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Occupational Therapists' clinical reasoning in AAT with dogs in pediatric therapy

Presented in Partial Fulfillment of the
Requirements for the Degree of
Doctor of Occupational Therapy

Eastern Kentucky University
College of Health Sciences
Department of Occupational Science and Occupational Therapy

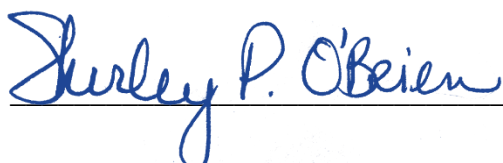
Catherine Goodman
2022

**EASTERN KENTUCKY UNIVERSITY
COLLEGE OF HEALTH SCIENCES
DEPARTMENT OF OCCUPATIONAL SCIENCE AND OCCUPATIONAL THERAPY**

This project, written by Catherine Goodman under direction of Shirley O'Brien, Faculty Mentor, and approved by members of the project committee, has been presented and accepted in partial fulfillment of requirements for the degree of

DOCTOR OF OCCUPATIONAL THERAPY

CAPSTONE COMMITTEE



Faculty Mentor

5/13/22

Date



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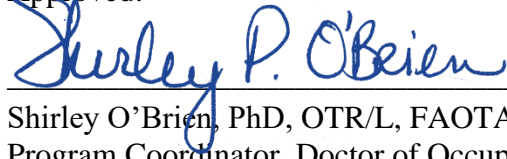
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DEPARTMENT OF OCCUPATIONAL SCIENCE AND OCCUPATIONAL
THERAPY**

Certification

We hereby certify that this Capstone project, submitted by Catherine Goodman, conforms to acceptable standards and is fully adequate in scope and quality to fulfill the project requirement for the Doctor of Occupational Therapy degree.

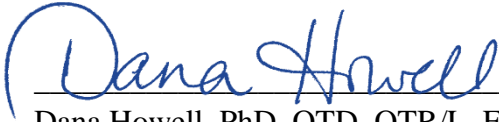
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Executive Summary

Background: Occupational therapy literature has begun to report methods of including animal assisted therapy in practice, including treatment with dogs, and clear guidelines for practice are needed for expertise in animal handling and therapy practice.

Purpose: The purpose of the study was to understand the clinical reasoning used by occupational therapists to select animal assisted therapy with a dog to be included in a treatment plan for their pediatric occupational therapy clients

Theoretical Framework. The Ecology of Human Performance model supports the study purpose and emphasizes the effect of a person's context and environment on their ability to function and perform tasks.

Methods. The descriptive qualitative study used interviews of seven occupational therapy practitioners who have included dogs in therapy sessions with children. Interactive coding and theme development was employed with member checking applied to validate the data collected. An audit trail and reflexivity journal were kept adding rigor in the process.

Results. Occupational therapy practitioners reported using standard occupational therapy evaluation practices and incorporated clinical reasoning afterward to determine if animal assisted therapy (AAT) with a dog would benefit their clients. Occupational therapy practitioners used experience and expertise to develop their AAT programs and select and train their dogs. Three themes emerged: Occupational therapy decision making processes are primary and fundamental, dogs are exceptional, intuitive therapy partners with unique needs, and adding animal assisted therapy to occupational therapy practice requires expertise beyond novice.

Conclusions: Occupational therapy practitioners who wish to engage with dogs in therapy need advanced experience and thorough exploration of AAT practices, to best apply occupation centered therapy in context. Further research is needed to support occupational therapy practitioners who utilize AAT with dogs in practice.

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I am in deep gratitude for my family during this time in our lives, for my husband Eric who has been supportive and has taken on extra roles in our family this year, and to my dearest twin girls, Anna & Amy, who have been so understanding, while beginning to take charge of their lives as they enter their last year of high school.

**EASTERN KENTUCKY UNIVERSITY
COLLEGE OF HEALTH SCIENCES
DEPARTMENT OF OCCUPATIONAL SCIENCE AND OCCUPATIONAL THERAPY**

CERTIFICATION OF AUTHORSHIP

Submitted to (Faculty Mentor's Name): Dr. Shirley O'Brien, OTR/L, FAOTA

Student's Name: Catherine Goodman

Title of Submission: Clinical reasoning when including dogs in occupational therapy with children

Certification of Authorship: I hereby certify that I am the author of this document and that any assistance I received in its preparation is fully acknowledged and disclosed in the document. I have also cited all sources from which I obtained data, ideas, or words that are copied directly or paraphrased in the document. Sources are properly credited according to accepted standards for professional publications. I also certify that this paper was prepared by me for this purpose.

Student's Signature: Catherine Goodman

Date of Submission: 5/11/2022

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Section 1: Nature of Project and Problem Identification

Animal assisted therapy (AAT) in occupational therapy (OT) provides an approach that is unique from other supports, modalities, and activities used to help clients reach their goals.

