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A Puppy's Touch: Destressing with Dogs in a University Environment

Kristine Lund

There is no psychiatrist in the world like a puppy licking your face.

– Bern Williams

Introduction

Humans interacting or having relationships with animals is not a new phenomenon. In fact, Messent and Serpell (1981) note that there is fossil evidence from half a million years ago that indicates a connection between *Homo erectus* and a canine-like species. Davis and Vall (1978) argue that an affectionate relationship between humans and dogs existed thousands of years ago. Their assertion is based on the discovery of a 12,000-year-old tomb in modern Israel where a person was buried with one arm around a puppy. Dogs have been bred to coexist with their human counterparts. They have filled many roles such as herding, guarding, hunting, fishing, and being our best friend (Clutton-Brock, 1995).

Today the relationship between humans and animals in Canada is very strong. According to Consumer Corner, Canadian Pet Market Outlook (2014), 57% of Canadian households own a pet. This translates to approximately 7.5 million households. Thirty-seven percent of Canadian households own one or more cats, while 32% own dogs. Overall, Canada is home to approximately 5.9

million dogs and 7.9 million cats. Nine percent of Canadians owned other types of pets, including fish, birds, small mammals and reptiles. CBC News (March 2014) reported that "Canadian pet owners are spending more money today than ever before to ensure their furry friends are healthy and happy." While some might question the time, energy, and money that are spent on pets in Canada, many pet owners report that their companion animals provide a great deal in the form of affectionate attachments. Archer (1977) observed the perceived mutual affection between companion animals and their human counterparts and reported the loving and pleasant feelings often experienced during these interactions. These positive interactions have spurred a unique field of research called human-animal interactions.

To understand the various types of animal-assisted interventions (AAI) the American Veterinary Association classification is used to identify three categories: animal-assisted activities (AAA) that utilize companion animals; animal-assisted therapies (AAT) that utilize therapy animals; and service animal programs (SAP) that utilize a service animal.

Animal-assisted activities (AAA) and animal-assisted therapies (AAT) have included the use of a variety of animals, such as dogs, cats, horses, birds, fish, and lizards, and have occurred in a number of different clinical contexts, such as schools, hospitals, elder care facilities, counselling settings, and group homes. Depending on the context, the animal may visit the facility with a handler or may be resident. Service animal programs typically use dogs, which reside with the individual needing this resource.

Using horses in psychotherapeutic contexts falls under a different jurisdiction, particularly the North American Riding for the Handicapped Association (NARHA) and the Equine Facilitated Mental Health Association (EFMHA).

Animal-assisted therapies are beginning to be recognized as a treatment modality similar to dance, art, and music; however, Mallon et al. (2010) note "The main difference between AAT and other adjunctive therapies is that the central 'tools' in this intervention are living, breathing, interacting creatures" (p. 135). This is an important difference: When animals are introduced into a health or mental health setting, unique organizational issues must be considered.

For the purpose of this chapter, animal-assisted interventions are defined as "any therapeutic intervention that intentionally includes

or incorporates animals as part of the therapeutic process or milieu" (Kruger and Serpell, 2006, p. 36).

Initial Research

Friedmann et al. (1980) conducted a longitudinal study of patients with coronary heart disease and their exposure to pets. Their research indicated that one year after discharge, pet owners were more likely to be alive than those without pets. People who owned a pet had one-third the mortality rate of those who did not own a pet. Patronek and Glickman (1993) suggest that since coronary heart disease is a stress-related disease, the protective effect of pet ownership is due to its effect on psychological risk factors. They concluded that by reducing stress and improving mental health, companion animals may make their owners more likely to survive. The study conducted by Friedmann et al. was one of the first to indicate the positive effects of companion animals and sparked a new area of research.

In 1994, a group of Australian researchers conducted the first national study that investigated the relationship between pet ownership and human health (Headey, 1999). The results of their research indicated that dog and cat owners had better mental and physical health than those who did not own a dog or cat. Pet owners made fewer visits to the doctor and were less likely to be on medication for heart problems or for difficulties with sleeping. Headey (1999) concluded that owning a dog or cat probably reduces the national health expenditure.

Marguerite O'Haire (2010), citing Beck's and Glickman's (1987) work in response to the growing body of data that indicates the positive effects of companion animals on human health, declared that "No future study of human health should be considered comprehensive if the animals with whom people share their lives are not included" (p. 227).

