obtain an Assistance Dog, to the team training with the dog, to placement in the home, ongoing issues and the retiring or euthanizing of the Assistance Dog. One trainer commented that the most difficult time for her was having to remove a dog from a client's care; this situation is described as 'hellish', with anger, denial and grief on the part of the client and great sadness, determination and guilt on the part of the trainer. In these situations, the trainer explained, everyone involved is distraught and as the trainer, she finds herself in the miserable position of both removing the animal and counselling the client.

Another trainer stated that often there are problems within the family of a client when an Assistance Dog arrives. Familial roles are often changed, as the client no longer needs the same amount of care, supervision or assistance they required from family members before their pairing with the Assistance Dog. Jealousy of the dog, adjustment to different helping roles

and changed dynamics in the household often result in clients seeking assistance, requesting trainer meetings with family members and help in adjusting, all of which imply a counselling role on the part of the trainer. One trainer stated that they find themselves engaging in counselling approximately 40% of the time, while the fourth trainer estimated that they find themselves in a counselling role 10-15% of the time after the client has gone through the interview process and is being paired with a dog.

All four trainers stated that they were uncomfortable in a counselling role. One trainer commented that if she had wanted to be a counsellor, she would have gone to graduate school and become a counsellor and not obtained a degree in animal science, various certificates in animal behaviour and spent several years as an apprentice trainer of Assistance Dogs. Another trainer vehemently stated that they are extremely uncomfortable when they are put in the role of counsellor by the client and that they try to avoid it at all costs as it is anxiety provoking for them. One trainer stated that they are comfortable listening to issues being experienced by clients, but that they feel unable and unwilling to offer advice, suggestions or assistance in changing a situation as they have no training in counselling. However, they do find themselves being pushed into this role up to 40% of the time. The four trainers all expressed empathy for their clients, knowledge of issues clients face and the position that they care about the people and dogs they work with but do not want to engage in counselling. Three trainers expressed concern about their counselling abilities and that there could be a danger of hindering rather than helping the client.

3. In what circumstances do you believe clients would benefit from counselling?

The firm consensus on this question was that there are many circumstances when clients would benefit from having someone knowledgeable to talk to. These situations include: the illness or natural death of the dog, having a profound disability wherein the dog could not help enough, the removal of the dog from the client, changing roles of family members, the decision to retire the dog, the adjustment of the workplace to having an Assistance Dog in the environment and the decision to euthanize the dog. Additionally, two trainers mentioned that trainers themselves would benefit from speaking to a counsellor when removing, retiring or euthanizing an Assistance Dog. One trainer also observed that puppy raisers are often in need of assistance when they give up the dog to advanced training and when their puppy fails the training and is released from the Assistance Dog training track. As approximately 60% of dogs in training fail the program and are released, this implies a large number of puppy raisers who may benefit from professional debriefing or counselling.

4. What needs to happen for clients to be enabled to seek counselling?

When asked what needs to happen for clients to accept 'professional' counselling, the trainers cited several 'must haves'. Accessibility was an important issue; many clients rely on public transit or special mobile services for transport. As such, a counsellor willing to meet clients at their homes would be an absolute necessity. Another issue would be counsellor knowledge of the Assistance Dog/owner relationship. Since this relationship is underexplored and not clearly understood, this would be a difficult area for a counsellor to be knowledgeable about. Also of concern, according to the trainers, is the factor of confidentiality. A counsellor could not be in the employ of the Assistance Dog organization, much the same as an Employee Assistance Program counsellor cannot be an employee of the company their clients originate from. Availability and continuity were issues elucidated on by one trainer. They believe that counselling should be a fundamental part of working with an Assistance Dog, from the application for the dog, through training, the working years and the eventual retirement or death of the dog.

This means long term commitment on the part of the counsellor and a dedication to the population of people living with disabilities and their Assistance Dogs. The most important component cited was cost; the importance of this issue was stressed by all four trainers. The trainers believe that clients should not have to pay for counselling services, as many live on low incomes or depend upon family support to live independently and have very little or no disposable income. On the other hand, Assistance Dog

organizations operate on shoestring budgets and many are completely reliant on donations and government grants in order to keep the programs alive. There are no extraneous funds available to assign to professional counselling services, be they on staff or contract services. Two trainers suggested that the possibility of a counsellor offering services in return for tax receipt is a logical one and one that they hope to explore with their organizations as a result of this interview process. Another trainer cited the stigma of seeking assistance from psychologists or other mental health professionals as being a deterrent for clients. The same trainer also suggested that if Assistance Dog organizations make counselling a normal part of the living and working with an Assistance Dog, clients may not have such reticence in seeking help for issues they may be experiencing.

