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The Perceived Impacts of Therapy Dogs on Students as Viewed Through the
Human-Animal Interaction Framework

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THE PERCEIVED IMPACTS OF THERAPY DOGS ON STUDENTS AS VIEWED
THROUGH THE HUMAN-ANIMAL INTERACTION FRAMEWORK

ABSTRACT

This study employed a qualitative case study approach to explore the perceptions of teachers/staff members directly associated with the therapy dog (TD) program in their school. These perceptions were regarding the TD program's effectiveness in (a) student social interaction, (b) stress coping and self-regulation, (c) engagement and/or attention, and (d) motivation and/or self-efficacy. The human-animal interaction (HAI) theoretical framework (Gee et al., 2017) served as a focal lens in this study. Data was collected from a middle school in the midwestern United States and through social media. Thirteen participants were from middle school and eight were obtained via social media. Further, interviews were conducted with five individuals representing both sites. Interpretation of the data and themes developed revealed that the majority of participants found perceived impacts from therapy dogs on: (a) student social interaction, (b) stress coping, (c) self-regulation, (d) engagement and/or attention, (e) motivation, and (f) social-emotional development. The study's conclusions aligned with its research questions involving the impact of therapy dogs. The findings led to recommendations for the development of a tool to assess therapy dogs' well-being. Designation of key canine demographic information is needed in the field as well as a centralized database to warehouse information collected. This study's recommendations include additional research on the impacts of the COVID-19 pandemic on therapy dog programs, the therapy dogs themselves, and teachers/staff members' needs and benefits from therapy dogs during the

pandemic. Finally, this study recommends examination of a student's perspective of the therapy dog's role and how that perspective affects the efficacy of the intervention.

Keywords: *human-animal interaction, HAI, human-canine interaction, HCI, therapy dog, school, education, animal-assisted education, AAE, animal-assisted therapy, AAT, canine demographics*

Dedication

I dedicate my dissertation in memory of my grandfather Clorindo “Joe” Barella whose love of nature helped inspire this work. Despite never attending college himself, his thirst for knowledge and life experiences were foundational to my perspective on nature. His experiences included hiking the Appalachian trail four times under the trail name *Italian Scallion*. My childhood was painted with visits from a variety of hikers as they took a break at my grandparents’ house, or getting to visit him on the trail. Despite this, the simple walks around the woods of my grandfather’s childhood are still some of my favorite memories. Furthermore, he and my grandmother, Patricia Barella, showed me the importance of treating children with kindness, providing consistency, and talking to them honestly. My grandmother has been a consistent source of encouragement throughout my life.

I also wish to dedicate this dissertation to my family, whom I would like to thank for their patience. While I kept this process from my family, it impacted my life in ways that no doubt impacted my interactions with them. My mother, Patricia Ferreira, whose love, caring, and bravery bolstered my efforts to see this through. I finally became a doctor, even if it wasn’t quite what I envisioned as a child. My aunt Perette has always served as an older sibling who helped introduce me to so many of my interests from dry British comedy to MS3K and Weird Al Yankovitch. A special thanks to my cousin Diane for her continued support and encouragement through this process, and for keeping the pursuit of this degree a secret. To Frank Stolfi, thank you for taking care of my grandmother and providing her with adventure, laughter, and love.

My friends, and coworkers who have supported me throughout this process, also deserve thanks. A special thanks to Melissa and Linda for their support and for allowing me to vent. To Keisha, a random neighbor who became a friend with whom I could share the trials and tribulations of this process as she pursued her Ph.D.

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CHAPTER 1: INTRODUCTION

Humans have used animals, for a variety of reasons throughout history or, as noted by Kotrschal (2018), a “parallel selection for tameness . . . in dogs and humans quickly and in a diverse way changed behavioral and anatomical phenotypes from wolf to dog, and social orientation from Stone Age to modern humans” (p. 1). These examples and many more have recognized the connection between humans and dogs. Dogs seemingly have a special place in large portions of many cultures, but it wasn’t until relatively recently that research focused on the therapeutic benefits of canines and the potential benefits humans get from interacting with them.

Levinson (1969), in his groundbreaking book, *Pet-Oriented Child Psychotherapy*, remarked about a dog’s ability to increase the engagement of the child with his or her therapist and to the improved progress in their therapy. Due to Levinson’s (1969) work, the interdisciplinary field studying human-animal interactions (HAI) has slowly grown. Human-animal interaction is the study of these interactions exploring the possible positive impacts of animals on the functioning and development of humans (Reilly et al., 2020). Similarly, anthrozoology is the study of the interaction between animal and human (Herzog & Arluke, 2006).

Animal-assisted intervention is inclusive of all goal-oriented animal interventions but also has several subcategories to include animal-assisted intervention and animal-assisted therapy (International Association of Human-Animal Interaction Organization [IAHAIO], 2014). Animal-assisted intervention is goal-oriented, utilizing an animal for some therapeutic benefit for the human (IAHAIO, 2014). The animal-assisted education

focus of this proposed research is the perceptions of the teacher/staff members involved in therapy dog (TD) programs that may operate in primary and secondary school settings.

Statement of the Problem

It is not known how school teachers/staff members perceive the effect of school-based therapy dog programs on (a) student social interaction, (b) stress coping and self-regulation, (c) engagement and/or attention, and (d) motivation and/or self-efficacy. This study aims to obtain perceptions about those effects to test the applicability of Gee et al.'s (2017) recently proposed theoretical framework. Kalkoske (2018) focused on emotional/behavioral disordered students to obtain teacher perceptions and recommended study of various aspects of implementation of TDs. Belt (2020) recommended further exploration of teacher perceptions regarding therapy dogs in schools. The majority of educators Belt (2020) examined thought that TDs positively impacted emotional and social behaviors in class (Belt, 2020). Belt (2020) found that 98% of teachers in the study did not teach in a school utilizing a TD program, and 96% have not even experienced a TD program in use in a classroom. Despite this, the majority of educator's perceptions were that TDs positively impacted emotional and social behaviors in class (Belt, 2020).

Purpose of the Study

The primary purpose of this qualitative case study was to obtain the perceptions of the teachers/staff members directly associated with the TD program in their school regarding the TD program's effectiveness regarding (a) student social interaction, (b) stress coping and self-regulation, (c) engagement and/or attention, and (d) motivation and/or self-efficacy. This study examined these perceptions through the lens of the HAI theoretical framework as proposed by Gee et al. (2017) as shown in Figure 1 (Chapter 2).

Pursuit of this type of study allowed for the application of the theoretical framework proposed by Gee et al. (2017). Additionally, this study included relevant canine information that was identified as a shortcoming in other research as noted by Griffin et al. (2019). This application of the human-animal intervention specific framework helped to focus the research lens while the qualitative case study approach aided in the examination of experiences (Merriam & Tisdell, 2016) of the teacher/staff members. The research questions focus on the perceptions of the teacher/staff members; many of the shortcomings noted by Griffin et al. (2019) were also addressed through the process.

Research Questions

The questions for this study were derived from the HAI theoretical framework proposed by Gee et al. (2017). This framework states that human-animal intervention activities impact four areas that lead to indirect effects on learning and a possible effect on the social-emotional development of students (Gee et al., 2017). These four areas include (a) student social interaction, (b) stress coping and self-regulation, (c) engagement and/or attention, and (d) motivation and/or self-efficacy (Gee et al., 2017). To achieve this the present study proposed the following research questions:

1. What are the perceptions of staff members directly associated with TD programs regarding the effects of therapy dogs on student social interaction?
2. What are the perceptions of staff members directly associated with TD programs regarding the effects of therapy dogs on stress coping and self-regulation?
3. What are the perceptions of staff members directly associated with TD programs regarding the effects of therapy dogs on engagement and/or attention?

4. What are the perceptions of staff members directly associated with TD programs regarding the effects of therapy dogs on motivation and/or self-efficacy?

Theoretical Framework

The framework of this study is interwoven with therapy dogs in schools and the perceptions of those involved with these therapy dog programs. Gee et al. (2017) proposed a HAI theoretical framework (Figure 1). The HAI theoretical framework proposes that human-animal intervention activities have a direct effect on four areas that have an indirect effect on student learning and social-emotional development: (a) student social interaction, (b) stress coping and self-regulation, (c) engagement and/or attention, and (d) motivation and/or self-efficacy (Gee et al., 2017). This HAI theoretical framework (Gee et al., 2017) also served to tailor the perception questions of the surveys utilized in this study. Human-animal interaction research, and human-canine intervention research more specifically, cover a broad range of topic areas, such as behavior modification (Protopopova et al., 2019; Wilson, 2017), stress and anxiety reduction (Krause-Parello et al., 2018). Additionally, human-canine intervention can include therapeutic interventions (Hartwig, 2017; Muela et al., 2017) and reading intervention programs (Noble & Holt, 2018). For instance, a study such as the one conducted by Silas et al. (2019) involving university students and therapy dogs provided some insight showing stress reduction in students after canine intervention, while a study, such as the one by Nagasawa et al. (2015) that examined oxytocin explained the reason for the bond between humans and canines with the authors positing a coevolutionary result of human-canine intervention. These broad topics are discussed further in Chapter 2.

Definition of Terms

The following definition of terms are provided for familiarity of terms utilized in human-animal interaction and human-canine interactions. Many of these terms are used in this paper with some terms specifically defined for how they are used in this paper for clarity.

Animal-Assisted Activity (AAA). Animal-assisted activity is defined as “a planned and goal-oriented informal interaction and visitation conducted by the human-animal team for motivational, educational, and recreational purposes. Human-animal teams must have received at least introductory training, preparation, and assessment to participate in informal visitations” (IAHAIO, 2014, p. 5).

Animal-Assisted Education (AAE). AAE, also known as animal-assisted pedagogy, is described as “A goal oriented, planned, and structured intervention directed and/or delivered by educational and related service professional. AAE is conducted by qualified (with degree) general and special education teacher” (IAHAIO, 2014, p. 5).

Animal-Assisted Intervention (AAI). Animal-assisted intervention is a goal-oriented and structured intervention that intentionally includes or incorporates animals in health, education, and human service for the purpose of therapeutic gains in humans (IAHAIO, 2014). It includes people with knowledge of the people and animals involved (IAHAIO, 2014). Animal-assisted interventions incorporate human-animal teams in formal human service (IAHAIO, 2014).

Animal-Assisted Therapy (AAT). This involves a therapeutic intervention, and according to IAHAIO’s (2014) definition should be “delivered and/or directed by a

formally trained (with active licensure, degree or equivalent) professional with expertise within the scope of the professionals' practice" (p. 5).

Anthrozoology. The "study of the interactions and relationships between human and nonhuman animals. Anthrozoology spans the humanities and the social, behavioral, and biomedical sciences" (Herzog, 2016, paragraph 1). Anthrozoology is also known as *human-animal interaction (HAI)*. Human-animal interaction is generally used in most of the cited research and thus is used for this document.

Attachment Theory. In 1958 Bowlby published his seminal work that discussed attachment behavior; this work would lay the foundations for attachment theory and would be discussed in other works (Bowlby, 1981/2006). Sable (2013) stated the "attachment theory posits that humans 'are biologically predisposed to seek out and sustain physical contact and emotional connection to selective figures with whom they become familiar and come to rely on for psychological and physical protection" (as cited in Jalongo, 2015, pp. 395–396).

Biophilia. In the seminal work published in 1984, Edward Wilson created the term biophilia and defined it as "innate tendency to focus on life and lifelike processes" (Wilson, 1984/2003, p. 1). Wilson (1984/2003) put this definition into a human lens and noted humans from infancy focus on ourselves and animals, instinctually (p. 1). Biophilia is, simply put, humans' innate interest in living things, especially animals.

Canine Characteristics or Canine Demographic. Descriptive statistics characterizing breed, gender, spay/neuter status, size, approachability/friendliness, and activity level or other items describing the dog will be referred to as canine characteristics or canine demographics. These items help provide rich detail and further understanding

of the canine aspect of the human-canine interaction study. Several of these items are in addition to those described by Griffin et al. (2019) as missing and are basic to understanding the canine.

Certified Therapy Dog (TD). A certified dog provides affection and comfort in a variety of facilities such as libraries, hospitals, hospice, nursing homes, schools, and other facilities on a voluntary basis by their handler (Kropp & Shupp, 2017). “These therapy animals have no special rights and must have the permission of the facility to visit. There are usually requirements such as grooming, providing veterinarian records, and proof of certification” (Kropp & Shupp, 2017, p. 2). A therapy dog will be assumed certified when examining others’ research in this document unless otherwise specified. In this paper, the term therapy dog is a term used to indicate a certified therapy dog.

Emotional Support Dog or Comfort Dog. This categorization of canine is basically a pet “that must be prescribed by licensed mental health professionals and provide therapeutic support generally for an individual person with mental or emotional illness” (Kropp & Shupp, 2017, p. 2). Whereas these animals may not have the same rights as service dogs in terms of travel and housing per the ADA (Department of Justice, 2020), they may have some access rights (see Service Dog).

Facility Dog. Kropp and Shupp (2017) described facility dogs as being regularly present in a clinical or residential setting and working in these locations each day or living at the setting full time. Kropp and Shupp (2017) noted that these dogs have to undergo special training yet do not have special access rights unless special circumstances are met. Facility dogs as part of their role may be used in animal-assisted therapy, animal-assisted education, or animal-assisted activity interventions (Kropp &

Shupp, 2017). These definitions serve as the basis for the bulk of this document, with any unique definitions explained as they appear.

Human-Canine Interaction (HCI). A specific subset of human-animal intervention that focuses on the interactions between humans and canine(s), this term is sometimes used in research to denote canine-specific studies (Krause-Parello et al., 2012) instead of searching terms like *human-animal interaction AND canine*.

Service Dogs. Kropp and Shupp (2017) defined a service dog's role is to "work or perform tasks for people with specific disabilities" (p. 2). According to the Americans with Disabilities Act (ADA), these dogs are permitted to accompany a person with a disability almost anywhere, including restaurants, businesses, and airplanes. Service animals are generally considered working animals and not pets for accommodation and access purposes.

Assumptions, Limitations, and Scope

There was an expected positive response in data collected from participants. This assumption was due to one selection criterion for participants being that the TD program must be running longer than a school year. If a program is running more than a year, it is expected that its continuation is due to the perception of positive outcomes, such as anecdotal observations by a therapist of increased motivation in student participants (Becker et al., 2017) or perceptions of student psychological well-being (Zents et al., 2017). Due to the specific lens of the theoretical framework, this bias will be partially moderated, and the areas focused on the four categories (a) student social interaction, (b) stress coping and self-regulation, (c) engagement and/or attention, and (d) motivation and/or self-efficacy (Gee et al., 2017) may not be where the positive bias is derived.

There are several limitations of this study. The methodological approach to the study occurred largely online. This online approach brought with it limitations such as a loss of some non-verbal cues. Furthermore, the sample size was limited given the nature of the study, the site being studied, and the time constraints of completing research within the school year to ensure ready access to participants. Response rate was another limitation as participation was voluntary and teachers and staff members were, from the researcher's perspective, experiencing increased stress in the work environment due to the added challenges of the COVID-19 pandemic underway at the time of the study taking place.

Another limitation was locating schools that have TD programs due to the difficulty in identifying and gaining access to schools that have programs. The limitations of working with a physical site were the low number of participants available to participate and the lack of generalizability/transferability of the data. The need to capture data for research and for justification for starting similar programs in other schools to help other students hopefully helped motivate the teachers/staff members to participate.

Canine demographics are key descriptive statistics included with the teacher/staff member perceptions. Obtaining the perceptions of the teacher/staff members through the lens of the HAI theoretical framework helped frame and answer the questions. This case study had a site in the Midwest region of the United States, consisting of middle school educators, and a sampling of teacher/staff members who met the selection criteria who were obtained via snowball sampling on social media. The population consisted of teachers/staff members directly involved with TD programs in these schools.

Pandemic

Due to COVID-19, some TD programs were halted until such a time as the school determines that it is safe to restart the program. As such the survey accounted for this and asked for perceptions for when the program was functioning, which may have altered the results due to bias and recall versus active participation. Additionally, due to COVID-19, some potential participants may not have participated, especially at the school level, due to increased teaching demands (remote and in-person) or other increased workloads such as at the principal level due to having to handle all the COVID-19 mandates while operating a school. Some teachers may have been furloughed in which case they may have elected not to participate. All these items have the potential to impact participation. To address these limitations and help reduce their impact, the utilization of online survey and interview methods as well as the selection of a site that was currently operating with some students participating in person at least hybrid if not fully in person.

Rationale and Significance

The significance of this study is that it captured perspectives of therapy dog usage in schools through the lens of the HAI theoretical framework. The proposed HAI theoretical framework of Gee et al. (2017) is relatively new and is still in the early stages of application to human-animal intervention studies compared to theoretical frameworks in other fields of study. The connection to social-emotional development is still listed as unexplored within the proposed framework (Gee et al., 2017). Applying this lens may also add to the literature that will develop around this proposed HAI theoretical framework and may help to add to a body of work that may inform social-emotional development as a possible effect of TD programs in schools (Gee et al., 2017, p. 3).

Furthermore, this study captured some canine demographic data on the therapy dogs that had been identified as missing in reports by Griffin et al. (2019). Griffin et al. (2019) noted the importance of documenting these details for potential adoption by visitation programs, animal-assisted intervention service providers, and replication for future studies. Gathering data on the dog demographic information (Reilly et al., 2020) as well as the perceptions of the teacher/staff members of school-based therapy dog programs allowed this study to begin to fill the gaps in research, such as freedom of the animal to interact and training identified by Griffin et al. (2019).

Conclusion

The primary purpose of this case study was to obtain the perceptions of the teachers/staff members directly associated with the TD program in their school regarding the TD program's effectiveness concerning (a) student social interaction, (b) stress coping and self-regulation, (c) engagement and/or attention, and (d) motivation and/or self-efficacy. These perceptions were viewed through the HAI theoretical framework proposed by Gee et al. (2017). Using this framework allowed for the examination of the perceived effects of the TD on social interactions, motivation, engagement, and stress coping for students in these programs and any indirect or direct effects on the social-emotional development of the students. These areas have an indirect impact on student learning and social-emotional development according to the theoretical framework (Gee et al., 2017). Chapter 2 contains an examination of the literature, explores human-animal intervention as the theoretical framework for the study, and identifies key missing areas of research. This is achieved by discussing anthrozoology/human-animal interaction, reviewing the history of canine therapy, examining the role of the canine and animal-

assisted education, explaining the theoretical framework applied to the proposed study, and the conclusion of the chapter.

CHAPTER 2: LITERATURE REVIEW

Human-canine intervention research covers a broad range of topic areas, such as behavior modification (Protopopova et al., 2019; Wilson, 2017); reading intervention programs (Noble & Holt, 2018); stress and anxiety reduction (Krause-Parello et al., 2018); and therapeutic interventions (Hartwig, 2017; Muela et al., 2017). The term *human-canine interaction* is sometimes used to specify a canine-specific human-animal intervention. Researchers like Krause-Parello et al. (2012) or Kashden et al. (2021) utilized the human-canine intervention identifier to aid other researchers in classifying their studies. While there is much anecdotal evidence involving canine-interaction benefits (Kirnan et al., 2018; Kropp & Shupp, 2017), increasingly more empirical human-canine intervention studies are being conducted (Kropp & Shupp, 2017). Two notable subsets of human-canine intervention are reading programs (Hall et al., 2016; Kirnan et al., 2018; Kropp & Shupp, 2017) and those in therapy settings (Hartwig, 2017; Jones et al., 2019) that build upon Levinsons' (1969) book that discussed therapeutic benefits of canine intervention. This chapter will explore the literature of human-canine interaction (HCI) studies focusing on educational settings.

Kropp and Shupp (2017) reviewed 30 articles and book chapters regarding dogs in the classroom of which 20 involved reading programs in some manner. Most studies examined a singular instance or pilot program, while others examined the first year or two of a program (Noble & Holt, 2018). Chapter 2 begins with a review of literature providing some context to the field and a discussion of Anthrozoology. This is followed by examining the history of canine therapy. A discussion of canines in school settings is

followed by the benefits of canine interaction and a review of the four effects of human-animal interactions. Lastly, the theoretical framework for this project is discussed.

Review of Literature

The review of literature began by examining relevant research for the topic and expanding the research examined to explore the biochemical reasoning researchers believe are behind why humans and canines bond and interact in such impactful ways. This topic and the broad interdisciplinary nature of the field means the literature reviewed examines the topic broadly at first and then narrows in focus to provide an overview and background knowledge before going into the relevant specifics. This portion of the literature review includes a discussion of anthrozoology/human-animal interaction, and the interdisciplinary nature of the field. The next topic is an examination of the history of canine therapy that started with the work of Levinson (1969). Next, an examination of canines in school settings is followed by the benefits of canine interaction. Some key areas of this are the discussion of the hormonal role in stress reduction as discussed by authors such as Beetz et al. (2012), Correale et al. (2017), and Protopopova et al. (2019). The work of Nagasawa et al. (2015) on oxytocin and a positive gaze loop is also discussed. The review examines the four effects of animal interaction, with the majority of that focusing on the stress reduction category, as that is the primary role of the therapy dog at the site of this proposed study where staff members' perceptions will be captured. There is a discussion of the HAI theoretical framework as proposed by Gee et al. (2017). Before that, however, providing some important background information on human-animal interaction helps to provide an appropriate context for understanding the studies discussed in this chapter.

Anthrozoology / Human-Animal Interaction

Anything examining an animal and a human interacting can be labeled a human-animal intervention, though human-animal interaction can go by a variety of terms. For instance, in the realm of academia, it might also be referred to as Human-Animal Studies. The other term is Anthrozoology, which is the study of the interactions between animals and humans (Herzog & Arluke, 2006). Anthrozoology and human-animal intervention serve as the broad definitions.

The International Association of Human-Animal Interaction Organizations (IAHAIO) pointed out the confusion caused by the variety of terms used to discuss animal-assisted interventions (IAHAIO, 2014). This is why the IAHAIO (2014) defined four categories: animal-assisted intervention, animal-assisted activity, animal-assisted education involving a teacher or another licensed/certified individual to facilitate, and animal-assisted therapy requiring a formally trained and licensed individual to conduct. If a study creates a unique term, that study may be missed when examining relevant research by one of the categories defined by IAHAIO.

A unique term that specifies the type of animal to distinguish the species of human-animal interaction can help other researchers find specific species animal interaction research. One instance of this is the usage of human-canine interaction by Pina e Cunha et al. (2019); and Krause-Parello et al. (2018) to signify the animal interacting with the human is a canine. Other researchers create or utilize subcategory terms. Jones et al. (2019) defined a specific animal-assisted intervention as canine-assisted psychotherapy in their review, which looked at specific interventions regarding mental health that focused on psychosocial and psychological outcomes. These are some

of the possible subsets within animal-assisted therapy (AAT). Jones et al. (2019) mentioned the following: AAT in counseling (AAT-C), animal-assisted psychotherapy (AAP), and animal-assisted play therapy (AAPT). The uniformity and use of these and other specialized terminology are more inconsistent at these more specialized levels. While these specialized categories serve a purpose, if they become used by other researchers studying those areas, relying on terms more widely accepted make it easier for other researchers to utilize those keywords. This proposed study is categorized as human-canine interaction under the overarching human-animal interaction field of study. Further, this proposed study utilized those terms outlined by the IAHAIO (2014), specifically the animal-assisted education category. This study falls into the categories of human-animal interaction, human-canine interaction, and animal-assisted education.

Interdisciplinary Nature of Human-Canine Interaction

Human-animal interaction, and the more specific human-canine intervention, covers a wide area of topics including the ever-popular, potential benefits of bringing one's dog to work (Hall & Mills, 2019). The recent work of Hall and Mills (2019) showed employee engagement, work-related quality of life, work-based friendships, and employee commitment to work may benefit from the practice. This shows the generalized benefit of just having dogs present at an organization, while other studies focus on specific interventions, practices, or a specific population of people.

Focusing on a particular population is another approach within human-animal interaction/human-canine interaction studies. One area of specific population includes specialized studies focusing on dogs working with people with Autism Spectrum Disorder (Becker et al., 2017). A specific practice and intervention would be the use of

canines in therapy programs (Wilson, 2017). Additionally, studies may examine a particular setting, such as school or community counseling clinics (Hartwig, 2017). Other studies may focus on the dog's role, such as therapy dogs (Sola-Perkins, 2018), or they focus on a type of intervention/program such as a reading dog program (Noble & Holt, 2018).

There are emotional support dogs, facility dogs, and therapy dogs; any combination of these may be utilized as a tool in research. Pina e Cunha et al. (2019) examined dogs' roles in organizations and categorized four forms they can take, noting that these forms are not exclusive and can overlap. These four forms are broken down by function versus symbolic and dog versus human focus (Pina e Cunha et al., 2019, p. 783). It should be noted that most studies in human-animal intervention fall into the social capital and human-canine interactions forms as outlined by Pina e Cunha et al. (2019), whereas working dogs and service dogs would be placed in the "canine skills" category (pp.783–787).

History of Canine Therapy

Since Levinsons' (1969) book on how canines increase a child's engagement in counseling sessions, studies have been conducted with canines used in a variety of therapeutic settings and approaches. These therapeutic settings and uses can range from community counseling clinics (Hartwig, 2017) and traditional residential care (Muela et al., 2017). Some approaches are those used in play therapy (VanFleet, 2008), and to assist with building resiliency (Hartwig, 2017).

Griffin et al. (2019) identified that many studies fail to capture intervention details such as training/certification requirements of the programs or that are held by the

dog/handler team, the selection criteria for animals chosen for a program, the nature of the animal interaction (i.e., how free the animal is to interact with the subject), how the animal is introduced to the subject, and animal demographics (pp. 2–3). To complicate matters as noted by Kirnan et al. (2018) most programs they cite are experimental or short-lived, which prevents long-term analysis (p. 107). This is the reality of many human-animal intervention studies (Kotrschal & Ortbauer, 2003; Sola-Perkins, 2018; Wilson, 2017). This makes data analysis difficult as the data collected in these studies are generally not comparable due to the various circumstances and variables. Some of these variables include student population characteristics to include specific disabilities such as Autism Spectrum Disorder or a setting such as a residential school. Another key variable group is the individual dog, its handler, and the impact they have on outcomes. As such this study will include the capture of important descriptive data to provide context for the study.

Finding research that matches one's approach and topic is difficult, but often there is applicability in these other areas of research. For instance, a study by Silas et al. (2019) involving university students and therapy dogs provided some insight showing stress reduction in students after canine intervention, while a study such as the one by Nagasawa et al. (2015) that examined oxytocin explained the reason for the bond between humans and canines, in which the authors even posited a coevolutionary result of human-canine intervention. The main reason to choose a therapy dog over a pet in a study or program is that a therapy dog and handler have to undergo training and certification, as well as carry insurance (Kropp & Shupp, 2017).

Therapeutic Canines

The examination of the therapeutic benefits of interacting with dogs began with Levinson (1969) who, in his groundbreaking book, remarked about a dog's ability to increase the engagement of the child with his or her therapist and to the progress in their therapy. Canines are utilized in therapeutic settings as a specific intervention or as co-therapist/canine-assisted therapy approach. These settings can include traditional residential care (Muela et al., 2017), community counseling clinics (Hartwig, 2017), and even play therapy (VanFleet, 2008). The education setting lacks the same breadth of research as other categories but has anecdotal evidence (Brelsford et al., 2017).