There have been many positive anecdotal examples regarding the use of animals, but it is important to note that there is limited empirical support and research that validates the effectiveness of animal-assisted interventions. One of the greatest challenges facing supporters of animal-assisted interventions is the fact that many of the professionals who apply these strategies do not see the necessity for conducting outcome research. This lack of documentation leaves a great void in demonstrating the efficacy of this kind of therapeutic

intervention. Katcher (2000) and Serpell (1983) note that just because an interaction with an animal is enjoyable does not imply the procedure is therapeutic. So, the need for more empirical research is apparent in the field.

With the limited body of research that indicates the positive benefits of pet ownership, researchers began to wonder about the underlying mechanisms of these human-animal interactions. Many theories have been offered, but to date there is no unified empirically supported theoretical framework to explain how companion animals benefit the mental and physical health of human beings. Two theories that are most commonly cited are the biophilia hypothesis and the social support hypothesis.

Biophilia Hypothesis

The biophilia hypothesis contends that “humans have an innate propensity to attend to and be attracted by other animals and living things” (Wilson, 1984, cited in O’Haire, 2010, p. 227). O’Haire (2010) observes that it would have been evolutionarily beneficial for humans to pay close attention to animal behaviour as environmental indicators of safety or danger. Gunter (1999) notes that having a pet in the home may be a link to our human evolutionary history, one which enhances our psychological health.

Friedmann (1995) discovered in his research that when humans looked at animals, it decreased their anxiety. Friedman et al. (1983) studied the effect of a friendly dog on children’s blood pressure while resting and during the mildly stressful activity of reading out loud. Researchers measured the children’s blood pressure, both resting and reading, when the dog was present and when it was not, and they discovered that the children’s blood pressure was lower when they were resting and reading while the dog was present. The researchers concluded that in mildly stressful situations the presence of a dog can reduce anxiety.

Katcher et al. (1983) did a research study measuring participants’ blood pressure as a measure of their level of stress while participating in three activities: watching fish in a fish tank, watching a blank wall, and during the mildly stressful task of reading aloud. They discovered that watching the fish lowered the participant’s blood pressure and produced a state of relaxation. In the participants with hypertension, the activity of watching fish in a tank lowered their blood

pressure into the normal range. The authors concluded that watching animals, whether or not they were familiar or bonded to them, can reduce anxiety and tension.

Wilson (1991) summarized the physiological effects:

Thus, it has been hypothesized that pets can decrease anxiety and sympathetic nervous system arousal by providing a pleasant external focus for attention promoting feelings of safety and providing a source of contact comfort. They can decrease loneliness and depression by providing companionship, promoting an interesting and varied lifestyle, and providing an impetus for nurturing. Pets, therefore, have the potential to moderate the development of stress-related diseases such as coronary heart disease and hypertension. The range of benefits that owners might derive from their pets may not pertain only to pet owners; one could speculate that anyone, not just pet owners could benefit from the presence of friendly animals. (cited in Odendaal, 2000, p. 275)

Research has also been done that indicates the presence of an animal can change a person's perception of the scene. Murray (1943) did the original research where participants were shown pictures of people in "provocative, yet ambiguous scenes" and were asked to describe the scenes. Lockwood (1983) and Friedmann and Lockwood (1991) expanded on this research using the Animal Thematic Apperception Test (ATAT), which uses two sets of pictures that are identical, except that one set of pictures has an animal present. Participants were asked to describe the scenes. People who were present in scenes with an animal were consistently described as "friendlier, happier and less threatening than the same people in scenes without animals" (cited in O'Haire, 2010, p. 228). The authors concluded that a person's perception of a situation influences their stress response, and if they are able to respond more calmly, this may enhance their psychological wellbeing.

Social Support Hypothesis

The social support hypothesis asserts that human-animal interactions have significant benefits. The lack of social support is commonly seen as a risk factor for both physical and mental health issues. Supporters

of this hypothesis contend that companion animals are social supports unto themselves but also facilitate social interactions with others.

As social supports, companion animals reduce loneliness and often contribute to a more general sense of well-being for their owners. Pet owners talk about having a "reason to get up in the morning," "someone to come home to" or "somebody that helps structure my day." Friedman et al. (1980) and Kruger et al. (2004) noted that pet owners reported their companion animals provided social support because they were constantly available, were non-judgmentally supportive, and provided unconditional love. The result of these social interactions is the strong attachment people form to their pets.