Animal assisted therapy is delivered by a therapy professional who includes an animal specifically trained for therapeutic interaction to enhance participation and address therapeutic goals with a client (International Association of Human-Animal Interaction Organization [IAHAIO], 2018). Clinicians using AAT target specific functional goals aimed at increasing the client's functioning (Friesen, 2010). While there are many different animals that can be included in AAT, dogs are commonly sought for this therapy approach. The presence of dogs in AAT sessions has been shown to decrease perception of pain, and improve stress and cardiovascular responses (Calcaterra, 2015; Rodrigo-Claverol et al., 2019). The addition of a dog to an OT session brings opportunity for sensory experiences, socialization, and motivation for occupational tasks, and inserts a positive point of attention in the therapy session, therefore creating a positive memory of the experience (Rodrigo-Claverol et al., 2019). Dogs are non-judgmental companions who do not require language to have meaningful interactions with clients and can help engage clients with limited language skills.

While AAT is utilized in other professions, the practice of involving animals for therapeutic benefit is documented in occupational therapy literature (Hill et al., 2020; Poleshuck, 1997; Sams, 2006). Most of the salient literature demonstrates occupational therapy practitioners' (OTP) involvement over time in AAT. Poleshuck (1997) described the importance of a child's motivation in participation in occupational therapy sessions and how working with a therapy animal can improve motivation. Motivation and self-confidence are essential to a productive occupational therapy session, by reinforcing client centered goals.

The IAHAIO distinguishes AAT from other animal assisted interactions including animal assisted activities (AAA) that also involve a handler and an animal for purposeful, stimulating, instructional, and recreational activities (IAHAIO, 2018). These activities are not delivered in a therapy session with a trained therapy professional. The IAHAIO provides an overarching category of animal assisted interventions (AAI), which includes AAT and AAA and specifies standards for the welfare of animals used in AAI. Occupational therapy practitioners may include a variety of animals to support therapy goals, including but not limited to dogs, rabbits, and horses. A meta-analysis reported other types of animals including cats, dolphins, birds, cows, rabbits, ferrets, and guinea pigs are involved in AAT (Kamioka et al., 2014). Llamas have been in occupational therapy practice as reported by Sams and colleagues (2006). The IAHAIO does not include wild and non-domesticated species of animals to be considered for AAT, which would include dolphins (IAHAIO, 2018). Thus, a variety of domesticated animals can be incorporated for therapeutic purposes within skilled intervention practice.

The field of AAT is concerned with the well-being of the animals as well as the clients (Brelsford et al., 2017; Fine et al., 2019; Winkle & Ni, 2019). An OTP using AAT within OT intervention needs to address several requirements prior to engagement: preparation and education in animal behavior and care along with maintaining awareness of the animal's well-being during treatment sessions. Further, the OTP must use their observation skills to assess a client, the animals' response, as well as the client's well-being (Winkle & Ni, 2019) prior to, during, and after the treatment session. Therapists who use AAT must be able to attend to their client's needs as well as the animal's needs, and those who are serving both the role of the therapist and the animal handler must attend to both at the same time. Animals such as dogs and handlers should undergo training for AAI's, which may include therapist handlers, volunteer

visitations, and facility dogs (Winkle & Ni, 2019). The clinical decision-making process used by OTPs must include both client and animal needs and safety when using AAT as a treatment modality. Client preferences and goals, acceptance of animals, and conditions that may cause medical instability are at the forefront in clinical judgments. The animal's training and personality as well as the appropriate and safe setting for the treatment session are further considerations.

One form of AAT that has standards for use in occupational therapy is hippotherapy. Hippotherapy is a treatment method that occupational therapists, physical therapists, and speech therapists use a horse to “engage sensory, neuromotor and cognitive systems to promote functional outcomes” (American Hippotherapy Association, 2017). Using clinical decision making and evidence-based practice, an occupational therapist can select hippotherapy as a treatment approach to address specific functional needs of the client. The American Hippotherapy Association (AHA) published a report of best practices (2017) and offers intensive training and certifications for practitioners (AHA, 2017). AHA lists specific and extensive contraindications for therapists to follow when considering hippotherapy for their clients. Two occupational therapists who are certified in hippotherapy were interviewed for the needs assessment and provided valuable information for the capstone. Best practices published for practitioners using hippotherapy as a treatment method as well as certification are available and recommended. Occupational therapists using hippotherapy in their practice have these documents and support available to them through the AHA. However, no singular equivalent document or guidelines exist for occupational therapists using AAT with dogs.

Handlers may follow numerous paths to train a dog to be part of a therapy session. Private organizations develop their own training and testing methods which include training

classes and observed testing procedures. Pet Partners and Therapy Dogs International are two larger organizations that provide education, support, and certification procedures. Currently, Animal Assisted Intervention International (AAII) is testing a registration system where animals and handlers must exhibit training and expertise over time and engage in testing trials with a third party observing (AAII, 2022). Occupational therapy practitioners, along with many others, can assume the role of dog handler, which requires the OTP to use reasoning to determine make decisions to provide effective intervention using the dog.

Clinical reasoning is described as professional reasoning by Schell (2019) with delineation of types of reasoning used in practice. Therapists use multiple types of reasoning, weaving them together to make decisions about the approach to use with a particular client. Schell describes this as a complex process, yet one that happens quickly. The depth and complexity of information assimilated develops over time with experience.

