

Doggone Good? Potential Benefits of Assistance Animals for Students on College Campuses

Amanda K. Polking¹
Jeffrey H. D. Cornelius-White¹
Tracy L. Stout¹

Abstract

The presence of and request for assistance, service, and support animals has skyrocketed on college campuses in recent years. The purpose of this literature review is to explore potential benefits in the utilization of assistance animals within higher education, especially as it concerns disability service offices. It begins with an overview of the dilemma of increased use of animals with limited shared knowledge base on the benefits of that use and the myriad of terms that are used to describe the therapeutic use of animals. It reviews relevant meta-analyses, moves to a focus of assistance animals in educational settings, especially with college students, highlighting the limited available information on the use of animals by university offices, especially the disability service office. Strength of the research in this literature review is limited due to narrow research availability, small sample sizes, qualitative methods employed in some of the studies, and the limited connections specifically to the dilemmas faced by disability offices in their decision-making about therapeutic animals. This paper concludes with recommendations for future research and for practitioners in disability service offices and related areas.

Keywords: Animal assisted therapy, animal visitation program, pet therapy, service animal, disability service office

Animals have been assisting humans for many years. In turn, humans have been depending on animals since the ancient time when animals provided resources of all types to aid in existence. Animals are known to provide food, clothing, transportation, shelter, comfort, and assistance and to this day even with the growth of mankind; we still depend on animals just as much as we did centuries ago. There is a growing body of support for the health and mental health benefits of pet ownership (Jennings, 1997; Sachs-Ericsson, Hansen, & Fitzgerald, 2002). These include benefits to the body, such as lower blood pressure, fewer medications and fewer physician visits, increased activities, improved safety, and social capital, such as being perceived as more friendly, attractive and less anxious and lonely.

Pursuing a degree in higher education can be a stressful and anxiety provoking process. Due to the added stressors, the presence of and request for assistance, service, and support animals has skyrocketed

on college campuses in recent years (Hoffman, 2015). For example, students are conveying diagnoses of high anxiety and stress specifically seeking approval to bring their assistance animals to campus and/or allow the animal to live in university housing. This influx of requests has increased discussions between and concerns from university disability service providers regarding their obligations to provide reasonable accommodations to the students (Goodin, 2014). University providers have to walk a fine line when inquiring about the animal to specifically determine if an animal is indeed a service, emotional support, or therapy animal. As identified by U. S. Department of Justice (2015) employees of covered entities can only ask two questions inquiring if the animal does indeed qualify as a service animal, "(1) Is this a service animal that is required because of a disability? and (2) What work or tasks has the animal been trained to perform?" (p. 2).

¹Missouri State University

Due to limited research, controversial terms, and topics along with an influx of individuals inquiring to utilize animals on campus, this critical literature review aims to address the question: Is there a benefit to having an assistance animal present for students working with a college disability service office and what are the benefits? Tedeschi, Pearson, Bayly, and Fine (2015) attempted to clarify the terminology related to assistance animals, which can be broken down into service, emotional support, and therapy animals. This paper also looks into the use of animals for therapeutic and learning purposes, the rise of the service dog in general and how assistance animals specifically relate to students, college campuses, and the disability service office.

Definition of Terms

The field of animals assisting humans in therapy, companionship, and service for disabilities involve the use of a variety of terms and overlapping concepts. The term “assistance animal” is contingent on location and can denote the animal is able to perform a multitude of different tasks or work a specific job. There has been lots of confusion and controversy over the years related to the term “service or assistance dog” because of variation of how the term is used by individuals all around the world. Whereas this is not an exhaustive list, this section provides some clarifications of terms for practitioners and researchers alike though usage varies considerably.

Animal assisted therapy (AAT). The International Association of Human-Animal Interaction Organizations (2014) defined “Animal Assisted Therapy” as:

A goal oriented, planned and structured therapeutic intervention directed and/or delivered by health, education and human service professionals. Intervention progress is measured and included in professional documentation. AAT is delivered and/or directed by a formally trained (with active licensure, degree or equivalent) professional with expertise within the scope of the professionals’ practice. AAT focuses on enhancing physical, cognitive, behavioral and/or socio-emotional functioning of the particular human recipient. (para. 7)

Animal visitation program (AVP). Crossman and Kazdin (2015) defined “Animal Visitation Programs” as “any program that provides opportunities to inter-

act with animals with the goal of reducing stress for participants” (para. 2).

Assistance dog. Support Dogs, Inc. (2015) defined an “assistance dog” as “any dog that is trained and certified to perform tasks related to someone’s disability. Assistance dogs can include service dogs, hearing dogs, guide dogs, psychiatric service dogs to assist with medical issues.” (para. 3)

Pet therapy. As defined by Giorgi (2013) “pet therapy” is

a guided interaction between and individual and a trained animal. It also involves the animal’s handler. The purpose of pet therapy is to help a patient recover from or cope with a health problem or a mental disorder. Pet therapy also is called animal-assisted therapy (AAT).” (para. 1)

Dogs and cats are the most commonly used animals however, fish, horses and many other animals can be utilized and the type of animal depends on the patients presenting problem. The interactions are planned and are structured to assist individuals with achieving specific goals (Giorgi, 2013).

Service animal. The Americans with Disabilities Act defined a “service animal” dogs or miniature horses “that is individually trained to do work or perform tasks for the benefit of an individual with a disability, including a physical, sensory, psychiatric, intellectual, or other mental disability” (Federal Register, 2010, p. 49163).

Emotional support animal (ESA). As defined on Service Dog Central (2015) an “emotional support animal” is a dog or other domestic animal that provides therapeutic support to an individual. The individual/handler is the only person who receives benefit from the ESA and with appropriate documentation from licensed individual or physician the ESA can live in “no pets” housing (such as apartments or dormitories) or to travel with the ESA in the cabin of an aircraft.

Disability services office. As defined by the Americans with Disabilities Act (ADA), the office extends coverage of section 504 to employment, public and private educational institutions, transportation providers and telecommunications, regardless of presence of any federal funding and protects all persons with a disability from discrimination in educational setting based solely on disability. Public institutions cannot discriminate based on student’s disability and

must provide appropriate accommodations, and do not receive any additional financial support to provide support services or auxiliary aids, which is often overseen by a disability service office (ADA, 1990).