5.What is it about the relationship between an Assistance Dog and their human partner that sometimes drives a client to seek counselling from their trainers?

This question was designed to enable the interviewees to summarize their feelings, knowledge and attitude towards the bond between a person with disabilities and their Assistance Dog. One trainer cited the intense emotional bond that clients develop with their dogs, and that this intensity can create rifts between the client and family members used to feeling more needed, blindness on the part of the client to when their dog may need to

retire or be euthanized and great affection resulting in deep and long lasting grief. Another trainer discussed the fact that a person living with a disability may have learned to live without interacting with the outside world and that having an Assistance Dog changes this way of living drastically. This change can result in issues related to adjusting to being more independent such as fear of rejection, public access refusals or conflicts and constant attention or unsolicited advice from strangers because of the presence of the Assistance Dog. One trainer cited that people who are deaf experience a different adjustment period than people who obtain guide or service dogs, as they live with a disability that can be hidden or to some extent overcome by coping methods such as lip reading. Being paired with a hearing dog, complete with identifying cape, instantly transforms the disability from one that may be hidden to one that is obvious to the external world; the freedom that a hearing dog gives a person can be overshadowed by feelings of being 'discovered'.

In summary, the four trainers interviewed described the relationship developed between an Assistance Dog and their handler as being utterly different than those experienced by pet owners and that this relationship is one of deep and intense emotion, dependence, trust, key to independence and at times a source of conflict with others. All four trainers acknowledged that they find themselves acting in a counselling capacity with clients on a regular basis, despite their own discomfort and misgivings about doing so. This is due to the fact that there are no mental health professionals aligned to their organizations for referring clients to when necessary, which by all

accounts appears to be an ongoing necessity. The consensus of the trainers was that counselling services are needed from the beginning of the Assistance Dog application process to the end of the dog's working or natural life and includes not just the owner/handlers, but also puppy raisers and the trainers themselves. These services need to be offered pro bono by professionals in the mental health field who are committed to an ongoing and long-term relationship with Assistance Dog organizations. The other option for funding paid mental health professionals is to clarify the AD-owner bond and its psychological implications for the owner in order to secure grants or further funding to reimburse professionals for their services to AD clients.

Appendix B – The Human-Animal Attachment Measure

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- Please answer these questions about yourself and your dog. It is very important to answer each item.

Part 1 – General Information

A. What is your gender? Male Female	B. What is your age? 10 - up to 20 years old 20 - up to 30 years old 30 - up to 40 years old 40 - up to 50 years old 50 - up to 60 years old 60 - up to 70 years old
C. What is the sex of your dog? Male Female	D. What breed is your dog? _____
E. How long have you had your dog? 0- up to 2 years 2- up to 4 years 4- up to 6 years 6- up to 8 years 8- up to 10 years	F. Is this your first dog? Yes No

<p>G. Do you have a physical or perceptual disability?</p> <p>No</p> <p>Yes, I have a vision impairment or disability</p> <p>Yes, I have a mobility impairment or disability</p> <p>Yes, I have a hearing impairment or disability</p> <p>Other, please explain</p>	<p>H. My dog is my</p> <p>Pet Dog</p> <p>Guide Dog</p> <p>Service Dog</p> <p>Hearing Dog</p> <p>Other, please explain</p>
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Part 2 - For each item, please choose the statement that best describes your relationship with your dog most of the time.