Hartwig (2017) combined solution-focused therapy and canine-assisted therapy to examine the human-animal resilience therapy (HART) intervention. There were 29 participants with emotional issues in this study that went to a community counseling clinic after referral (Hartwig, 2017). Hartwig (2017) found a lack of support for HART intervention due to other studies' lack of quantitative data and experimental design and thus used the study to attempt to start to correct that limitation. Some key results of Hartwig (2017) noted pretest and posttest results were significantly different regarding depression, disruptive behavioral inventories, and anxiety (p. 474).

Hartwig's (2017) is one of several animal-assisted therapy studies examined by Jones et al. (2019). Jones et al. (2019) found seven studies out of an initial 3985 search results (p. 7) that met their criteria of being a goal-focused/treatment-based intervention, utilizing a canine, and a peer-reviewed publication that was in or translated into English. There is evidence that Canine-Assisted Psychotherapy, according to Jones et al. (2019), might improve mental health treatment efficacy with regard to self-selected adolescents

by reducing symptoms, including those associated with PTSD, as well as reducing the severity of other serious psychiatric disorder symptoms (p. 22). Human-canine interaction studies include behavior modification (Kotrschal & Ortbauer, 2003; Wilson, 2017), stress and anxiety reduction (Krause-Parello et al., 2018; Polheber & Matchock, 2014), and can focus on particular settings such as at colleges and universities (Grajfoner et al., 2017; Silas et al., 2019), and in primary and secondary school settings (Kirnan et al., 2018; Zents et al., 2017).

Animal-Assisted Education

The only federal data on the use of canines in schools comes from the U.S. Department of Education, National Center for Education Statistics (2019) and is found in *The Indicators of School Crime and Safety*. The only canine data they collect is the use of drug-sniffing dogs (U.S. Department of Education, National Center for Education Statistics, 2019, pp. 110–113). The lack of nationwide data collection on dogs being used in schools beyond drug-sniffing means there is no way to know how many schools are utilizing canines, nor how they are being used. This makes each research study essential in broadening the understanding of the field as to how canines are being used. The human-animal intervention research community has more data as outlined in this literature review, such as behavior modification (Protopopova et al., 2019; Wilson, 2017); reading intervention programs (Noble & Holt, 2018); stress and anxiety reduction (Krause-Parello et al., 2018); and therapeutic interventions (Hartwig, 2017; Muela et al., 2017), which all can occur in an educational setting.

Animal-assisted education focuses on specific interventions in the realm of an education setting, generally under the guidance of a general or special education teacher

(IAHAIO, 2014). Thus animal-assisted education can cover a wide spectrum of interventions under the guidance of a teacher. Reading programs, stress/anxiety reduction, interventions designed to improve attendance, and interventions for students with emotional disabilities or diagnoses can be considered animal-assisted education if under the guidance of a teacher. Gee et al. (2017) examined some of the benefits that they found in their review of human-animal intervention research in schools that affect learning indirectly by directly enhancing or affecting the engagement, motivation, social interaction, and aspects of executive function.

Targeted animal-assisted interventions promote interaction in some instances with animals first, then guided with humans, and affected children's social, cognitive, and emotional development (Gee et al., 2017, p. 2). If done so by a teacher it would be animal-assisted education and the children impacted would be students. An interesting example of a use of a therapy dog can be found in the study of Sola-Perkins (2018) in which she found that the presence of a therapy dog increased belongingness in an alternative program for truant students. Belongingness can impact social interaction and motivation to attend school, and both of those are areas examined by this research. Zents et al. (2017) examined perceptions of effectiveness when it comes to therapy dogs in schools, and in the four rural school districts they examined they found that there was support for the intervention. Koutsopoulos and Koutsopoulos (2018) remarked that just the presence of a dog in a classroom can have a calming effect.

Canines in School Settings

Considering just schools as the setting, programs could be broken down further to include reading-dog programs, in which students may read to dogs, or be applied as part

of a program intervention. Kropp and Shupp (2017) reviewed 30 studies involving dogs in classrooms, in which 20 of these studies examined canine programs focused on reading in school settings. Belt (2020) noted the need for further investigation into teacher perceptions. Another recommendation by Belt (2020) was to expand the gathering of those perceptions to the entire state of Arkansas. This researcher notes the distinct lack of research in many states and thus is obtaining perceptions in another state.

Reviewing animal-assisted intervention literature, Comartin (2018) found evidence that by calming and maintaining the attention of children, animals, and especially dogs, can facilitate therapeutic and educational progress (p. 45). Beetz (2017) found that processes, theories, and data suggest that individuals with physical and psychosocial challenges and those in special education can be supported by suitable animals in many ways (p. 146). These two findings point to suitable animals having the potential to support special education students and students with psychosocial and physical challenges as supported by Becker et al. (2017), Protopopova et al. (2019), and VanFleet (2008). Animal-Assisted Education, or using a canine in an education setting under the guidance of a general or special education teacher is a diverse area of research but lacks federal data.

Dog Programs at Universities

Dogs are used for several reasons at the collegiate/university level of education, but a portion of that research focuses on anxiety/stress reduction. Silas et al. (2019) referred to this as an emergent field inside animal-assisted therapy called canine-assisted interventions (p. 6). Silas et al. (2019) reported that, among other things, these programs increase life satisfaction and reduce homesickness. Significantly the study not only

studied student stress but also looked at the stress of the handlers and their dogs (Silas et al., 2019). Silas et al. (2019) found that both the student and handler stress was significantly lower compared to the start of the trial, while the canine stress was more varied: 25% of the canines increased stress, 52.5% had no change, and 22.5% of canines demonstrated decreased in stress (p. 9). They indicated the increase in canine stress was possibly due to emotional contagion, which is a matching of emotions between individuals that in this case could be linked to the handler's stress level at the beginning of the session (Silas et al., 2019, p. 11). Canine and handler stress might have a role on the impact of an intervention and something to be aware of when interpreting perceptions on therapy dog effectiveness.

Another university study by Grajfoner et al. (2017) looked at how a dog-assisted intervention affected the well-being and mood of students. Grajfoner et al. (2017) found that the interventions assisted by dogs appeared to be a cheap, effective, and suitable alternative method to maintain the well-being and mental health of students (p. 482). If further research bears this out, canine interventions may see more widespread use, especially in public school settings that have budgetary issues and are looking for effective, cheap solutions to improve student well-being.

Reading/Literacy Programs

While not a primary function of the TD at the middle school research site, this is a research area that has shown some benefits as some of that may be due to stress reduction as discussed by Noble and Holt (2018). Dog-assisted literacy programs (DLPs) are designed to allow students to practice their reading by reading to canines, and since canines are non-judgmental to their errors this may reduce the stress associated with

reading aloud (Noble & Holt, 2018). Kirnan et al. (2018) noted DLPs that occur in library settings are generally less formal and operate on drop-in design open to the entire community. Compared to library settings, school-based DLPs are often more structured, are more consistent in schedule, and may have other classroom activities integrated as well as curricular aspects (Kirnan et al., 2018, p. 105). Kirnan et al. (2018) noted that there are school-based DLPs that may specifically focus on struggling readers or special education classrooms (Kirnan et al., 2018, p. 105).

The review of literature conducted by Hall et al. (2016) identified 27 articles out of 40 examined that were anecdotal and lacked experimental structure. The review of research by Kropp and Shupp (2017) reviewed 30 sources that included articles, chapters of books, and other sources regarding dogs in the classroom; 20 of these items regarded reading in some manner. A review of the research by Kropp and Shupp (2017) found the majority of recent studies regarding animal-assisted literacy programs focused on accuracy, comprehension, and reading rates, and posited this was due to the pressure to find quantitative evidence regarding the positive effects of dogs in classrooms (p. 11). The other studies examined by Kropp and Shupp (2017) involved classrooms for students with emotional disorders, therapy settings/interventions, and one article was an overview designed for school administrators on the benefits of TD in schools. Regarding reading, Ko (2017) was one of those reviewed and found that second-grade children who read aloud to dogs had their attitudes toward reading increase significantly.

According to Kropp and Shupp's 2017 review, three studies were found to increase reading scores in their studies about canine reading programs/interventions, to include Levinson et al. (2017) that found what they refer to as a *dog effect* in their results.

While some of the results of Levinson et al. (2017) did not reach a level of statistical significance, the *dog effect* refers to a pattern that it was more beneficial for a child to read to a dog/handler team than reading to peers. In a study by Noble and Holt (2018), they found that the impact of a DLP in a United Kingdom early childhood education primary school was that the program increased motivation, promoted engagement, fostered children's enjoyment, and promoted a love of reading. This finding by Noble and Holt (2018) supports Kirnan et al.'s (2018) findings of increased benefit of the DLP on the kindergarten and first-grade students.

Benefits of Canine Interaction

In seven studies examined by Jones et al. (2019) there were a variety of findings that included canines assisting a sense of control (Hanama, 2011, as cited in Jones et al., 2019); confirmation of previous studies that animals are beneficial to treatment (Hanselman, 2001, as cited in Jones et al., 2019); calming and humor relief (Lange, 2007, as cited in Jones et al., 2019); promotion of engagement and facilitation of therapeutic process (Lubbe, 2013, as cited in Jones et al., 2019); acting as a catalyst regarding socialization in the therapeutic process (Stefanini, 2015, as cited in Jones et al., 2019); and a reduction of behavioral and emotional symptoms while increasing psychological functioning and global competence as well as possibly being more effective regarding internalizing symptoms (Stefanini, 2016, as cited in Jones et al., 2019). All these studies (Hartwig, 2017; Jones et al., 2019; Muela et al., 2017) showed positive benefits for incorporating dogs into therapy, though it should be noted that the inclusion of canines should be carefully planned in advance. However, dogs are used for a variety of interventions or therapeutic reasons and reading programs in the education setting.

Behavior Modification and the Four Areas

There is a lot of evidence that dogs have positive effects on humans, especially children at home and when accessible in schools and hospitals. Wilson (2017) examined a pilot program for bringing dogs into therapy sessions; teachers remarked that students were looking forward to seeing the dogs and also described the students as happier (p. 13). Additionally, Wilson (2017) indicated that comments from students, parents, administrators, and staff along with survey and student goal progress showed positive outcomes (p. 13). Correale et al. (2017) wrote about a pilot dog program that enabled students to express emotions that teachers had not seen prior to intervention. Students learning from nonverbal communication and changing their behavior toward peers is what these behavioral modification studies were hoping to find. Protopopova et al. (2019) found that using access to dogs on a contingent basis was a good reinforcer for the children (p. 19).

Indirect Effects Regarding Social-Emotional Development and Learning

Learning and social-emotional development are indirectly affected by human-animal interactions according to the HAI theoretical framework (Gee et al., 2017). The social-emotional development impacts are shown as possible due to their largely unexplored nature Gee et al. (2017). It was reported by Anderson and Olson (2006) that the dog also had a positive social-emotional impact on students.

Learning. Anderson and Olson (2006) found that a canine in an emotional disorder classroom facilitated learning regarding lessons of empathy, respect, and responsibility. Koutsopoulos and Koutsopoulos's (2018) dog integrating curricular program has education benefits as its major goal. According to Zeman (2017), TDs in

schools are an effective means to improve not only psychological wellbeing but also academic performance.

Child-Animal Bond/Child-Dog Bond

Children tend to have a special relationship with pets and animals (Hirschenhauser et al., 2017). Dogs have been referred to as man's best friend, and in many instances, it seems this is especially true when looking at the bonds that form between children and dogs. Children prefer pets from species that can be cuddled and touched and have behavioral responsiveness through physical activities that support anthropomorphic play (Gebhard, 2013, as cited in Hirschenhauser et al., 2017). Hirschenhauser et al. (2017) specified that this is more likely with dogs than cats or animals that are even more distant taxonomically speaking. Cuddling and touching are not the only aspects of a child's relationship with an animal.

Kerns et al. (2017) studied 99 students in grades four and five. Rather than looking at the issues separately, Kerns et al. (2017) studied children's relationships with their dogs and the child's relationship with humans (p. 75). Kerns et al. (2017) drew three conclusions; the relevant one for the proposed study was that continuity was found between the quality of children's relationships with their pet dogs and the quality of their relationships with their fathers, mothers, and best friends (pp. 75–76). Kerns et al. (2017) used statistical analysis on a variety of relational factors to include mom and dad separately, along with child and teacher reports to help identify any correlation. This provides statistical support for these relational factors and dogs. Another study examining relational factors by Mueller (2014) stated that in addition to intensity and duration, the

developmental period of the human and animal may be one of the factors that plays a role in the quality of the relationship between human and animal.

Hirschenhauser et al. (2017) examined children and their love for their pets using various types including dog, cat, rabbit, guinea pig/hamster, mouse, bird, reptile, fish, and insects. While examining pets of different taxonomic orders in some schools in Austria, Hirschenhauser et al. (2017) found that 11- to 14-year-olds can form close bonds to a variety of different animals, while 6- to 10-year-olds bond with animals closer taxonomically speaking such as dogs and cats (p. 451). This study, while focusing on pets, shows that children in the 6- to 10-year-old range form stronger bonds to dogs than other animals examined, helping support the child-canine bond.

Jalongo (2015) examined several studies that discuss the child-dog bond regarding attachment and attachment theory, in which children showed the importance pets played in their lives and found the topic area in need of more research, specifically the attachment between child and companion animal. Hawkins et al. (2017) found 83% of children reported their pets made them happy, while 76% reported their pet as their best friend (p. 9). In the lives of children, Hawkins et al. (2017) found that pets were an important source for emotional attachment (p. 9). In another study 8- to 12-year-olds were asked to photograph sources of well-being; those students included pets more often than adults in those photos (Sixsmith et al., 2007). Finally, there was a study in which children aged 7 to 12 often brought the conversation back to their pets and love of their animals even if the interviewer was ready to move on (Tipper, 2011).

These all include the 6-year-old to 10-year-old range that bonds with and anthropomorphizes dogs faster than 11- to 14-year-olds (Jalongo, 2015). However, other

ages and factors play into a child's bond with animals as well. Jalongo (2015) referred to Melson's 1990 work that found three factors affecting the child/pet bond. The first is culture and ethnicity, which indicated that some cultures consider dogs unclean, and variations within a culture in that some may value purebred higher than mongrel (Melson, 1990). The second factor Melson (1990) identified was that even children who do not have dogs sometimes find and form strong bonds with neighbors', friends', or other extended family member's dogs. Lastly, even 4-month-old babies have shown increased interest in dogs if they have previous experience (Melson, 1990, as cited in Jalongo, 2015, p. 398).

There is a unique quality to humans' relationship to dogs that may even have a coevolutionary basis (Nagasawa et al. (2015). This is especially true for children who can become best friends with a dog but also so much more, such as a safe haven for a foster child (Carr & Rockett, 2017). Jalongo (2015) mentioned that the behavior and synchrony a dog can achieve with a child is far greater than will ever be achieved by a fish or hamster no matter how strong the attachment between these pets and their children is (p. 399). The bond between children and dogs can be strong and beneficial, and while this study will not examine pets, research has shown strong bonds can be formed with dogs that are not pets (Hirschenhauser et al., 2017; Palika & Fearing, 2008; VanFleet, 2008). This bonding ability does not just work on neurotypical students but also impacts students with a variety of disorders to include psychological as discussed in examining VanFleet (2008) through the use of targeted interventions.

The practitioner's resource book on play therapy involving kids and dogs by VanFleet (2008) mentions how children with a range of behavioral or psychological

problems seem to positively respond to animals. This shows positive indications to its effects on the trauma backgrounds and behavioral issues of the students. VanFleet's (2008) seminal book examined the impacts of canine play therapy to include an activity with children who have ASD and ADHD. Furthermore, the book examined how dogs successfully work and help children who have anxiety, low confidence, other behavioral issues (to include ODD), and communication difficulties (VanFleet, 2008). Dogs have a tendency to make people happy (Palika & Fearing, 2008). The human-canine bond is of obvious interest to researchers but is an area still actively being studied.

Current Thoughts Behind the Role of Hormones in the Human-Canine Bond

There are two hormones that researchers are looking toward to measure and explain the sense of connection or bonding when human-canine intervention occurs (Beetz et al., 2012; Correale et al., 2017; Protopopova et al., 2019). The stress hormone cortisol is the first hormone examined and an important research study focused on the decrease of the hormone (Protopopova et al., 2019). The second is the hormone oxytocin, which is examined in research within human-animal intervention such as Beetz et al. (2012) or a more endocrinological approach as taken by Nagasawa et al. (2015).

Cortisol. Cortisol is a stress hormone (Protopopova et al., 2019). Several researchers including Beetz et al. (2011), Beetz et al. (2012), Krause-Parello et al. (2018), and Protopopova et al. (2019) have utilized salivary cortisol as a measure of stress in human-animal intervention studies. The early work of Beetz et al. (2011) showed a cortisol decrease in the presence of a dog. Protopopova et al. (2019) examined contingent and noncontingent access to therapy dogs for children with ASD and measured salivary cortisol of the children before and after experimental sessions, but found it varied across

participants. Polheber and Matchock (2014) noted that in their study, as participants were allowed to provide the dog a treat during their first phase, this might have increased oxytocin levels due to the nurturing nature of the act, and oxytocin possibly buffered the heart rate response (p. 864).

Oxytocin. Oxytocin is a hormone known for its role in social bonding, and researchers have written about or mentioned the role of oxytocin regarding human-animal interactions (Beetz et al., 2012; Correale et al., 2017; Jalongo, 2015; & Nagasawa et al. 2015). Beetz et al.'s (2012) work, in particular, has a breakdown of studies and description of the oxytocin system and effects of human-animal intervention on oxytocin. Beetz et al. (2012) noted that after 5 to 24 minutes of stroking a dog, plasma oxytocin increased and that an unfamiliar dog had a lesser effect than that of one's pet (p. 11).

Nagasawa et al.'s (2015) work on the oxytocin-gaze positive loop is an examination of this process in which the authors posited that this reinforcing loop is part of the coevolution of humans and dogs. Nagasawa et al.'s (2015) result supports that much like in human mother-infant relations there is support that in human-dog relationships there is a self-perpetuating oxytocin positive loop (p. 336). If the coevolutionary theory of this positive loop holds true in further investigations, then it would go a long way to explaining why dogs tend to have positive effects on humans in so many human-animal intervention studies. It would show a coevolutionary biochemical reinforcement to why humans and dogs bond and why children may bond stronger and see that bond as friendship or more (Carr & Rockett, 2017; Hirschenhauser et al., 2017; Jalongo, 2015; Kerns et al., 2017).

The science behind why researchers think the human-canine intervention bond is so strong and that is due to the role of oxytocin, the hormone associated with social bonding (Beetz et al., 2012; Correale et al., 2017; Jalongo, 2015, p. 400; Nagasawa et al., 2015). Nagasawa et al.'s (2015) results support that much like in human mother-infant relations there is a self-perpetuating oxytocin positive loop in human-dog relationships that may be coevolutionary. These studies helped the human-canine intervention field understand why dogs and humans bond strongly.

Measuring Biomarkers of the Bond. Dogs have been known to decrease stress as measured by biomarkers such as lower blood pressure, heart rate, and self-reporting via means such as a Likert scale. For instance, Krause-Parello et al. (2018) found this effect in their study utilizing these data points. Multiple studies have discussed or used these in a variety of combinations to include Beetz et al. (2012); Krause-Parello et al. (2018); Polheber and Matchock (2014); Zents et al. (2017). The biomarkers and Likert scale combination has been used in research as indicators for measuring stress. Reduction of stress is one area noted by Gee et al. (2017) and the perceptions of stress reductions through the application of a therapy dog is examined by this study. The role of these hormones is key in animal-assisted therapy canine usage that aims to reduce stress and anxiety.

Direct Effects of Animal Interactions

Gee et al. (2017) in their proposed HAI theoretical framework noted four areas that have direct effects on student learning, and these same four areas have possible effects on student social-emotional development. Those four areas are social interaction,

self-regulation/stress coping, engagement/attention, and motivation/self-efficacy. These four areas are examined in-depth below.

The Effects of Human-Animal Intervention on Social Interaction

Studies, like the one conducted by Becker et al. (2017), have examined if dogs being used along with interventions or programs affects the efficacy of those programs. Beetz et al. (2011) found that a child's behavior changed more in their interactions with a real dog versus a stuffed toy or friendly person. Becker et al. (2017) examined students with high functioning autism spectrum disorders (ASD) that were in therapeutic or residential treatment centers. Becker et al. (2017) examined social skill development over a 12-week program, consisting of 1-hour sessions. Their findings support social skills training that includes dogs and those inclusions are more effective than programs of a more traditional nature (Becker et al., 2017, p. 319).

Additionally, Becker et al. (2017) found the incorporation of dogs into the students' social skills programs reduced depression symptoms, including feelings of poor social interactions and isolation. Students in the program that included the dog were found to talk more than the control group and initiate conversations with study therapists (Becker et al., 2017). Specifically, the increase occurred between sessions and after the conclusion of the study more than the control group (Becker et al., 2017). Unfortunately, the control group was not empirically measured as they were unexpected but a noteworthy point nonetheless (Becker et al., 2017, p. 320).

Increased/improved sociability toward the student's peers, their teachers, or therapists was found in a variety of studies including Anderson and Olson (2006) and Flynn et al. (2020). Flynn et al. (2020) found animals were a factor in getting students

unstuck and more curious about the world. The clinicians in Flynn et al.'s (2020) study noted that students were engaged longer when at the farm. It was also noted by several clinicians that students were helped by animals to shift from oppositional to motivated and cooperative (Flynn et al., 2020). Flynn et al. (2020) pointed out that students were more willing to work with clinicians, peers, and teachers.

Behavior modification is an important aspect of this study as a change in behavior has an impact on some of the areas in the HAI theoretical framework (Gee et al., 2017). An increase in social interaction and motivation/self-efficacy all require some behavioral changes and are areas to be examined by this research. Therapeutic canine interventions that reduce stress and anxiety while related to behavior modification is a specific area researchers have taken an interest in and also a key area addressed in the HAI theoretical framework.

The Effects of Human-Animal Intervention on Self-Regulation/Stress Coping

Stress and anxiety coping is the primary way the therapy dog is utilized at the middle school research site. Dogs are used in a variety of ways when it comes to stress and anxiety reduction. This section covers what this looks like in two different fields of study. The first deals with a sensitive subject and may be difficult for some readers even though discussion of the topic is more focused on the dog's role. This research is included as the impacts of the canines on children undergoing so many stressors are worth examining. If uneasy about the discussion that revolves around child sexual abuse, please skip the next paragraph. This will be followed by a note about some contrary findings, and the role cultural differences may play, then a review of stress reduction in the school setting.

Interviews can be stressful situations and a child undergoing a forensic interview regarding allegations of child sexual abuse is not surprisingly stressed in part by the process if one thinks about what they are going through. The study by Krause-Parello et al. (2018) studied 51 children, of whom 29 were exposed to the canines as part of the experimental group. These children ages ranged from 4 to 16 years old (Krause-Parello et al., 2018). The children's stress was measured through blood pressure, heart rate, and salivary cortisol biomarkers (Krause-Parello et al., 2018). Krause-Parello et al. (2018) found their results suggested that the presence of the facility dog was beneficial to decreasing the stress level of the children (p. 317). A side note for this study is that Krause-Parello et al. (2018) noted that of the children who disclosed during the interview 64.7% of them pet the dog during the disclosure (p. 313). The findings of Krause-Parello et al. (2018) are in line with the findings of others studying this area of research.

There are some contrary findings to this positivity of using dogs as noted by Crossman (2017) who examined human-animal intervention research and in reviewing evidence discussed several studies that did not find human-animal intervention had an effect on distress. Continued research into canine use will help to expand the breadth of research and better pinpoint if there are instances where canines are ineffective or certain approaches or factors mitigate benefits seen in other studies.

One factor for contradictory findings may be cultural differences as Jalongo et al. (2004) identified as one of their three safety concerns. Cultural differences are a possible limitation in all studies as there are regions of the world where dogs are not seen as companions, and thus certain groups of people may not be participating in studies involving dogs. Cultural awareness and understanding when designing and implementing

research involving dogs is an essential piece of human-animal intervention research design. This study took place with a mid-western population in the United States and from social media, and thus cultural impacts are expected to be minimal, but given the diverse nature of the United States this not a factor that could truly be ruled out.

Stress Reduction in School Settings. One of the major themes Flynn et al. (2020) found in their therapy animal study (which included farm animals, horses, and dogs) was self-regulation. Flynn et al. (2020) found the perceptions from participants was that students were motivated to improve their coping skills as the students cared for the animals' well-being and safety. Barber and Proops (2019) found a common thread from their participants was calmness, which is also mentioned by Flynn et al. (2020) as an impact of the animals on the students.

The Trier Social Stress Test is a frequently used psychological protocol used in a laboratory setting and developed for subjects to undergo moderate psychosocial stress (von Dawans et al., 2010). The study by Polheber and Matchock (2014) examined three scenarios in which 294 undergraduate participants were given a Trier Social Stress Test to measure the effects of social support if available. The social supports were the presence of a friend, the presence of a friendly but nonfamiliar dog, and a control group in which no social supports were present (Polheber & Matchock, 2014). Polheber and Matchock (2014) measured heart rate and salivary cortisol as their biomarkers. Regarding their findings and the relation between condition and time, Polheber and Matchock (2014) remarked, "the nature of this interaction was such that mean [heart rate] during the Trier was significantly attenuated in the dog group compared to the friend and control groups" (p. 864). Despite efforts, some factors may have affected the friend social

support piece as one of the undergraduates was chided by his friend during the stress test, or as Polheber and Matchock (2014) provide an example where a friend of one participant insulted him when he struggled with a backward counting task and noted no such negative items were in the dog situation (pp. 864–865). A limitation with Polheber and Matchock’s (2014) study was the effect of oxytocin a dog stimulates in a human may decrease cortisol (Li et al., 2019). This ability to decrease stress is also used in many university settings.

The Effects of Human-Animal Intervention on Children’s Engagement

Studies examining engagement tend to have a larger representation from reading programs (Friesen, 2010). The lack of judgment from the dog by readers who struggle is often pointed to as a possible reason for the increase in engagement and motivation or, put another way, “the non-critical listening by the dog may be a factor that encourages the student to relax and begin to enjoy reading (Friesen, 2010), rather than reading being yet another activity that they face criticism and assessment in” (Barber & Proops, 2019, p. 514). Flynn et al. (2020) found that animals (including dogs, but other animals as well) were an important factor in helping students become reinfused with curiosity and hope after assisting them in getting unstuck (Flynn et al., 2020). These experiences, according to Flynn et al. (2020) encouraged students to open up more and relax, which the researchers believed could assist in leading to therapeutic breakthroughs.