Pet companions provide a source of pleasure, connection to the outside world and, for some people, the promise of hope and a reason to live (Fine, 2006). Norris et al. (1999) invited seniors to complete questionnaires relating to their life satisfaction and perceived health. Pet owners reported higher life satisfaction and perceived health than those who did not own a pet. The researchers cited the non-evaluative support provided by a pet as contributing to the more positive perception of their life and health by the owners. The researchers, however, did note that one of the limitations of this study was that people who were healthier and had a more positive outlook on life might also be more likely to own a pet and concluded that further research needed to be completed in order to determine if there was any causal direction in the relationship.

Gunter (1999) in his research proposed that companion animals were facilitators of social support between human beings, and that they acted as a kind of "social lubricant" that encouraged social interaction with others and often stimulated conversation. Eddy et al. (1988) conducted a study in which a participant in a wheelchair was sitting in a heavily trafficked pedestrian location. The person was either alone or with a service dog. An observer sat nearby to make note of the number and types of interactions between the person in the wheelchair and strangers. The results indicated that when a dog was present there were many more positive social approaches, including smiles and conversation, than when the dog was not present. Eddy et al. concluded that the presence of an animal could be helpful in overcoming social isolation because of the socializing effects of an animal. This author can attest to this phenomenon as well. Upon becoming the owner of a puppy and beginning to go for walks in the neighbourhood, many more neighbours said hello, and stopped me to initiate

conversation than when I walked in the neighbourhood without the puppy.

Context of the Research

Wilfrid Laurier (WLU) is a medium-sized university that advertises itself as, “a multi-campus university with strengths in many academic areas and a focus on ‘inspiring lives of leadership and purpose’ in order to provide a great student experience” (www.wlu.ca). Like many universities in Canada, WLU has increasingly become concerned about the mental health needs of its students and how these impact their academic achievement. This concern has become particularly important after a series of suicides and incidences of self-harm on a number of Canadian university campuses. Greater awareness of mental health issues on campus is also the result of increasing de-stigmatization and more open discussion in the greater Canadian context. One in five Canadians will suffer from mental illness at some point in their life and according to Statistics Canada, youth aged 15 to 24, which includes most undergraduate students, are the most likely group to suffer the effects of mental illnesses, substance dependencies, and suicide. Data that was collected by WLU Counselling Services note that of the 802 students who accessed counselling services in the 2013–2014 academic year, 313 (39%) named anxiety as the primary reason for accessing the service, and 255 (32%) students named anxiety as the secondary reason for attending counselling. This means that a total of 568 (71%) of all students accessing counselling services named anxiety as their concern (Report by WLU Counselling Services, Client Goals Sept. 1, 2013 – Apr. 30, 2014). In a meeting with the counsellors at WLU Counselling Services, it was mentioned that many of the students also talked in their counselling sessions about how much they missed their pets.

Hanlon (2012) notes that “Anecdotal evidence suggests that today’s students experience more stress due to higher levels of debt, fewer job prospects upon graduation, higher expectations for student success, and less preparation for independent living” (p. 2). Students’ stress becomes more acute as they approach and are in the midst of writing final exams. Could interacting with dogs have a positive impact on students during a high stress time such as final exams? This question led to a research project that investigated the question: “What is the impact of interacting with puppies during final exams?” It received ethics approval from WLU REB #3998.

Methodology

This research project used a mixed methodology comprising of a survey and qualitative data collected regarding participants' experience of interacting with puppies. Participants responded to posters on campus and social media communications to come and interact with two puppies: Jager, an eight-month-old Soft Coated Wheaten Terrier, and Annie, a four-month-old Portuguese Water Dog. These dogs were chosen because both are hypoallergenic breeds, which would allow more students to interact with them with less concern about allergies.

Upon arrival, students were given an information sheet describing the study and an informed consent form to sign. Then they were asked to note their feeling(s) upon arrival and rank it/them on a Likert Scale, between one and five, where one was very low intensity and five was extremely high intensity. They were then free to interact with the dogs in whatever manner suited them. Some participants simply sat and watched the puppies play or interact with other participants. Some participants played with the toys available for the dogs, petted them, or gave them dog treats for completing a command (sit, down, shake a paw, high five/ten, etc.). Participants could stay as long as they wanted, with the majority of the participants staying between 10 minutes and one hour. Upon leaving, participants were asked to note their feeling(s) and rank it/them on the same Likert Scale. If the participants noted a change they were asked to describe what they thought contributed to the change. Finally, they were asked some basic demographic information, such as gender, age, faculty, and year of program.

Findings

In the study, 74 students ($n=74$) participated in the project: 60 females (81%) and 14 males (19%). This stands in contrast to the gender breakdown at WLU, where females comprise 54% of the university population and males 46%. Many more females than males chose to participate in the research project, and therefore, the percentages were not proportionate to the gender balance of the wider university population.