Review of the Related Literature

This review will give a broad overview of the animal-assisted therapy literature, with a focus on the educational use of assistance animals, look into college students and their interest in assistance animals, review current interventions with college students, and evaluate the intentional use of assistance animals in campus offices especially pertaining to disability services. The research questions guiding the review included: (a) Is there a benefit to having an assistance animal present for students working with a college disability service office? and (b) What are the benefits of having an assistance animal present for those students?

Methodology

A search of past and current research related to animal-assisted therapy, its educational use, and potential benefits was conducted during August 2015 through October 2015. Research into the literature was conducted by utilizing Ebscohost databases, PsychINFO, and Academic Search Complete. The Boolean operator AND was used to combine several keywords while conducted searches. Keywords included: therapy animal, animal assisted, animal assisted therapy, college, college students, counseling, dog, stress, and adult. Limiters were used and included: peer-reviewed, academic journal, and study (primarily quantitative or empirical). One journal title appeared in several conducted searches so a secondary search for related articles was conducted within the publication *Anthrozoös*. Keyword searches within this publication included: dog, behavioral, college students, and office. A search of the online Missouri union catalog (MOBIUS) was searched and identified a handbook for animal assisted therapy. Multiple websites were examined based on mention within articles or being known national and local groups that were connected to the research topic. Legal sources and websites were also examined for laws and regulations such as the Americans with Disabilities Act.

Overview of Research with Assistance Animals

Nimer and Lundahl (2007) conducted a meta-analysis researching the efficacy of animal-assisted therapy (AAT) and presented the research in a quantitative manner coding aspects that could affect the outcome of the 250 studies, 49 of which met an identified set of standards. The investigation focused on seven variables derived from characteristics of the participant and the delivery of the animal-assisted therapy. The variables were limited to age of the participant, presenting symptoms, comparison group of the participants, type of animal, location of services, length of treatment and delivery method. The presenting symptoms were limited to medical (e.g. blood pressure, stress), mental health (e.g., depression, Alzheimer's, well-being) and behavioral (e.g., childhood aggression, severe misconduct) problems. The type of animal utilized during each situation was also identified and limited to dogs, horses, aquatic animals such as dolphins, and other or combination group, which included rabbits and birds. The location of the therapy was examined and was limited to offices, camps, hospitals, or long-term residential facilities. The length of treatment was also taken into account and align with the mode of execution which was narrowed down to animal-assisted therapy, group delivery, or a combination. Overall, animal assisted therapy had the following effect sizes: $d = .39$ for well-being, $d = .51$ for behavior and $d = .52$ for medical symptoms. In other words, assistance animals seem to improve outcomes near a medium effect size, meaning the results are significant enough to be easily viewed. Small effect sizes generally mean that there is an effect, however, the effect it is only observed through meticulous study.

The results presented from Nimer and Lundahl's (2007) meta-analysis found most studies (28 of 49) utilized dogs specifically—15 utilized controls, and 13 did not. The results for studies with dogs showed the following effect sizes: $d = .49$ for well-being, $d = .39$ for behavior, and $d = .57$ for medical symptoms, similar to the results for AAT overall. The location of treatment focusing on the office parameter consisted of seven studies containing a control group and four that did not have a control. The results for studies with animals in office settings is $d = .31$ for well-being, $d = .83$ for behavior, and $d = .58$ for medical symptoms, showing large effects for improving behavioral concerns in office settings. Large effect sizes generally mean the results are consistent and notable enough which can be easily viewed without meticulous study.

The study found individuals with disabilities benefited more in terms of concerns regarding their medical problems than individuals without disabilities with an effect size of $d = 0.96$ in three studies with persons with disabilities, compared to a $d = 0.33$ effect size in five studies with general medical problems, showing large effects for persons with disabilities as concerns their medical symptoms.

In a similar review Sachs-Ericsson et al. (2002) researched the benefits of assistance dogs, specifically, service dogs for mobility and hearing dogs for individuals who are deaf or hard of hearing. They found 10 studies with service dogs and four with hearing dogs with sample sizes between 10 and 455. The studies included retrospective, cross-sectional, and three longitudinal studies. While not providing the quantitative synthesis that Nimer and Lundahl's (2007) meta-analysis employed, the results showed fairly clear benefits, particularly in retrospective reports on general health maintenance and functional activity and participation results, such as increased job and school performance and performance of chores and daily tasks. Likewise, social benefits included increased self-esteem, independence, life satisfaction and decreased stress and depression. There were some contradictory results, particularly regarding changes to self-concept and problem behaviors of the dogs. The studies on service dogs and hearing dogs involve a similar but clearly different literature as compared to assistance animals, but represent the growing body of literature to support the performance, mental health, and social benefits of working animals.

Educational Use of Assistance Animals

The educational use of assistance animals was an area in which several of those benefits seem supported. There have been several studies on use of assistance animals throughout the educational lifespan. For example, Kotrschal and Ortbauer (2003) conducted a study to investigate the belief that dogs have a positive influence on the social behavior of school children. The class was composed of 24 children (14 male and 10 female) averaging 6.7 years of age. In this study they introduced three dogs, all of which were owned by the teacher, alternately into an elementary school classroom in Vienna, Austria. The dogs were gentle and friendly and the children were allowed to interact with the dogs in a respectful manner freely except for when the dog was resting on its mat. The study lasted two months with the first month being a control peri-

od in which the classroom was recorded without the presence of the dogs. The second month a single dog was present every day for the entire time the students were in the classroom. The children were video-taped three times per week for one hour each time during open teaching situations in which the students were not required to remain seated in their seats.

Findings of this study (Kotrschal & Ortbauer, 2003) revealed that the children exhibited interest in the dog. The male students spent on average 9.2% of their time in class relating to the dog in comparison the females spent 10.6% of their time. Remarkably, the students paid more attention to the teacher when the dog was present in the classroom ($Z = -3.91$). Likewise, when the dog was present in the classroom the children exhibited less aggression and less visible off task behavior ($Z = -2.17$). These represent very large effects, with larger results being seen with boys (who were more frequently off task) than girls.