The Effects of Human-Animal Intervention on Motivation

Kirnan et al. (2018) found motivational/self-efficacy effects on reading motivation in students. Specifically noted was improved behavior, increased motivation, and excitement among the students (Kirnan et al., 2018), which touches on areas of the

HAI theoretical framework. Anderson and Olson (2006) found improvements in self-esteem in a classroom for children with severe social-emotional disorders. Barber and Proops (2019) discussed that the student may believe they are reading better and thus find themselves more motivated to challenge themselves and read more often. Reading to the dogs was considered a fun and relaxing experience by many students, which Barber and Proops (2019) posited created a positive feedback loop in which each positive interaction with the reading dog increased the willingness to continue to read to the canine in the future. Arkow (2020) noted how caring for pets may bring self-efficacy and feelings of mastery to children who feel powerless and dependent. Companion animal care may, according to Arkow (2020), also help develop in boys innate nurturing skills as caring for pets is gender-neutral.

Theoretical Framework

The HAI theoretical framework proposed by Gee et al. (2017) is the framework of this study. The framework of this study is interwoven with therapy dogs in schools, and the perceptions of those involved with these therapy dog programs. Belt (2020) noted the need to further capture teacher perceptions about therapy dogs in schools. Belt (2020) found that 98% of teachers in their study did not teach in a school utilizing a TD program, and 96% had not even experienced a TD program in use in a classroom. Despite this, the majority of educators' perceptions were that TDs positively impacted emotional and social behaviors in class (Belt, 2020).

Gee et al. (2017) proposed a HAI theoretical framework (See Figure 1) that aims to show a depiction of the direct effects of human-animal intervention on children's engagement, social interaction, motivation, and self-regulation, while also depicting

indirect effects regarding learning and social-emotional development (p. 3 and Figure 1). The social-emotional piece of this theory is considered an indirect effect due to this area being largely unexplored, while the other pieces are considered as being a direct effect (Gee et al., 2017, p. 3). The theoretical framework and research questions align, and the theoretical framework serves as a lens for the survey and interview questions that are utilized in this study. The theory, in part, is derived from the incorporation of Kazdin's (2017) suggestion that human-animal intervention has small theories. Small theory, according to Kazdin (2017), describes an investigator's clarification of his or her view about how or why an intervention produces change and does so before designing a study. Kazdin (2017) continued that this small theory conveys that it is specific to that particular study and therefore not applicable to all clinical or therapy items. Gee et al. (2017) linked these small theories into self-control, motivation, emotional regulation, and learning with regard to physiological and behavioral development. These small theories were further refined/adjusted into the present HAI theoretical framework developed by Gee et al. (2017).

Figure 1

HAI Theoretical Framework (Gee et al., 2017)

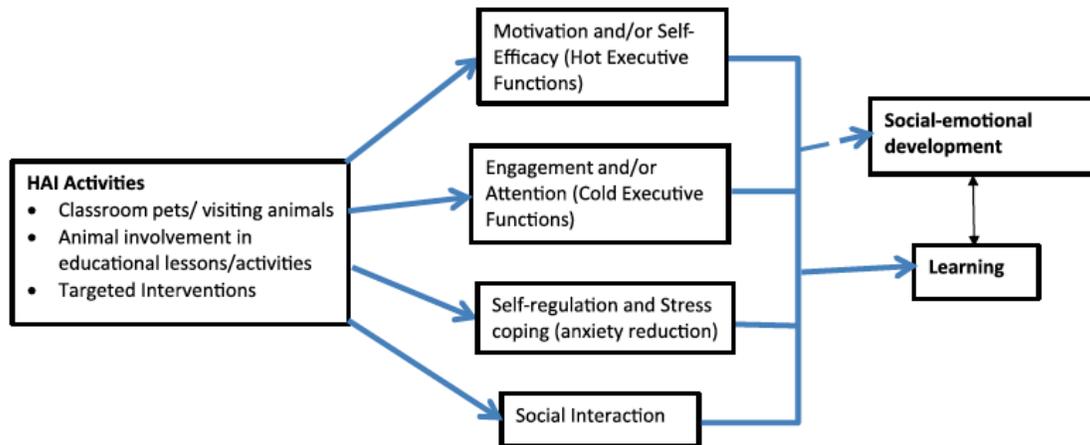


FIGURE 1. *This theoretical framework depicts direct effects of human–animal interaction (HAI) on children’s motivation, engagement, self-regulation, and social interaction, as well as indirect effects on social-emotional development and learning, all indicated by thick lines. The dashed line indicates a possible, though to date unexplored, pathway of indirect effect for HAI on learning through social-emotional development.*

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HAI Theoretical Framework Components

The HAI theoretical framework examines the direct effects of human-animal intervention on four categories: (a) student social interaction, (b) stress coping and self-regulation, (c) engagement and/or attention, and (d) motivation and/or self-efficacy (Gee et al., 2017). These four categories have indirect effects on student learning, according to

Gee et al. (2017). The theoretical framework also discusses a possible effect on student social-emotional development (Gee et al., 2017).

Conclusion

Some important roles of canines in school settings are as part of reading/literacy programs as examined by researchers such as Noble and Holt (2018) or as stress/anxiety reduction whether at a school setting (Barber & Proops, 2019) or the university level (Silas et al., 2019). The benefits of canines are not just limited to stress/anxiety reduction. Canines, according to the HAI theoretical framework (Gee et al. (2017), have direct effects on four areas: (a) student social interaction, (b) stress coping and self-regulation, (c) engagement and/or attention, and (d) motivation and/or self-efficacy. Those impacts on stress/anxiety reduction were important to this study as that is the primary role of the TD utilized at the middle school site where teacher/staff member perceptions were captured.

Belt (2020) recognized the need for further investigation into the perceptions of teachers regarding therapy dogs. Belt (2020) found that 98% of teachers in the study did not teach in a school utilizing TD programs, and 96% have not even experienced a TD program in use in a classroom. Despite this, the majority of educators' perceptions were that TDs positively impacted emotional and social behaviors in class (Belt, 2020). This study examined an area missing in research, which is the lack of studies that capture data beyond the first year of intervention (Noble & Holt, 2018) and addressed the gaps through targeted survey questions and interviews as discussed in Chapter 3.

CHAPTER 3: METHODOLOGY

Finding an approach to study anything in a methodical manner requires careful planning. Human-animal interaction requires consideration of the type of activity, previous research, and knowledge in addition to the questions to be answered and the population and methods chosen to answer them. Therapy Dogs (TDs) in classrooms make this proposed study an examination of animal-assisted education. This chapter provides answers to what methods were chosen as well as the reasoning behind those choices. First, a review of the purpose of the study is presented, followed by the research questions and design of the study. Then, site information and population are discussed, followed by the sampling method. Instrumentation and data collection procedures follow this, as well as a discussion on limitations and ethical issues. Lastly, the chapter closes with a conclusion and summary.

Purpose of the Proposed Study

The primary purpose of this case study was to obtain the perceptions of the teachers/staff members directly associated with the TD program in their school regarding the TD program's effectiveness regarding (a) student social interaction, (b) stress coping and self-regulation, (c) engagement and/or attention, and (d) motivation and/or self-efficacy. This proposed study examined these perceptions through the lens of the human-animal interaction (HAI) theoretical framework as proposed by Gee et al. (2017) as shown in Figure 1. Pursuing this type of study allowed for the application of the theoretical framework proposed by Gee et al. (2017) to address the need to capture teacher perceptions identified by Belt (2020) and supportive data as noted by Griffin et al. (2019). This application of the human-animal intervention framework helped to focus

the research lens while the qualitative case study approach aided in the examination of experiences and helped to make sense of the phenomenon (Merriam & Tisdell, 2016). The research questions focused on the perceptions of the teachers/staff members regarding the impact of TD programs on (a) student social interaction, (b) stress coping and self-regulation, (c) engagement and/or attention, and (d) motivation and/or self-efficacy.

Research Questions and Design

The questions for this study were derived from the HAI theoretical framework proposed by Gee et al. (2017). This framework states that human-animal intervention activities have effects on four areas that lead to indirect effects on learning and social-emotional development of students (Gee et al., 2017). These four areas are (a) student social interaction, (b) stress coping and self-regulation, (c) engagement and/or attention, and (d) motivation and/or self-efficacy (Gee et al., 2017). The study proposed the following four research questions:

1. What are the perceptions of staff members directly associated with TD programs regarding the effects of therapy dogs on student social interaction?
2. What are the perceptions of staff members directly associated with TD programs regarding the effects of therapy dogs on stress coping and self-regulation?
3. What are the perceptions of staff members directly associated with TD programs regarding the effects of therapy dogs on engagement and/or attention?
4. What are the perceptions of staff members directly associated with TD programs regarding the effects of therapy dogs on motivation and/or self-efficacy?

This study's aim was to obtain perceptions about those four effects to test the applicability of this relatively recent proposed theoretical framework. Kalkoske's (2018) study focused on emotional/behavioral disordered students and obtained teacher perceptions. Kalkoske (2018) recommended further examination of various aspects of the implementation of TDs. Belt (2020) recommended further exploration of teacher perceptions.

Design

According to Creswell, qualitative research explores and seeks to understand the meaning groups or individuals assign to a human or social problem (2014). The present study proposed the utilization of a qualitative approach as the chosen methodology. A case study approach is "particularly suited to situations in which it is impossible to separate the phenomenon's variables from their context" (Merriam & Tisdell, 2016, p. 38). The phenomenon of the effects of therapy dog interactions is inseparable, thus a case study approach is the best option. A qualitative case study allows for the exploration of perceptions or to understand the meaning of the issue (Creswell, 2014). To explore these perceptions this study utilized surveys and semistructured interviews to obtain these perceptions.

The HAI theoretical framework was not proposed by Gee et al. (2017) until relatively recently, meaning there is limited research exploring its aspects compared to other long-established theoretical frameworks. Exploring perceptions can be accomplished by means of a qualitative study (Creswell, 2014). Furthermore, Creswell (2014) noted the exploration of real-life through data collection, which is an ideal approach to answering the research questions of this study. Thus, this study utilized a

qualitative case study approach to explore real-life and perceptions of the teachers/staff members to address the research questions.

Site Information and Population

Identifying participants was difficult due to the limited number of schools that have therapy dog programs relative to the number of schools without them. One site of this study is a middle school that is located in the midwestern United States that serves approximately 225 students in 6th through 8th grade, (as described by state enrollment data, 2020). The TD has a schedule that is modifiable based on student needs but is typically in 6 classrooms on daily basis, and the therapy dog has the freedom to visit other classrooms dependent on the schedule of the day and needs of the classrooms/students (according to a local newspaper article, 2018). The site was identified via a Google search for a “therapy dog middle school” with a specified date range that ensured the program was greater than a year old. This search resulted in locating an online newspaper article that discussed the therapy dog program at the middle school. Permission to recruit was obtained by the superintendent and the principal of the school. The other participants were gathered via snowball sampling on social media. A Facebook group focusing on the topic was used as a starting point.

The intent was to obtain survey and semistructured interview data from teachers/staff members who work in a school setting whose classrooms are involved with the therapy dog or who is the teacher/dog handler. No activity other than survey completion and semistructured interviews of the teachers/staff members was performed. The participants were asked to complete surveys, and all participants were 20 years old or older due to educational requirements for their respective positions. Regarding

interviews, the key additional requirements were that the staff have had direct experience with the TD program. The other requirement was that the TD program had been operating for more than one year, to ensure it was past the pilot program stage as described by Noble and Holt (2018). A goal was a minimum of five interviews of teacher/staff members to allow for theme development and analysis. The expected pool of potential participants was approximately 20–25 teachers/staff members who work in the middle school. For social media the potential pool was significantly larger but harder to estimate given the eligibility criteria of this study. As the research was not focused specifically on the students within the classrooms but rather on the teacher/staff members, who are required to maintain confidentiality as part of their employment in a school system, this minimized and possibly mitigated any ethical concerns regarding children and research. Social media collection expanded the population beyond middle school to any prekindergarten to 12th grade school staff member.

Sampling Method

The population of this study consisted of teachers/staff members who were involved in TD programs within a middle school setting and participants collected via social media. Utilizing non-probability and snowball sampling, specifically purposive or judgment sampling provided in-depth context and in-depth data for this study (Bloomberg & Volpe, 2015; Merriam & Tisdell, 2016). Bloomberg and Volpe (2015) explained the “logic of purposeful sampling lies in selecting information-rich cases, with the objective of yielding insight and understanding of the phenomenon under investigation” (p. 148). Purposive sampling usually occurs before gathering the data (Merriam & Tisdell, 2016), which given the criteria and selection requirements and the

population was an appropriate approach to answer the research questions of this study. Additionally, purposeful snowball sampling via Facebook was utilized to gain additional participants. In order to identify their needed population, Baltar and Brunet (2012) utilized snowball sampling through Facebook. By purposefully sampling, the researcher ensures that participants meet the selection criteria, and anticipates that each participant will be able to provide his or her perspective.

The researcher reached out to the superintendent of the district and principal of the school and obtained permission to conduct research at the middle school site. After IRB clearance the teachers were invited to voluntarily participate with an invitation e-mail including a survey link. A singular posting to the Facebook group included a link to the survey. Within the both surveys was a chance to volunteer to participate in the interview portion of the research.

Instrumentation and Data Collection Procedures

The nature of this study gathered responses from people in a variety of locations and was designed during the COVID-19 pandemic. COVID-19 was still a factor when this study took place, the use of qualitative surveys was selected to obtain these perceptions as well as interviewing via an online methodology to mitigate risks for all involved. The advantages of utilizing a survey were the relatively easy administration, management, and its relatively unobtrusive nature (Bloomberg & Volpe, 2015).

Survey

One survey was crafted for the middle school site (Appendix A) and a secondary one for social media snowball collection (Appendix B) that contained a different, less site specific informed consent (Appendices D and E) and a few additional questions for

obtaining data. The surveys consisted of questions derived from and designed to address aspects of the HAI theoretical framework (Gee et al., 2017) aimed at answering the research questions. Open-ended research questions were used to obtain the perceptions of participants (Bloomberg & Volpe, 2015). Closed-ended questions to get a better context on teacher interaction/perception were used, for instance, asking *what impacts have you seen from the therapy dog on student learning?*

The survey consisted of three sections: first were qualifying questions to ensure participants met the requirements for participation. Then the informed consent, disclosure of the voluntary nature of their participation, and the anonymity of their information finalized the first two sections. These all serve to ensure participants met selection criteria. The informed consent ensured compliance with items outlined in the *Belmont Report* (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research [National Commission], 1978). Questions regarding the TD program and questions aimed at the perceptions of the staff members that address the research questions were in the subsequent section. A variety of qualitative data sets can increase the validity of results through triangulation (Creswell, 2015). A check box at the end of the last section was for participants to volunteer to be interviewed and allow them to provide contact information. Those participants volunteering for an interview were directed to a separate section containing a question for the gathering of contact information.

The researcher utilized informed colleagues to check the survey once it was drafted. This allowed for a thorough review of the survey and interview instruments and feedback was used to improve the format, scales, and questions of the instrument. This

involved providing the questions for assessment of the perceived effectiveness and design of questions. These informed colleagues provided feedback on the questions and survey design. Their feedback was then used to adjust the survey and interview questions accordingly.

Survey Data Collection

First, the researcher obtained permission from the school district and the building principal to conduct research at their site. After IRB approval the researcher contacted the principal to forward an e-mail inviting teachers/staff members to participate, which included qualification criteria and a link to the survey. The link connected to a survey created in REDCap. The teachers/staff members could choose to click on the link and be brought to the survey. If the participant selects yes on the criteria: (a) 18 years or older, (b) teacher/staff member at school, and (c) has observed/been present with student-TD interaction, then they would be allowed to continue to the survey. If they selected no to one of these options and confirmed its selection, or they did not consent to the survey this would have resulted in the closure of the survey and brought them to a page thanking them for their time. Those that did not meet the criteria were not allowed to proceed to the survey contents. The social media survey (Appendix B) followed this same procedure, except it did not ask the site specific employment question. The surveys were administered using REDCap, a secure web application designed for research purposes to include survey data collection. REDCap gathered submitted surveys and warehoused the data for review.

REDCap (Harris et al., 2009) requested language for utilizing their project as listed on webpage:

Study data were collected and managed using REDCap electronic data capture tools hosted at University of New England. REDCap (Research Electronic Data Capture) is a secure, web-based application designed to support data capture for research studies, providing: 1) an intuitive interface for validated data entry; 2) audit trails for tracking data manipulation and export procedures; 3) automated export procedures for seamless data downloads to common statistical packages; and 4) procedures for importing data from external sources. (Harris et al., 2009)

Interviews

Interview questions (Appendix C) were designed utilizing the HAI theoretical framework proposed by Gee et al. (2017) as a lens. The questions covered items such as perceptions of the impact of TD interactions with students and how students react to TDs. Interview questions were reviewed by informed colleagues prior to implementation. The feedback from this review was used to adjust the interview questions and format as needed. Semistructured interviews were conducted with survey respondents who volunteered to be interviewed. Semistructured interviews are a mix of various levels of structured questions, allowing structured questions to get specific information while allowing the interviewer flexibility to respond to new ideas or points from the interviewee (Merriam & Tisdell, 2016). Utilizing the research questions to correlate to the questions asked of the participants helped develop the interview protocol. Interviewing allowed for participants to provide rich, thick descriptions (Bloomberg & Volpe, 2015).

Interview Data Collection

Semistructured interviews were conducted with five teachers/staff members being interviewed. The interviews were conducted via Zoom and recorded. The interviews were then transcribed with Rev.com and the transcript member-checked. Member checking, as defined by Merriam and Tisdell (2016) enables researchers to “solicit feedback on [their] preliminary or emerging findings from some of the people that [they] interviewed” (p. 246).

Data Analysis

Merriam and Tisdell (2016) discussed the need to manage qualitative data and the importance of coding data. Categories, themes, and findings from the data were identified, reviewed, refined, identified, reviewed, and refined (Merriam & Tisdell, 2016). All this data needed to be organized or brought together for easy retrieval (Merriam & Tisdell, 2016). The survey data was organized and examined in REDCap by individual question. The interview data after REV.com transcription was organized by participant. The data was read through and organized initially by research question and associated interview or survey question if relevant. As survey questions are voluntary, some questions went unanswered. If it appeared that the question was missed completely at random this did not create bias in the results and there would be no systematic differences between nonrespondents and respondents (De Leeuw et al., 2003). Surveys with unanswered questions were included in the results unless there is a preponderance of unanswered questions versus answered, in which case the survey submission might have been in error and thus the survey not included in the results (De Leeuw et al., 2003). Any surveys deemed to be submitted in error would have been reported out but not included in

the data. When reporting on a survey that was not answered by all participants this data was noted; for example, two respondents did not answer this question.

Coding in qualitative studies, according to Saldaña (2009), “is most often a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data” (p. 3). The first step is to pre-code, which is identifying and marking key items that strike the researcher as codable moments (Saldaña, 2009). For this research, this was identifying items that easily aligned with the research questions. This was followed by an initial coding process in which the researcher examined for first impressions and items that have more meaning (Saldaña, 2009). Applying this to the research meant examining for items that not only answered the research questions but might also speak to learning or social-emotional development, as these are also points in the theoretical framework, and coding them accordingly. Any other items not in the theoretical framework but of possible importance, or that show up repeatedly in the data were also coded with a word or phrase (Saldaña, 2009). This process was repeated in this cycle, refining items, adjusting, deleting, or combining codes until themes were developed (Saldaña, 2009). Codes and themes could be deleted if they were replaced with a more succinct or applicable code or if through the cycle it was discovered to have been coded in error (Saldaña, 2009). Preliminary findings would be member-checked for veracity (Merriam & Tisdell, 2016).

Survey Data Analysis

The survey data were separated into three sections: criteria for participation, informed consent, and survey questions. The survey data were examined through REDCap and exported to a MS Excel spreadsheet, depending on the output format of

REDCap. Any spreadsheets or downloaded output files from REDCap were encrypted with *Folder Lock* encryption software and were saved to a USB thumb drive. The thumb drive was accessed only via a computer that required a fingerprint scan to access and was itself encrypted through the operating system utilizing *Bitlocker* that has created an encrypted file system. Any similarities and differences within the TD program were analyzed along with the other data for trends or themes.

Closed question response data were compiled into spreadsheets for comparative analysis and coding. Open-ended responses were examined and items of interest or that could serve as talking points were incorporated into the interviews. Open-ended responses were compared with other responses for similarities and differences in addition to coding. The creation of hierarchical categories and subcategories allows for a coding scheme to develop and organize the codes and data (Saldaña, 2009). As for what to code, Saldaña (2009) recommends coding everything for those that are novice to the process. These themes were analyzed, consolidated, eliminated, and additional themes were added. Themes could have been deleted if they were replaced with a more succinct or applicable code or if they would have been better served combined with another theme. This pattern of read, code/theme, and analyze was repeated as needed (Bloomberg & Volpe, 2015; Roberts, 2010).

Individualized site and program information gathered was introduced using descriptive text. One example of this individualized data is the average number of TD visits to the participant's room. Finally, participant responses are discussed.

Interview Data Analysis

The interview data were stored similarly to the research data. The output video and audio files from the Zoom recording were encrypted via *Folder Lock* encryption software and saved to a USB thumb drive. This USB thumb drive was accessed only via a computer that requires a fingerprint scan to access and is itself encrypted through the operating system utilizing *Bitlocker* that has created an encrypted file system. The original transcripts were encrypted similarly using *Folder Lock*, as were the working copies that were used for coding/theming.

Analysis of the interview transcripts followed a similar pattern to the survey data in that they were read through and coded looking for categories, patterns, and themes (Creswell, 2014). In addition to a manual review and coding, these results were then analyzed, consolidated, eliminated, and additional themes added as needed (Bloomberg & Volpe, 2015). The transcripts were then continually rereviewed, coded, themes identified, and themes compared. The survey data and the interview data was then compared and analyzed for shared themes and themes needing consolidation or refinement (Bloomberg & Volpe, 2015). An important part of the coding process was a code list that was kept up-to-date, providing analysis opportunities and organization/reorganization of the codes (Saldaña, 2009).

Data were then analyzed by breaking down further into any application they may have had to the four areas addressed by the research questions: (a) student social interaction, (b) stress coping and self-regulation, (c) engagement and/or attention, and (d) motivation and/or self-efficacy (Gee et al., 2017). Data were reported (see Chapter 4) by starting with the first research question. This step was repeated for the remaining research

questions. Any quotations that fit the categories may have been used as headers, to identify themes, or be part of charts, figures, or tables reporting themes (Bloomberg & Volpe, 2015). Additionally, quotations were used to provide the necessary rich descriptive text. Themes or data that did not fit into the categories or the research questions were reported as well as any contrary data.

Limitations of the Research Design

As this was academic research, there was a built-in time constraint that limited data gathering and analytical windows as well as a writing window that could have impacted the process and these limitations could affect the research. Not being affiliated with either site does help mitigate some potential pressure on participants to take part (National Commission, 1978). The proposed study does have some potential limitations. The hope was to limit the impact, if not completely mitigate, these through this process, but no doubt some may remain and others are identified at the conclusion of the study. These limitations are categorized into three methodological areas: sample bias, positive perceptions, and population. These limitations are known or expected.

Methodological

Sample bias could have occurred due to the voluntary participation in surveys and interviews, meaning stakeholders participating in programs that are perceived as positive could have been forwarded to the researcher and less than positive not submitted. This could have an effect on the transferability of the study due to the voluntary nature of participants and selection criteria. To mitigate this, the researcher examined only a school with a therapy dog program that has been running longer than a year (as cited in newspaper article, 2018) and selecting participants who met selection criteria, to include

direct involvement in the TD program. Selection criteria for social media participation also required their programs to be running longer than a year.

A related issue was that the participants may have had some positive perceptions about TD in schools, as they were facilitating, participating, or observing the program in some manner. This should not affect the outcomes of the study, as this positive perception would be expected if another study utilized the same selection criteria for teachers/staff members who are directly involved with TD programs in schools that have been operating longer than a year. While this positive skew was expected, it is a potential limitation. Capturing of the data does allow for comparative analysis and identification of trends/themes (Saldaña, 2009). Furthermore, obtaining perceptions on aspects relating to the research questions might mitigate a positive bias as it looks at aspects of the intervention/program and outcome. It is possible to capture some participants who are unhappy with the program, which could help provide a wider perspective of the issue and help mitigate the positive perception issue.

Another potential limitation was the population itself and the effect it had on the transferability of the results. Transferability is the extent to which the findings of a study can be applied to another study or situation (Merriam & Tisdell, 2016). The population was limited to teachers/staff members that participate, facilitate, or observe the TD work. The relative rarity of programs combined with the variables of the TD and handler, and lack of a uniform approach to human-animal intervention makes generalizability of the study difficult. This was a limitation that was hard to mitigate because the uniqueness of the program and participants will never completely match another team. This could be

somewhat mitigated to ensure the study is transferable as discussed in-depth in the next section.

Trustworthiness

Validity/trustworthiness plays an important role in qualitative research; it allows the researcher to check the accuracy of findings, and a consistent approach is used by employing specific procedures (Creswell, 2014). The concept of validity is referred to as trustworthiness in qualitative research (Roberts, 2010). Trustworthiness encompasses four categories: credibility, transferability, dependability, and lastly confirmability (Merriam & Tisdell, 2016). In qualitative studies, it is the credibility factor that shows the data is valid and can be trusted (Roberts, 2010). Qualitative reliability ensures the approach taken is consistent and there are options to ensure reliable procedures (Creswell, 2014). Review of transcripts for obvious mistakes is the first option suggested by Creswell (2014). The second is preventing coding drift by which the meaning of codes shifts, this is countered by keeping clear code definitions that are referred to during coding Creswell (2014). These two suggestions were performed by the researcher to ensure reliability.

Credibility and validity are about the accurate portrayal of the perceptions provided by participants (Bloomberg & Volpe, 2015). Transferability relies on how understandably the relevant aspects of the research are described so that it is understood by the reader, while dependability requires providing descriptive rich detail for other researchers (Bloomberg & Volpe, 2015). Confirmability aims to ensure the results are a true reflection of the research rather than bias (Bloomberg & Volpe, 2015).

Credibility and Validity

Credibility refers to how the researcher's portrayal of participants' perceptions matches the participants' perceptions (Bloomberg & Volpe, 2015). This study utilized triangulation and member checking to address credibility. Triangulation, according to Creswell, involves "examining evidence from the sources and using it to build a coherent justification for themes" (2014, p. 201). Triangulation in this study was utilized in two ways. Triangulation was used when examining the two sources of data survey and interview, for coherent themes between the sources. Furthermore, the data from the multiple participants were also examined for coherent themes. Themes derived from several sources of data or perspectives of participants helped validate the study and were validated through member checking.

Member checking is soliciting feedback from participants on the preliminary or emerging findings (Merriam & Tisdell, 2016). Member checking is an important way to rule out misinterpreting the meaning of participants' perspectives as well as identifying any researcher biases or misunderstandings (Merriam & Tisdell, 2016). For member checking, interview participants were provided a chance to review, provide clarification, or request alteration of the transcript of their interview and the emerging findings and/or themes.

The survey and interview questions were both structured to capture participants' perceptions allowing two data points from multiple participants. The researcher of the study previously held investigatory and analytical positions in a career field where one routinely placed their personal feelings aside and ensured that personal views were not influencing the material but rather the facts as seen and described by participants to guide

the way forward. Due to this, the researcher was confident that the participants' responses would become evident in the findings.