The Occupational Therapy Practice Framework: Domain and Process, 4th edition (OTPF-4) (AOTA, 2020) provides occupational therapists with a structure for understanding human occupation and for evaluation and selection of treatment when occupations are interrupted, as well as evaluating outcomes. Discovering client factors, including barriers for clients and what motivates clients, is an essential step in determining the most effective intervention and how desired outcomes will be achieved. Adaptation and prevention are two approaches to occupational therapy interventions that can include the use of animals in occupational therapy. Creating a supportive, empathetic environment for clients provides the groundwork for clients to feel safe to participate in new activities and when they face challenges. Building trust with the client allows them to feel hopeful in the moment and for their outcomes (AOTA, 2020). Therapeutic use of self extends beyond the therapist when used in conjunction with AAT to the

therapeutic interaction with an animal and the positive association of the animal with the therapy session and tasks.

Occupational therapists use clinical reasoning and decision making throughout the evaluation and treatment process, demonstrating the use of evidence in practice. The Occupational Therapy Practice Framework, OTPF-4 reviews the importance of the assessment process, integrating clinical reasoning into professional decision-making for client-centered practice (AOTA, 2020). The assessment process may start with a chart review and interview of a referral source, the client, and family members and continues with selection of screening and evaluation methods. During the evaluation, therapists begin to develop the therapist-client relationship, and begin to understand their client's personality, motivations, and fears to create an occupational profile, which the therapist uses in the development of a treatment and intervention plan (AOTA, 2020; Rogers & Masagatani, 1982). As the client is actively involved in occupational therapy treatment, the therapist continually reassesses their approaches, using clinical reasoning about how well the client is attaining targeted outcomes. Therapists use clinical decision making to determine the best media, for example, including whether an animal assisted approach would be practical and beneficial for their clients to support occupational outcomes.

Problem Statement

There is not a consistent set of guidelines or certification for the inclusion of therapy dogs in occupational therapy practice. The AOTA has published definitions in the field of AAI's, and recommendations for including AAT in occupational therapy practice on the AOTA website (AOTA, 2018). AOTA recommends therapists follow the Occupational Therapy Code of Ethics to not cause harm when using a novel therapy approaches such as AAT as a component in

occupational therapy intervention (AOTA, 2015). Other recommendations include seeking continuing education specific to AAT, using a therapy dog organization to create a therapist-animal-handler team, seeking a skilled dog trainer if involving one's own dog, and having a third party evaluate one's practice. Winkle and Ni are occupational therapists who have contributed to AAT's use in occupational therapy practice including the client, therapist, and animal's roles (AOTA, 2018; Fine et al., 2019). Additional informed and experienced knowledge about how OTP's select AAT in treatment is needed to support its safe and effective use and contribute to evidence-based practice. There is a gap in the research addressing the clinical reasoning and screening methods of OTP's using AAT with dogs with their pediatric clients and how the approach is selected to address treatment goals. The main question of the capstone is how pediatric occupational therapy practitioners use clinical reasoning to determine whether to use an animal assisted therapy method with a dog in occupational therapy treatment with children.

Research Objectives

The following objectives were developed to support the research question of how pediatric occupational practitioners use evidence and decision making to determine the use of a dog in their therapy sessions.

1. Understand the decision-making process of pediatric occupational therapy practitioners who involve dogs for AAT in their treatment with children, including application of evidence and clinical experience.
2. Understand how pediatric occupational therapy practitioners select dogs to involve in therapy, to assist in meeting their client's goals.

Theoretical Framework

The Ecology of Human Performance model (EHP) provides a structure for occupational therapists using AAT (Dunn et al., 1994). EHP originated as a practice framework for occupational therapy students and professionals and was designed to be accessible to other disciplines. The model emphasizes the effect of a person's context and environment on their ability to function and perform tasks. Myers (2006) described the use of EHP to illustrate how occupational therapy intervention with children transitioning from preschool to kindergarten and the context of each environment interact and contribute to the child's experience and task performance. The differences in context were examined in their relationship and effect on the children's task performance (Meyers, 2006). The EHP framework categories alter, adapt, and prevent to describe the therapeutic interventions occupational therapists may use. Occupational therapists can create a positive and engaging environmental context for children by *altering* the physical environment for the task, and by *adapting* the task by including a dog that meets the child's social, sensory, and task related needs. A dog may add more value to a task and assist the child in participation and reinforce behavior by adding enjoyment (Cole & Tufano, 2008) and *preventing* negative emotions and behaviors (Dunn et al, 1994; Redefers & Goodman, 1989). By using an animal, a child's environment changes significantly, and the goal is to create an environment that is more pleasurable, allowing the child to interact on their terms. The animal encourages interaction but does not demand it.

Significance of the study

Animal assisted interventions (AAI), which includes AAT, is a current topic in health delivery and public health, significant enough for the National Institutes of Health (NIH) to issue a grant for Human-Animal Interaction (HAI) research. The grant includes studies that report a

portrayal of AAT with children and signifies an interest in studies of HAI, and its importance to public health (Department of Health and Human Services, 2019). AOTA's web page providing information on AAT further demonstrates an interest of the profession of occupational therapy to include this as an occupation to support interventions. The links provided recommend further study, including material from Animal Assisted Intervention International (AAII). Adding AAT as a treatment component to one's practice not only involves whether the client is an appropriate candidate, but also the dog, and both the client's and the dog's safety (AOTA, 2018).