In a similar study using mixed methods that researched the effectiveness of pet visitation on the behavior and emotional state of female adolescents, Conniff, Scarlett, Goodman and Appel (2005) randomly assigned twenty-three eligible people into two groups, ten in the control group and thirteen in a group that involved pet visitations. Prior to completion of the study, one individual from the pet visitation group and five from the control group were released yielding twelve participants in the pet visitation group and five in the control group. Participant ages ranged from 13 to 17 years of age with a median age of 16 mainly of Caucasian ($n = 11$) or African American ($n = 8$) descent. The majority ($n = 15$) were part of households headed by a single parent and were placed in the medium security Lansing Residential Center after committing non-violent crimes ($n = 14$), violent crimes ($n = 6$) or drug related offenses ($n = 3$). To complete the study Conniff et al. enlisted 22 volunteers and 18 animals (13 dogs, three cats, a rabbit and a llama) to meet with the participants on an average of five pet visitation sessions.

All participants were administered a Youth Self Report (YSR) assessment before the pets were introduced and no significant differences in the median syndrome scores, composite scores, or total scores between either the pet visitation or control group were noted (Conniff et al., 2005). Likewise participants of the pet visitation group completed the qualitative survey in which 66.7% of the individuals responded positively to seven out of the eight "likes" categories

with responses inquiring about petting the animals ($n = 11$), learning about animals ($n = 10$), spending time with volunteers ($n = 10$), watching the animals ($n = 10$), learning about other things (besides animals) ($n = 9$), playing games with animals ($n = 9$), talking to the animals ($n = 8$), and the response which was favored the least was spending time with other girls in which only five participants liked this part of the pet visitation. Findings of the study noted that two-thirds of the participants ($n = 9$) believed that other girls from Lansing Residential Center would benefit from interacting with the animals. Likewise, most participants ($n = 10$) believed the interaction between the volunteer and animals were equally significant however, two individuals believed the volunteers were more important than the animal.

In these studies, animals provided different educational benefits to different groups of children and adolescents. Providing benefits to younger populations is very positive and adds an interesting perspective on the benefits of using assistance animals in educational settings.

College Students and Interest in Assistance Animals

After reviewing the previous studies on educational use, a large population who could potentially greatly benefit from the use of assistance animals in an educational setting are college students. Studies have been conducted with college students and both pet therapy and assistance animals. Adamle, Riley, and Carlson (2009) performed a research study investigating 246 first-time freshmen college students regarding their interest in pet therapy for social support during stressful times. The study explored individuals who lived on campus and attended Ohio University. After all observations were recorded, the authors found the sample was fairly homogeneous as 98% were single (unmarried); 91% identified as white and 85% female. The average age was 18.3 years of age with a standard deviation of 0.8 years. The individuals participating in the study were required to attend two orientation sessions each semester during their freshman year and were notified in advance that animals would be present. Each orientation consists of about 50 students who all agreed to participate in the research. All participants were administered a two-part survey which consisted of 13 yes or no questions inquiring about the individual's knowledge about pet therapy and prior interaction along with their interest in pet therapy while attending college away from

home. After all students completed the questionnaire six handlers with their therapy dogs entered the room and permitted the participants to interact with the dog. All interactions were recorded and allowed time for the students to intermingle with the dog and handler. The authors concluded with the finding that 96% of students supported a pet therapy program at their university.

In addition to their interest in pet therapy, students were asked about the therapeutic effects of their own pets (Adamle et al., 2009). The vast majority (91%) of the individuals reported having a pet at home with 75% of the students identifying a dog at home and 46% having cats. Students with dogs at home communicated experiencing comfort and support from their pet (76.6%) in comparison to the individuals with cats at home who failed to note any significant benefits. More specifically, participants of the research expressed three specific themes: they missed their pet, expressed interested in pet therapy and desired pets to visit them in their residence halls (Adamle et al., 2009). Even though the authors found that 92.5% of participants considered animals as an integral aspect in their life, 90.3% of the individuals reported that their pets comforted them during stressful situations.

Somervill, Kruglikova, Robertson, Hanson and MacLin (2008) administered a two-phase study researching the physiological responses college students experience to a dog and cat. Their study involved 62 college students (28 males and 34 females) ranging in age from 18 to 29 for males (mean = 20.04) and 18 to 24 for females (mean = 19.21). All participants were asked to check one of three options, (a) I like dogs, (b) I do not like dogs, and (c) I neither like nor dislike dogs with the same three options being asked of cats. Participants were also asked to denote with a "yes" or "no" response whether they had a dog or cat currently living with them or at their parents. Throughout the experiment the blood pressure and pulse readings of each participant was taken at the beginning and end of nine experiment sessions with each interval lasting five minutes. Minutes one, five, and nine were utilized as baseline sessions in which no animal was present. At intervals three and seven, the participant was required to hold a dog during one session and cat during the other. During the five-minute interval the participant was encouraged to participate in casual conversation. The results of these finding were that there was no significant difference in holding the cat versus the dog in terms of diastolic or systolic blood

pressure. However, females had a higher pulse while holding the animals ($p < .015$) and during the time period immediately after holding either a cat or dog, females exhibited considerably lower systolic readings ($p < .001$).

It is interesting to note the therapeutic reactions that pet therapy animals and student-owned pets had on college students. Besides just feelings of comfort, animals can provide several other mental and physical health benefits to college students.