Transferability

Transferability is based on how well a study has been detailed so readers can determine if the findings can work in their own research setting (Bloomberg & Volpe, 2015). As suggested by Lincoln and Guba (1985), the researcher also endeavored to “provide ‘sufficient descriptive data’ to make transferability possible” (as cited in Merriam & Tisdell, 2016, p. 298). Transferability is aided through thick, rich descriptions (Merriam & Tisdell, 2016). Transferability was addressed via purposeful sampling and providing rich detail (Bloomberg & Volpe, 2015).

Providing detailed information regarding background and context is key to transferability (Bloomberg & Volpe, 2015). The researcher aimed to construct the study and provide details that will enable other researchers to replicate the study. Beyond this chapter, detailed information is provided on site and program data that were gathered. As discussed by Bloomberg and Volpe (2015), providing detail on the themes and accentuating them with any relevant participant quotes will aid other researchers in understanding and thus add to the transferability.

Utilizing an appropriate sampling method and criteria to increase the likelihood of participants' suitability for the topic (Morse et al., 2002) aids researchers in determining qualified participants for their studies. Purposeful sampling ensured that participants were able to provide the data needed for rich details. The researcher provided details on criteria for participation to aid other researchers in understanding the way participants were selected.

Dependability (or Reliability)

Dependability is the ability to repeat procedures and processes that are used when collecting and interpreting data according to Bloomberg and Volpe (2015). The researcher addressed this dependability factor by providing an accurate description of processes and procedures in this chapter. The researcher utilized member checking to ensure the accuracy of the transcripts, themes, and findings to strengthen the dependability of the findings. The researcher also utilized the triangulation of multiple data sources (instruments and participants). Using thoroughly descriptive writing to convey the findings also aided in the dependability, as well as ensuring the researcher clarified the biases to include their own (Merriam & Tisdell, 2016). This researcher provided descriptive details and a thorough explanation of data collection methods and analysis to help aid dependability of the study. Finally, negative information or information that is contradictory to the themes was also presented.

Confirmability

Confirmability or objectivity is the implication that the findings of a study are a result of research and not due to biases and subjectivity of the researcher (Bloomberg & Volpe, 2015). To ensure the confirmability of the research the researcher relied on reflexivity. Reflexivity is an approach within qualitative research in which researchers reflect on how their role—including their personal background, experiences, and culture—may shape the interpretations and themes as they analyze the data (Creswell, 2014). The researcher took a reflexivity approach and reflected on whether their role was having an influence on the interpretations being derived and reexamining them again if there was an influence.

Member checking for accuracy of meanings and interpretations helped the researcher ensure accurate interpretation of participants' meanings (Merriam & Tisdell, 2016). The researcher utilized member checking to verify that interpretations were accurate to what the participant meant. This member checking for accuracy of intended meaning and researcher interpretation helped ensure the findings were not the result of bias or subjectivity.

Ethical Issues

The National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (1978) published the *Belmont Report*, which lists established guidelines and ethical principles regarding human subjects in research and includes the concepts of beneficence, respect for persons, and justice. Beneficence basically means do no harm or minimize harm and maximize benefits (National Commission, 1978). Crafting a study that had minimal risk for the participants was in line with doing no harm. The researcher conducted the interviews from participants' own homes where privacy could be controlled and any threats to their privacy could be mitigated. The researcher could not control where participants partook in the interviews but suggested locations conducive to privacy. Interview participants interviewed from their homes or offices. Participants were not required to answer any question they did not wish to answer. Those who participated only in the survey were anonymous. Those who volunteered for participation in the interview were directed to an optional question that was only accessible to those who volunteered for participation. The surveys were thus confidential. Identifying information about participants was scrubbed from the reported and presented findings.

Respect for persons, as described in the 1978 *Belmont Report*, classifies two types of individuals: (a) autonomous, who can make their own reasoned decisions, and (b) those with diminished autonomy who need additional protections (National Commission, 1978). This research focused solely on autonomous adult participants who were school teachers/staff members. These participants, by the nature of their employment, were over the age of 18 and required to be able to comply with Family Educational Rights and Privacy Act (FERPA) and pass a background check; these items lend to their autonomous nature. Additionally, participation was completely voluntary, and participants were free to withdraw from the study at any time for any reason.

Justice, as described by the 1978 Belmont report, examines who bears the burdens or benefits from research and research participation (National Commission, 1978). All participants in the research were burdened only by time spent completing the survey and participating in the interview. The research did not directly benefit any participant, but rather adds to the body of research on human-animal interaction. The participant selection process was equitable, as any teacher/staff member involved with the TD program had an opportunity to participate. The consent forms (Appendices D & E) informed the participants of the expected outcomes from their participation, such as increased institutional knowledge in the anthrozoology field and adding to the growing body of research regarding TD usage in schools.

Due to the anonymous nature of surveys themselves, there were no foreseeable risks to participating. Informed consent was obtained by presenting the consent form at the beginning of the survey and requiring a check in the check box corresponding with their understanding of the form to move forward. The informed consent form contained

basic information such as the title of the project and the name of the researcher and relevant contact information. This was followed by an introduction informing them they could ask questions and that their participation is voluntary. Next, the potential participants were informed about the study, requirements for participation, that there was no compensation for participation, and that there were no expected risks for participating. A statement described how their privacy was protected via the anonymous survey and confidential interviews. The participant rights were listed to include their ability to withdraw at any time, the voluntary nature of participation, and the ability to skip any question. The form ended with informing the potential participants to print the page to keep a copy of their consent form and a checkbox for their consent.

While it was possible that some respondents may have provided anecdotes regarding student success regarding the therapy dogs, the expectation was that no identifying information regarding that student would be conveyed, in accordance with the educational stakeholder's requirements to be in compliance with their FERPA obligations. FERPA limits what and to whom student information can be given (Congress of the U.S., Washington, DC. House, 1974). If a teacher/staff member shared information about a student that was identifying, that information was made anonymous by identifying him or her by school level (e.g., elementary student, early elementary student, secondary student, etc.) or other means to ensure de-identification of the student.

Researcher Bias

There was researcher bias regarding personal interest in the topic. While not a dog owner, the researcher was interested in the potential for utilizing dogs in schools and the potential benefits. If the researcher was not interested in the perceptions of teachers/staff

members working with TDs another topic of research would have been chosen. As the main instrument in the study, this bias could have had far-reaching effects. There was potential for the researcher to bring a positive bias into the research, but this was mitigated through the design process, committee input, relying on member checking, utilizing direct quotes, and reflexivity.

Chapter 3 Conclusion and Summary

The aim of the present study was to gather the perceptions of teachers/staff members who were directly involved in therapy dog programs in their schools regarding the impacts these canines have on (a) student social interaction, (b) stress coping and self-regulation, (c) engagement and/or attention, and (d) motivation and/or self-efficacy. The study utilized a qualitative case study approach, which facilitated gathering the perceptions through survey and semistructured interviews and enabled the researcher to answer the research questions. Perceptions of the stakeholders were crucial to addressing the research questions and were best addressed via a qualitative approach, which allowed the researcher to examine how participants experience and make sense of the world (Merriam & Tisdell, 2016). The case study approach was the best design to obtain the data required to address the research questions.

The scope of the study focused on an area of research that has been identified as lacking by Belt (2020). The duration of the study depended on how long it took to develop the surveys and interviews and get them approved, but expected at least a month of data collection time. Actual data collection time was approximately three months. This research utilized the HAI theoretical framework developed by Gee et al. (2017) to provide a lens for examining the perceptions of TD usage in schools. The geographic

location of the study was in the midwestern portion of the United States with participants who were teachers/staff working in a 6th through 8th grade middle school setting, with additional participants from social media platforms. This study, using the lens of the HAI theoretical framework, examined the perspectives of teachers/staff members involved with school therapy dog programs through open and closed survey questions and semistructured interviews.

CHAPTER 4: RESULTS

The primary purpose of this qualitative case study was to obtain the perceptions of the teachers/staff members directly associated with the therapy dog (TD) program in their school regarding the TD program's effectiveness regarding (a) student social interaction, (b) stress coping and self-regulation, (c) engagement and/or attention, and (d) motivation and/or self-efficacy. This study examined these perceptions through the lens of the human-animal interaction (HAI) theoretical framework as proposed by Gee et al. (2017) as shown in Figure 1 in chapter 2. Using this type of study allowed for the application of the theoretical framework proposed by Gee et al. (2017). The HAI theoretical framework provided a lens to address the need to capture teacher perceptions identified by Belt (2020). This application of the human-animal interaction framework helped focus the research lens and informed the qualitative case study approach in the examination of experiences as well as helped make sense of the phenomenon (Merriam & Tisdell, 2016). The research questions focused on the perceptions of the teacher/staff members regarding the impact of TD programs on (a) student social interaction, (b) stress coping and self-regulation, (c) engagement and/or attention, and (d) motivation and/or self-efficacy.

The study proposed the following four research questions:

1. What are the perceptions of staff members directly associated with TD programs regarding the effects of therapy dogs on student social interaction?
2. What are the perceptions of staff members directly associated with TD programs regarding the effects of therapy dogs on stress coping and self-regulation?

3. What are the perceptions of staff members directly associated with TD programs regarding the effects of therapy dogs on engagement and/or attention?
4. What are the perceptions of staff members directly associated with TD programs regarding the effects of therapy dogs on motivation and/or self-efficacy?

To address these research questions surveys and semistructured interviews were utilized as data collection means. The participants represented two pools of people. The first pool of 13 participants was from a middle school. The second pool of eight participants was from social media. The demographic composition of the participants included a variety of occupations in the school systems. Interview Participant D, Participant E, and Participant V were also handlers of their canines in addition to working in schools/with students. Interview Participant F talked about a therapy dog that was integrated into a singular classroom. Canine demographic information shared by the participants is included in Appendix F. All participants self-reported as meeting the research study selection criteria. All participants were interviewed by using the Zoom video conferencing platform. Transcripts of the conversations were created using Rev.com and sent to participants for member checking.

Analysis Method

Data were collected through the use of surveys and semistructured interviews. Two surveys were utilized, one for the middle school site (Appendix A) and another for social media participants (Appendix B). The same interview questions were utilized for all participants (Appendix C). Categories, themes, and findings from the data were identified, reviewed, refined, identified, reviewed, and refined (Merriam & Tisdell, 2016). All of the data was organized for easy retrieval (Merriam & Tisdell, 2016). The

survey data was organized and examined in REDCap as individual questions. Participant response to survey questions was voluntary. Participants had the option to leave questions unanswered. The interview data, after REV.com transcription, was organized by participant. After transcripts were member checked the transcripts were individually coded. The data was read through and organized initially by research question and associated interview or survey question if relevant. De Leeuw et al. (2003) noted that if it appeared that a question was missed completely at random this would not bias the results, if there were no systematic differences between nonrespondents and respondents. Thirteen middle school site surveys were completed and consisted of 10 questions, not including the qualifying questions and informed consent. Eight people completed the social media survey with each survey consisting of 14 questions, not including the informed consent or qualifying questions. Surveys of those who did not meet the qualifying requirements or did not provide consent were not included as their surveys would prevent them from continuing to the remaining questions. However, surveys with unanswered questions, although from participants who provided consent, were included in the results. Surveys deemed to be submitted in error were reported out but not included in the data. When reporting on a survey that was not answered by all participants this data was noted in the presentation of results and findings that follow. This includes, for example, noting that two respondents did not answer a particular question.

The first step of coding according to Saldaña (2009) was to pre-code. Pre-coding started with surveys as they returned, followed by interview transcripts after transcription and member checking. This process helped identify and mark key items that the researcher found as codable moments. This was followed by an initial coding process in

which the researcher examined data from the surveys and interviews for first impressions and items that appeared to have more meaning (Saldaña, 2009). A deductive coding approach with codes addressing the four research questions was initially utilized as part of the pre-coding process. In moving through the coding process, items that spoke to learning or social-emotional development were coded as these were connected to the theoretical framework. Other items not in the theoretical framework but of possible importance were also coded with a word or phrase (Saldaña, 2009). This process was repeated until themes emerged from examining identified codes. Codes and themes were continually examined and were deleted or replaced with a more succinct or applicable code through this cyclic process. Preliminary findings were member-checked for veracity (Merriam & Tisdell, 2016).

Coding reflected the four research questions for this study. The four deductive codes developed from the research questions were anxiety, motivation, student interaction, and student engagement/student attention. These codes eventually became a theme for each of these four-research question focus areas. Additionally, data that exhibited the broader categories of social-emotional development and learning were also coded. Identifying information was coded and flagged to prevent disclosure. Coded text was highlighted in a distinct color. As the coding process continued, self-regulation was also identified and coded as a subset of anxiety. The coding cycle process also developed other areas to be identified. Themes such as training, canine demographics, logistics, COVID, and dog actions emerged from the coding process and were noted via changing the text color to a unique color corresponding to the code.

Information derived from survey responses was compared. Codes and themes were compared between interviews and survey responses. Themes from various data sets were pulled out and reviewed for further development of codes and themes. Each theme was analyzed to ensure elements identified fit into that theme and not another. Some phrases and responses from participants that the researcher felt helped convey impacts in a clear manner were identified and incorporated into the rough draft of the analysis.

Presentation of Results and Findings

The results of the research presented below examine both surveys and interviews. First, the survey results are presented, and then the interviews are presented and categorized by theme. Survey results first present the respondents' thoughts on the role of the therapy dog (TD), and then move into three areas, including (a) student interaction, (b) anxiety reduction, and (c) student engagement. Unfortunately, in the process of the informed colleague review suggesting a Likert scale rating and going live, the motivation question was deleted but not added to the Likert scale. This means that survey participant perceptions were not captured regarding this focus area. There is some overlap, as interview participants volunteered as part of the survey, so their views are represented in the survey results as well as part of the interview commentary they provided. After survey results are discussed, interview results are presented by theme.

Four deductive themes were derived from the HAI theoretical framework proposed by Gee et al. (2017). Additionally, social-emotional development and learning themes that were discussed by participants and also are part of the HAI theoretical framework were not part of the deductive theme due to their indirect connection in the framework. Furthermore, the themes of incentive and dog actions are reviewed. These

themes emerged from examining all of the participant and survey responses. The dog actions theme, for instance, was initially coded as a variety of items including, “unexpected k9 response,” “trained k9 response,” “independent k9 action,” and “k9 action” before being combined into the dog actions theme. In contrast, incentive was simply coded as incentive from first mention until it developed into a larger theme given the number of times it appeared in the various data sets.

Survey Results

The survey data are presented in two groups: a middle school survey and a social media survey. The middle school survey data consist of 13 completed surveys. The social media data consisted of 8 completed surveys. The surveys focused primarily on the four research questions. Presenting both results separately allows the reader to better parse the data and how it compares. For instance, in looking at the survey participants’ view on what role a therapy dog has and examining the middle school site demonstrated how the perspectives can vary with just a single dog. When asked about the role of the therapy dog, participants were given 6 choices including the selection of “other” as their response. Those choices were (a) anxiety/stress reduction, (b) comfort (outside of anxiety/stress), (c) reading dog, (d) therapy dog (working with therapist), (e) therapy dog (working with counselor), and (f) other. Figure 2 shows that all six possible responses for the canine role were selected. One survey participant, Participant ‘M1’, selected all categories to include the other category and listed the other role as being a homework buddy.

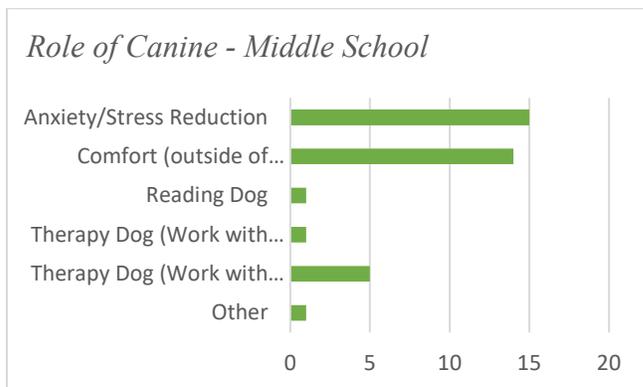
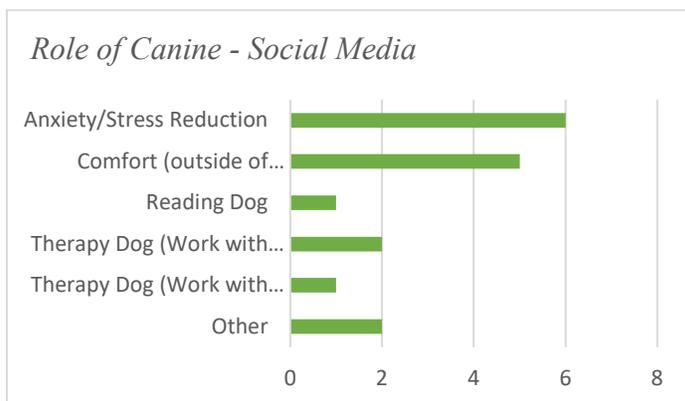
Figure 2

Figure 3 represents the social media survey participants and thus, multiple dogs. All role categories had a selection. No survey participant selected all options in this survey. The other role category had two responses. One stated that the therapy dog “is calming and positive presence in class and throughout school.” The second response indicated the dogs’ other roles were, “staff support, recreation therapy activities.” Figure 3 shows an equally strong selection of anxiety and stress/coping and comfort as was seen in Figure 2.

Figure 3

One survey participant from the middle school site did not answer any of the questions directed towards the research question of this study. Two of the social media

survey participants did not answer any of the questions targeted towards the research questions. These participants answered the question regarding the role of the canine, but elected not to answer any other questions. These *not answered* participants are included in the analysis that follows. The participants who were included due to the absence of an answer may indicate no opinion or that a non-answer is safer than a negative answer. These participants show in the survey results under the category “not answered.” In all of the following survey results, participants were asked to rate the perceived impacts of the therapy dog interactions with students utilizing a Likert scale. The Likert scale had five choices from agree to disagree.

Social Interaction Impacts Survey Results

Examining the participants’ perceptions on the impact of TD on social interaction in students, the middle school participants mostly agreed or strongly agreed that there was an impact. Figure 4 shows the Likert ratings of the participants.

Figure 4

Therapy Dog Impacts on Social Interaction - Middle School

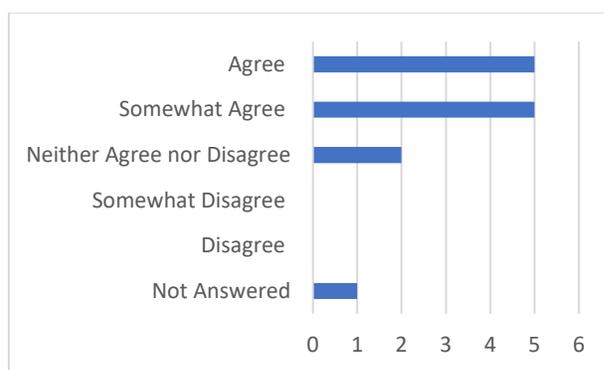
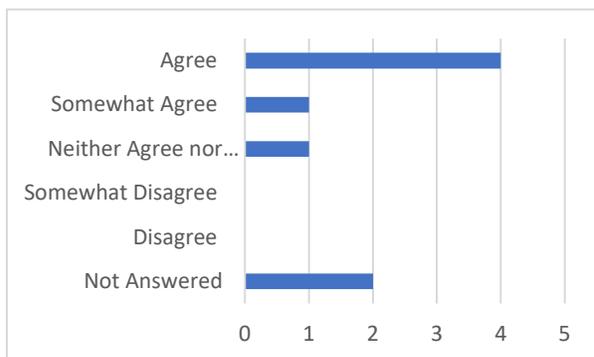


Figure 5 shows the social media survey participants’ thoughts on the impact. Over 50% of the social media participants agreed or somewhat agreed that there was an impact from the TDs on social interaction.

Figure 5*Therapy Dog Impacts on Social Interaction – Social Media****Stress-Coping Survey Results***

Anxiety/stress-coping is a focus area that the middle school survey participants most strongly agreed that there was an impact. Figure 6 shows how the survey participants from the middle school answered to what extent they agree with the following statement: “The use of therapy dogs contributes to the development of social interaction in students.” This shows that the therapy dog at the middle school site, at least from the perceptions of those surveyed, is effective at stress-coping in students.

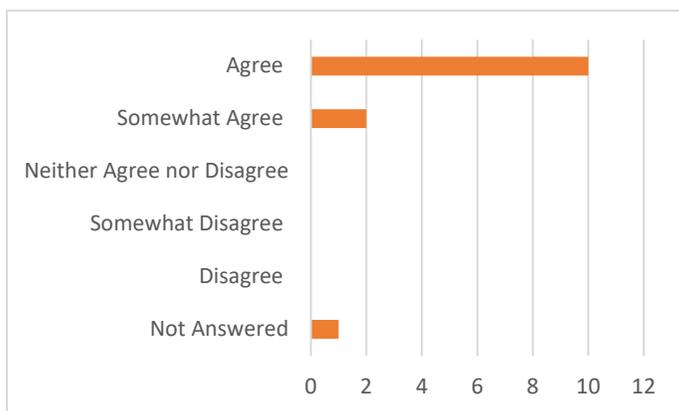
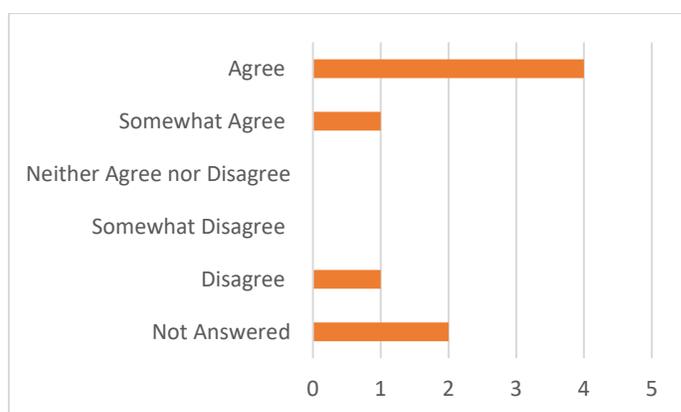
Figure 6*Therapy Dog Impacts on Stress-Coping – Middle School*

Figure 7 displays how the social media participants answered the question, with most of those answering agreeing. A total of 77%, or ten middle school survey participants, agreed there was an impact compared to the four or 50% of social media survey participants. One social media survey participant disagreed that there is an impact, showing that perceptions of positive impacts are not universal.

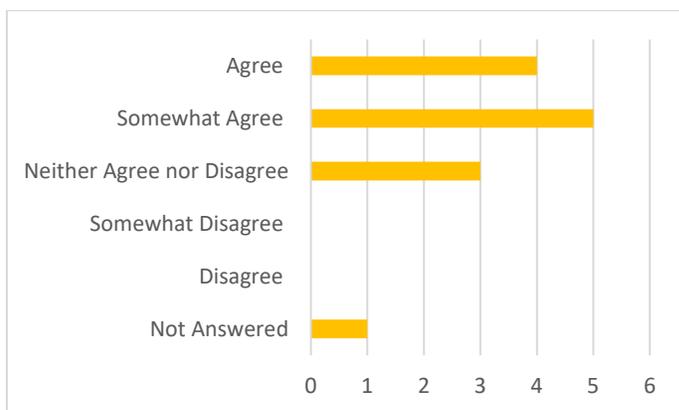
Figure 7

Therapy Dog Impacts on Stress-Coping – Social Media

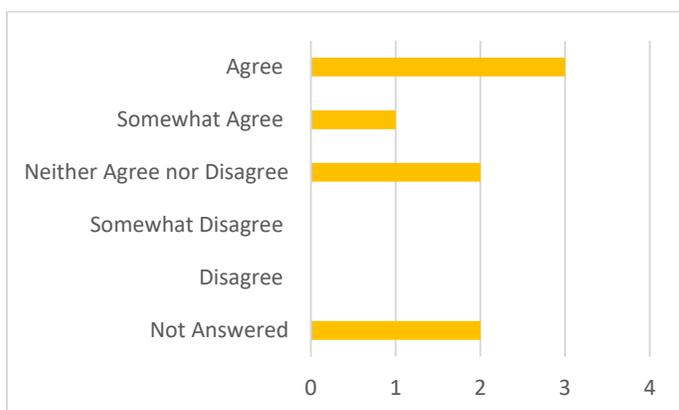


Student Engagement Survey Results

Participants were asked to what extent do they agree with the following statement: “The use of therapy dogs contributes to the development of student engagement in students.” Middle school participants’ (Figure 8) responses showed that some participants did not agree nor disagree with the impact on student engagement. All survey participant responses are shown in Figure 8.

Figure 8*Therapy Dog Impacts on Student Engagement – Middle School*

Social media (Figure 9) survey responses, similar to middle school respondents showed that some participants did not find an impact either way. No participants disagreed with the notion. Survey participants were able to provide a quick snapshot view of their thoughts, while those participating in interviews were able to go into more detail.

Figure 9*Therapy Dog Impacts on Student Engagement – Social Media****Social-Emotional Development Survey Perspective***

Survey participants responded to the open survey question “What impacts have you seen from the therapy dog on student social-emotional development?” Middle school

survey participants such as Participant M1 wrote “It calms both students and teachers on stressful days.” Survey Participant M2 wrote “Students light up with dog interaction and definitely have a positive affect [*sic*] on their mindset.” Survey Participant M3 wrote that they “have seen students who have frequent emotional outbursts be better able to control his emotions when he has a therapy dog with him.”

Social media survey respondents also wrote about social-emotional development impacts on students from interaction with therapy dogs. Participant SM1 wrote that “Students who have been more hyper or not focus [*sic*] are able to calm down. Students who have been withdrawn are more engaged.” Participant SM2 started with a generalized statement and then provided an example. Participant SM2 wrote, “Students are better regulated. They are able to get tactile reinforcement by patting him, it’s calming for students. Dog serves as social conduit for students who are shy or have speech issues. He is the introduction for conversation.”

Learning

Survey respondents in discussing learning provided several blurbs regarding therapy dogs’ (TD) impacts on student learning. Middle school Participant M3 shared, “with the therapy dog present, these students can focus much more of their attention on learning or completing the learning task.” In responding to impacts on student learning Participant M5 mentioned that the therapy dog “is a game-changer. She quietly changes the dynamic of the room.”

Social media survey respondents, when asked about TD impacts on student learning provided a couple of responses. Participant SM4 shared that “students are more focused. He lays near them at their desk or at reading corner. Because he helps with their

anxiety they can concentrate better and focus on task at hand. They *[sic]* are asking questions. Learning outcomes improved.” Participant SM3 was a bit more succinct and stated that “students are more willing to engage with content and materials.”

Contrary to the other participants, Participant SM5 stated that they believed “that continual visits with the therapy dog may have reduced learning opportunities (loss of instructional time).” Participant SM5, when asked about what they would tell a teacher/staff member who never worked with a dog in a school setting, responded that they should “be careful that your dog does not become a distraction or an excuse to avoid class or whatever environment the students you are work *[sic]* with want to avoid.” Participant SM5 did not volunteer for the interview, which prevented the researcher from delving deeper into this negative perspective on therapy dogs.

Next the results of the interviews are examined by theme. The participants’ perceptions on the impacts of the therapy dogs on students will be discussed first. The first theme discussed is student social interaction.