In a previous study (Goodman, 2020), the involvement of dogs within school-based occupational therapy interventions was explored. The qualitative study investigated the perceptions of stakeholders in an animal assisted occupational therapy program for elementary school students and sought to understand how the inclusion of a therapy dog as a treatment approach affects the performance, participation and well-being of students receiving occupational therapy. The study focused on the purpose of AAT incorporated into occupational therapy interventions in school-based practice. Interviews were conducted with school staff members, the therapy dog handlers, and parents of students who had participated in animal assisted therapy within the prior school year. The researcher found that dogs were frequently perceived as change agents in the therapy process. The phenomena of the dog's presence and use described by participants can be a valuable tool for a therapist to use in treatment sessions yet is still not completely understood. Themes emerged of the therapy animal's effect on student behavior, mood, and participation. Participants reported the animal as a motivator, yet a non-threatening presence for the children in the occupational therapy sessions. While there are operational and safety considerations for clients as well as the animals, a conclusion of the study was that therapy animals may benefit clients in their unique way of relating to people.

This Capstone Project builds upon the previous work, to explore the clinical reasoning process of pediatric occupational therapists evaluating client factors, determining treatment methods, occupational goals, and predicting how the nature of AAT may support the best outcomes for occupation-centered practice. Using data driven decision making, occupational therapists determine whether interventions are indicated using evidence in the literature and re-evaluate during the therapy process to ascertain if the chosen intervention is effective (Schaaf, 2015).

Section 2: Review of the Literature

Literature from the field of occupational therapy, animal assisted interventions, and related professions was reviewed for the capstone study. Perspectives of children, clients, therapists, and care of the therapy animal (dog) were sought, and evident in the retrieved articles. Databases utilized included CINAHL, PubMed, Nursing and Allied Health Premium (EBSCO), and ERIC, as well as the journal AJOT through the AOTA website (AOTA, 2021). Search terms consisted of animal assisted therapy, animal assisted interventions, therapy dog, dogs AND therapy, occupational therapy, dogs, AND children.

Animal Assisted Therapy

While AAT has been described across disciplines to be an effective tool, the practice is not yet consistently defined (Nimer & Lundahl, 2007). Research demonstrating the benefit of working with animals from guinea pigs to dogs to horses has described animal assisted interventions from different perspectives (O’Haire, 2013). A spectrum of clients may benefit from AAT, from the elderly to children, with a variety of animals, and with disease and participation challenges, including prison life, cancer, aging, ADD, and autism (Firmin et al., 2016; Kamioka, 2014; Nimer & Lundahl, 2007). Numerous disciplines may use AAT, and the animals used may have various levels of training.

Animals are known to decrease anxiety and stress, as evidenced by physiological changes in blood pressure, and an increase in endorphins (Pet Partners, 2018). When AAT is used, mental & behavioral health and social interactions are frequently the areas addressed by the practitioner. A quantitative pilot study examined the effect of a dog on autistic children, with results of improved social participation (Ávila-Álvarez et al., 2020). This study used measurements of the nonverbal physical actions of the child as well as verbal communication, and participation with

the therapist. A meta-analysis found that AAT to be an effective approach for professionals in multiple areas including medical applications, behavioral health, and specifically outcomes in autism (Nimer & Lundahl, 2007). Thus, a benefit exists to using animals in therapy sessions by many professions to enhance the therapeutic engagement.

Measures of effectiveness and change with AAT are challenging, with multiple humans, animal, and environmental factors at play. O'Haire and colleagues (2018) developed a measurement tool, the OHAIRE-v3, or Observation of Human-Animal Interaction for Research measurement to capture and code clients' reactions and change with AAT. A training course is offered, and clients are video-taped, with facial expressions and emotions during AAT sessions being examined and specifically coded. Use of a tool such as the OHAIRE-v3 could add to the decision-making process used by occupational therapy practitioners within efficacy research.

Occupational Therapy and Animal Assisted Therapy

Occupational therapy that includes AAT is concerned with the well-being and safety of both the client and the animal. Involving animals in therapy from the point of view of animal welfare is described in the literature, including guidelines for treatment of therapy animals (Fine et al., 2019; IAHAIO, 2014; Pet Partners, 2019). Occupational therapists who include dogs in AAT in their practice need to have animals specifically trained for therapy, including dogs that are owned by the therapist or dogs provided by a therapy animal organization (Winkle & Ni, 2019). A survey that reported on the use of AAT by 13 occupational therapists reported that knowledge and comfort in handling the animal is important in practice (Neubert, 2021). Handlers should receive initial and continual training with their dog, should have owned the dog for at least 6 months, and be responsive to any change in the animal. The dog should not just tolerate AAT but enjoy the sessions with the clients (Pet Partners, 2018).

Disciplines such as psychology, nursing, behavioral studies, physical therapy, and occupational therapy all appear in the literature describing AAT, therefore occupational therapists should identify their practice as occupational therapy, with use of AAT to support engagement and therapy goals. The term of AAT is not discipline specific and can get misused in well-meaning non-peer reviewed media, as activities not involving a licensed therapist can be mislabeled AAT instead of AAA, for instance. Preserving occupational therapy's role when using AAT as an intervention is essential. Occupational therapists who use AAT are adapting and modifying the task and environment to promote clients' involvement and investment in occupations (AOTA, 2020).