Assistance Animals Interventions with College Students

It is widely known that college life can be stressful for college students. Numerous studies have focused on reducing the anxiety and stress college students experience. Along this line, several studies focused on utilizing assistance animals for their role in reducing stress, anxiety, and even depression. Folsie, Minder, Aycocock, and Santana (1994) employed animal assisted therapy to assess potential effects on college students' depression. Results showed significant improvements on the Beck Depression Inventory (BDI) only for the nondirective, animal-assisted only group. Folsie et al. (1994) employed animal-assisted therapy to assess potential effects on college students' depression. The BDI was administered to 129 college students in a group setting which identified fifty-one people reporting in the mild-moderate range ($n = 39$), moderate-severe ($n = 6$), and extremely depressed ($n = 6$). The study involved 44 participants. Three of the extremely depressed declined participation and opted for private professional help, and others dropped out for various reasons. The participants were put into three groups: animal-assisted therapy alone (called the nondirective group), animal-assisted with psychotherapy (called the directive group), and a control group. The three individuals with BDI scores in the severely depressed range were assigned to the experimental group. Persons with moderate levels of depression were found in all three of the groups, though the control group pretest means ($M = 12.78$) were lower than those for the experimental group ($M = 16.22$ for directive, $M = 17.58$ for non-directive). Results on the post-test BDI scores showed the most improvement in the nondirective group ($M = 5.67$) compared with control group ($M = 10.18$) or directive group ($M = 9.11$) ($F(2, 41) = 3.69, p < .05$). In other words, animal-assisted therapy alone showed the best scores and was superior to a combination with

psychotherapy even though it began with the most depressed average score.

In a related article, Stewart, Dispenza, Parker, Chang, and Cunnien (2014) evaluated the effectiveness of an AAT outreach program on loneliness and anxiety of fifty college students. All participation was voluntary and took place in a residence hall lobby due to the nature of the study; and as confidentiality was a concern, students were not required to provide demographic information. All attendees were administered the Burns Anxiety Inventory (Burns AI) and University of the Philippines Loneliness Assessment Scale (UPLAS) before engaging in the pet intervention and then again immediately after the AAT outreach intervention along with a session rating scale and outreach program evaluation form. Participants were permitted to "drop in" anytime during a two-hour period in which they were allowed to interact with the therapy dog, the primary author of the study, or other attendees. Student interaction with the dog ranged from approximately five minutes to two hours. They connected in the following ways: pet, sat near, hugged, brushed, fed treats, played, and even drew or took pictures of the dog. Given the small sample size, the authors found significantly lower anxiety on the Burns AI in the post-intervention compared to the pre-administration ($p < .001$) and significantly less loneliness on the UPLAS ($p < .002$). Additionally, students were also asked to identify and rank their top three most helpful aspects of the outreach program in which approximately 84% of the participants indicated that interacting with the therapy dog was the most beneficial aspect of the program.

Connecting with known research, Crossman and Kazdin (2015) provided a different perspective to animal-assisted therapy in which they felt the term AAT was not accurate because the animals were not "assisting" with any specific activity or intervention. In turn they identified that the interaction with the animal is more about the experience (e.g., petting, talking to, looking at, interacting with) which is believed to convey a therapeutic benefit and branded any program whose goal was to decrease stress and impairment as an Animal Visitation Program (AVP) rather than AAT. Their research group found a list of 925 AVPs at a variety of colleges and universities around the country which identified that there is a considerable amount of difference in the type of group, target population, frequency, setting, etc. However, all programs share a number of important strengths. They are efficient,

proving very low cost for the number of people served. They provide flexible scheduling and very low stigma compared to other therapeutic approaches.

Likewise, Bjick (2012) noticed an interesting observation when conducting research regarding stress and arousal levels of college students in the presence of a therapy animal. This study consisted of 32 female participants between the ages of 18 to 20 years of age who were split evenly into four groups: the control, a group who experienced explicit observation of a therapy rabbit, a group that experienced implicit observation of the therapy rabbit, and a group who pet a stuffed rabbit. The difference between the two groups which experienced the live rabbit was that the explicit group was able to interact with the rabbit whereas the implicit group was not able to discuss the rabbit nor could interact with the animal during the 18-minute session. Research found there was no difference in stress levels between the four groups; however, arousal levels increased in the therapy animal groups with the live animal ($p < .001$). Ultimately Bjick found “the enthusiasm college students demonstrate toward animals may mitigate some of the excuses students use for not engaging in traditional mental health techniques” (p. 1).

Stress, anxiety, and depression are all serious health concerns. Certain situations can make these health issues more prevalent or more likely to occur. College is one of those situations. Many students who attend college may also be more susceptible to any of those mental or physical health concerns. Again, the use of animals may be a way to help ease those health issues.

Intentional use of Assistance Animals in Campus Offices

Previously mentioned studies reviewed the benefits of assistance animals in relation to college students in general. This section reviews studies that focused on the use of assistance animals within or originating from specific offices on college campuses. For example, Daltry and Mehr (2015) described a dog therapy outreach program connected with the counseling center of West Chester University in Pennsylvania. The study investigated two goals in looking into the ability to provide stress relief to the university students and to increase access, involvement, and improve views of the counseling center. The program was originally developed as a small outreach activity proposed to reduce students stress by providing the

opportunity to spend a couple of hours with a certified therapy dog at the end of the semester at the campus student union. Since the student’s enjoyed petting, hugging, and playing with the therapy dog at the end of the semester, the counseling center decided to have the therapy dog visit campus on a more regular basis. The visits occurred on a monthly basis except for the last week of classes during final exams.

During the visits, 15 to 20 students would interact with the dog and at the beginning of the Fall 2013 semester Daltry and Mehr (2015) collected feedback at random via paper-and-pencil method during the first two dog therapy outreach sessions of the semester. Research found that 54 students participated in the research, 81% of which were female and 91% Caucasian. The individuals ranged in age from 18-32 years with 72% of them indicating that they had a pet at home. In terms of interacting with the dog, 53% of the individuals said they stopped by solely because they saw a dog in the student union and the other 41% of individuals heard about the dog being present in the student union via some sort of advertisement or from a friend. Ninety-four percent of the individuals stated that they would not have stopped to view the information provided if the therapy dogs were not present.

In terms of the questionnaire administered by Daltry and Mehr (2015), 79% of the students noted the therapy dog brought them exceptional value based on a 1-5 rating scale (1 no value, 5 exceptional value), 20% rated the value at a 4. On the scale denoting stress relief (1 no relief, 5 high amount of relief), 72% of the students answered with a rating of 5, 20% with a 4 and 8% with a rating of 3. Overall, the research found that students enjoyed the experience with the therapy dogs and described it as, “the best part of their day, it brightened their day and made them happy, it reduced their stress and they loved the dogs and this program” (as cited in Daltry & Mehr, 2015, para. 13).