Student Interaction: The Dog Really Was . . . a Social Lubricant

The first deductive theme pairs directly to the first research question and insight into the participants’ thoughts on the impacts of the therapy dog on student social interaction. As a reminder, none of the survey participants disagreed with there being an impact on social interaction from their perspective. This does not mean that all interview participants noticed a specific relationship impact even if they were talking about the same TD and location. Interview Participant Z noted the impact of the therapy dog on student interaction during the 2020–2021 school year as COVID restrictions allowed more interaction:

It actually helped students connect, like our special education students, connect with the general ed students, because <the therapy dog> would hang out with the special education students because that's who she was used to for the whole first semester. It really changed her training even, I would say, COVID did. [The TD] was used to being with these certain kids, and she would stay with those certain kids, and it would bring the general ed students over to those other kids and cause them to interact in a positive way.

[Regarding] student-to-student interaction, there was definitely positive interactions toward the end of the second semester, I would say specifically as it got warmer out, and the kids were able to be outside without masks, and things seemed to be returning to normal. When <the therapy dog> would be outside, there would be a whole crowd of kids around her, and that just led to the natural social interaction and the conversations that students just hadn't been used to having quite yet this year. So yeah, I would say definitely as the weather started to warm up and we were outside and able to be kids again, it really did have a positive impact on all of those students getting together and holding conversations and petting her and being kind to one another and being kind to the dog at the same time, so. . . . Just because of the proximity of <the therapy dog> to the special education students, it brought those kids together.

According to Participant V there was a tremendous impact on student interaction from the therapy dog interactions. In fact, Participant V provided quite a lot of commentary on the participant's views of student interaction impacts from the therapy dog:

<The therapy dog> promotes social interaction tremendously. That's one of my favorite things about taking him because nobody wants to be that kid that gets pulled out of the classroom all the time for therapy. Nobody wants to be that kid that has a hard time walking or moving or talking or communicating. But it's so cool, some of the kids with special needs, I have a leash that has a little handle where they can hold him and I hold the top handle. And you are honestly, instantly the cool kid when you're walking <the therapy dog> because not everybody gets to walk with <the therapy dog>.

So, it's a great way. Sometimes I take kids for walks when they're working on emulation endurance down to the office to wave, if they are nonverbal, they would wave at the ladies in the office. And they're like, "Oh, you're walking <the therapy dog>. That's so cool." Where they're like, "Yeah. It's really cool." And they'll wave at the other classes. Kids that don't usually interact, they'll wave at the other students because they want them to see. They're like, "Do you see this, I'm walking with the dog." So, I feel like it helps eliminate some of the marginalization and the inequality that sometimes kids with special needs experience, because that's something special that they get to do.

When Participant V was asked about the impacts down the road for students who get to walk the dog, such as other students approaching, responded with:

It's usually a game-changer because other students that would normally not come up to them, they're like, "Oh yeah, that's the kid that sits in the corner and flaps a lot." Now that's the corner . . . student who has the cool 80-pound dog that can shake hands and is just super awesome. So, people will initiate social interactions

with kids, which is consistent with the literature that we see on neuro-typical adults.

Student interaction impacts were also noted by Participant F. Therapy dog integration into the classroom was again a key component of the perspective of Participant F:

We saw some positives there because the dog was used as a conduit for the interactions. And so, lots of times the kids didn't even realize that they were actually . . . They had to work as a team to help the dog or do something with the dog. And so, we did school-wide themes at the time. And at that grade level, they were doing a westward expansion unit. And so, they would do an all-different kinds of activities, learning about expansion. And they were actually planning for a wagon train and a roundup.

And they had a hoe down with dancing and everything. And the dog pulled a wagon when they had the roundup. And then we had a picnic on the field with all the families came and everybody was dressed up and everything. So, they had to work together to decide what wagon the dog was going to pull, what would it would look. And then they made the wagon and they dressed up the dog. And when everything had to be made by them, they had to plan, work together, collaborate, give the teacher a plan, give the teacher a list of materials they needed.

Participant F also noted that for some students that have experienced trauma, social interaction is difficult and animals can help overcome that difficulty:

If your interactions with the adults and the other children in your environment have been negative, not through any fault of their own, let's say, even if

everybody has been nice to you, if you've had some kind of trauma or abuse, it's very difficult to do that. That's why animals are so great.

Participant D examined the question of a therapy dog's potential impacts on student interaction through a therapeutic lens:

This is more on the therapy side of things, but I've used the lessons with the dog to have mother, child and or students trying to train the dog and then highlighting kind of the way they speak to the dog when they're trying to get her to do something they want. And when it doesn't go their way, highlighting how they respond and how they talk to the dog, versus when they're engaging with each other and somebody else's doing what they want them to do. How they might have a more aggressive tone or be a little more demanding. So, I'm working with kids that have emotional and learning disabilities. And so, they're a little more forceful with their words than they need to be. And so, using the dog to highlight that they don't usually talk to the dog like that. So, hopefully helping promote them being able to have more leniency and grace with their peers and their parents.

When asked if this approach, utilizing the dog as a behavioral correction substitute, has been effective in getting the desired outcomes from the participants Participant D stated:

Absolutely. You can see the light bulbs go off with kids and parents when they're learning going through this lesson of working with the dog. And I'm like, "Now when little Timmy, does something wrong at home, how do you correct them?" And the parents are just like, "Oh! Oh, yeah. I usually cuss and swear. Oh, so that's why Timmy's cussing and swearing his teachers in class."

Participant V, in speaking about her dog's influence, not on student interaction, but in facilitating interactions in general, said, "the dog really was, just like they say in the literature, was a social lubricant." This sums up in a nice way the general consensus one takes from the various participants regarding a therapy dogs' impact on student interaction, in that yes, it impacts students, but then a therapy dog in a school tends to increase all social interactions. Increased/improved sociability toward the student's peers, their teachers, or therapists was found in a variety of studies including Anderson and Olson (2006) and Flynn et al. (2020).

Anxiety Reduction/Stress-Coping

The second deductive theme, anxiety reduction/stress coping, pairs directly with the second research question. Insights into the interview participants' thoughts on the impacts of the therapy dog on anxiety reduction in students are presented in this section. Participant Z talked about utilizing the therapy dog specifically for anxiety reduction by stating, "We did have her in the classrooms during some testing times with the small-group testing, special education students." Participant Z delved deeper into an example of the impact:

She will lie down, and if there's not a whole lot of interaction, she'll go to sleep and she'll start snoring. And just that little break of hearing <the therapy dog> snore a little bit while the kids were in there with <the therapy dog>, it had a definite positive impact on the students. . . . You'd see them smile, and they may have broken their concentration for a second, but it was worth it, just because <the therapy dog> was in the room and making their attitudes and their spirits uplift because something minimally funny just happened with the dog snoring. So yeah,

you could definitely see that that reduced the stress. That had an impact on their overall test anxiety during those moments. . . . So, I would say that engagement with the material, maybe not so much, but reducing the anxiety in regards to the material, yes.

Some specific impacts were discussed by Participant E. Participant E started by talking about a particularly stressed student who previously worked with the therapy dog:

When I set my schedule, and we have certain students that she specifically went in their room. So, she wasn't even with me, she was with this student. Year before, we had one student that, for whatever reason, I don't know why, because the teacher was amazing. She was so much fun. He stressed out. . . . [I would ask] can you take care of <the therapy dog> for me? You're in charge of her. You make sure she behaves in the classroom. And I would leave her with him, and he was just thrilled. So anyway, I gave the office <the therapy dog>'s schedule so they knew whose classroom she was in, who she was working with. So, at any time, if the school counselors or outside counselors needed <the therapy dog>, they knew where to go get her.

Participant E also shared another case of stress reduction during the interview. This instance described by Participant E involved high stakes testing. High stakes testing in a school setting is usually a state mandated test or a test like the SATs or AP exams:

This one student stayed connected with me and she would get permission from her teacher to have <the therapy dog> in the room when they were taking a high stakes test. And she said it just calmed her down. The other kids agreed, said the same thing. And so, she would just go in there and she'd hang out with them.

In closing the topic of stress reduction, Participant E noted the general comfort associated with a therapy dog. Participant E noted that she has “one picture of a student laying on <the therapy dog>'s belly, holding a book up and reading it. You knew he was reading and *it wasn't that he needed anything, he just liked to be around <the therapy dog>* [emphasis added].” Participant E summed up her thoughts with “I think it's therapy dogs in general, they have a very calming effect on everybody.”

Students of all types might benefit from TD interactions, as mentioned by Participant E, who spoke of two categories of students who experience high levels of stress, special education (SPED) students and students in high-level classes. Participant E discussed some different academically leveled students' reactions to the time distribution of the therapy dog:

The kids love that when the dog is in their room, they love it. And they complain because she tends to go into the lower classes. One, because that's where I'm at. But two, that's where more of your high anxiety needs are, except for your advanced classes, your high classes, your high track classes, they have a lot of anxiety too, because they're stressed. They create it themselves because they want to be that extreme of a student and everything like that. So, they've put a lot of pressure on themselves. But they don't typically get <the therapy dog> in their room and they'll complain.

And it was really cool because last year when we started the Lighten Up and <the therapy dog> was allowed to start to go into the classrooms, the class that I went into where the teacher had an allergy. So, I couldn't take her in that room, so she stayed in the math room and it was the pre-algebra class. It was my

seventh-grade pre-algebra which is the high track class. And they loved it. They loved it. They were so excited. They'd see me getting ready to leave the basic math class, and they're just like, "*Oh, is <the therapy dog> going to stay with us today?*" And they loved it. So anyway.

Like social interaction, a therapy dog's impact is not limited to only students as Participant V discussed. In looking back at the previous year with the impacts of COVID and the stresses that educators have wrestled with in the previous years, Participant V shared:

<The therapy dog> has more of an impact with those issues (stress coping or anxiety reduction) with the staff. I have staff come sit on the floor in my office and pull the door partly around and just hug the dog. This has been a tremendously stressful couple of years for educators. I've had teachers come to my office, I've had them cry and talk about things that I had no business knowing, just to get a release because there's just something about the dog that feels, I think, a little bit safer. And I would say, I can't even count. I would say at least 10 teachers a year, come sit on the floor and cry about something and hold the dog. I really do.

In discussing the overall impacts of the therapy dog on students, Participant D responded with an answer that focuses heavily on anxiety reduction/stress-coping:

It's pretty incredible, especially when I get that kid that is anxious or depressed that really needs . . . That isn't talking a whole lot in therapy or isn't talking a whole lot in class or isn't really connecting well with their parents. You bring <the therapy dog> into the picture and that kid is more relaxed. They're more

willing to talk. They're able to get up and move and walk the dog when before it would be really difficult to get them to engage.

Participant D, when asked directly about the therapy dogs' impact on student anxiety reduction/stress-coping, said:

I think we've been using that as a tool as one of those ways to self-soothe. I can use <the therapy dog> in the classroom or in a therapy session to teach these calming skills and really that it works best for kids that have pets at home as well, so that they can continue to practice. If they're just getting practiced in the classroom in therapy once a week with the dog, that's not really enough. It's not something that's reliable that they can go to. And so, teaching them . . . In [southeastern state], a lot of the families keep their dogs outside and don't have this same human animal connection that you would with a therapy dog, but teaching them that dogs- well [*sic*] to interaction and your emotions. And so, when you are feeling worked up, go spend some time with the family dog outside, if you have to.

The integrated nature of the therapy dog into the classroom made the dog more readily available to the students of that classroom. Participant F touched upon this availability in recalling the therapy dog's impact on anxiety reduction/stress-coping in students.

The dog was there for them. And they could call the dog over, they could get up and go pat the dog. If they wanted to take the dog with them, if they needed to go get a drink, they could take the dog with them. So, he was an integral part of the classroom. Where lots of times, if you have in the classroom, I've always had a rocking chair in my classroom, at least a rocking chair. I've also had tumbled

tubes and other equipment, depending if I had to share space with the OT. And just the availability of that and the freedom to use that, and the dog was like that. He was like a rocking chair, a tumble tube. But he was less conspicuous because he was a natural part of the environment and kids were always patting him and hugging him or . . . So, it wasn't like, oh, Johnny is over in the quiet teepee, he must be really to explode.

Self-Regulation

In examining the data, the theme of self-regulation was brought up often in relation to anxiety reduction. In the human-animal interaction theoretical framework (Gee et al., 2017) stress coping/anxiety reduction is paired with self-regulation. It is included in this research as a subset of anxiety reduction as there seemed to be an initial calming before a more regulated response.

Interview participants provided further insight into their perceptions regarding student self-regulation due to therapy dog impacts. Participant E noted an instance where a student was struggling with frustration and the therapy dog seemed to help calm the student:

Oh, he was so upset, so upset that he didn't get to go, even though he brought it on himself. He was in tears, and I think it was because he was mad. He was mad. And it was just the sweetest thing, because I didn't say anything to him. I let him vent. He didn't yell or scream, he just cried and he sat in the corner. And <the therapy dog> went over to him and he just started petting her. Next thing you know, he had stopped crying. And we actually got two assignments done.

Participant Z recalled one instance of the therapy dog having an impact on student self-regulation. Participant Z noted the student had an emotional disability. Participant Z remarked:

[The student] would blow up quite a bit. And he liked to hang out in my office a lot, and if it was possible, we would go to <the therapy dog> and it would calm him down. Like if I knew he was having a blow up, I'm like, "Do you want to go see <the therapy dog>?" And we would go into a special education room.

In contrast to Participant Z, Participant D noted that they had a few kids who would seek out the therapy dog:

I've had a few kids ask for time with <the therapy dog> so that they can kind of self-soothe right. So, they'll be getting worked up in a group or in class, and they'll ask for time away or asked to call <the therapy dog> so that we can spend some time with <the therapy dog> and just having them pet the dog or walk with the dog can help prevent some blowups or outburst behaviors.

Participant F discussed the therapy dog's impact on student self-regulation. The therapy dog's integration into the classroom impacted students:

I think seeing it in action just reaffirm [*sic*] to me the benefit of having the therapy dog in the school, in the classroom environment because it was a connection for the kids, again, related to the responsive classroom model and taking care of our materials. One of the things that teachers said was, if you leave your materials laying around, they get knocked on the floor, the dog could accidentally eat it or step on a tack. And that wouldn't be good, but also, we take care of the things of our environment.

Participant F expanded the discussion to include the presence of the dog and how students were able to interact due to the integration:

And the other thing was the dog's presence really, really helped the kids in terms of their own regulation, because the teacher explained to them how dogs have a heightened sense of smell and hearing, that you had to be aware of your body and space in relation to his body and space. The other thing was so they're moving around the classroom. There wasn't a lot. They weren't running around. They were careful about where they were going, what they were doing.

They knew that if they needed to have the dog by them, they could call the dog over and he would sit by them or lay by them. Or if they wanted to take him, go on the rug and read a story to him or just sit and pat him, that helped a lot of kids with . . . Because sometimes kids can't identify what they're feeling or they don't want to talk about it. There's so much talk. They could go sit with that dog and pat that dog and it was okay. I mean, they couldn't do it in the middle of a lesson.

Participant F continued with some other options:

But other times, they could sit and pat that dog and nobody was going to ask him about them or grill it about them. At the end of the week, he would give them a little survey about what had happened in the classroom that week, something interesting we learned. I liked it when these open-ended sentences that the kids could fill in. And a lot of them talked about how the dog made them feel happy, calm. He helped them to think when they were having trouble thinking. It was really wonderful to see that dog in action with those kids.

Participant F later when discussing student attention impacts touched on student engagement:

<The teacher> was able to keep the environment more regulated. They (the students) were told that they had to use appropriate voices because, otherwise, it would upset the dog. . . . It helped them to understand about their own self-regulation. It's hard because we're adults and we spend years in college studying all this stuff, and then we talk to kids about it and it doesn't connect with them what we're talking about. Or our expectation for them on any given day might be totally out of whack.

The therapy dog Participant E worked with was able to have an impact with a student even on the therapy dog's first day in the school. At this time the therapy dog only had the most basic of trainings:

This one girl comes into her [a counselor's] office, just in tears because something had happened, and <the therapy dog> just walks over to her and puts her head on her lap. I mean, she'd not been trained to do that. I mean, I can barely get her to sit. . . . Then at the end of the day, the young girl that we had brought her for, she looked at the counselor and she said, "I can't wait to come to school tomorrow." And the counselor looked . . . I mean, I thought her eyes were going to pop out of her head . . . And she's like "Why?" And she says, "Because I can't wait to see <the therapy dog> again." And they have got . . . to this day, they just have a special bond. And now, when she gets ready to run, she comes to my room and we'll find her . . . just laying on the floor with <the therapy dog>.

This event could easily speak to the theme of motivation to attend school. Motivation will be discussed below, but the students' continued actions placed this retelling squarely into this theme.

Two of the most demonstrative stories regarding self-regulation come from Participant E. Participant E shared a view of two students who struggled with two different issues but both were seemingly aided by the presence of the therapy dog:

The one student I told you about that was the high anxiety, and he knew. If he was getting ready to lose it, a lot of times he would just, he'd look at the teacher because we had a system and he's just like, "I need to see <the therapy dog> now." And they knew, they knew. And they would either go get <the therapy dog>, or usually what they did is, they would just let him walk down to my room and he would decompress. Sometimes I'd let him take <the therapy dog> back to his room with him. Other times, he was fine and he would just go back to class.

But that was just tremendous. I also had students that, had . . . extreme behaviors. [It] was nothing for him to cuss the teacher out and then go darting out the room. . . . He didn't like to do any work. . . . He was given permission to lay or sit. He usually sat on <the therapy dog's> bed that was in that room because she had pillows in all of her rooms. . . . And he would always go, when the teacher was introducing a new lesson or something like that, he would go and sit next to <the therapy dog> and do his lesson sitting next to her. And we got him to stay in the classroom every day. . . . When we discovered that that worked, it's just like, we're going to run with this as long as we can.

Self-regulation in regard to therapy dog impacts may be more difficult to notice in the moment than other areas discussed thus far. Most often a teacher/staff member will not ask a student who is becoming regulated how much impact the therapy dog is having on that process. The goal in that situation is for the student to become regulated without agitating them and having them get upset again. Therefore, there is often overlap between these two. These two themes are in the same box in the human-animal interaction theoretical framework (Gee et al., 2017).

After going through the research, the researcher discovered that anxiety reduction is an area within human-canine interaction with a relatively strong research base compared to other areas. As discussed in Chapter 2, the literature review, TDs are used in forensic interviews (Krause-Parello et al., 2018). Test anxiety reduction with therapy dogs is an area of study at all levels of education including the collegiate level. Nagasawa et al.'s (2015) work on the oxytocin-gaze positive loop is an examination of this process in which the authors posited that this reinforcing loop is part of the coevolution of humans and dogs. This hormonal impact would explain the effectiveness TDs seem to have on aiding one's ability to calm, therefore reducing anxiety or aiding with self-coping and possibly self-regulation. The perspectives of these participants seem to agree with the available research that shows an impact of therapy dogs on stress coping and self-regulation.

Student Engagement and Attention

The third theme pairs directly with the third research question and provides insight into the participants' thoughts on the impacts of the therapy dog on student engagement and attention. Interview participants again shed light onto student

engagement impacts from their perspective but did not provide as much response to this focus area. For instance, participant F thought of a young student who struggled with attention deficit hyperactivity disorder, “She was a very kinesthetic learner . . . but previous to having that dog, it was very difficult for her to focus and to regulate.”

Participant F had more to say on the subject of student engagement and learning. Participant F, in addressing student engagement and learning, discussed how animals can serve as a way to gain student attention and engage with learning:

So, the dog really helped them to modulate and to understand. I was saying before about the children, the child that I had about the bird. I mean, I would sit there with him and he would make observations about the bird, and then he would ask me questions. And those would be the basis for our stories that we would write, everything you ever wanted to know about the killdeer. Because I'm not a bird expert. So, I would say, "Oh, that's a good question of inquiry. We'll have to find out about that."

So again, having the dog in the classroom, he became a point of reference that they were interested in. One of the math things that they would have to do, they would be keeping a chart on the food that they fed him and how many times they gave him water a day. I mean, it was just amazing how the teacher was so . . . How he linked so strongly everything in the environment, so that it was meaningful, very meaningful for them, which helps with attention.

Whereas Participant F discussed an overall approach, Participant Z had a different perspective. Participant Z equated the therapy dogs' impact to a teaching technique of using proximity to help focus students:

From my observations in the special education classroom, that yes, while <the therapy dog> is walking around, if the student is say talking to a student next to them, if <the therapy dog> is walking around, <the therapy dog> normally gets their attention, just because they want to pet her. And then they would pet her, and then they would normally just go right back to whatever the teacher is having them do instead of being distracted. So <the therapy dog> is really good at walking in between the rows. I'm sure she was taught very well to do that. And so, it is kind of the dogs in the proximity of the student. When the teachers in the proximity of the student, it retains their attention, and I'd say that <the therapy dog> kind of does the same thing.

Participant E saw impacts through vignettes about students. In particular Participant E discussed two ADHD students who got scheduled breaks in addition to those on an as needed basis. Participant E elucidated:

If they were really struggling in class to concentrate or something like that, the teacher would either call me, my room or they would call the office to find me or to find <the therapy dog>. . . . I'd pick up the kid. We would take just a couple of laps around in the hallway and then they'd go back, they'd sit down, they could do their work and they'd be fine . . . I think that could have easily been done as well, just as a person walking with them. But the fact that they got to lead <the therapy dog>, and that took a little more energy from them.

Participant E recognized that physical activity was a factor in enabling the students to calm down and focus on their work upon returning. Participant E mentioned that the

physical activity may have been more impactful with the therapy dog's involvement from her perspective.

Participant V in responding to her dog's ability to impact student engagement provided an answer that also addressed the TD as an intervention with a goal:

I think if you just pull <the therapy dog> into a classroom, he's going to be a distraction. But if you pull him in with a goal in mind or a purposeful activity. I have one student that walks so much farther and so much faster when <the therapy dog>'s with him. He's a real motivator for certain activities. Walking, he likes to put . . . He already liked to do it. He's big enough, he puts his face on the table. So, when kids are writing or coloring or drawing, so his face is right there. Whether or not he's really watching or he's thinking snacks, I don't know. But it definitely is a motivating factor. They're like, "<the therapy dog>'s watching me, he's watching me make my A. It's two big line down and a little line across. What do you think <the therapy dog>?" So, I think he does. And sometimes it means more than another adult telling them they're doing a good job, the feeling of being supported or the presence of another nonhuman animal with them seems to make a difference.

Similarly, when discussing impacts on student attention Participant V brought up a good distinction, pointing out that a student's perspective of the dog's role may have an impact on the therapy dog's effectiveness of impact:

I think paying attention to an external, like a teacher talking, I think would actually probably decrease their attention because they get distracted by the dog. But if they feel like that they're partnering with the dog in collaboration and the

dog is watching them, then I think it increases their focus and attention. So, I guess I could answer that question in two different ways.

In contrast, Participant D did not think the therapy dog had a positive impact on student engagement/attention. Participant D did not completely rule out that the dog could have a positive impact, but rather that the impact depended on the activity, explaining:

I think sometimes the dog is almost distracting from some of those tasks, because they would rather be petting the dog, walking the dog, doing activities with the dog. Now, when we were in training, we did some time at the library and one of the great activities is having kids read to the dog. And so, it would be great in her reading or English and language arts class, whereas in a math class, you're not really going to get the dog to learn or help with math as much.

Examining the impacts on student engagement from interacting with TDs, the participants overall described there was some impact. The Likert response from the survey participants for this focus area had the most participants not finding impacts either way. This may be due to the distraction factor discussed by Participant D, or perhaps it was due to the difficulty of knowing the reason why a student is engaged with the material. Another issue could have been that the TD is not a primary reason for engagement but only supplements other factors.

Motivation

The fourth deductive theme pairs directly with the fourth research question and offers insight into the participants' thoughts on the impacts of the therapy dog on student motivation. Interview participants were able to provide some insight from their

perspectives. Participant D, for instance, did not feel confident that they had evidence of its impact. As Participant D explained:

I think it kind of goes along the same lines with that impulse pieces [*sic*] or the attention piece in terms of, if they know they have the possibility to interact with the dog, they might be a little more motivated to finish the task at hand so that they can get some time with the dog kind of using it as a reinforcer. And that works. It really depends on the kid. I don't have any solid evidence to show that it helps those kids that are unmotivated, be more motivated, but there are definitely the kids that respond well to <the therapy dog>, we'll definitely do what's asked of them to get to spend some time with <the therapy dog>.

The four remaining interview participants were not always as reserved as Participant D.

Responding to impacts on student motivation, Participant V shared that:

<Students are> more motivated because of the dog. It's something special. Like I said, it's something different. Today, I just had a young man. I didn't even recognize him because he's wearing his mask and it's been so long, but he was a kid that <the therapy dog> saw in middle school or in elementary school. . . . He stuck his head in, he's like, "I heard <the therapy dog>'s back. Is he sick?" And I'm like, "No, he's not sick. I just didn't bring him in today. "Well, when will he be in?" So even years later, these kids are remembering or kids that see him in one building and go to another building, maybe I'm new to the building and none of the other kids know him. They're like, "Ooh, I know him. That's <the therapy dog> dog. Do you want me to introduce you? I know him from elementary school." It's kind of cool.

Another example of motivational impacts on students from Participant V was when she discussed a student with multiple disabilities. Participant V recalled that:

<The student> likes to sit on the floor a lot. And he sees me come, he gets up off the floor, which is a big cumbersome task for him. He comes over and he stands behind me, he just takes the leash because he's ready to walk the dog. So, everybody responds differently and I love the flexibility of <the therapy dog> and animals to be able to work with people with all different ways of interacting and being.

A therapy dog can motivate a student with multiple disabilities to struggle to get off the floor. The student must overcome that challenge just to walk the therapy dog. That type of motivating is probably not easy to find for this student from how Participant V described the situation.

Participant Z provided a story that is somewhat related to motivation and shows a possible shift into a growth mindset line of thinking. This story took place in the second semester of the school year when the therapy dog was allowed to roam a little bit more than the previous semester and thus was a bit more visible. Participant Z offered some background on the biggest impact from their perspective saying, “the special education students, I guess that's where I saw the most impact, with the kids that were in the room with her.” Participant Z then continued:

So, kids that were normally pretty withdrawn or kids that weren't super talkative would always light up around <the therapy dog>. And they would go to her, talk to her, pet her, and you would just see their whole attitude change when they were in the room with her, so going from being somewhat negative to being somewhat

positive in the classroom when <the therapy dog> was around and in the classroom.

Participant Z also summed up the impacts the therapy dog had in regard to attitude towards school work and class in general. “I would say at least 50% of the students” Participant Z estimated before continuing, “as soon as <the therapy dog> walks in, you see an instant smile. So, it's definitely a positive impact on their attitude toward the classroom, their attitude toward the schoolwork. It's almost immediately positive.”

In discussing therapy dog impacts on student motivation, Participant F discussed how much students enjoyed being in the class with the therapy dog:

<The students> loved . . . I mean, I think they loved being in class. They loved the work that they were doing. I mean, it wasn't just about the dog, but I have to say he did make it more interesting to them. And in some ways, for some kids, it was like they wanted the dog to be proud of them. They wanted the dog . . . Because they knew that their relationship with the dog, they didn't want the dog to be afraid of them. And the opportunity to have the dog there, I mean, it's just really interesting to see the connection between the dog and the kids.