An occupational therapy intervention plan may include a dog to create a therapeutic milieu to support the client in tasks that may be perceived as difficult, or the animal may be invited to participate as an integral part of the task. Client factors such as motivation, anxiety, and decreased communication may be addressed by AAT in occupational therapy with children to support their journey toward functional goals, by adding a calm influence for children in occupational therapy (Mendonca, 2017). The animal adds a non-judgmental peer-type relationship for the child, and one who does not need language to interact. Added sensory factors of a soft coat and warm body add to the pleasurable experience. Occupational therapy practitioners who involve dogs in therapy sessions will choose animal assisted therapy not only for the emotional and social benefit of interacting with the dog, but also integrate the animal into the treatment tasks (AOTA, 2018; Winkle & Jackson, 2012; Winkle & Ni, 2019). Based on the child's occupational therapy goals, the therapist may plan activities directly involving the dog, such as crawling through a tunnel, catching a ball, or brushing the dog's coat.

A qualitative study in Australia reported findings from interviews with six occupational therapists who included dogs in animal assisted therapy with children with autism (Hill et al., 2020). The occupational therapists described how the therapy dogs aided the therapeutic relationship with their clients and encouraged focus and participation. The article noted however that guidelines were needed for the profession to successfully include dogs in therapeutic interventions. While there are numerous research studies and informational reports published on AAT (Firmin et al., 2016; Friesen, 2010; Kamioka et al., 2014; Nimer & Lundahl), literature specific to occupational therapy and AAT with children is limited, particularly using evidence in the decision-making process.

Training needs for animals and humans

Within the clinical decision-making process for the use of AAT, occupational therapy practitioners must consider training and handling animals. In addition to basic obedience training, dogs involved in AAT need specific training in managing a variety of environments and situations, as well as their relationships with people and their attentiveness to their handler. Facilities and schools will require that dogs are certified before beginning an AAT program (Grové et al., 2021). Pet Partners and AAI are two organizations that offer classes for training therapy dogs (AAI, 2022; Pet Partners, 2021). Pet Partners has members take a handler's course and requires them to take a test with their dog involving multiple community scenarios and situations to register. AAI has begun a tiered membership program, with extensive training and experiences required of the owner/handler as well as the dog, and observations by a third party in order to be accredited. In 2022, AAI published standards of practice and competencies for members. Some volunteer visitation organizations require dog/handler teams to take classes and undergo specific testing that requires regular updating. Various AAI organizations require the

dog to be of a certain age, typically at least 1 year old in order to participate as a therapy dog. Occupational therapy practitioners who design AAT in their practice settings may consider beginning with a volunteer visitation handler team to gain experience, before considering their own therapy dog (Winkle & Ni, 2019). However, overall, there is great variability in what organizations offer and require for handler training, animal training, experience, observation, and for consideration of animal welfare (Serpell et al., 2020).

Clinical Reasoning

Occupational therapy practitioners use clinical reasoning within skilled practice and intervention. Clinical reasoning is a complex combination of awareness, skills, experience, and application of occupational therapy. Mattingly (1991) stated that clinical reasoning is more than experience or using data to make decisions, it includes intuitive reasoning and understanding of a client's needs, occupations, and interactions with their living world. A definition of clinical reasoning is offered by Higgs (2006):

Clinical reasoning (or practice decision making) is a context-dependent way of thinking and decision making in professional practice to guide practice actions. It involves the construction of narratives to make sense of the multiple factors and interests pertaining to the current reasoning task. It occurs within a set of problem spaces informed by the practitioner's unique frames of reference, workplace context and practice models, as well as by the patient's or client's contexts. It utilises core dimensions of practice knowledge, reasoning and metacognition and draws on these capacities in others. Decision making within clinical reasoning occurs at micro, macro and meta levels and may be individually or collaboratively conducted. It involves metaskills of critical conversations, knowledge generation, practice model authenticity and reflexivity. (p. 4)

Occupational therapy practitioners use clinical reasoning to make clinical decisions of what treatment approaches they will use with a given client. Schell and Cervero (1993) described how the past environments and experiences of the therapist and the client are an integral part of clinical reasoning as well as the evaluation data and clinic environment. A therapist brings to the process of clinical reasoning a montage of past client factors, therapist factors, and environmental factors melding together in a process that develops in rich flavor over time. With a client's circumstance and presentation, the occupational therapist uses clinical reasoning to evaluate and determine the best combination of activities, modalities, and environment to successfully meet the client's goals. The next step, clinical decision making, is comprised of evidence-based and client centered decision making (Copley et al., 2010). Evaluation follows the occupational therapy process described in the OTPF-4. Discovery of client needs, goals, and motivations and merging with standardized and observed evaluation findings for an evidence-based approach is paramount when considering the use of AAT as a component in occupational therapy service delivery. The clinical decision-making process includes using evidence-based interventions in occupational therapy treatment and using data from the intervention itself to determine its efficacy and further course of action, so that the data drives the decision-making process. (Schaaf, 2015). Before clinical decision making can occur, OTPs use clinical reasoning as the basis and underlying support for the path forward (Mattingly, 1991).