Similarly, Goldman (2012) shared about a variety of universities that are allowing dogs onto their college campuses during final exam time to help students relax and to allow the students time to take a break from studying. Specifically, at Kent State University in Ohio, Macalester College in Minnesota, and now Emory University in Georgia, officials have observed positive effects from the presence of the canines. Therapy dogs can be found in counseling centers, libraries, pet-friendly dorms, and even libraries which allow students to check out the dog for a short time just as an individual would check out a book. Each

dog with their handler, who typically are faculty or staff members, have certain hours the dog is available to socialize with the students.

Kathleen Adamle, a nursing professor at Kent State University, began bringing her dog to campus in 2006 and now six years later the program has grown to 11 dogs that visit the campus throughout the school year. In addition to the research presented above, Adamle expressed she has plenty of anecdotal evidence that her program works, and she is hopeful to receive a grant that would allow her to continue to investigate her “Dogs on Campus” program further (Goldman, 2012). Similarly, universities have looked to the faculty, staff, and alumni to bring their dogs to campus during finals; some schools have connected with animal shelters which allow students to rent a puppy for a short time; and others have therapy dogs hanging around the counseling centers or university offices for students to communicate with as a means of stress relief and/or a judgement-free zone.

During the 2014-2015 academic year, Drexel University employed their first therapy dog. Jersey’s owner, Kathryn Formica, the coordinator of the Drexel Recreation Center believed involving a therapy dog in the recreation center would permit more students the availability to interact with the canine more than in the library during finals week. Formica was quoted,

I wanted to approach it from a different angle, I wanted to show that you can come here and relieve stress by exercising or petting a dog, and it doesn’t need to be something that always associated with an already high stress environment. You don’t need to wait until you’re already stressed; you can come in and constantly work on managing stress. (as cited in Falcone, 2014, para. 6)

Falcone reported the use of therapy dogs and pet therapy has been commonly observed in nursing homes and hospitals. However, the prevalence of therapy dogs on colleges and university campuses has been increasing due the reported benefits found in a variety of studies which note that interactions with canines can reduce blood pressure, lower anxiety, and assist with depression in college students.

In a related article, Wells and Perrine (2001) administered a study to 257 Eastern Kentucky University students researching the effect of the presence of a pet in a professor’s office and the perceptions of the office and unseen professor. The 201 female and

56 male students were randomly assigned to view a photo of an office that contained either a dog ($n=88$), a cat ($n=84$), or no animal ($n=85$) along with a questionnaire in which the participants were to rate their first impressions of the professor’s office. The questionnaire was broken down into three parts, first section utilized a Likert scale ranging from 1-strongly disagree to 6-strongly agree, second section assessed demographic information, and the third was comprised of two questions asking individuals to rate their feelings about dogs and cats utilizing the same six-point scale.

The results presented by Wells and Perrine (2001) found that participants were very favorable toward dogs with a mean score of 5.3 on a six-point scale and moderately favorable of cats with a mean score of 4.2. Students perceived the office with the dog to be more welcoming than the office with the cat or no animal ($p < .05$) and similarly students perceived the professor of the dog to be friendlier than when the cat or no animal was present ($p < .001$). However, students perceived the professor with the dog to be busier and potentially less approachable than the individual with the cat or no animal ($p < .001$).

Allen, Blascovich, Tomaka, and Kelsey (1991) conducted an experimental study reviewing 45 female dog owners in the community who all reported they were in “helping” professions and experience high levels of stress in their jobs. Researchers observed the participants blood pressure, heart rate, and skin conductance while performing a difficult mathematic equation while they were alone, in the presence of the experimenter, their best friend, or dog. The authors found that in the presence of their dog ($p < .0001$) the women showed little or no physiological reaction to the stressful task; however, in the presence of their best friend ($p < .0001$) they exhibited a substantially higher reaction. As noted by Allen et al., “the presence of pets may induce positive feelings that are not evoked by one’s human friends during performance of a stressful task, thereby reducing situational threat” (p. 587).

In an exploratory study by Barker, Knisely, McCain, Schubert, and Pandurangi (2010) the authors attempted to research the physiological stress response patterns of human-animal interactions utilizing a sample of working, non-clinical adult dog owners in which the participants would interact with either their therapy dog ($n = 5$) or a unfamiliar therapy dog ($n = 5$). All participants participated in a 30-minute base-

line session in which they were given a stress task. Then the participants interacted with either their therapy dog or an unfamiliar dog for 60 minutes. After excluding an individual from the study because of not meeting medical criteria, the authors found there was a greater reduction in stress and anxiety from the group of pet owners that were unfamiliar with the dog ($p < 0.05$) compared to the higher levels of trait anxiety connected with lower levels of autonomic nervous system indicators of stress (systolic blood pressure, $p < 0.05$ and diastolic blood pressure, $p < 0.05$). In turn the findings suggest no matter if the individual knows or is unfamiliar with the therapy animal that relaxation would be experienced.

Disability Offices

Given that medical problems are improved for persons with disabilities more than others with assistance dogs (Nimer & Lundahl, 2007), use of assistance animals for disability service offices may have an empirical basis. In a study by Camaioni (2013), she examined the relationships developed at the University of Pittsburg during an animal-assisted therapy program called Campus Canines Program (CCP). This study was intended to show that meaningful relationships create greater satisfaction when it comes to education. Camaioni believed that social relationships assist students with creating and sustaining better student involvement which ultimately would lead to retention in the academic environment. The research study utilized two mixed-methods online instruments that were made up of both open (qualitative) and close-ended (quantitative) questions. The study was comprised of 69 students (51 female, 18 male). The students answered the Patient Health Questionnaire (PHQ-4) with scores categorized as normal (0-2), or levels of depression and anxiety in the mild (3-5), moderate (6-8), or severe (9-12) range. The students also answered questions concerning three different scenarios; (1) if it is easier to communicate with others in the presence of a dog, (2) if they talk to friends about the CCP and (3) if they talk to family about CCP.