1. I miss my dog when he/she is not with me.

Strongly Agree Agree Disagree Strongly Disagree

2. My dog makes me feel safe emotionally.

Strongly Agree Agree Disagree Strongly Disagree

3. I am almost always with my dog.

Strongly Agree Agree Disagree Strongly Disagree

4. I am nervous when my dog is not with me.

Strongly Agree Agree Disagree Strongly Disagree

5. I often need my dog's help to accomplish tasks.

Strongly Agree Agree Disagree Strongly Disagree

6. When out in public, I feel more secure when my dog is with me.

Strongly Agree Agree Disagree Strongly Disagree

7. I feel independent when I am with my dog.

Strongly Agree Agree Disagree Strongly Disagree

8. I want to spend as much time as possible with my dog.

Strongly Agree Agree Disagree Strongly Disagree

9. When I am sick, tired or in pain, spending time with my dog makes me feel better.

Strongly Agree Agree Disagree Strongly Disagree

10. When my dog is not with me, I feel insecure or less capable.

Strongly Agree Agree Disagree Strongly Disagree

11. When I am with my dog I am more comfortable trying new activities.

Strongly Agree Agree Disagree Strongly Disagree

12. I trust my dog to help me when I need it.

Strongly Agree Agree Disagree Strongly Disagree

13. I feel less confident in public when my dog is not with me.

Strongly Agree Agree Disagree Strongly Disagree

14. I know that my dog is always ready to help me.

Strongly Agree Agree Disagree Strongly Disagree

15. When my dog is not with me, I don't like to try new things.

Strongly Agree Agree Disagree Strongly Disagree

16. Being without my dog makes me feel anxious.

Strongly Agree Agree Disagree Strongly Disagree

17. I feel more capable and competent when I am with my dog.

Strongly Agree Agree Disagree Strongly Disagree

18. If I am nervous or feeling anxious in public, I reach for my dog.

Strongly Agree Agree Disagree Strongly Disagree

19. Please take a moment to share, in your own words, how the relationship with your dog impacts your life.

Appendix B – The Lexington Attachment to Pets Scale

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1. I don't spend a lot of time with my dog.

Strongly Agree Agree Disagree Strongly Disagree

2. My dog means more to me than any of my friends.

Strongly Agree Agree Disagree Strongly Disagree

3. Quite often I confide in my dog.

Strongly Agree Agree Disagree Strongly Disagree

4. I believe that pets should have the same rights and privileges as family members.

Strongly Agree Agree Disagree Strongly Disagree

5. I believe my dog is my best friend.

Strongly Agree Agree Disagree Strongly Disagree

6. Quite often, my feelings toward people are affected by the way they react to my dog.

Strongly Agree Agree Disagree Strongly Disagree

7. I love my dog because he/she is more loyal to me than most of the people in my life.

Strongly Agree Agree Disagree Strongly Disagree

8. I enjoy showing other people pictures of my dog.

Strongly Agree Agree Disagree Strongly Disagree

9. I think my dog is just a dog.

Strongly Agree Agree Disagree Strongly Disagree

10. I love my dog because it never judges me.

Strongly Agree Agree Disagree Strongly Disagree

11. My dog knows when I am feeling bad.

Strongly Agree Agree Disagree Strongly Disagree

12. I often talk to other people about my dog.

Strongly Agree Agree Disagree Strongly Disagree

13. My dog understands me.

Strongly Agree Agree Disagree Strongly Disagree

14. I believe that loving my dog helps me stay healthy.

Strongly Agree Agree Disagree Strongly Disagree

15. Pets deserve as much respect as humans do.

Strongly Agree Agree Disagree Strongly Disagree

16. My dog and I have a very close relationship.

Strongly Agree Agree Disagree Strongly Disagree

17. I would do almost anything to take care of my dog.

Strongly Agree Agree Disagree Strongly Disagree

18. I play with my dog often.

Strongly Agree Agree Disagree Strongly Disagree

19. I consider my dog to be a great companion.

Strongly Agree Agree Disagree Strongly Disagree

20. My dog makes me happy.

Strongly Agree Agree Disagree Strongly Disagree

21. I feel that my dog is part of my family.

Strongly Agree Agree Disagree Strongly Disagree

22. I am very attached to my dog.

Strongly Agree Agree Disagree Strongly Disagree

23. Having a dog adds to my happiness.

Strongly Agree Agree Disagree Strongly Disagree

24. I consider my dog to be a friend.

Strongly Agree Agree Disagree Strongly Disagree

Appendix C – Relationship Questionnaire

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- The following are descriptions of four general relating styles that people often report.