Schell in 2019 described types of clinical reasoning used in occupational therapy. While each type of reasoning is defined, OTPs use them simultaneously while the therapist combines data and findings with their past education and experience. Scientific reasoning involves supporting clinical decisions with evidence, using research and theory to back up an approach. Diagnostic reasoning also requires data, from the therapists observations, standardized testing,

and interviews of stakeholders. Occupational therapists use procedural reasoning and pragmatic reasoning for tangible processes and factors affecting their practice which in turn affects their service delivery. These types of reasoning may include materials used, the location of the therapy services, costs, and routines of the practice setting. Interactive reasoning is comprised of the relationships between the therapist and the child, and in this study, between the therapist and the dog and the child and the dog. The OTP uses their developing relationship with the child to facilitate the tasks and goals of the therapy session. At all times in occupational therapy practice, ethical reasoning must be used to protect the health and wellbeing of the client, to mitigate risks, and ensure that the principles and standards of occupational therapy practice are upheld. The types of clinical reasoning described by Schell (2019) are combined in conditional reasoning, which involves a mental coordination by the OTP of the varied sources to make decisions about occupational therapy practice.

Summary

The use of a live animal in occupational therapy practice carries additional considerations for therapists when determining evidence-based treatments for pediatric clients. Therapists have a potentially beneficial component to add to the environment and treatment for their clients, yet they also have the added safety and compatibility requirements to consider when incorporating an animal into a therapy session. Having both the child's needs and the dog's needs to consider raises judgements beyond that of planning other treatment methods, adding to the complexity of clinical decision making for the OTP.

Section 3: Methods

Design

The capstone project implemented a qualitative descriptive design, using interviews, to provide information on what clinical reasoning and screening methods are utilized by occupational therapy practitioners who use AAT, as well as their rationale for using them (Stanley, 2015). Elements of the capstone including limited number of participants and the use of a semi-structured interview are supported by the descriptive qualitative design. Institutional Review Board approval was obtained prior to beginning the project (see Appendix A).

Participants

Participants were sought through AOTA and Pennsylvania Occupational Therapy Association (POTA) member social media boards, as well as contacting occupational therapy departments of children's hospitals, and occupational therapy faculty members who have published about the use of animals in occupational therapy practice. Social media groups with occupational therapy and AAT in the title were also sent participant recruitment information. Participants were encouraged to invite prospective participants, for snowball sampling.

Inclusion Criteria

The participants invited were adults 18 years of age or older, who understood and spoke English, by self-report. They were licensed OTPs whose practice included children between the ages of 5 to 17 years. The OTP participant must have used AAT with a dog or dogs in their practice for at least one year to be included in the study.

Exclusion Criteria

Individuals who were not adults, reported not speaking or understanding English, or were not a licensed OTP were excluded. Individuals who did not work with children or did not use

AAT with dogs in their practice were excluded. If a potential participant was not able to participate in a semi-structured interview via Zoom or telephone, or not willing to have the interview recorded, they were not invited to be part of the study.

Procedures

The project utilized qualitative telephone or video interviews, with the participant selecting the type of their choice. The researcher sent email and flyer notices of the study advertising for participants to AOTA special interest section groups through the website CommunOT page, the POTA member website, occupational therapy departments of regionally selected children's hospitals, faculty of occupational therapy academic departments known to have association with animal assisted therapy, and occupational therapy social media interest groups. The researcher communicated with potential participants via email and obtained information to determine inclusion. Once inclusion was determined a time for the interview was set. Participants decided which vehicle for the interview would be preferable, either a telephone or video interview. The researcher asked the subjects for verbal permission to audio record the interview. At the beginning of the interview, the researcher read a statement titled "Ground Rules" giving the subject permission to stop the interview at any time and information regarding the role of the interviewer being a student seeking the participants' views and experiences. The interviews then commenced with the interview questions as listed in Table 1, and the interviews were recorded and transcribed using Otter.ai. All participants were given fictitious names for confidentiality.

Instruments

The qualitative descriptive study used interview questions, constructed based upon the clinical expertise of the researcher and information gleaned from the literature. Table 1 contains the interview questions. The interviews took place over a 7-week time period. A laptop

computer, cellular phone, access to a Wi-Fi signal was needed, and these were already in possession of the interviewer for options of video interviews or phone interviews. The Otter.ai transcription application was used to record and transcribe interviews. No additional budget was needed. Locked and secure storage of data will be kept in Committee Chair's office at Eastern Kentucky University.

Table 1 *Semi-structured Interview Questions for the Capstone Study*

Question
1. How long have you practiced as an OT? Tell me how you got involved in AAT in your OT practice? How long have you been using AAT in your occupational therapy practice?
2. What age group do you primarily see?
3. What is your screening and evaluation process? Which assessments do you use in evaluation of clients? How do you consider the environment in your screening and evaluation process? Probe: Standardized or Non-Standardized?
4. Have you attended AAT courses? How do you get evidence-based information about AAT?
5. Describe the process you use to determine who may benefit from OT using AAT? Probe: At what point in your evaluation process do you consider AAT? What factors do you consider in assigning AAT to an occupational therapy client. How does this change with younger/older clients? With diagnosis/needs of client? Has your reasoning process changed over time?
6. Do you own your own dog who participates in your AAT sessions? If no, where do your therapy dogs come from? How are the dogs trained? Are they certified?
7. Describe your process in selecting a dog to pair with a client? What factors in a dog do you consider when including it in AAT?
8. Describe to me the process you use to determine who may benefit from occupational therapy using AAT? Discuss your reasoning process? Has this changed over time? How do you re-evaluate clients during the treatment process?
9. Do you feel a specific screening tool for AAT would be helpful to you and your clients? Does the OT profession need a screening tool to determine use of AAT? Why or why not? Probe- If so, what might it include?