At the time of this study, 46 of the students (62%) had a pet; 52 of the students (70%) had a pet growing up; and 12 of the students (16%) did not grow up with a pet, nor did they currently own one. Since students self-selected to participate in the event, it would follow that

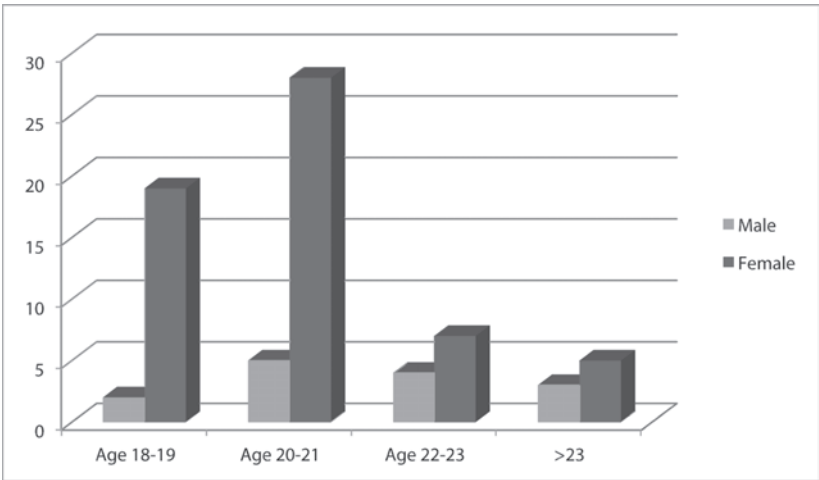


Figure 1. Participants by Age and Gender

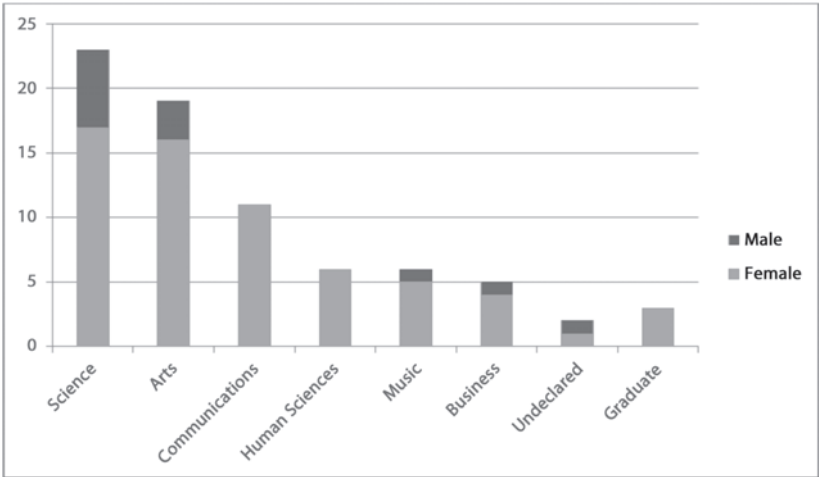


Figure 2. Participants by Faculty

students who had previous or current experiences with a pet would be more likely to participate.

Upon arrival, students were asked to observe what they were feeling and rate it on a Likert scale, where one indicated low intensity and five indicated extremely high intensity. They noted the following, with some students noting more than one feeling:

As students left, they were again asked to note what they were feeling and to rate their feelings on a Likert scale, from one to five,

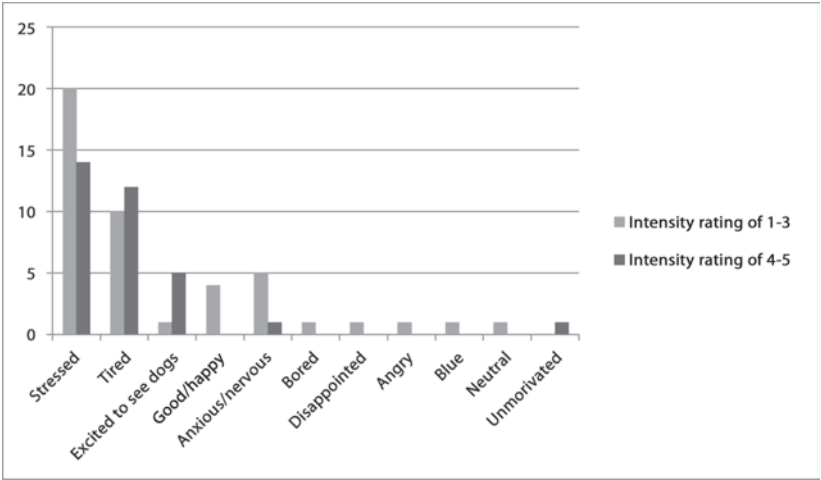


Figure 3. Participants' Feelings upon Arrival

where one indicated low intensity and five was extremely high intensity. Some students noted more than one feeling.