Camaioni (2013) found that according to the PHQ-4, 22 of the students scored in the normal range, 34 in the mild, 11 in the moderate, and two in the severe range. When looking at the scores of individuals who believed it is easier to communicate with others in the presence of a dog there was a 24% difference between males and females, whereby males found it easier in a dog's presence. When reviewing the second question

which asked if the participants "always" talk to their friends about CCP, males acknowledged more to the response presenting with a 22% difference between males and females compared to a larger amount of females who noted that they "sometimes" talk to their friends about CCP with a 17% difference between females and males. When reviewing the responses to the last question researching if the individual talked to family about the CCP there was a larger percentage of females who sometimes talk to their family with a 16% difference between females and males compared to the percentage of males that always or often talk to their family with a 9% difference females to males.

Overall, Camaioni (2013) noted some themes after completing her research. First she found that 71% of the students either strongly agreed or agreed that it is easier to communicate with the presence of a dog. She also found that 38 (55%) of the students come to interact with the dogs such as petting the dogs (30 students), loving the dogs (19 students) and playing with the dogs (eight students). Another theme that surfaces from the data was that the CCP may provide physiological benefits such as stress relief and relaxation. Fifty-eight (84%) students responded that CCP provided them with physiological benefits and of that 23 (40%) of the students wrote that they received physiological benefits in the open-ended questions such as, "I feel relaxed and calm when I get to interact with the dogs. It decreases my anxiety" (p. 7).

Legislation

Considering the subject matter, it is pertinent to differentiate between the governmental agencies that oversee and dictate the guidelines associated with service, emotional support, and therapy animals. According to the Americans with Disabilities Act (1990), "Dogs whose sole function is to provide comfort or emotional support do not qualify as service animals" (para. 3). Yamamoto, Lopez and Hart (2015) confirmed that handlers with disabilities are free to bring their assistance or service dog wherever they may go within the United States. However, the same cannot be said for pets or even therapy dogs. The Department of Justice and the Department of Transportation utilized a broader definition for assistance dog by incorporated "emotional support animals for reasonable accommodation as required by the ADA (Federal Register, 2003, p, 24875; U.S. Department of Justice, 2015). Consequentially, there is a paucity of research regarding therapy animals and the legalities associat-

ed with federal rules and regulations. The U.S. Department of Justice (2015) identified that emotional, therapy, comfort, and companion animals are not considered service animals under the ADA; However, it was noted that some state and local governments have laws that allow individuals to take emotional support animals into public places (p. 2).

Summary, Conclusions, and Recommendations

Summary of Findings

Originating from domestication dogs have taken on a variety of roles, including physical and psychological safety and comfort roles. Certain dogs may be considered assistance animals that have been trained to perform a specific job and aid an individual who may be deaf or hard of hearing, blind, or have some type of disability. Some dogs live day to day as pets and do not perform a duty however, others have been deemed as emotional support dogs due to the support they provide their owner when at home while some are certified as therapy dogs to support a variety of people in stressful situations.

Research has shown that interaction with assistance animals has identified medical benefits including decreases in blood pressure (Sommervill et al., 2008); lower anxiety and loneliness (Stewart et al., 2014); depression (Folse et al., (1994); and increases in arousal (Bjick, 2012). Overall, many have concluded that the decline in blood pressure can also be an indicator of decreased stress and anxiety (Adamle et al., 2009; Allen et al., 1991; Daltry & Mehr, 2015). Research from Camaioni (2013) corroborated with other findings about students receiving physiological benefits from the interactions with the dogs in a means of increased relaxation and decreased anxiety. Interestingly enough, research from Barker et al. (2010) suggested that persons received relaxation benefits even if the individual may not know the therapy animal and with minimal interaction. Collectively, the research suggests that individuals working in an office, which simply has an assistance animal present, may receive benefits from the animal.

Other qualities shown by research were the educational benefits of assistance dogs for all ages researched. Kotrschal and Ortbauer (2003) found that individuals who specifically are interested in dogs compared with those who are not, and males more than females, benefit educationally with a dog present in the classroom environment. Conversely, Conniff et

al. (2005) discovered participants identified interactions with volunteers and assistance animals were equally helpful, suggesting that the dog may have a buffering effect to help people be more effective in assisting others with stress reduction.

More recently, dogs have been utilized in animal-assisted therapy and have been a part of animal visitation programs in many universities across the United States (Crossman & Kazdin, 2015). Adamle et al. (2009) found most college students missed their pets, were interested in pet therapy, and wanted animals to visit the dormitories. Folse et al. (1994) concluded animal assisted therapy (AAT) without any other intervention was superior than AAT and psychotherapy combined. Research also revealed the excitement individuals have towards animals may help alleviate or minimize some of the stigma and perceived obstacles college students may exhibit in terms of not pursuing mental health services to make help more accessible (Bjick, 2012). Similarly, Goldman (2012) noted students experienced benefits due to the availability of a dog to provide a nonjudgmental avenue to release stress and other emotions.

Nimer and Lundahl (2007) also found benefits with well-being, behavior, and medical symptoms which ultimately exhibited an improvement in behavioral concerns within an office setting when a dog was present. This study also noticed that individuals with disabilities received a greater benefit in terms of their medical conditions versus the research group of individuals without disabilities (Nimer & Lundahl, 2007). Comparatively, Sachs-Ericsson et al. (2002) presented research depicting clear benefits regarding general health maintenance, functionality, and participation. Such interactions ultimately increased job, school, and/or performance of daily tasks along with social benefits when interacting with hearing and service dogs.

Conclusions on Methods and Critique of the Literature

In the meta-analysis from Nimer and Lundahl (2007) they identified 49 studies that qualified for their research and found that 28 of the 49 utilized dogs. The results of their analysis, specifically in connection with dogs in offices, noted small to medium effect sizes in terms of behavior and well-being, and a medium to large effect size when it came to individuals with medical symptoms. The effect sizes with other animals exhibited similar sizes regarding

medical symptoms and well-being yet, a large effect size when it came to improving behavioral concerns in office settings. Similarly, Kotrschal and Ortbauer (2003) also experienced a large effect size and in turn recognized considerable increases in focus and concentration when a dog was present in the classroom environment.