Data Analysis

Data transcripts were reviewed, transcribed and interactive coding used (Stanley, 2015). The codes were reviewed for emerging themes, and themes were analyzed and discussed in the capstone in rich and detailed manner to support validity of any findings (Creswell & Creswell, 2018).

Transcriptions and recordings were reviewed together for accuracy. The data in the transcriptions was read and word, phrases, and quotes were noted. These meaningful pieces of data were then assigned codes, and grouped by code, and categories. The texts were read again for additional insights into the perspectives of the participants, and additional codes were added. The categories were then pulled apart to match with the objectives of the study, and themes began to emerge. A sample of codes, categories, and themes are presented in Table 2.

Data in this project were also categorized a priori using Schell's definitions of clinical reasoning. Codes from the study were examined to determine whether they met the definition of a category of reasoning (Schell, 2019) to assist in understanding the clinical reasoning process of OTP's who choose AAT with dogs as a treatment method. Following a priori assignments to types of reasoning, additional codes, and categories were considered.

Table 2: Study themes and sample of supporting codes

Theme	Sample of Codes
Occupational therapy decision making processes are primary and fundamental.	Typical OT evaluation process Goal writing with functional focus, not AAT specific goals

	Progress reporting occurred in typical manner
Dogs are exceptional, intuitive therapy partners with unique needs	Dog as motivator Dog is calming Dog engages the client Dog is a participant Animal welfare important
Adding AAT to OT practice requires expertise beyond novice	Dual roles of Therapist and Handler Program set up takes time and effort Therapist judgement of match of dog and client

Trustworthiness

Trustworthiness for a research study is necessary for academic integrity and usefulness to the profession and our clients. More than one method of checks and balances was used for triangulation of data (Creswell & Creswell, 2018). An audit trail tracked the decision making in grouping codes and development of themes, including transcript and coding records as well as recorded discussions with the faculty mentor (Stanley, 2015). All participants in the study volunteered to participate in member checking, and the primary investigator contacted all via email for checking of themes for additional support of validity of the study findings. A reflexivity journal was kept throughout the capstone to self-identify biases toward the interviews, data, and theme development.

Section 4: Results and Discussion

Results

The qualitative descriptive study sought to understand how OTPs use clinical reasoning when selecting AAT in practice. The interviews were conducted over a period of seven weeks. Six out of seven participants chose a video interview, and one chose a phone interview.

Participants

OTPs who use AAT with dogs in their practice with children are not common, therefore recruitment for the study was a demanding task. AOTA and POTA member websites were utilized first, followed by social media groups with focuses on AAT and OT practice. Several university departments were contacted as well as members from the Animal Assisted Intervention International organization who listed AAT in their member profile. As participants responded to the study invitation, they were asked to forward the information to other prospective participants. Participants were assigned pseudonyms to protect their identity. Six of the participants were currently practicing, and one had retired in the past year. Age of the participants was not collected. Participants practiced in the six different states. All participants owned their dogs and participated in the training of their dogs. Five OTPs brought their own dogs to only occupational therapy sessions, while two OTPs had dogs that were supported by their facility and involved in additional school activities. All participants were affiliated with organizations that offer raising, training, and different versions of certification or registration for therapy dogs. Table 3 summarizes participants by type and pseudonym. Figure 1 depicts the study participant's occupational therapy practice experience and summarizes the length of time that participants have engaged in AAT with children as a part of occupational therapy intervention.

Table 3: Participant Demographics

Pseudonym	OTR	OTA	Years of OT experience			Years of AAT with dog		
			1-5	6-15	>15	1-5	6-15	>15
Andrea	X				X			X
Claudia	X			X		X		
Ellen		X		X		X		
Gina		X		X			X	
Irene	X				X		X	
Kristin	X		X			X		
Meredith	X				X			X
TOTAL	5	2	1	3	3	3	2	2