It was a surprise to the researcher that, on leaving, only nine of the students rated the feeling they noted upon arrival. In eight of these rankings, the feeling (stress) decreased in intensity, while one ranking remained the same. All the other feelings the students recorded when leaving were different from the feelings noted when they entered, which consequently did not allow the researcher to calculate

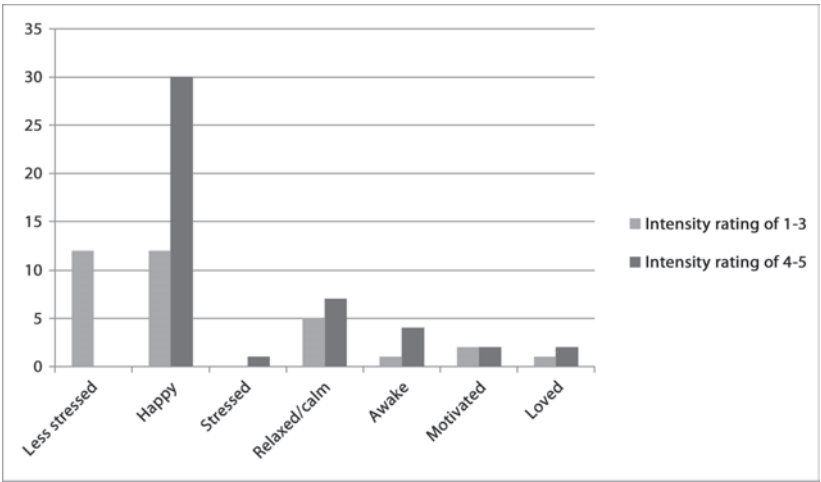


Figure 4. Participant's Feelings Upon Departure

the degree of change that was experienced by the participants. The six students (all female) who arrived excited to see the dogs reported feeling happy when they left. All six students had either owned a dog growing up or currently owned one. Only one student who arrived stressed (intensity of 4) left feeling the same level of stress (intensity of 4). The remaining 73 of the 74 students experienced positive change in their feelings.

Five themes emerged from the qualitative data: energy of the dogs; distraction from current stresses; touch or contact with the dogs; unconditional love; and a reminder of home or pet.

1. Energy of the Dogs

Many of the participants (34, or 46%) noted the puppies' energy, saying things like, "the dog's energy and happiness rubs off," "their energy is infectious," "dogs make me happy because they are playful," and "the joy from the dogs is contagious." Participants experienced the puppies' energy as affecting them, whether or not they physically interacted with them. Simply watching the dogs also "rubbed off" on the participants.

2. Distraction from Current Stress

Eighteen participants (24%) mentioned that the puppies served as a distraction from their current stress. They noted that "the puppies help you get your mind off things you may be worrying about when playing with them," "watching the dogs takes my mind off stressful exams ahead," "playing with the dogs gave me time to think of something else," "seeing the puppies just being carefree made my problems just seem to disappear," "playful puppies help me unwind or forget my worries," and "it helped me remember that school is not the end of the world."

3. Touch or Contact with the Dogs

A number of participants (12, or 16%) noted that touching the dogs made a difference to them. They observed the following: "The feel of the dog's fur and their cuteness makes me think nothing can go wrong," "connection with another creature helps," "being able to pet the dogs helped me," "playing with the puppies took my mind off my

work and exams and helped me to relax and keep calm,” and “being able to play and cuddle with the dogs helped me.” It is interesting to note that while the sample size of male participants was small, all of them noted in their comments that physically interacting with the puppies helped them feel better. While this was true for some of the female participants, it was not mentioned by all.

4. Unconditional Love and Acceptance

Eight participants (11%) mentioned that it was the unconditional love and acceptance by the puppies that contributed to the change they experienced. They stated that “unconditional love was shown to me regardless of my grades,” “puppies always love you,” “puppy loving really relaxed me” and “they gave me unconditional love and attention even if I failed my exam.” All participants who made comments regarding unconditional love and acceptance were female. None of the male participants mentioned anything regarding unconditional love and acceptance as being a contributor to the change they experienced.