Compared to the research conducted by Kotrschal and Ortbauer (2003), Conniff et al. (2005) found their research was skewed because the participants reported embellishing their responses due to concern their answers on the assessments would impact their length of stay in the residential center. Ultimately, Conniff et al. (2005) found the sample size of their study displayed significant weakness in the power of their study and potentially added bias to their results. Likewise, small effect size limits the ability to generalize the results to larger populations (Barker, 2010; Bjick, 2012; Stewart et al., 2014). Conversely, the studies researching college student populations and assistance dogs were composed of larger effect sizes (Adamle et al., 2009; Camaioni, 2013; Daltry & Mehr, 2015); however, they are not without their own limitations.

In research presented by Camaioni (2013) data were only obtained during one semester, which limited the number of students involved in the study. Shortcomings noted by Adamle et al. (2009) were that the students were self-selected to participate in the research and were aware an animal would be present prior to attending potentially resulting in individuals having more interest in animals prior to participating in the study. Even though Daltry and Mehr (2015) experienced overall success they also fell short due to their study relying on students to drop-in to interact with the dogs. Social media was used as a means of advertising; however, more specifically the advertising was dependent on students following the counseling center on a particular social media channel. Many of the students impacted were individuals who randomly encountered the dogs in the student union at West Chester University instead of being made aware of the dogs through social media. Even with the limitations researchers could modify their study and possibly obtain better results during future research.

In summation, research shows there is perceivable advantage to having an assistance animal present in a variety of different areas. Consequently, it is believed that students of disability service offices would also experience similar benefits individuals experienced in

studies reviewed. Such medical gains could contain any or all of the following, decreased blood pressure, anxiety, depression, loneliness, and potential for increased arousal. Ultimately, students completing exams in disability service offices could receive sizeable benefits by having the ability to interact with an assistance animal prior to taking their exam.

Recommendations

For researchers. Regardless of the limited research pertaining to this topic, there is great flexibility in terms of future studies that could be beneficial. Future studies could improve strength by obtaining a more diverse sample. Studies administered to college students during a single semester could be extended to multiple semesters, which could assist with the amounts of stress and other factors which were researched (Adamle et al., 2009; Camaioni, 2013; Daltry & Mehr, 2015). Limitations from the Conniff et al. (2005) study could potentially be minimized in future research studies of groups with comparable participants if the researchers attempt to build rapport with the individuals prior to administering the assessments. Another potential contributing factor to decrease the probability of participants embellishing responses could be to obtain a larger sample size. As a means of minimizing the limitations of studies such as Barker (2010), researchers could potentially increase the strength of their study by incorporating a control group along with a larger sample size of individuals with increased stress levels could also aid the quality of the results obtained.

Diversity within the sample size of Adamle et al. (2009) could potentially assist with improved results. The study by Camaioni (2013), could have decreased limitations by performing the data collection in the fall semester due to the potential that the students could have received a greater benefit because of an increased need in building relationships with the beginning of a new school year. In attempts of increasing success of future research, Daltry and Mehr (2015) could incorporate other university counseling offices to increase their method of advertising.

For disability offices and other college personnel. Employees of disability offices could potentially seek approval to incorporate an assistance dog within their office for use by a variety of staff and students. In regards to the use of assistance animals in offices, as well as those with college students, research shows a clear pattern of interest, reduced stigma for

help, and potential benefits. In practical terms, steps would need to be taken to insure the safety of the individuals utilizing the assistance animal. Similarly, offices would need to obtain necessary paperwork and authorization from university officials allowing the assistance/therapy animal to be present in disability offices. Due to the nature of the disability office, individuals would need to send out a letter to all students associated with the office to inform them of the new employee. The canine would need to be allergen free to minimize any concern of individual's allergic to dogs. A staff member of the disability office could take on the role as "handler" which would mean the individual would need to acquire a trained assistance dog from the certifying organization. The organization which certified the dog would also be responsible for carrying insurance in the incident of an accident. Even with the added workload by the disability service office employees, we have learned through this research that individuals of all kinds interacting with and in the presence of an animal also experience emotional and medical benefits.

For situations where disability offices are being urged to allow a support animal for a particular student rather than an animal within their own office, Goodin (2014) recommended conversations happen with a university physician to encourage more serious substantiation than a letter from a psychologist or counselor alone might convey. In cases in which a student requests an emotional support or non-service animal, the disability office could be involved requesting the individual and diagnosing practitioner to answer a series of questions pertaining to the request, and require supporting documentation of diagnosis. This protocol could assist disability service providers unskilled with psychological documentation to standardize a method of asking and receiving questions pertaining to each individual student. The dog would qualify to work within an animal-assisted therapy or interact with individuals of the disability office during moments of high stress and anxiety. Frequency of the canine presence in the office would depend on the college or university, however, research exhibited benefits by having the dog present on a weekly basis and more often during midterms and finals. This frequency is important because most disability offices provide accommodations to qualifying individuals and proctor exams for approved students. The dog not only could be present during times when the disability office is open, however, it could be put to use during times in need when students may experience loss of a

classmate or faculty member at the university. Advertisement of the assistance animal would need to occur to aid in promoting the service.

In 2015 there were 925 universities participating in some sort of animal visitation program, which range from type, location, frequency (Crossman & Kazdin, 2015). Hopefully, with continued research and gained awareness on the topic of assistance dogs and disability offices, more assistance dogs will be found on college campuses and locations alike assisting individuals on decreasing stress, depression, blood pressure, and improving many other health related factors.

References

- Adamle, K. N., Riley, T. A., & Carlson, T. (2009). Evaluating college student interest in pet therapy. *Journal of American College Health, 57*, 545-548.
- Allen, K. M., Blascovich, J., Tomaka, J., & Kelsey, R. M. (1991). Presence of human friends and pet dogs as moderators of autonomic responses to stress in women. *Journal of Personality and Social Psychology, 61*, 582-589.
- Americans with Disabilities Act. (1990). Section 35.104. *Definitions*. Retrieved from http://www.ada.gov/service_animals_2010.htm
- Barker, S. B., Knisely, J. S., McCain, N. L., Schubert, C. M., & Pandurangi, A. K. (2010). Exploratory study of stress-buffering response patterns from interaction with a therapy dog [Electronic version]. *Anthrozoös, 23*, 79-91.
- Bjick, M. (2012). The effects of a therapy animal on college student stress and arousal. *Master of Social Work Clinical Research Papers*, paper 152. Retrieved from http://sophia.stkate.edu/msw_papers/152.
- Camaioni, N. (2013). *Creating social connections in higher education: Insights from the Campus Canines Program at the University of Pittsburg* (Doctoral dissertation).
- Conniff, K. M., Scarlett, J. M., Goodman, S., & Appel, L. D. (2005). Effects of a pet visitation program on the behavior and emotional state of adjudicated female adolescents. *Anthrozoös, 18*, 379-395.
- Crossman, M. K., & Kazdin, A. E. (2015). Animal visitation programs in college and universities: an efficient model for reducing student stress. In A. H. Fine (Ed.), *Handbook on animal-assisted therapy* (3rd ed., pp. 333-337). London, England: Academic Press.