Participant E touched on motivation above in the story about the girl who struggled and stated she wanted to come back to school to spend time with the therapy dog. Another story Participant E shared was a story about a student with severe mobility issues who struggled with performing the exercises needed. This student, according to Participant E, also struggled with keeping his mask up. As Participant E stated:

He would be in the hallways and they would have to go by a short distance from their room to my room. And, they would tell him that if he kept his mask on that

he could stop and see <the therapy dog>. And, so he would wear his mask and he would keep it up, because he wanted to pull it down. He knew enough, he didn't like that. But he also got used <keeping> it up, and he understood that if I kept it up, I got to see <the therapy dog>. And then it got to the point where, because he would have a standing chair also, but he didn't like it because it's hard work. So, it was like, "Okay, if you'll stand in the chair all the way around, we'll bring <the therapy dog> with us." . . . <The therapy dog> was right there beside him and he would stand up for an entire lap. And, then it got to the point where they would drop <the therapy dog> off, and he would do a second lap by himself.

Participant E later explained, "as far as having a system in place where we would say, 'Well, if you do this, then <the therapy dog> will do this.' We never had that."

Participant E also discussed another student regarding motivation saying, "the kids would be allowed to sit next to <the student and therapy dog and>, that was a motivator to do work."

Anderson and Olson (2006) found improvements in self-esteem in a classroom for children with severe social-emotional disorders. The participants in this research seemed to agree that therapy dogs can be a motivating factor for students. Participant E best summed it up by saying, "I think it just makes kids want to come to school. And if you have a positive attitude about school, it just generally just naturally flows into your academics."

Social-Emotional Development

According to the proposed human-animal interaction framework (Gee et al., 2017) human-animal interaction has a possible indirect effect on social-emotional

development. Gee et al. (2017) stated that this area of research is an unexplored pathway. The participants in this research noted some things that have been coded as social-emotional development, but as with many of the stories, they touched on several topics explored in this research.

Interview participants provided insight into their perceptions on therapy dog impacts on student social-emotional development. Participant E didn't specifically discuss social-emotional development but did share a story in which a student was figuring out his needs in regard to seeking out the therapy dog:

The boy who would lay beside her . . . he absolutely loved <the therapy dog>, and a lot of times when he would be really hyper, he would go over and he would take a little time just to pet <the therapy dog>. . . . Then he thought so he would condition himself when he had to get up and he'd start walking around and I'd look at him. He's like, "I know, just go over and pet <the therapy dog>." I'm like, "That's it, that's it." And he would, and then he'd go back to his seat.

Impacts of the therapy dogs on student social-emotional development from Participant F's perspective centered around the dog's integration into the classroom environment:

They would take turns doing things with the dog. So, if it was your turn to walk the dog, take him out with somebody, . . . <they were assigned a partner. . .> It was about the dog, doing something for the dog. So, more times than not, I mean, I wouldn't say never ever did anybody say, I don't want to go with Joe to take the dog out.

But more times, they would be thinking about the dog and working together to help the dog, to do things for the dog. So, he helped in that way. And

then again, in terms of their self-regulation, they could pat the dog or they could interact with the dog and it helped them to regulate themselves better. Again, moving around the classroom and they had to watch how loud they were because the teacher told them, if this is not going to be a safe environment for him, then I can't bring him into class.

I was going to say, one of my experiences as a special ed teacher, for some of the children that I've worked with who have had significant emotional and behavioral issues, lots of times, they're very interested in animal behavior. I had one little boy, he would study. We had these birds that would nest around the building. And one of his rewards was to go in the library and sit in front of this big window and watch the killdeer, because he was really intrigued. And I've had other kids that's paying attention to other kids in the environment or delve in their environment.

It doesn't feel safe to them. Because, I mean, I had one little boy that had significant abuse, so he didn't trust people. He wasn't paying attention to people. And his peers, they scared him. But the animals, they could learn about behavior by watching the animals. And the kids in the class with the therapy dog, it was the same thing.

Participant Z summed up the social-emotional impact as positive. Participant Z stated they had, "mainly seen in just the social and emotional skills of the student, not so much academically, but it did change their attitude towards academics when <the therapy dog> was there to lift their spirits, I guess you'd say." Participant D was able to provide a more detailed response.

Participant D, when asked about their thoughts on the impacts of the therapy dog on student social-emotional development stated:

I see the kids like I was talking about earlier with some of those kids that weren't engaged before that are more likely to participate. If it's an activity that involves dogs. They're just more willing to get out of their shell a little bit and open up and share more than they would have if it was just myself or another teacher leading the group.

When asked about if there was a specific instance that Participant D could recall, Participant D shared the following:

So, when I was working as a day treatment therapist facilitating these groups, I had done a bunch of groups without <the therapy dog> because I really wanted to get to know the kids. I think it's important to know which kids will respond well and, or maybe not do well with the dog. And there were a few kids that I was concerned about that might not respond well to the dog and they're pretty high energy, but they were able to really match her energy level. And so, it was really surprising that these kids that are typically off the wall, can't sit still get around <the therapy dog>. Who's more laid back and relaxed and they are just able to focus and engage with her.

And then on the opposite end of that if I could take them out in a walk. I've got this one kid that really loved to just play fetch with her and get her running and chasing her. So, his goal was to get her more energetic and it was cool to see her get worked up with the kid and kind of match their energy level as

well. And then the kids responded well to that when they get to actually get her going and play with her.

Participant V, in talking about social-emotional development, mentioned several instances of impact. One is counselor group support. As Participant V recalled, “last year we ran a social-emotional learning group based on the program zones of regulation and with a school counselor.” Zones of Regulation is a program utilized in some schools that uses a behavioral approach through the use of color “zones” to help students regulate their actions (Kuypers, & Winner, 2011).

Participant V also discussed Zones of Regulation. Participant V described the therapy dog as a tool for the handler to help encourage students to develop their understanding:

I also like to use <the therapy dog> as a tool to help promote awareness of basically your Zone of Regulation or self-regulation and awareness of other. So, we spend a lot of time about talking, whether you're overstimulated or you're feeling just right for learning, or you're like, "Oh, I'm so tired. I just can't handle this," and how to change those zones. And we also are, I think, it's good because we can be aware of <the therapy dog> too. So, we talk about when <the therapy dog>, when he might be getting a little too excited or when he's calm or when he's just passed out and he probably doesn't want to play ball right now. So, I think it helps develop that awareness of other in a fun way for kids. . . . I think what I mean is it helps them not just maybe think about themselves and how they're feeling, but how somebody else might be feeling. Sometimes it's easier to think about how the dog might be feeling or what their zone is than what another person

is. For some reason, it's a little less threatening because they want to help <the therapy dog> out. I'm like, "Well, how do you think <the therapy dog>'s feeling right now? Let's look at his body. What's his body telling us?" And sometimes they can relate that back to their own experience.

In the final example presented by Participant V, again the therapy dog was utilized as a tool, but this time when the therapy dog was in its space:

He has a space. He has a dog bed back in the corner, but he rarely uses it. When my door's propped open, that means we're open for visits for somebody to pop in. And usually, he sits in front of my desk right in front of the door. But I've also taught people over time that when <the therapy dog> gets tired, when he's overstimulated, he goes and hides behind the desk. And it's really kind of adorable. I might have some pictures somewhere. But he sits behind the desk and he sticks his nose out underneath. So, he can still see all the people walking by, but he's back there. So that's a really nice opportunity to talk about awareness of others, and social emotional learning.

Well, look at <the therapy dog> right now. He's behind the desk and all you see his is nose. Do you think he wants to be petted or do you think maybe he needs a break right now? Do you ever need a break sometimes? And how do you let people know? So that was a long and winding answer, but he has a space, when he wants interaction, he sits in front of the door. When he doesn't, he gets behind me and peaks out underneath the desk. He has a huge dog bed that he kind of ignores in the room.

Whereas all interview participants addressed social-emotional development to some extent, due to the nature of its requiring change over time meant it was likely less obvious to notice and remember than another area. For instance, it is possible while watching a student for stress-coping impacts that results could be noticed in the short-term. These short-term results most likely feel more dramatic and impactful at the moment than the long-term change of a student who shows social-emotional development growth from the TD interactions. Student learning has the same challenges as noticing TD impacts, in that it usually needs to be noticed as a change over time.

Student Learning

Only two of the interview participants directly addressed student learning impacts from the therapy dogs. Participant D talked about the therapy dog's impact on learning came from the breaks from the academic work. Participant F stated:

At the beginning of the pandemic, when we were doing a lot of academic focus work and just kind of helping kids to focus, we could use that the animal engagement as a break and a reward in between the study times that we were helping facilitate.

Participant F was the participant who addressed learning impacts the most out of all of the interviewees. This may be due to the nature of the therapy dog integration into the classroom. Participant F's observations of the therapy dog were of a therapy dog that was integrated into a classroom as part of a dissertation project. The first discussion on learning impacts shared by Participant F talked about some of that integration:

All the things that came with that therapy dog. I mean, they just got it right away and they were fine with it. One of the new classroom jobs was that they had to go

out in partners to give the dog a potty break or they would have to feed the dog or water the dog or they had to watch their volume in the classroom and their movement around the classroom because of the dog's presence, which was really interesting. I mean, they didn't even question it because they were so excited to have that dog in the classroom. . . .

This is one of the things that is key to me in any work that I've done. It's like, what are we doing this for? You can't tell the kids like, oh, because you need to get along. Or when you grow up, you're going to have a job, you're going to have to work with people. It's like make it meaningful for them right now, real meaning, not this fabricated thing. So, the other piece of this that was interesting was that he was really very much into the responsive classroom model.

When asked specifically about any impacts on student learning Participant F discussed impacts on reading and writing:

It helped to create a safe, open environment where the dog's presence and in connection with the response to intervention techniques, it really helped to support the kids to learn. It really did. The other thing was that the student that I had, she had difficulties in reading and writing. And lots of times, if they were working on a writing assignment that was more personalized to them, the dog was always there as a topic if they couldn't think of it.

Because lots of times, kids have hard [*sic*] time generating free ideas. Even if they have a list that they've already made, a list of things that they could write about, more often than not, they would write about that dog. They would write about something funny that happened related to the dog or things they

wondered about the dog. So, the dog became a real motivator in terms of the writing and the reading. They could read to the dog. . . . The dog was nonjudgmental.

If they mispronounced a word or, . . whatever errors they made, the dog was not going to call them on it because the purpose was to have them read as much as possible. And lots of times, kids don't want to read aloud. They don't want to read aloud in class. They don't want to read aloud to each other. So again, like you said, it was very safe for them to read aloud to the dog.

Learning according to the proposed human-animal interaction framework (Gee et al., 2017) had a possible indirect effect from animal interaction. Social-emotional development was also listed as an indirect effect, but it is also largely unexplored according to Gee et al. (2017). Only two of the interview participants thought they saw impacts on learning. Comartin (2018) found evidence that by calming and maintaining the attention of children, animals, and especially dogs, can facilitate therapeutic and educational progress. It is therefore possible that the impacts of learning are comingled with other focus areas. The four areas covered by the research questions were more focused on in the survey. For instance, Participant Z in discussing anxiety/stress-coping said, “You'd see them smile, and they may have broken their concentration for a second, but it was worth it, . . their attitudes and their spirits uplift because something minimally funny just happened with the dog snorting.” This reduction of tension may have an impact on learning, but that impact is masked under the more obvious anxiety/stress-coping impacts.

Incentive

The therapy dog as an incentive was mentioned by participants. While in some cases incentive was brought up in association with motivation, it was mostly brought up as behavioral intervention or a way to calm students down. In one example of incentive being mentioned as an aside in discussing the self-regulation impacts, Participant Z commented on how the therapy dog was able to be used even after the student had left the section of the school serviced by the therapy dog. As Participant Z recalled, “he still remembered her from years prior, and we were able to use her as basically an incentive to calm him down a little bit in those flare-up moments.”

The therapy dog as an incentive could allow a student to better access the curriculum, according to Participant F, who stated:

I think because they really wanted to focus on what they were doing, because if they did their work, they could have free time to do things with the dog, but also, again, just that connection and that emotional support of the dog really helped them to be able to access the curriculum.

When Participant D was asked their thoughts about therapy dog impacts on student learning and mentioned the therapy dog more as an incentive than having a direct impact on learning. “I think at the beginning of the pandemic, when we were doing a lot of academic focus work and just kind of helping kids to focus,” Participant D continued, “we could use the animal engagement as a break and a reward in between the study times that we were helping facilitate.”

Dog Actions

Participants remarked throughout the various interviews about actions the various therapy dogs took on their own initiative, or their actions that created an opportunity for a student. Some of these are incorporated into the topics previously discussed. The stories below are included to provide a generalized view of some actions and impacts a therapy dog can have often through the simplest of gestures. For instance, Participant Z mentioned that if “<the Teacher> was off helping someone else, that would be their go-to. <The therapy dog> would come over to them and they would sit and pet her while they were patiently waiting <the Teacher> to come help.” Participant E noted that the therapy dog dresses up for spirit day at her school.

Participant E talked a bit about how the dog initially walks through the room, but also mentioned how quickly the dog becomes routine to the students. Specifically, Participant E shared:

<The therapy dog> starts wandering in and around the desks. And the kids, they just reach down and she'll stop for a minute maybe. And her ears are really soft and they just start rubbing her ears and everything like that. But it's just, it's fun. It is, especially with our sixth graders, because they don't have a therapy dog at the elementary. So, when they come to the middle school and a dog comes into the room for the first time, they are just like, “Oh, wow.” And then, within a week, they are so used to it. Maybe two weeks, depending on how often I can get in their room.

This was further illustrated when Participant E was discussing how students react when the therapy dog enters the room. As Participant E described it:

Their faces light up, it is just so rewarding to see that. Once the kids are used to her, and I know a lot of schools, their hesitation is that a dog in the classroom or a dog in the building will be a distraction, but it's not. Once the kids are used to having her, they don't even give it a second thought. I have seen kids; they will be paying and you know they're paying attention. They are looking full on at the teacher and everything like that, and <the therapy dog> comes by and you know how you get that movement out of the corner of your eye. They just reach down and they just start petting her.

They're paying attention to the teacher, they're listening to what she's saying, but they're petting <the therapy dog> at the same time. And, then <the therapy dog> will move on to somebody else. That is just so much fun to see that she's not a distraction at all, because that was a concern that I had at first too. And when she first came at eight months old, yes, she was kind of a distraction.

Participant F discussed one student in need of stimulation. Participant F described a student seeking physical pressure via a safe but odd and socially unacceptable means in a middle school setting. Participant 'F' then speculated how a therapy dog could make getting the needed physical stimulation in a more socially acceptable way:

So, if you have a dog on the floor that you can roll around with quietly, that's going to give you that input. Or if the dog sits across the lap . . . I mean, it was a lab. He was a big dog. It wasn't a little mini poodle. He was a big dog. He sat on you for a while, you knew he was there.

Participant 'F' then described how the school was a really small population school housing grades K–8. Participant F noted there are some benefits but also drawbacks to

this small size. For instance, Participant F described it as the “people are like spiders. They get so many eyes; you can't get away with anything.” The difficulty for a student struggling especially in a visible way in a middle school environment is always a challenge but in a small setting where one is always known, it must be far more difficult.

Participant F stated:

<Social acceptability is> so important, especially when you're going into those adolescent years because it's hard for them to be. . . . They would sit with the dog and talk to the dog and you could be sitting in close proximity, but not right with them and hear what they were saying. You'd be able to get information.

They'd be talking to the dog about, well, I hope you're having a good day today. Hope you like . . . Whatever. And then the next thing you know, they're saying, well, I didn't have any breakfast this morning and my mother forgot to pay for my lunch. So, I'm worried about going into lunch because people see the brown bag. So, then you can run over to the cafeteria and say, just a heads up, "Give me the bag. Give me the bag. I'm going to draw around it." Whatever makes the day. That's one of the things I would say to my kids, is this going to make or break your day?

And they knew they had to be honest with me because if you're not honest with me, then I'm not going to believe you. Now I don't trust you. Now, when you really need to tell me, it's a make-or-break day. So, I said, "Is this going to be a make or break?" And they'd be, 'Oh yeah. If I don't get that, that muffin at snack time, it's not going to be pretty.'

A dog's instincts or the TD's training may be why in some cases the dog goes to a student in need. Whether that need is a student waiting for a teacher or providing a socially acceptable way of getting stimulus the TD is there for the student. Just like the size and temperament of a TD may impact how students respond, the actions of any individual TD to a situation may be different, and thus produce a different response from a student. These differences are important to capture and TD canine characteristics shared with the researcher are included in this research as Appendix F.

Summary

This chapter opened with a brief review of the research and analysis method, followed by a presentation of the results. The results focused on seven major themes discovered during this research, developed from the coding cycle on the surveys and interview transcripts. Each of these themes was examined with the provided responses of the participants. The first four themes discussed were deductive and thus identified as part of the problem examined by this research study and align with the four research questions. Those questions focused on the perceptions of staff members directly associated with TD programs regarding the effects of therapy dogs on: (a) student social interaction, (b) stress coping and self-regulation, (c) engagement and/or attention, and (d) motivation and/or self-efficacy.

The next areas examined were social-emotional development and learning, both of which were identified in the HAI theoretical framework proposed by Gee et al. (2017). In this framework, social-emotional development and learning are identified as indirect effects. Despite this, some participants did relate that in their perceptions there were some impacts in the areas of social-emotional development and learning.

The last area of discussion, dog actions, was not part of the HAI theoretical framework. This brief section detailed the perspective of some participants on how the dogs' actions themselves can have an impact on the students. The therapy dogs' actions can be seen in the previous sections as well, usually as part of another theme, but were identified as a theme that developed as part of the coding process.

The theme of student social interaction impacts directly corresponds to the first research question of this research. The discussion of this theme started with a review of survey responses. This was followed by interview participants' recollections of impacts on student social interaction. As noted by Participant V, "the dog really was, just as they say in the literature, was a social lubricant." This sums up in a nice way the general consensus that therapy dogs do have an impact on student interaction. Also, a therapy dog in a school tends to increase all social interactions, not just student ones.

The theme of student anxiety reduction/stress-coping impacts directly corresponds to the second research question of this research. Participants most strongly agreed with the impacts of therapy dogs on student anxiety reduction/stress-coping. These perceptions are in line with the findings of Barber and Proops (2019) and Flynn et al. (2020) that discuss calmness in relation to therapy dog interaction. A total of 77% of middle school survey participants agreed there was an impact compared to the 50% of social media survey participants. This research has found 62.5% of participants agreed or somewhat agreed with an anxiety reduction/stress-coping impact from therapy dogs.

Self-regulation developed as a sub-theme to anxiety reduction. Ten of the survey participants from the middle school agreed, and one person somewhat agreed, that there was an impact from therapy dogs on student self-regulation. Only three of the social

media survey participants agreed, and one somewhat agreed, that there was an impact from therapy dogs on student self-regulation despite six survey participants stating that was a role of the therapy dog at their school. The results of this study found that there is a positive impact on self-regulation in students due to the interaction of therapy dogs according to the perceptions of the teachers/staff members involved in the TD program. This finding is in line with anxiety reduction as the two are considered together in the HAI theoretical framework as proposed by Gee et al. (2017).

The theme of student engagement and attention impacts directly corresponds to the third research question of this research. Examining the impacts on student engagement from interacting with TDs, the participants overall found there was some impact. The Likert response from the survey participants for this focus area had the most participants not finding impacts of any other focus area. There were five participants who did not agree or disagree to any extent on the impacts of student engagement and attention. This research finds that the perspectives of 68.5% of survey participants agreed or somewhat agreed that there is an impact.

The theme of student motivation impacts directly corresponds to the fourth research question of this research. The discussion of this theme started with a review of participants' recollections of impacts on student motivation. The participants in this research seemed to agree that therapy dogs can be a motivating factor for students. Participant E best summed it up by saying, "I think it just makes kids want to come to school. And if you have a positive attitude about school, it just generally just naturally flows into your academics."

Social-emotional development has, according to the proposed human-animal interaction framework (Gee et al., 2017), a possible indirect effect on social-emotional development. Gee et al. (2017) stated that this area of research is an unexplored pathway. Some survey and interview participants did provide answers towards social-emotional development. The results of this research demonstrate the difficulty of identifying social-emotional development impacts. Social-emotional development overlaps with many of the focus areas of this paper and the HAI theoretical framework. Some participants felt that there were positive social-emotional developmental impacts from therapy dog interaction.

Similarly, in regard to social-emotional development, clear association to learning in the participants' answers was not clear. For instance, Participant Z in discussing anxiety/stress-coping noted, "their <student> attitudes and their spirits uplift because something minimally funny just happened with the dog." This reduction of tension may in fact have an impact on learning, but that impact is masked under the more obvious anxiety/stress-coping impacts. Two of the social media survey participants did discuss positive impacts.

Participants discussed that a therapy dog could be used as an incentive. This was in association with behavior plans or a reward for work performed. As Participant F stated of the students, "they really wanted to focus on what they were doing, because if they did their work, they could have free time to do things with the dog."

The dog action theme was developed from participants' talking about therapy dog actions that impacted students in some way, not only in the previously identified themes but also one-off comments that do not fit into any of the themes. Participant F noted how

a dog can provide a socially acceptable way to obtain sensory input for students.

Participant Z mentioned, if “<the Teacher> was off helping someone else, that would be their go-to. <The therapy dog> would come over to them and they would sit and pet her while they were patiently waiting <the Teacher> to come help.” This action of the dog does not directly fall into the other themes but is the dog taking an action to help a student pass time and get interaction stimulus while they waited for the teacher. This will be discussed in Chapter 5 as part of further recommendations.

The final chapter examines these findings in relation to the established literature. In addition, the implications of this research on professional practice are discussed. Recommendations for action and recommendations for further study are also elucidated to help improve future studies in the field.

CHAPTER 5: CONCLUSION

This chapter presents important conclusions drawn and a summary of the presented results of Chapter 4. An overview of the problem, the purpose statement, and research questions begin this chapter. Interpretation and important findings are discussed before presenting the implications connecting the findings to prior research. Finally, recommendations for action and recommendations for further study are discussed.

The problem examined in this study was that it was not known how school teachers/staff members perceive the effect of school-based therapy dog (TD) programs on (a) student social interaction, (b) stress coping and self-regulation, (c) engagement and/or attention, and (d) motivation and/or self-efficacy. Thus, the purpose of this qualitative case study was to obtain the perceptions of the teachers/staff members directly associated with the TD program in their school regarding the TD program's effectiveness regarding (a) student social interaction, (b) stress coping and self-regulation, (c) engagement and/or attention, and (d) motivation and/or self-efficacy.

There were four research questions developed to explore this problem:

1. What are the perceptions of staff members directly associated with TD programs regarding the effects of therapy dogs on student social interaction?
2. What are the perceptions of staff members directly associated with TD programs regarding the effects of therapy dogs on stress coping and self-regulation?
3. What are the perceptions of staff members directly associated with TD programs regarding the effects of therapy dogs on engagement and/or attention?
4. What are the perceptions of staff members directly associated with TD programs regarding the effects of therapy dogs on motivation and/or self-efficacy?

The methodology chosen for this research study was a qualitative case study. This case study utilized surveys and semistructured interviews to gather data. Non-probability and snowball purposive sampling were used to obtain participants. Member checking and triangulation of the various data points were utilized. Triangulation of the survey and interview data was done separately and these were combined to address the credibility of the findings.

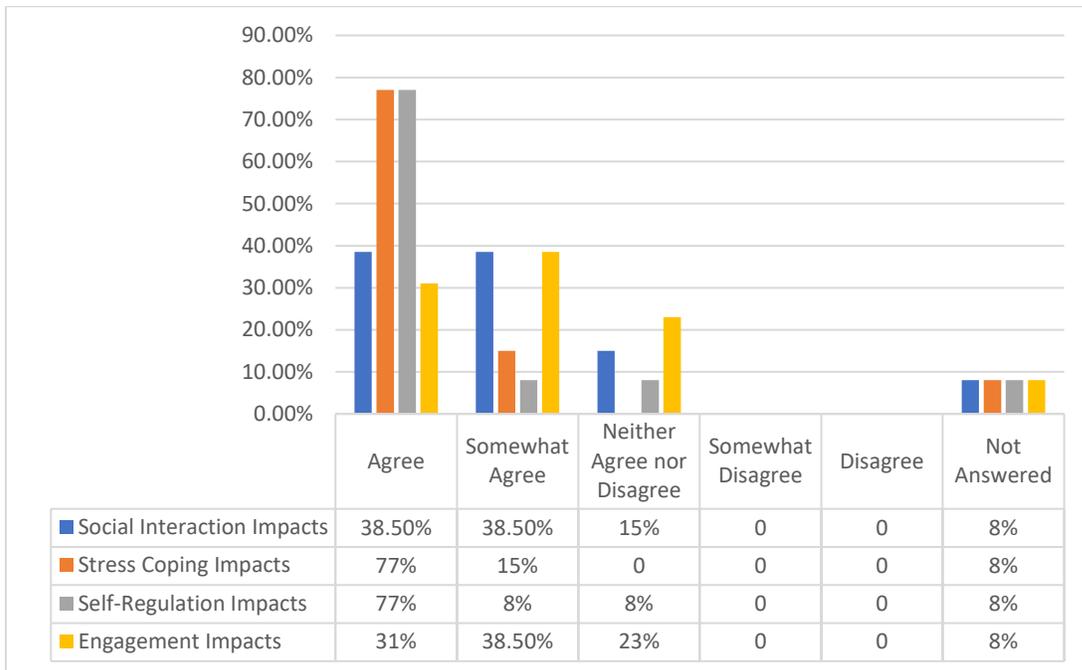
The findings of this study were that the majority of participants did in fact believe there was an impact from therapy dogs on students with regards to: (a) student social interaction, (b) stress coping and self-regulation, (c) engagement and/or attention, and (d) motivation and/or self-efficacy. In addition, there was some perception that there was an impact of therapy dogs on students' learning and social-emotional development. Beyond this, participants discussed therapy dogs as incentives and provided some discussion on the independent actions of the therapy dog.

Interpretation and Importance of Findings

In examining the responses from the survey participants and the interview participants, most participants agreed that there was some impact from students interacting with therapy dogs. These impacts were largely noted on the four focus areas of this research: (a) student social interaction, (b) stress coping and self-regulation, (c) engagement and/or attention, and (d) motivation and/or self-efficacy. In Figure 10, the Likert responses from the middle school survey participants are shared by percentage electing that rating. Figure 10 clearly shows that the participants who answered the Likert scale questions more strongly agreed with there being an impact.

Figure 10

Four Area Likert Comparison - Middle School



In Figure 11, the Likert responses from the social media survey participants were shared by the percentage of participants who selected that rating. Figure 11 shows the responses from the social media participants. Similar to the results of the middle school participants, social media participants also had more responses in agreement that there was an impact. Figure 11 shows that in two instances a respondent disagreed to some extent. The two areas of disagreement for those participants were in the impacts of stress-coping and self-regulation impacts.