5. Reminder of Home or Pet

Some of the participants (6, or 8%) commented on how interacting with the puppies reminded them of home or a pet they had when growing up. They stated that “the cuteness of the dogs reminds me of my dogs,” “the animals remind me of home,” “I love dogs, I really miss my dog, and it is nice to see them having fun and playing and interacting with me,” and “they remind me of my puppy at home.” While it might be expected that interacting with the puppies might make the students homesick, it rather seemed to be comforting in some way and helped relieve the current stresses. It may be a result of being familiar with dogs and previously having positive experiences with them that supported them to leave feeling more positive than when they arrived.

Discussion

The practice of using tame animals in therapy began in the eighteenth century when animals were introduced into mental institutions as a way to help socialize patients with mental disorders (Serpell, 2006). As noted earlier, it has only been very recently that researchers have begun to create standardized terms for their activities. The umbrella

term “animal-assisted intervention” is defined by Kruger and Serpell (2006) as “any intervention that intentionally incorporates animals as part of a therapeutic or ameliorative process or milieu” (p. 36). The Delta Society, which is one of the largest organizations in the United States responsible for certification of therapy animals, has published the following definitions of animal-assisted therapy and animal-assisted activity:

Animal Assisted Therapy (AAT): AAT is a goal-directed intervention in which an animal that meets specific criteria is an integral part of the treatment process. AAT is directed and/or delivered by a health/human service professional with specialized expertise, and within the scope of practice of his/her profession. Key features include specified goals and objectives for each individual and measured progress.

Animal Assisted Activity (AAA): AAA provides opportunities for motivational, educational, recreational, and/or therapeutic benefits to enhance quality of life. AAAs are delivered in a variety of environments by specially trained professionals, paraprofessionals, and/or volunteers, in association with animals that meet specific criteria. Key features include absence of specific treatment goals; volunteers and treatment providers are not required to take detailed notes; visit content is spontaneous. (as cited in Kruger and Serpell, 2006, p. 34)

Given the drop-in nature of the research project and the spontaneous experience of the participants, the current research would be an animal-assisted activity rather than animal-assisted therapy. There were no specific goals developed for each of the participants, and the individuals involved in facilitating the event ranged from a trained professional to volunteers. The majority of students either had a pet at the time of the study or grew up with a pet, which predisposed their likelihood of engaging the opportunity to interact with the puppies. Also, a number of the participants who had not grown up with a pet nor currently owned one mentioned that they liked animals, with some of them noting they would have liked to have had a pet growing up and are looking forward to owning a pet, once their living conditions are more conducive to pet ownership.

The change in feelings that participants spoke about most often was related to the energy of the puppies. This would be in line with

the biophilia hypothesis, which states that observing an animal has a positive effect on the individual's response to stress. The researcher observed that initially, when students entered the room, they were quiet and somewhat tentative about the experience. Once they were handed some treats to offer the dogs and encouraged to interact with them, the mood in the room significantly changed. Students began to laugh at the puppies' behaviour, marvelled at their ability to "high five/ten," and enjoyed playing with them. The same would occur for those students who chose to simply watch and not physically interact with the dogs. This would happen over and over again as new students kept arriving. The energy of the puppies seemed to be affecting the energy of the students.

The final exam period on a university campus is a stressful time, with students finishing papers/projects and studying for and writing exams. It is to be expected that students' stress levels would be higher; they would be more tired from staying up late, and they might feel overwhelmed or discouraged, depending on how they felt their exams were going. As noted in the biophilia hypothesis, it seemed to be of some benefit to the students to be able to focus on an external object (the dogs). They reported finding the distraction and break from thinking about their exams as helpful. Also, a few students who entered feeling tired and unmotivated noted that when they left, they were feeling more focused and motivated to go home and either study or finish some outstanding assignments. Serpell (1996) notes that it has been known since the 1950s that any stimulus which is attractive or which concentrates the attention has a calming effect on the body.

For many students, having physical contact with the dogs seemed to play an important role in the change they reported (Penkowa, 2015). This was particularly true for the male participants, an observation which leads this researcher to wonder whether there is a gender difference in what males and females might need from the experience. For these participants, it was not enough to simply watch the puppies play, but rather it was important for them to be able to pet or hug the dogs, play with them, and physically interact with the puppies. They noted the importance of the physical connection with another creature, which is often absent on a university campus or in university housing.