- Daltry, R. M., & Mehr, K. E. (2015, January 13). Therapy dogs on campus: Recommendations for counseling center outreach. *Journal of College Student Psychotherapy, 29*, 72-78.
- Falcone, A. (2014, September 25). *Drexel becomes first University to host a permanent therapy dog in a recreation center.*
- Federal Register, Vol. 68(190) (2003) (codified at 14 CFR §382).
- Federal Register, Vol. 75(178) (2010) (codified at 28 CFR §36).
- Folse, E. B., Minder, C. C., Aycock, M. J., & Santana, R. T. (1994). Animal-assisted therapy and depression in adult college students [Electronic version]. *Anthrozoös, 7*, 188-194.
- Giorgi, A. Z. (2013, October 21). *Pet therapy.* In Healthline.
- Goldman, D. (2012, May 13). For stressed college students, a doggone good way to relax. *USA Today.*
- Goodin, S. (2014). Musings of someone in the disability support services field for almost 40 years. *Journal of Postsecondary Education and Disability, 27*, 409-414.
- Hoffman, J. (2015, October 4). Campuses debate rising demands for “comfort animals.” *New York Times.*
- International Association of Human-Animal Interaction Organizations (2014). *White Paper.* Retrieved from <http://iahaio.org/new/fileuploads/4163IA-HAIO%20WHITE%20PAPER-%20FINAL%20-%20NOV%2024-2014.pdf>.
- Jennings, L. B. (1997). Potential benefits of pet ownership in health promotion. *Journal of Holistic Nursing, 15*, 358-372.
- Kotschal, K., & Ortbauer, B. (2003). Behavioral effects of the presence of a dog in a classroom. *Anthrozoös, 16*, 147-159.
- Nimer, J., & Lundahl, B. (2007). Animal-assisted therapy: A meta-analysis. *Anthrozoös, 20*, 225-238.
- Sachs-Ericsson, N., Hansen, N. K., & Fitzgerald, S. (2002). Benefits of assistance dogs: A review. *Rehabilitation Psychology, 47*, 251-277.
- Service Dog Central. (2015). *Emotional support animals.* Retrieved from <http://servicedogcentral.org/content/ESA>.
- Somervill, J. W., Kruglikova, Y. A., Robertson, R. L., Hanson, L. M., & MacLin, O. H. (2008). Physiological responses by college students to a dog and a cat: Implications for pet therapy. *North American Journal of Psychology, 10*, 519-528.
- Stewart, L. A., Dispenza, F., Parker, L., Chang, C. Y., & Cunnien, T. (2014, September 25). A pilot study assessing the effectiveness of an animal-assisted outreach program [Electronic version]. *Journal of Creativity in Mental Health, 9*, 332-345.
- Support Dogs, Inc. (2015). *Assistance dogs.* Retrieved from <https://www.supportdogs.org/programs/assistance-dogs>.
- Tedeschi, P., Pearson, J. A., Bayly, D., & Fine, A. H. (2015). On call 24/7 - the emerging roles of service and support animals. In A. H. Fine (Ed.), *Handbook on animal-assisted therapy* (3rd ed., pp. 333-337). London, England: Academic Press.
- U.S. Department of Justice. (2015, July 20). *Frequently asked questions about service animals and the ADA.* Retrieved from https://www.ada.gov/regs2010/service_animal_qa.pdf.
- Wells, M., & Perrine, R. (2001). Pets go to college: The influence of pets on students' perceptions of faculty and their offices. *Anthrozoös, 14*, 161-168.
- Yamamoto, M., Lopez, M. T., & Hart, L. A. (2015). Registrations of assistance dogs in California for identification tags: 1999–2012. *PLoS ONE, 10*(8), e0132820.

About the Authors

Amanda K. Polking received her B.S. degree in Exercise and Movement Sciences and M.S. degree in Counseling from Missouri State University. She is currently employed by Missouri State University within the Psychology Department as the Project Success Assistant Coordinator assisting students diagnosed with learning, cognitive and/or psychological disorders. Her research interests include service animals, disabilities, student success and retention. She can be reached by email at AmandaPolking@MissouriState.edu.

Jeffrey Cornelius-White, PsyD, LPC is Professor of counseling at Missouri State University and doctoral faculty in educational leadership and policy analysis at the University of Missouri-Columbia. Jef has published around 100 works, including the *Interdisciplinary Handbook of the Person-Centered Approach and Interdisciplinary Applications of the Person-Centered Approach* with Springer as well as *Learner-Centered Instruction and Person-Centered Approaches for Counselors* with Sage. His research interests are unusually broad as he works with an array of graduate students and colleagues, but are often focused on humanistic, relational, and multicultural considerations in education and counseling. He can be reached by email at JCornelius-White@MissouriState.edu.

Tracy L. Stout received her B.S. degree in psychology from College of the Ozarks, M.S. in Industrial-Organizational Psychology from Missouri State University, and MLIS from the University of Arizona. She is currently Associate Professor and Head of Research and Instructional Services with the Missouri State University Libraries. Her research on nepotism and job choice has been presented at the Society for Industrial Organizational Psychology annual conference as well as published in various works including a chapter in the Taylor & Francis publication, *Nepotism in Organizations*. In addition to nepotism, her current research interests include information literacy, information seeking behavior, and student success and retention. She can be reached by email at TracyStout@MissouriState.edu.