- Please read each description and select the letter corresponding to the style that best describes you or is closest to the way you generally are in your relationships with others.

- A. It is easy for me to become emotionally close to others. I am comfortable depending on them and having them depend on me. I don't worry about being alone or having others not accept me.
- B. I am uncomfortable getting close to others. I want emotionally close relationships, but I find it difficult to trust others completely, or to depend on them. I worry that I will be hurt if I allow myself to become too close to others.
- C. I want to be completely emotionally intimate with others, but I often find that others are reluctant to get as close as I would like. I am uncomfortable being without close relationships, but I sometimes worry that others don't value me as much as I value them.
- D. I am comfortable without close emotional relationships. It is very important to me to feel independent and self-sufficient, and I prefer not to depend on others or have others depend on me.

Appendix D – Statement of Confidentiality

The University and those conducting this research study subscribe to the ethical conduct of research and to the protection at all times of the interests, comfort, and safety of participants. This research is being conducted under permission of the Simon Fraser Research Ethics Board. The chief concern of the Board is for the health, safety and psychological well-being of project participants.

Should you wish to obtain information about your rights as a participant, or about the responsibilities of researchers, or if you have any questions, concerns or complaints about the manner in which you were treated in this study, please contact the Director, Office of Research Ethics by email at hweinber@sfu.ca or phone at 604-268-6593.

Any information that is obtained during this study will be kept confidential to the full extent permitted by the law. Knowledge of your identity is not required. You will not be required to write your name or any other identifying information on research materials. Materials will be maintained in a secure location. Under Section 215 of the US Patriot Act, the Federal Bureau of Investigation (FBI) can obtain records relating to anyone. These records include computers and all website hits, medical records, subscriptions and group membership of any kind. Due to the Patriot Act, your confidentiality and anonymity cannot be guaranteed with regard to U.S. Government Agencies. However, your confidentiality and anonymity is guaranteed with regard to your responding to this survey for the described graduate research project.

Your completion of this survey will signify that you have read the above summary statement which describes the procedures, possible risks, and benefits of this research study, that you have had the opportunity to consider the information describing the study, and that you voluntarily agree to participate in the study.

I understand that I may withdraw my participation at any time. I also understand that I may register any complaint with the Director of the Office of Research Ethics or the researcher named above or with the Director of the Department of Education as shown below:

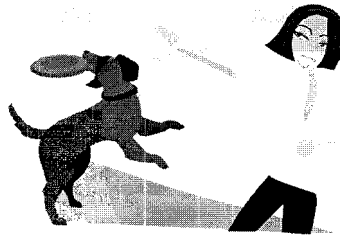
Dr. Thomas O'Shea
Department of Education
8888 University Way,
Simon Fraser University,
Burnaby, British Columbia, V5A 1S6, Canada

I may obtain copies of the results of this study, upon its completion by contacting:

dastewar@sfu.ca

Appendix E – Advertisement for Pet Owners

ATTENTION DOG OWNERS!!



DOG OWNERS NEEDED TO PARTICIPATE IN AN ONLINE SURVEY EXPLORING THE RELATIONSHIPS WE HAVE WITH OUR DOGS.

Participation is voluntary and will take 10-15 minutes to complete this survey on a secure website.

Please email dastewar@sfu.ca for more information and the link to the survey website.

Appendix F – Introduction to Respondents

Thank you for your willingness to share and explore the feelings and the connection you have with your pet dog or Assistance Dog.

My name is Dawn Stewart and I am a Graduate student in the Faculty of Education at Simon Fraser University in British Columbia, Canada. My thesis is concerned with the Human – Animal Bond, and how these bonds are similar or different with various types of dogs. It is my interest to explore the bonds we form with these different animals.

The research project you are volunteering to participate in is designed to explore these special relationships we have with our dogs. Your participation in this project will assist me in investigating the range and depth of the bonds that people have with animals and to begin the task of defining these relationships with more clarity.

Your responses will only be used for the purposes of completing this thesis investigating the Human-Animal Bond and will not be shared.

Pet dog and Assistance Dog owners are welcome to participate. Some items ask your general opinion about dogs and use the term 'pet'; this is not meant to infer that Assistance Dogs are pets.

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