A number of the females noted the importance of experiencing the unconditional love and acceptance from the dogs. Certainly, much has been written regarding the human tendency to anthropomorphize our relationships with pets, projecting human feelings, motives and

qualities onto animals. Serpell (1996) argues that most pet owners believe their pets "love" or "admire" them. He suggests that without this belief the relationships that most people have with their pets would be essentially meaningless. Therefore, it was interesting that a number of participants (all female) made reference to such humanistic qualities as unconditional acceptance and love which they "experienced" from the dogs. This was very important to them in contributing to their experience of change in their feelings. As noted above, it is interesting that this was not mentioned at all by any of the male participants.

The final theme noted by the students related to the dogs reminding the participants of home or a pet. There seemed to be some comfort garnered by the familiarity of interacting with the dogs. All the participants who mentioned this had grown up with a dog, and some of them still had a dog at their parent's home. The researcher initially thought this might increase the student's distress or homesickness but was surprised to note that it actually had the opposite effect. Perhaps what also contributed to the positive change was that these participants had experience in using the relationship with their pet to modify or ameliorate difficult feelings, so interacting with the two puppies provided a means to access a familiar resource.

It is curious that there were so many more females than males (81% to 19%) who chose to participate in the opportunity. One possible contributor to this imbalance might be the way the event was advertised. The poster had a picture of the two puppies together with the questions: "Feeling stressed? Need a little love?" Perhaps young men on a university campus do not respond to such an invitation as possible relief for their stress.

It will be important in future research to include another question that asks participants to both rate the feeling they arrived with and also that same feeling upon departure. Another question could also be added, asking what they are feeling at departure. This way the degree of change could be calculated. Also, it would be interesting to follow up with the participants the following day to ascertain how long the change lasted. Was it transitory, or did the change last for a longer period of time? Is there any correlation between how much time the participants spend with the dogs and the degree of change, and how long the change lasts? In preparation for a future event, the researcher could speak with some males attending university and ask about what type of advertising might be more attractive to incite them to participate in the project. This might encourage a higher percentage of male participants. How

important to the outcome was the fact that it was two puppies that interacted with the students? Would adult dogs elicit the same response? These questions will be important to consider in future research.

Conclusion

While the sample size for this project was relatively small ($n=74$), 73 participants indicated positive change in how they were feeling as a result of interacting with the puppies. Since final exams tend to be a highly stressful time for students, offering an opportunity to interact with an animal could be an important resource for students to manage their stress. This resource is of particular importance to students who have had previous positive experiences with animals. With the increase in students presenting with mental health issues and greater attention being paid to these issues on university campuses, providing animal-assisted activities may be a low-cost resource to support students and promote a greater sense of well-being.

References

- American Veterinary Medical Association. Wellness guidelines for animals in animal-assisted activity, animal-assisted therapy and resident animal programs; 2011. Retrieved from <http://www.avma.org/KB/Policies/Pages/Wellness-Guidelines-for-Animals-in-Animal-Assisted-Activity-Animal-Assisted-Therapy-And-Resident-Animal-Programs.aspx>
- Archer, J. (1997). Why do people love their pets? *Evolutionary Human Behavior*, 18, 237-259. CBC News. Retrieved from <http://www.cbc.ca/news/canada/doggy-spas-and-gourmet-food-drive-canadian-pet-costs-higher-than-ever-1.2577156>
- Consumer Corner: Canadian Pet Market Outlook, 2014. Retrieved from [http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/sis14914](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/sis14914)
- Clutton-Brock, J. (1995). Origins of the dog: domestication and early history. In J. Serpell (Ed.), *The domestic dog: Its evolution, behaviour and interactions with people* (pp. 7-20). Cambridge, UK: University of Cambridge.
- Davis, S. J. and Valla, F. R. (1978). Evidence for the domestication of the dog 12,000 years ago in the Natufian of Israel. *Nature*, 276, 608-610.
- Eddy, J., Hart, L. A. and Boltz, R. P. (1988). The effects of service dogs on social acknowledgments of people in wheelchairs. *The Journal of Psychology*, 122(1), 39-45.
- Fine, A. H. (2006). Incorporating animal-assisted therapy into psychotherapy: Guidelines and suggestions for therapists. In Fine, A. H. (Ed.), *Handbook*