Figure 11

Four Area Likert Comparison – Social Media

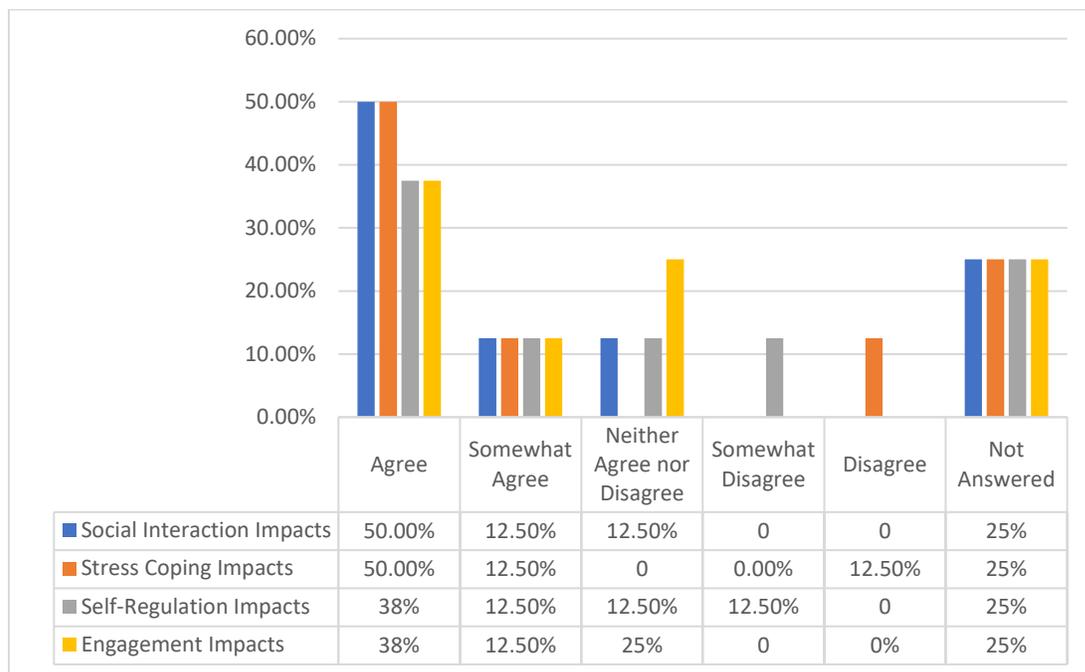
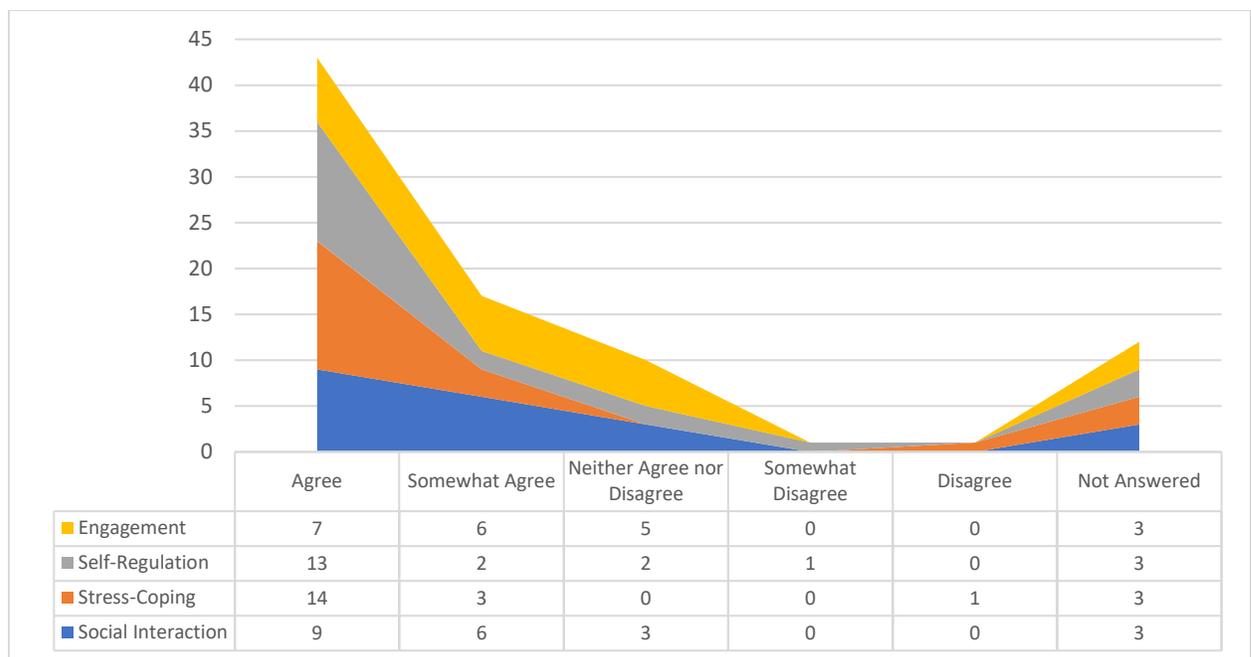


Figure 12 demonstrates that more of the participants agreed to some extent that there were positive impacts from therapy dog interactions with students. Figure 12 clearly shows that from the perspective of the participating teachers/staff members who participated, facilitated, or observed the TD work with students they believed there was a positive impact in most categories.

Figure 12

Participant Likert Perspective on Impacts – Combined



Not all participants agreed that there was an impact in all focus areas. Two participants disagreed with there being an impact of TDs on student self-regulation impacts. The second disagreed with stress-coping impacts. Additionally, Participant SM5 from the social media survey stated that TDs “may have reduced learning opportunities,” and that other teachers should “be careful that your dog does not become a distraction or an excuse to avoid class or whatever environment the students you are working with want to avoid.” Participant SM5 selected no answer higher than neither agree nor disagree on

the Likert scale. Neither agree nor disagree was selected for both engagement and social interaction impacts. Participant SM5 disagreed with stress-coping impacts and somewhat disagreed with self-regulation impacts. The perspective of Participant SM5 stands out as the lone dissenter for all perceived impacts. Unfortunately, since Participant SM5 did not volunteer for interview participation, further understanding as to why they have these perceptions is limited to what they have shared in their survey responses.

Overall, survey participants and interview participants largely agreed that there were positive impacts from TDs on students. The areas of greatest perceived impact were stress-coping and self-regulation. Furthermore, participants provided perceived impacts on student social-emotional development and learning, and discussed the impacts a dog's actions have.

These findings, while limited in scope and scale, indicate that a therapy dog does have an impact on students in four areas: (a) student social interaction, (b) stress coping and self-regulation, (c) engagement and/or attention, and (d) motivation and/or self-efficacy. Additionally, these findings are in line with the HAI theoretical framework proposed by Gee et al. (2017). This research study also starts the exploration of the unexplored area of social-emotional development by finding that some participants did perceive an impact.

Implications

The results presented identified salient themes that addressed the study problem and were in alignment with the purpose of this research. The problem of this research was to get a better understanding of teacher/staff member perceptions regarding the effect of school-based therapy dog programs on (a) student social interaction, (b) stress coping and

self-regulation, (c) engagement and/or attention, and (d) motivation and/or self-efficacy. This researcher's desire for understanding was satiated for the given sites and participants. The importance of obtaining perceptions about therapy dogs and understanding the impacts of therapy dogs were two of the implications of this study. These implications are discussed next.

Obtaining the perceptions about therapy dogs (TD) in schools was identified as a need by Belt (2020). Belt (2020) found that 98% of teachers in their study did not teach in a school utilizing a TD program, and 96% had not even experienced a TD program in use in a classroom. Despite this, the majority of educators' perceptions were that TDs positively impacted emotional and social behaviors in class (Belt, 2020). By utilizing selection criteria, this research study was able to obtain teacher/staff member perceptions and avoid the problem of participants not working in a school with a TD program.

This research study contributes to closing gaps in perceptions on therapy dog impacts on students. This research study also helps to identify the HAI theoretical framework as a suitable lens to focus such inquiry and close gaps in the largely unexplored area of therapy dog impacts on student social-emotional development. Furthermore, this research study has closed some procedural and data gaps by capturing canine characteristic data. Griffin et al. (2019) noted the need to capture such data. Next is a discussion on possible future actions that could be taken by other researchers.

Recommendations for Action

Griffin et al. (2019) identified that many studies fail to capture intervention details such as training/certification requirements of the programs or that are held by the dog/handler team, the selection criteria for animals chosen for a program, the nature of

the animal interaction (i.e., how free the animal is to interact with the subject), how the animal is introduced to the subject, and animal demographics (pp. 2–3). This research study attempted to capture some canine demographic data (breed, age, training, approachability, etc.). The development of a list of the key canine demographic information that is needed in the field would help future researchers gather that needed data. Additionally, a centralized database for the data to be warehoused would be beneficial for the human-canine interaction field of study.

Several participants noted the impacts of COVID-19 on therapy dogs. In light of this, the development of a tool to assess the therapy dog's well-being should be developed. While some participants talked about the actions they took to ensure their dog had time to themselves and could avoid activity when stressed, not all participants mentioned it. A tool for therapy dog handlers to detect stress and other issues that should initiate a break would be a useful tool. This tool could then be incorporated into therapy dog handler training to protect the dogs from undue stress.

Recommendations for Further Study

There are several areas that findings from this research study suggest would benefit from further study. One large area with several subareas of focus is COVID-19. Further exploration of this topic would be beneficial to capture the unique situation and impact COVID had during the time this research study was executed. Additionally, further examination of the impacts proposed by Gee et al.'s (2017) human-animal interaction (HAI) theoretical framework would be beneficial. Finally, the role of how students perceive a therapy dog's role is an area in need of further study. How a student's

perception may impact the effectiveness of any intervention provided by/with a therapy dog is also an area in need of further study.

Because of COVID

One area of potential future research that was brought up by almost every participant interviewed was the impact of COVID-19. Participants discussed that the COVID-19 pandemic impacted their programs, the students/staff, and also the therapy dog(s) themselves. While some participants just mentioned the impacts of COVID, there is no doubt a deeper realm of research beyond what was discovered as part of this research. The impacts of COVID discussed by the participants is examined further below.

Program Impacts

Participants E and Z both discussed how their therapy dog was initially not allowed into the building. As Participant E stated regarding the logistics:

She <the therapy dog> wasn't allowed to go into any of the classrooms because we had to do that contact tracing. I talked to my vet about it. And she said that all of the conditions would have to be absolutely perfect. Like a kid would have to have COVID that didn't know it, sneeze, and touch her. Another kid would have to come right behind her, touch in the exact same spot and then rub his eye, and he could technically get it. But if we're in the hallways, you would never know who touched who or anything like that. We'd have to shut the whole school down. So, she was allowed to come to school, but she had to stay in my classroom, because the same group of kids would come into my room and they could control that. They could track where the kids were. So, they made that exception.

Participant Z discussed some of the concerns that came with the unknowns of the COVID-19 pandemic, especially at the beginning of the 2020–2021 school year:

Well, I will say it was much different at the beginning of the year. We didn't even know, because of COVID, if we were going to allow her into the school because of not knowing much about the transmission of the virus, not understanding if kids touching <the therapy dog> would transmit the virus, like just from her fur, or if it would make <the therapy dog> sick, even.

So, we had to get approval from the superintendent to allow her in the building. But the deal was, at the beginning of the year, that she couldn't be just roaming from general ed classroom to general ed classroom. . . . <the therapy dog> is housed with a special education teacher, so when that teacher was going from room to room, [she] didn't really get to go room to room. She actually had to stay in the special education room. Now, those kids could handle her, because she was in there and we knew which kids exactly were handling her at all times and didn't have to worry about the entire population of kids and trying to contact-trace for a dog.

Further research into the impacts of the COVID-19 pandemic on therapy dog programs could provide insight into many factors. Exploring this area of research could examine if programs permanently shut down due to the pandemic. Researchers could also examine how perceptions have changed before, during, and/or after the pandemic regarding therapy dog programs and their role and impacts on those around them.

She Isn't Just There for Students, She's There for the Adults as Well

Students who were used to the visibility and accessibility of the therapy dog were impacted as well. As noted by Participant Z, “The kids that are not special education students that were used to <the therapy dog> being in the classrooms, kind of roaming, they were bummed that they couldn't be around her and they couldn't interact with her there at the beginning.” Participant Z did note that, “when things changed and when we started letting <the therapy dog> roam a little bit, you could see all the kids would interact with her.”

Participant E discussed that from her perspective students had more problems this year in addition to the issues from COVID. More specifically Participant E said, “I think one of the reasons we had so many issues this year, other than COVID. . . . But I also think <the therapy dog> wasn't as visible because we saw a significant decrease [in behaviors] the year before [COVID] and just overall.” COVID severely restricted the therapy dog of Participant E to basically her office, due to the need to trace close contacts and for fears of COVID spreading. In previous years the therapy dog had more freedom to interact with the student body. This restriction of access to only a few students meant the impacts the therapy dog had were not as accessible to the student body as a whole.

Participant E also noted that it wasn't even just the students who were impacted. Participant E also noted that teachers were impacted and sought out comfort. Participant E stated, “because we were restricted this year, I saw more teachers in my room than I did students because they needed that time.” As an example of this Participant E noted that her counselor “would come in at the end of the day and she says, ‘I just need a little <the therapy dog> time.’” Participant E wrapped up the thoughts with, “She isn't just

there for students, she's there for the adults as well.” The need for teachers/staff members to access the therapy dog during such a stressful time is important to note. Not just students are impacted by stress in a school, but also the staff.

Exploring the direct and indirect impacts a therapy dog may have on staff who are not the focus of the therapy dog intervention is an area of study for further research. Studies tend to focus on students, as therapy dogs are generally interventions or utilized with goals in mind when in a school environment. Less is known on the impacts a therapy dog has on the teachers/staff in a school where the therapy dogs are being utilized. Furthermore, the impact the COVID pandemic had on the need for staff and students to access or desired access to the therapy dog is another area of research that could use further exploration. The researcher recommends further study on whether the COVID pandemic increased the desire to interact with the therapy dog. Furthermore, if that desire is there, exploring whether that desire is specific to the dog or just a result of the isolation many felt during the pandemic.

Therapy Dog Impacts

The impact of the COVID pandemic also impacted the therapy dogs themselves. Participant E discussed how the COVID-19 pandemic impacted the therapy dog’s behavior at school and at home:

Last year, she didn't want to come to school. I would call her; she'd jump in the car and everything like that. And prior to COVID and all of the other crazy stuff that was going on last year, oh, she would get so excited and she would pace in the back seat and she'd start wagging her tail. And it's just like, she was excited to get to school. . . .

Last year, I had to commander [*sic*] her to get into the car. The year before, all I did was open up the door and she'd jump in. Last year, I'd have to say, "Up" . . . or "In," whichever one I was using. And she would do it, she would obey me, but it was just, she'd go in and she would just lay in the backseat. And I say, "Oh, we're almost at school." So, it affected her too. It really did. Now, she'd perk up when she'd get to school and she'd start to see people. But as soon as the kids started coming, we had to go into the room and she didn't like that.

While Participant E discussed the impact of COVID on the therapy dog's mood, Participant Z noted some of the same items at the school level. Furthermore, Participant Z discussed the potential impacts on the therapy dog's training needs:

I think her training kind of regressed. I feel like she might need, when we start this next school year back up, she might need some training on what to do with the kids again. I think the abrupt shutdown, she was out of a school setting for about six months, and then coming back and being told she couldn't go interact with the students, so what I saw of her in the second semester was different from what I saw of her in the first semester. Like for instance, [She] would only come to me if I had food.

Participant V discussed an important point in generalized terms, but the researcher believes it is applicable to this section. Specifically, Participant V highlighted the importance of a therapy dog's well-being and actual role:

Therapy dogs have agency. They're not just there to support the human agenda. They're not there to do whatever you tell them to do. He's not a machine. He's not going to jump through hoops for you. And he deserves the same level of respect

as a non-human animal that we give to human animals. I'd also like people to acknowledge that <the therapy dog> is, even though we call them a therapy dog, I think the terminology is tricky because actually I'm a therapist. <the therapy dog>'s not a therapist. Maybe 5, 10% of what he does during the day would be jointly working in a therapy session with me. But most of what he's doing is providing a normalizing, social comforting experience. He's not providing therapy. And I think that terminology gets really tricky and it confuses people sometimes.

Therapy dogs are not mindless tools but living beings that need to be cared for and their well-being protected. The impact of the COVID pandemic on a therapy dog's mental and physical well-being is an area that should be examined. Examining how to overcome any negative impacts of the COVID pandemic, some participants perceived in this study, would benefit all therapy dogs impacted. Whether therapy, service, emotional support, or working dog, most of them interact with the public and were potentially impacted or could be impacted by the COVID pandemic.

The impacts of COVID-19 are most likely going to be an area of study for quite some time in many fields of research. This researcher believes conducting studies regarding the impacts of the pandemic on a multitude of areas would be beneficial. This research study did not focus on the pandemic, its impacts on TD programs, students, staff, and the impacts on the dogs themselves. Participants in this study mentioned these topics but they were not a part of the scope of this research. Accordingly, studies that delve deeply into each of these areas would be beneficial to get a better understanding of

the impacts, lessons to be learned, changes that can be made, and possible mitigations if the pandemic continues to flare in the cyclic nature it appears to be as of this writing.

HAI Theoretical Framework

This research study examined the perspectives of teachers and staff members regarding the impacts of a therapy dog (TD) on students through the lens of the human-animal (HAI) theoretical framework (Gee et al., 2017). Further research utilizing this lens can help to gain insight into human-canine interactions at the school level as well as examine the HAI theoretical framework as a functioning framework. The HAI theoretical framework stated that some areas are implied and that social-emotional development is unexplored (Gee et al., 2017). Additional studies incorporating these elements can help explore the unexplored and possibly find more concrete data.

Role of the Therapy Dog from the Students' Perspective

Participant V, when addressing student attention, noted that the student's perception of the dog's role may impact the effectiveness of the canine. What Participant V stated was:

I think paying attention to an external, like a teacher talking, I think would actually probably decrease their attention because they get distracted by the dog. *But if they feel like that they're partnering with the dog in collaboration and the dog is watching them, then I think it increases their focus and attention* [emphasis added]. So, I guess I could answer that question in two different ways.

Participant F also mentioned that certain students "wanted the dog to be proud of them." From this, it is possible a new area of research focus could be opened up. This new area could impact human-canine interaction and possibly the larger human-animal interaction

field of study. A participant's understanding of the role of the canine or therapy animal may change the impact that animal has on the outcomes of the target of the animal's focus. It is possible as a result that a new area of research could open up.

Those focus areas could easily be from the human-animal interaction theoretical framework of Gee et al. (2017). This understanding of the animal's role to one of partnership for attention, for example, could shed light on how to increase the efficacy of TD impact.

Furthermore, examining the independent actions of the therapy dog, as discussed in Chapter 4, could warrant further study. While researchers cannot know why a dog took an action, they might determine if it was part of its training or not. Additionally, observing different therapy dogs in the same situation could provide insight into training, breed, or other canine characteristics that may impact future training or dog choice.

Conclusion

This research study explored the perceptions of teacher/staff members of the impact of therapy dogs on students. It will hopefully be followed by other researchers examining this problem and focusing on the four areas of (a) student social interaction, (b) stress coping and self-regulation, (c) engagement and/or attention, and (d) motivation and/or self-efficacy as well as learning and social-emotional development. Each of these areas could have studies singularly focused on that one area and provide data examining the broader impacts of therapy dogs. This research study was able to examine the perceived impacts of TD on students but examined four areas utilizing the HAI theoretical framework proposed by Gee et al. (2017). The majority of participants in this study responded positively about the impacts of therapy dogs on the focus areas and the

themes derived from this research. These findings correlate with the findings of Belt (2020) and expand on them. These perceptions generally led the participants to recommend therapy dogs in classrooms/schools, but with the caveat that it requires much prep work and is not a panacea to fix all problems.

The human-animal interaction (HAI) theoretical framework proposed by Gee et al. (2017) served as a useful focal lens to conduct this research study. This research study, by applying the HAI framework as a focal lens, was able to show that therapy dogs were largely perceived as having a positive impact on students in the four areas identified in the theory, including: (a) student social interaction, (b) stress coping and self-regulation, (c) engagement and/or attention, and (d) motivation and/or self-efficacy (Gee et al., 2017). This research also started to explore perceptions of therapy dogs' impacts on student social-emotional development, an area identified as largely unexplored in the HAI theoretical framework (Gee et al., 2017). The conclusions from this study can serve as a beginning for other researchers to examine the perceptions of teachers/staff members and for the use of the HAI theoretical framework as a lens. Social-emotional development is an area of indirect impact and is largely unexplored according to the HAI theoretical framework (Gee et al., 2017). The research study conducted may serve as an entry into that exploration, but the researcher recognizes that it is an area that requires much more examination.

This research study can also serve as a procedural template for basic canine demographic details. While the canine demographic data in this research is limited to the full list provided by Griffin et al. (2019), it is a starting point for potential future researchers to gather such data and for other potential researchers who are looking for

that data to examine as part of their research. Canine demographic data will hopefully be compiled in future research in such a manner as to make it easily accessible for researchers to examine.

References

- Anderson, K. L., & Olson, M. R. (2006). The value of a dog in a classroom of children with severe emotional disorders. *Anthrozoös*, *19*(1), 35–49.
<https://doi.org/10.2752/089279306785593919>
- Arkow, P. (2020). Human–animal relationships and social work: Opportunities beyond the veterinary environment. *Child & Adolescent Social Work Journal*, *37*(6), 573–588. <https://doi.org/10.1007/s10560-020-00697-x>
- Baltar, F., & Brunet, I. (2012). Social research 2.0: Virtual snowball sampling method using Facebook. *Internet Res.*, *22*, 57–74.
[doi:http://dx.doi.org/10.1108/10662241211199960](http://dx.doi.org/10.1108/10662241211199960)
- Barber, O., & Proops, L. (2019). Low-ability secondary school students show emotional, motivational, and performance benefits when reading to a dog versus a teacher. *Null*, *32*(4), 503–518. <https://doi.org/10.1080/08927936.2019.1621522>
- Becker, J. L., Rogers, E. C., & Burrows, B. (2017). Animal-assisted social skills training for children with autism spectrum disorders. *Anthrozoös*, *30*(2), 307–326.
<https://doi.org/10.1080/08927936.2017.1311055>
- Beetz, A. M. (2017). Theories and possible processes of action in animal assisted interventions. *Applied Developmental Science*, *21*(2), 139–149.
<https://doi.org/10.1080/10888691.2016.1262263>
- Beetz, A., Kotrschal, K., Turner, D. C., Hediger, K., Uvnäs-Moberg, K., & Julius, H. (2011). The effect of a real dog, toy dog and friendly person on insecurely attached children during a stressful task: An exploratory study. *Anthrozoös*, *24*(4), 349–368. <https://doi.org/10.2752/175303711x13159027359746>

- Beetz, A., Uvnäs-Moberg, K., Julius, H., & Kotrschal, K. (2012). Psychosocial and psychophysiological effects of human-animal interactions: The possible role of oxytocin. *Frontiers in psychology*, 3, 234.
<https://doi.org/10.3389/fpsyg.2012.00234>
- Belt, L. G. (2020). *Perceptions of therapy dog programs among k-4 teachers in northeast Arkansas public school districts* (Ed.D.). [Doctoral dissertation, Arkansas State University]. ProQuest Dissertations and Theses. (27830218).
- Bloomberg, L. D., & Volpe, M. (2015). *Completing your qualitative dissertation: a road map from beginning to end*. Sage Publications.
- Bowlby, J. (2006). *The nature of the child's tie to his mother*. Stony Brook University, Department of Psychology.
<http://www.psychology.sunysb.edu/attachment/online/nature%20of%20the%20childs%20tie%20bowlby.pdf> (Reprinted from “The nature of the child's tie to his mother.” 1981, *International Journal of Psychoanalysis*, 39[5], 350–373.)
- Brelsford, V. L., Meints, K., Gee, N. R., & Pfeffer, K. (2017). Animal-assisted interventions in the classroom: A systematic review. *International Journal of Environmental Research and Public Health*, 14(7), 669.
<https://doi.org/10.3390/ijerph14070669>
- Carr, S., & Rockett, B. (2017). Fostering secure attachment: Experiences of animal companions in the foster home. *Attachment & Human Development*, 19(3), 259–277. <https://doi.org/10.1080/14616734.2017.1280517>
- Comartin, K. P. (2018). *Is man's best friend a best practice in public education? Animal-assisted interventions in classrooms and school-based therapeutic settings*

- [Doctoral dissertation, Alliant International University]. ProQuest Dissertations and Theses Global. (10812896).
- Congress of the U.S., Washington, DC. House. (1974). *Public law 93-579, 93rd congress, S. 3418. "privacy act of 1974".* ().
<https://studentprivacy.ed.gov/node/548/>
- Correale, C., Crescimbene, L., Borgi, M., & Cirulli, F. (2017). Development of a dog-assisted activity program in an elementary classroom. *Veterinary Sciences*, 4(4), 62. <https://doi.org/10.3390/vetsci4040062>
- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). SAGE Publications.
- Creswell, J. W. (2015). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (5th ed.). Pearson.
- Crossman, M. K. (2017). Effects of interactions with animals on human psychological distress: Effects of HAI on distress. *Journal of Clinical Psychology*, 73(7), 761–784. <https://doi.org/10.1002/jclp.22410>
- De Leeuw, E. D., Hox, J. J., & Huisman, M. (2003). Prevention and treatment of item nonresponse. *Journal of Official Statistics*, 19, 153–176.
<https://www.scb.se/contentassets/ca21efb41fee47d293bbec5bf7be7fb3/prevention-and-treatment-of-item-nonresponse.pdf>
- Department of Justice. (2020). *ADA 2010 revised requirements: Service animals*. Disability Rights Section (Originally issued: July 12, 2011).
https://www.ada.gov/service_animals_2010.htm

- Flynn, E., Gandenberger, J., Mueller, M. K., & Morris, K. N. (2020). Animal-assisted interventions as an adjunct to therapy for youth: Clinician perspectives. *Child & Adolescent Social Work Journal*, 37(6), 631. <https://doi.org/10.1007/s10560-020-00695-z>
- Friesen, L. (2010). Potential for the role of school-based animal-assisted literacy mentoring programs. *Language & Literacy*, 12(1), 21–37. <https://doi.org/10.20360/G2WC70>
- Gee, N. R., Griffin, J. A., & McCardle, P. (2017). Human–animal interaction research in school settings: Current knowledge and future directions. *AERA Open*, 3(3), 233285841772434. <https://doi.org/10.1177/2332858417724346>
- Grajfoner, D., Harte, E., Potter, L. M., & McGuigan, N. (2017). The effect of dog-assisted intervention on student well-being, mood, and anxiety. *International Journal of Environmental Research and Public Health*, 14(5), 483. <https://doi.org/10.3390/ijerph14050483>
- Griffin, J. A., Hurley, K., & McCune, S. (2019). Opinion: Human-animal interaction research—progress and possibilities. *Frontiers in Psychology*, 10, 2803. <https://doi.org/10.3389/fpsyg.2019.02803>
- Hall, S. S., Gee, N. R., & Mills, D. S. (2016). Children reading to dogs: A systematic review of the literature. *PloS One*, 11(2), e0149759. <https://doi.org/10.1371/journal.pone.0149759>
- Hall, S. S., & Mills, D. S. (2019). Taking dogs into the office: A novel strategy for promoting work engagement, commitment and quality of life. *Frontiers in Veterinary Science*, 6, 138. <https://doi.org/10.3389/fvets.2019.00138>