- on animal-assisted therapy: theoretical foundations and guidelines for practice (pp. 167–206). San Diego, CA: Academic Press.
- Friedmann, E. (1995). The role of pets in enhancing human well-being: physiological effects. In Robinson, I. (Ed.), *The Waltham book of human-animal interaction: Benefits and responsibilities of pet ownership*. Oxford, UK: Pergamon Press.
- Friedmann, E. and Lockwood, R. (1991). Validation and use of the animal thematic apperception test (ATAT). *Anthrozoos*, 4, 174–183.
- Friedmann, E., Katcher, A. H., Lynch, J. J. and Thomas, S. A. (1980). Animal companions and one-year survival of patients after discharge from a coronary care unit. *Public Health Report*, 95(4), 307–312.
- Gullone, E. (2000). The biophilia hypothesis and life in the 21st century: Increasing mental health or increasing pathology? *Journal of Happiness Studies*, 1, 293–321.
- Gunter, B. (1999). *Pets and people: The psychology of pet ownership*. London, UK: Whurr Publishers Ltd.
- Hanlon, C. State of Mind: Addressing Mental Health Issues on Campus. *University Manager*. Summer, 2012. Retrieved from <http://www.aucc.ca/wp-content/uploads/2012/06/mental-health-state-of-mind-university-manager-article-summer-2012.pdf>
- Headey, B. (1999). Health benefits and health cost savings due to pets: preliminary estimates from an Australian national survey. *Social Indicators Research*, 47, 233–243.
- Katcher, A. H. (2000). Animal assisted therapy and the study of human-animal relationships: discipline of bondage? Context or transitional object? In A. Fine (Ed.), *Handbook on animal-assisted therapy*. San Diego: Academic Press.
- Katcher, A. H., Friedmann, E., Beck, A. M. and Lynch, J. J. (1983). Looking, talking and blood pressure: The physiological consequences of interactions with the living environment. In Katcher, H. H. and Beck, A. M. (Eds.), *New perspectives on our lives with companion Animals* (pp. 351–359). Philadelphia: University of Pennsylvania Press.
- Kruger, K. A. and Serpell, J. A. (2006). Animal-assisted interventions in mental health: Definitions and theoretical foundations. In Fine, A. H. (Ed.), *Handbook on animal-assisted therapy: Theoretical foundations and guidelines for practice* (pp. 153–157). San Diego, CA: Academic Press.
- Kruger, K. A., Trachtenberg, S. W. and Serpell, J. A. (2004). Can animals help humans heal? Animal-assisted interventions in adolescent mental health. Center for the Interaction of Animals and Society (CIAS) and University of Pennsylvania School of Veterinary Medicine, Philadelphia, PA.
- Lockwood, R. (1983). The influence of animals on social perception. In Katcher, A. H., Beck, A. M. (Eds.), *New perspectives on our lives with companion animals* (pp. 64–72). Philadelphia: University of Pennsylvania Press.

- Messent, P. R. and Serpell, J. A. (1981). An historical and biological view of the pet-owner bond. In Fogle, B. (Ed.), *Interrelations between people and pets* (pp. 5–22). Springfield, IL: Charles C. Thomas.
- Mallon, G. P., Ross, S. B., Jr., Klee, S. and Ross, L. (2010). Designing and implementing animal-assisted therapy programs in health and mental health organizations. In A. Fine (Ed.), *Handbook on animal-assisted therapy: Theoretical foundations and guidelines for practice* (pp. 135–147). San Diego, CA: Academic Press.
- Murray, H. A. (1943). *Thematic apperception test manual*. Cambridge, MA: Harvard University Press.
- Norris, P. A., Shinew, K. J., Chick, G. and Beck, A. M. (1999). Retirement, life satisfaction, and leisure services: The pet connection. *Journal of Park and Recreation Administration* Vol. 17, No. 2, 65–83.
- Odendaal, J. S. J. (2000). Animal-assisted therapy- magic or medicine? *Journal of Psychosomatic Research*, 49, 275–280.
- O’Haire, M. (2010). Companion animals and human health: Benefits, challenges, and the road ahead. *Journal of Veterinary Behavior*, 5, 226–234.
- Penkowa, M.D. (2015) Dogs and human health: The new science of dog therapy and therapy dogs. Bloomington, IN: Blaboo Press.
- Patronek, G. J. and Glickman, L. T. (1993). Pet ownership protects against the risks and consequences of coronary heart disease. *Medical Hypotheses*, 40, 245–249.
- Serpell, J. A. (2006). Animal-assisted interventions in historical perspective. In Fine, A. H. (Ed.), *Handbook on animal-assisted therapy: Theoretical foundations and guidelines for practice*. San Francisco: Academic Press.
- Serpell, J. A. (1996). *In the company of animals*. (2nd ed). Cambridge: Cambridge University Press.
- Serpell, J. A. (1983). Pet psychotherapy. *People-Animal-Environment* 7-8.
- Wilson, C. C. (1991). The pet as an anxiolytic intervention. *Journal of Nervous and Mental Disease*, 179(8), 482–289.