- Harris, P. A., Taylor, R., Thielke, R., Payne, J., Gonzalez, N., & Conde, J. G. (2009). Research electronic data capture (REDCap)—A metadata-driven methodology and workflow process for providing translational research informatics support. *Journal of Biomedical Informatics*, *42*(2), 377–381.
<https://doi.org/10.1016/j.jbi.2008.08.010>
- Hartwig, E. K. (2017). Building solutions in youth: Evaluation of the human–animal resilience therapy intervention. *Journal of Creativity in Mental Health*, *12*(4), 468–481. <https://doi.org/10.1080/15401383.2017.1283281>
- Hawkins, R. D., Williams, J. M., & Scottish Society for the Prevention of Cruelty to Animals (Scottish SPCA). (2017). Childhood attachment to pets: Associations between pet attachment, attitudes to animals, compassion, and humane behaviour. *International Journal of Environmental Research and Public Health*, *14*(5), 490.
<https://doi.org/10.3390/ijerph14050490>
- Herzog, H. (2016). *Encyclopædia Britannica* (online ed.). Encyclopædia Britannica.
<https://www.britannica.com/science/anthrozoology>
- Herzog, H., & Arluke, A. (2006). Human–animal connections: Recent findings on the anthrozoology of cruelty. *The Behavioral and Brain Sciences*, *29*(3), 230–231.
<https://doi.org/10.1017/S0140525X06299059>
- Hirschenhauser, K., Meichel, Y., Schmalzer, S., & Beetz, A. M. (2017). Children love their pets: Do relationships between children and pets co-vary with taxonomic order, gender, and age? *Anthrozoös*, *30*(3), 441–456.
<https://doi.org/10.1080/08927936.2017.1357882>

- International Association of Human-Animal Interaction Organizations. (2014). *The IAHAIO definitions for animal assisted intervention and guidelines for wellness of animals involved (White Paper)*. IAHAIO.
<http://iahaio.org/new/fileuploads/4163IAHAIO%20WHITE%20PAPER-%20FINAL%20-%20NOV%2024-2014.pdf>
- Jalongo, M. (2015). An attachment perspective on the child-dog bond: Interdisciplinary and international research findings. *Early Childhood Education Journal*, 43(5), 395–405. <https://doi.org/10.1007/s10643-015-0687-4>
- Jalongo, M. R., Astorino, T., & Bomboy, N. (2004). Canine visitors: The influence of therapy dogs on young children's learning and well-being in classrooms and hospitals. *Early Childhood Education Journal*, 32(1), 9–16.
<https://doi.org/10.1023/b:ecej.0000039638.60714.5f>
- Jones, M. G., Rice, S. M., & Cotton, S. M. (2019). Incorporating animal-assisted therapy in mental health treatments for adolescents: A systematic review of canine assisted psychotherapy. *PloS One*, 14(1), e0210761.
<https://doi.org/10.1371/journal.pone.0210761>
- Kalkoske, S. (2018). *The academic and social-emotional effects of classroom service dogs/specialized therapy dogs with handlers on student learning and behavior in k-12 special education students in emotional/behavioral disordered placements as perceived by their teachers*. [Doctoral dissertation, Brandman University].
https://digitalcommons.brandman.edu/edd_dissertations/175
- Kashden, J., Lincoln, C. R., & Finn-Stevenson, M. (2021). Curriculum-based animal-assisted therapy in an acute outpatient mental health setting. *Journal of*

- Contemporary Psychotherapy*, 51(1), 77–83. <https://doi.org/10.1007/s10879-020-09470-8>
- Kazdin, A. E. (2017). Strategies to improve the evidence base of animal-assisted interventions. *Applied Developmental Science*, 21(2), 150–164. <https://doi.org/10.1080/10888691.2016.1191952>
- Kerns, K. A., Koehn, A. J., Manfred, H. M., van Dulmen, K. L., & Stuart-Parrigon, K. (2017). Preadolescents' relationships with pet dogs: Relationship continuity and associations with adjustment. *Applied Developmental Science*, 21(1), 67–80. <https://doi.org/10.1080/10888691.2016.1160781>
- Kirnan, J., Ventresco, N. E., & Gardner, T. (2018). The impact of a therapy dog program on children's reading: Follow-up and extension to ELL students. *Early Childhood Education Journal*, 46(1), 103–116. <https://doi.org/10.1007/s10643-017-0844-z>
- Ko, M. (2017). *Reading to therapy dogs improves literacy attitudes in second-grade students*. Tufts Now. <http://now.tufts.edu/news-releases/reading-therapy-dogs-improves-literacy-attitudes-second-grade-students-0>
- Kotrschal, K. (2018). How wolves turned into dogs and how dogs are valuable in meeting human social needs. *People and Animals: The International Journal of Research and Practice*, 1(1), 6. <https://docs.lib.purdue.edu/paij/vol1/iss1/6>
- Kotrschal, K., & Ortbauer, B. (2003). Behavioral effects of the presence of a dog in a classroom. *Anthrozoös*, 16(2), 147–159. <https://doi.org/10.2752/089279303786992170>

- Koutsopoulos, T., & Koutsopoulos, K. (2018). Dogs in learning: An implementation of human-canine synergy in education. *Journal of Education, Society and Behavioural Science*, 25(2), 1–12. <https://doi.org/10.9734/JESBS/2018/40777>
- Krause-Parello, C. A., Thames, M., Ray, C. M., & Kolassa, J. (2018). Examining the effects of a service-trained facility dog on stress in children undergoing forensic interview for allegations of child sexual abuse. *Journal of Child Sexual Abuse*, 27(3), 305–320. <https://doi.org/10.1080/10538712.2018.1443303>
- Krause-Parello, C. A., Tychowski, J., Gonzalez, A., & Boyd, Z. (2012). Human-canine interaction: Exploring stress indicator response patterns of salivary cortisol and immunoglobulin A. *Research and Theory for Nursing Practice*, 26(1), 25–40. <https://doi.org/10.1891/1541-6577.26.1.25>
- Kropp, J. J., & Shupp, M. M. (2017). Review of the research: Are therapy dogs in classrooms beneficial?. In *Forum on Public Policy Online* 2017(2). <https://forumonpublicpolicy.com/wp-content/uploads/2018/02/Final-Draft-Kropp-and-Shupp.pdf>
- Kuypers, L. M., & Winner, M. G. (2011). *The zones of regulation*. Van Haren Publishing.
- Levinson, B. M. (1969). *Pet-oriented child psychotherapy*. Thomas.
- Levinson, E. M., Vogt, M., Barker, W. F., Jalongo, M. R., & Van Zandt, P. (2017). Effects of reading with adult tutor/therapy dog teams on elementary students' reading achievement and attitudes. *Society & Animals*, 25(1), 38–56. <https://doi.org/10.1163/15685306-12341427>

- Li, Y., Hassett, A. L., & Seng, J. S. (2019). Exploring the mutual regulation between oxytocin and cortisol as a marker of resilience. *Archives of Psychiatric Nursing*, 33(2), 164–173. <https://doi.org/10.1016/j.apnu.2018.11.008>
- Melson, G. F. (1990). Studying children's attachment to their pets: A conceptual and methodological review. *Anthrozoös*, 4(2), 91–99. <https://doi.org/10.2752/089279391787057297>
- Merriam, S. B., & Tisdell, E. J. (2016). *Qualitative research: a guide to design and implementation* (4th ed.). Jossey Bass.
- Morse, J. M., Barrett, M., Mayan, M., Olson, K., & Spiers, J. (2002). Verification strategies for establishing reliability and validity in qualitative research. *International Journal of Qualitative Methods*, 1(2), 13–22. <https://doi.org/10.1177/160940690200100202>
- Muela, A., Balluerka, N., Amiano, N., Caldentey, M. A., & Aliri, J. (2017). Animal-assisted psychotherapy for young people with behavioural problems in residential care. *Clinical Psychology & Psychotherapy*, 24(6), O1485-O1494. <https://doi.org/10.1002/cpp.2112>
- Mueller, M. K. (2014). Human-animal interaction as a context for positive youth development: A relational developmental systems approach to constructing human-animal interaction theory and research. *Human Development*, 57(1), 5–25. <https://doi.org/http://dx.doi.org.une.idm.oclc.org/10.1159/000356914>
- Nagasawa, M., Mitsui, S., En, S., Ohtani, N., Ohta, M., Sakuma, Y., Onaka, T., Mogi, K., & Kikusui, T. (2015). Social evolution: Oxytocin-gaze positive loop and the

- coevolution of human-dog bonds. *Science*, 348(6232), 333–336.
<https://doi.org/10.1126/science.1261022>
- National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. (1978). *The Belmont Report: Ethical principles and guidelines for the protection of human subjects of research*.
<https://www.hhs.gov/ohrp/regulations-and-policy/belmont-report/read-the-belmont-report/index.html>
- Noble, O., & Holt, N. (2018). A study into the impact of the Reading Education Assistance Dogs scheme on reading engagement and motivation to read among early years foundation-stage children. *Education 3–13*, 46(3), 277–290.
<https://doi.org/10.1080/03004279.2016.1246587>
- Palika, L., & Fearing, J. (2008). *Dogs at work: A practical guide to creating dog-friendly workplaces*. Humane Society Press.
- Pina e Cunha, M., Rego, A., & Munro, I. (2019). Dogs in organizations. *Human Relations*, 72(4), 778–800. <https://doi.org/10.1177/0018726718780210>
- Polheber, J. P., & Matchock, R. L. (2014). The presence of a dog attenuates cortisol and heart rate in the Trier Social Stress Test compared to human friends. *Journal of Behavioral Medicine*, 37(5), 860–867. <https://doi.org/10.1007/s10865-013-9546-1>
- Protopopova, A., Matter, A. L., Harris, B. N., Wiskow, K. M., & Donaldson, J. M. (2019). Comparison of contingent and noncontingent access to therapy dogs during academic tasks in children with Autism Spectrum Disorder. *Journal of Applied Behavior Analysis*. <https://doi.org/10.1002/jaba.619>

- Reilly, K. M., Adesope, O. O., & Erdman, P. (2020). The effects of dogs on learning: A meta-analysis. *Anthrozoös*, 33(3), 339–360.
<https://doi.org/10.1080/08927936.2020.1746523>
- Roberts, C. (2010). *The dissertation journey: A practical and comprehensive guide to planning, writing, and defending your dissertation*. SAGE Publications.
- Saldaña, J. (2009). *Coding Manual for qualitative researchers*. SAGE Publications.
- Silas, H. J., Binfet, J., & Ford, A. T. (2019). Therapeutic for all? Observational assessments of therapy canine stress in an on-campus stress-reduction program. *Journal of Veterinary Behavior*, 32, 6–13.
<https://doi.org/10.1016/j.jveb.2019.03.009>
- Sixsmith, J., Nic Gabhainn, S., Fleming, C., & O'Higgins, S. (2007). Childrens', parents' and teachers' perceptions of child wellbeing. *Health Education*, 107(6), 511–523.
<https://doi.org/10.1108/09654280710827911>
- Sola-Perkins, B. (2018). *The impact of the use of a professional therapy dog on the sense of school belongingness and class attendance of students in a truant's alternative and optional education program*. (10931323). [Doctoral dissertation, Edgewood College]. ProQuest Dissertations and Theses.
- Tipper, B. (2011). 'A dog who I know quite well': Everyday relationships between children and animals. *Children's Geographies*, 9(2), 145–165.
<https://doi.org/10.1080/14733285.2011.562378>
- U.S. Department of Education, National Center for Education Statistics. (2019). *Indicators of School Crime and Safety: 2018*. NCES 2019-047/NCJ 252571.

- National Center for Education Statistics. ED Pubs.
<https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2019047>
- VanFleet, R. (2008). *Play therapy with kids & canines: Benefits for children's developmental and psychosocial health*. Professional Resource Press.
- von Dawans, B., Kirschbaum, C., & Heinrichs, M. (2010). The Trier Social Stress Test for Groups (TSST-G): A new research tool for controlled simultaneous social stress exposure in a group format. *Psychoneuroendocrinology*, *36*(4), 514–522.
<https://doi.org/10.1016/j.psyneuen.2010.08.004>
- Wilson, E. O. (2003). *Biophilia*. Harvard University Press. (Original work published 1984).
- Wilson, L. T. (2017). Dogs go to school: Using therapy dogs to help elementary school children. *Communiqué (National Association of School Psychologists)*, *45*(8), 11.
Retrieved October 9, 2021, from <https://go.exlibris.link/y82jy0LS>
- Zeman, C. (2017). Effects of therapy dog use on K-12 students. [Master Thesis, University of Wisconsin-Stout]. UW-Stout Thesis.
- Zents, C. E., Fisk, A. K., & Lauback, C. W. (2017). Paws for intervention: Perceptions about the use of dogs in schools. *Journal of Creativity in Mental Health*, *12*(1), 82–98. <https://doi.org/10.1080/15401383.2016.1189371>

Appendices

Appendix A: Middle School Survey Questions

Confidential

The Perceived Effects of Therapy Dogs on Student Learning and Social-Emotional Development

Page 1

Please complete the survey below.

Thank you!

Are you a teacher or staff member working at the Middle School? Yes
 No

As part of your role do you: Yes
 No

Observe students interact with the therapy dog and/or

Work in a classroom where the therapy dog visits and/or

Work with a student who interacts with the therapy dog and/or

Work directly with the therapy dog and/or

Otherwise participate, facilitate, or observe the therapy dog work?

Confidential

Page 6

Survey Questions

What is your role in school (i.e. teacher, counselor, psychologist, band, etc...)

What role(s) does the therapy dog perform in your room/or have you seen her perform?

- Anxiety/stress reduction
 - Comfort (dog provides comfort to student, outside of anxiety/stress)
 - Reading Dog (students read to dog)
 - Therapy dog - working with therapist (assist with therapy)
 - Therapy dog - working with counselor (skill build or social-emotional learning needs)
 - Other
-

What other role does the dog perform?

Confidential

Page 7

To what extent do you agree with the following statements:

	Agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Disagree
The use of therapy dogs contributes to the development of social interaction in students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The use of therapy dogs contributes to the development of stress coping in students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The use of therapy dogs contributes to the development of self-regulation in students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The use of therapy dogs contributes to the development of engagement in students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What impacts have you seen from the therapy dog on student learning?

What impacts have you seen from the therapy dog on student social-emotional development

What would you tell a teacher/staff member who never worked with a dog in a school setting?

Would you be interested in being interviewed as part of this research. By selecting yes you will be brought to another page to provide your contact information. While the survey is anonymous, the interview will require contact

- Yes
 No

Confidential

Page 8

Thank you for volunteering for possible interview participation.

Please enter your e-mail address for contact for possible participation in interview.

Appendix B: Social Media Survey Questions

Confidential

Page 1

Perceptions of Therapy Dog Impacts Survey FB

Please complete the survey below.

Thank you!

Has your Therapy dog program been running longer than a year? You may count COVID as an active year even if your program was impacted by the pandemic.

Yes
 No

As part of your role do you perform any of the listed functions/roles below:

Yes
 No

Observe students interact with the therapy dog and/or

Work in a classroom where the therapy dog visits and/or

Work with a student who interacts with the therapy dog and/or

Work directly with the therapy dog and/or

Otherwise participate, facilitate, or observe the therapy dog work?

Confidential

Page 6

Survey Questions

How did you hear about this survey?

- From Therapy Dog Handler
 Coworker
 Sent to me by a friend
 Facebook
 Other

Please describe other source

Please tell me below how you heard about this survey.

What is your role in the school (i.e. teacher, counselor, psychologist, band, etc...)

What grade levels does your school serve

What role(s) does the therapy dog perform in your room/or have you seen her perform?

- Anxiety/stress reduction
 Comfort (dog provides comfort to student, outside of anxiety/stress)
 Reading Dog (students read to dog)
 Therapy dog - working with therapist (assist with therapy)
 Therapy dog - working with counselor (skill build or social-emotional learning needs)
 Other

What other role does the dog perform?

Confidential

Page 7

To what extent do you agree with the following statements:

	Agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Disagree
The use of therapy dogs contributes to the development of social interaction in students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The use of therapy dogs contributes to the development of stress coping in students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The use of therapy dogs contributes to the development of self-regulation in students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The use of therapy dogs contributes to the development of engagement in students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What impacts have you seen from the therapy dog on student learning?

What impacts have you seen from the therapy dog on student social-emotional development

What would you tell a teacher/staff member who never worked with a dog in a school setting?

Would you be interested in being interviewed as part of this research. By selecting yes you will be brought to another page to provide your contact information. While the survey is anonymous, the interview will require contact

- Yes
 No

Confidential

Page 8

Thank you for volunteering for possible interview participation.

Please enter your e-mail address for contact for possible participation in interview.

Appendix C: Semi-Structured Interview Questions

Semi-Structured Interview

Thank you for sitting down with me today. I truly do appreciate your taking the time to help me get a better understanding of your thoughts on how therapy dogs impact students. I would love to hear about the overall impact, but if you have specific students in mind for any of these questions, please feel free to share that as well, just being mindful of protecting their identity. If you do talk about any student information, I will utilize pseudonyms and protect the confidentiality of identifying information.

Generalized info

1. What is your position at the school?
2. Have you ever worked in a school with a dog before?
3. What were your thoughts the first time you saw the dog with students?
4. How have your thoughts changed since then?

Impact Specific.

5. How would you describe the impact of the dog on your students?
 - a. How do students react to the therapy dog?
6. How would you describe the impact of the dog on student learning?
7. How would you describe the impact of the dog on student social-emotional development?
8. How would you describe the effects of the therapy dog on student social interaction?
9. How would you describe the effects of the therapy dog on student self-regulation?

- a. How would you describe the effects of the therapy dog on student stress-coping/anxiety reduction?
10. How would you describe the effects of the therapy dog on student engagement?
 - a. How would you describe the effects of the therapy dog on student attention?
 11. How would you describe the effects of the therapy dog on student motivation?
 12. How do the students change when the therapy dog is in the room?
 13. Does any impact of the therapy dog carry after it has left the room?
 14. What would you like others to know about therapy dogs in schools?
 15. If a school was considering starting a therapy dog program similar to yours what advice would you give to a:
 - a. Principal making the decision?
 - b. Teacher whose classroom the dog would visit?
 - c. Parent who was unsure?

Closing:

I understand that the end of the school year is chaotic so thank you for your time today. I truly do appreciate your helping me peer into the world you see with the therapy dog and your students.

Appendix D: Informed Consent Middle School Site**UNIVERSITY OF NEW ENGLAND****CONSENT FOR PARTICIPATION IN RESEARCH**

Project Title: The Perceived Effects of Therapy Dogs on Student Learning and Social-Emotional Development

Principal Investigator(s): Timothy Smolen

Introduction:

- Please read this form. The purpose of this form is to give you information about this research study, and if you choose to participate, document that choice.
- You are encouraged to ask any questions that you may have about this study, now, during or after the project is complete. You can take as much time as you need to decide whether or not you want to participate. Your participation is voluntary.

Why is this research study being done?

The general purpose of this research is to obtain the perceptions of the teachers/staff members directly associated with the TD program in their school regarding the TD programs effectiveness in regards to: (a) student social interaction, (b) stress coping and self-regulation, (c) engagement and/or attention, and (d) motivation and/or self-efficacy.

Participants in this study will be asked to answer survey questions. Findings from this study will be used in a doctoral thesis, a presentation with administration and a chance of scholarly publication or conference.

Who will be in this study?

Middle school teachers and staff members, who have interaction with, observe student interaction with, or work directly with the school's therapy dog.

What will I be asked to do?

Participants in this study will be asked to answer survey questions. Participants will also be given the opportunity to volunteer to participate in an interview. Findings from this study will be used in a doctoral thesis, a presentation with administration and a chance of scholarly publication or conference.

What are the possible risks of taking part in this study?

The probability and magnitude of harm/discomfort anticipated as a result of participating in this study are not greater than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests.

What are the possible benefits of taking part in this study?

There are no expected benefits associated with your participation.

What will it cost me?

The only cost is that of time

How will my privacy be protected?

Survey Participant responses will be recorded anonymously, and will not be able to be identified by their responses. Information for participants electing to volunteer for interview will be confidential due to the collection of e-mail contact information.

How will my data be kept confidential?

Survey responses will be kept in REDCap, a secure internet application specifically designed as a research tool. Any data exported will be encrypted and saved to a USB thumb drive that will only be accessed via a computer that requires a fingerprint scan to access. This computer is itself encrypted through the operating system utilizing *Bitlocker* that has created an encrypted file system.

What are my rights as a research participant?

- Your participation is voluntary. Your decision to participate will have no impact on your current or future relations with the University.
- Your decision to participate will not affect your relationship with your employer.
- You may skip or refuse to answer any question for any reason.
- If you choose not to participate there is no penalty to you and you will not lose any benefits that you are otherwise entitled to receive.
- You are free to withdraw from this research study at any time, for any reason.

- If you choose to withdraw from the research there will be no penalty to you and you will not lose any benefits that you are otherwise entitled to receive.
- You will be informed of any significant findings developed during the course of the research that may affect your willingness to participate in the research.
- If you sustain an injury while participating in this study, your participation may be ended.

What other options do I have?

- You may choose not to participate.

Whom may I contact with questions?

- The researcher conducting this study is Timothy Smolen
 - For more information regarding this study, please contact tsmolen@une.edu
- If you choose to participate in this research study and believe you may have suffered a research related injury, please contact
 - If you have any questions or concerns about your rights as a research subject, you may call Mary Bachman DeSilva, Sc.D., Chair of the UNE Institutional Review Board at (207) 221-4567 or irb@une.edu.

Will I receive a copy of this consent form?

- You print and keep a copy of this consent form

Click the checkbox to the left to indicate that you are 18 years of age or older, you have read and understand your rights, and that you consent to participate in this online research study.

Yes

No [End Survey]

* must provide value

Appendix E: Informed Consent Social Media

UNIVERSITY OF NEW ENGLAND CONSENT FOR PARTICIPATION IN RESEARCH

Project Title: The Perceived Effects of Therapy Dogs on Student Learning and Social-Emotional Development

Principal Investigator(s): Timothy Smolen

Introduction:

- Please read this form. The purpose of this form is to give you information about this research study, and if you choose to participate, document that choice.
- You are encouraged to ask any questions that you may have about this study, now, during or after the project is complete. You can take as much time as you need to decide whether or not you want to participate. Your participation is voluntary.

Why is this research study being done?

The general purpose of this research is to obtain the perceptions of the teachers/staff members directly associated with the TD program in their school regarding the TD programs effectiveness in regards to: (a) student social interaction, (b) stress coping and self-regulation, (c) engagement and/or attention, and (d) motivation and/or self-efficacy. Participants in this study will be asked to answer survey questions. Findings from this study will be used in a doctoral thesis, a presentation with administration and a chance of scholarly publication or conference.

Who will be in this study?

Teachers and staff members, who have interaction with, observe student interaction with, or work directly with the school's therapy dog.

What will I be asked to do?

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What are the possible risks of taking part in this study?

The probability and magnitude of harm/discomfort anticipated as a result of participating in this study are not greater than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests.

What are the possible benefits of taking part in this study?

There are no expected benefits associated with your participation.

What will it cost me?

The only cost is that of time

How will my privacy be protected?

Survey Participant responses will be recorded anonymously, and will not be able to be identified by their responses. Information for participants electing to volunteer for interview will be confidential due to the collection of e-mail contact information.

How will my data be kept confidential?

Survey responses will be kept in REDCap, a secure internet application specifically designed as a research tool. Any data exported will be encrypted and saved to a USB thumb drive that will only be accessed via a computer that requires a fingerprint scan to access. This computer is itself encrypted through the operating system utilizing *Bitlocker* that has created an encrypted file system.

What are my rights as a research participant?

- Your participation is voluntary. Your decision to participate will have no impact on your current or future relations with the University.
- Your decision to participate will not affect your relationship with your employer.
- You may skip or refuse to answer any question for any reason.
- If you choose not to participate there is no penalty to you and you will not lose any benefits that you are otherwise entitled to receive.
- You are free to withdraw from this research study at any time, for any reason.
 - If you choose to withdraw from the research there will be no penalty to you and you will not lose any benefits that you are otherwise entitled to receive.
- You will be informed of any significant findings developed during the course of the research that may affect your willingness to participate in the research.
- If you sustain an injury while participating in this study, your participation may be ended.

What other options do I have?

- You may choose not to participate.

Whom may I contact with questions?

- The researcher conducting this study is Timothy Smolen
 - For more information regarding this study, please contact tsmolen@une.edu
- If you choose to participate in this research study and believe you may have suffered a research related injury, please contact
 - If you have any questions or concerns about your rights as a research subject, you may call Mary Bachman DeSilva, Sc.D., Chair of the UNE Institutional Review Board at (207) 221-4567 or irb@une.edu.

Will I receive a copy of this consent form?

You print and keep a copy of this

Appendix F: Canine Characteristics of Interview Participants

	Dog 1	Dog 2	Dog 3	Dog 4
Gender	Female	Male	Male	Female
		Neutered		Spayed
Breed	Yellow Lab	Labradoodle	Labrador	Jack Russell/Chihuahua mix
How Typicality is dog to Breed Standard	Typical of Lab	Typical		Mutt so no standard
Size	Typical of Breed	Large/75lbs, Typical of breed	90lbs	25 lbs.
Approachability (Program wise)	Anyone can approach at site	When not engaged in task with handler or other students, they are free to approach	* Kids were free to approach dog, unless instructed otherwise. Such as when he was eating or sleeping.	Kids can approach with permission

			<p>* Dog had space on the rug where kids could have individual time with him. He was not allowed on any class furniture, such as reading couch.</p>	
Freedom to roam	Dog can wander classroom	No	Dog is free to roam, unless instructed otherwise. Snack time he would have to stay on the rug.	Dog is on leash at all times In school. Outside the activity dictates leash requirement but not free to roam
'Dog space'	Pillows in classrooms, and designated space in handler office	In room with Students: No	No specific space	Multiple areas throughout school and in office of handler

		In handler's space: Yes		
Leash	Generally Off Leash in school	No	In school = no Outside of school = yes	Yes
Activity Level	Low	Low	Low (older dog)	Low (as she is getting older)
Training	* Basic Obedience * 8-Week Specialized * Been conditioned to some Spanish language commands	None	Dog was a retired service dog, so was well trained.	* Basic Obedience 1,2,3 * Canine Good Citizen * Ten hours of supervised therapy training. * Hundreds of hours practice and engagement
Certification	Initial Therapy Dog Cert.	* Pet Partners Team member	Dog had certificate from approved service dog training association.	* Love on a Leash therapy dog * Canine Good Citizen

		* Hope Animal-Assisted Crisis Response Team Member		* AKC Therapy Dog
Insurance	Home Owners provides coverage	Private Policy when 'working'	Don't know	* Covered through career field insurance * Additional through company policy