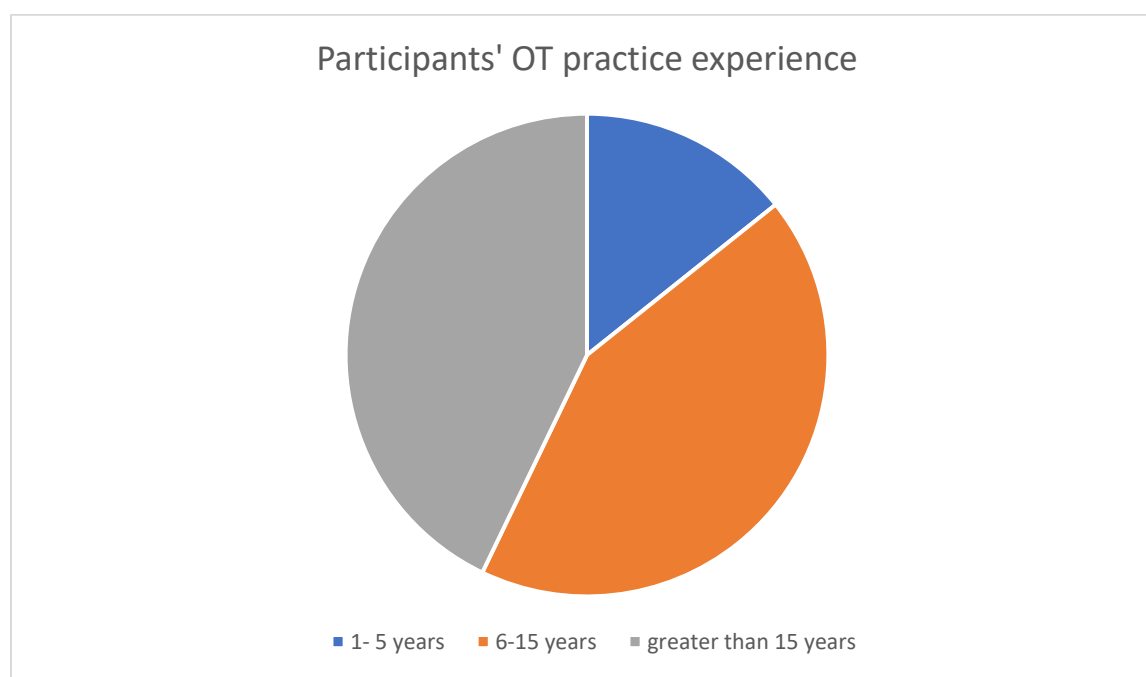
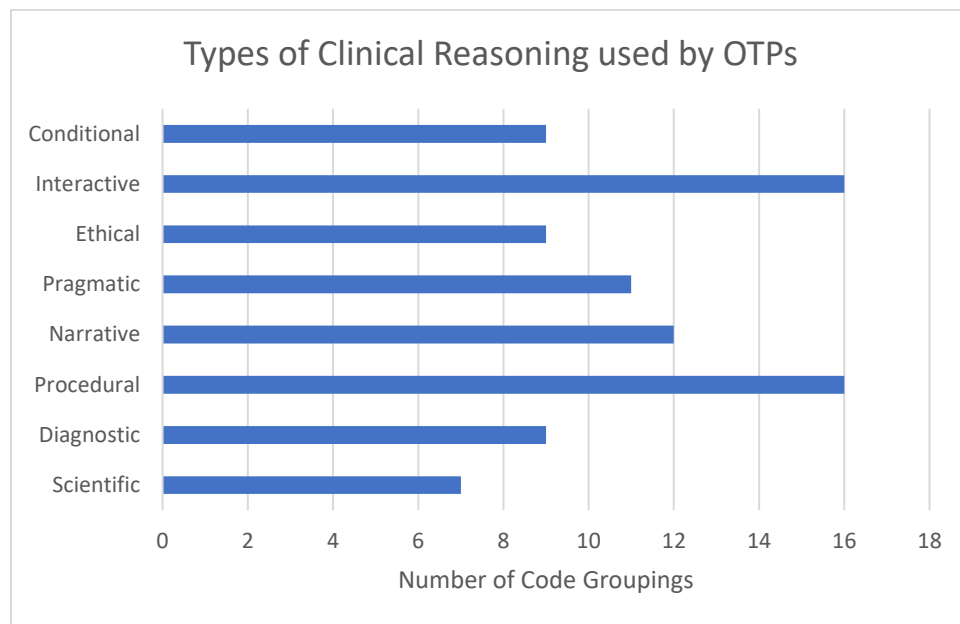
Figure 1: Participants' OT practice experience

Figure 2 summarizes types of reasoning used by the OTPs in this study, and the number of associated codes.

Figure 2: Types of Clinical Reasoning used by OTPs



Three themes emerged from the data. They are presented below.

Occupational therapy decision making processes are primary and fundamental

Occupational therapy practitioner participants reported elements of clinical reasoning in planning treatment for their clients during the interviews. A theme that emerged from the data was that planning and decision making of adding AAT to treatment begins with standard occupational therapy practice first. “I do a mix of standardized assessment and observation as well as parent report.” (Kristen). Clinical decisions are then made about how goals will best be achieved and whether AAT is a worthy approach for the specific client. Participants discussed how they complete a standard OT assessment whether AAT would be used or not, and the assessments were usually conducted without the dog present. Assessments specific to AAT were

not used. While the participants would provide a questionnaire to parents for any concerns of allergies, fear of animals, or past experiences with animals, the clinical reasoning for the assessment and plan did not involve AAT initially. The OTPs developed functional goals for their clients, then used clinical decision making to determine if and how AAT with a dog would support those goals. From the occupational therapy evaluation, OTPs used clinical reasoning and decision making to determine if AAT would be beneficial to a client. The client's functional performance was assessed, not the AAT activity itself. "I am measuring my client's performance and in a variety of situations, the same way that we are not measuring the trampoline in sensory integration" (Andrea). "...in the school-based practice what we look at to see if we're making progress [are] the IEP goals and the student's affect or degree of participation and engagement is more of something that lets me know if the dog is beneficial or not." (Meredith).

The clinical reasoning process began much earlier for the clinicians in the extensive training and practice they engaged in with their dogs. Adding in the client's occupational therapy profile, and factors from parent questionnaires, the practitioners continued to gather the information they needed to integrate to design the best path for treatment.

Dogs are exceptional, intuitive therapy partners with unique needs

The second theme evolved about the unique traits of the dog which are factored into the clinical decision-making process of the OTPs. The dog in AAT is also "a participant...It has to be mutual...[the dog is] a sentient being" as reported by participant Meredith. The practitioners discussed repeatedly the traits of dogs that they found supported the needs and goals of their clients, including that the dogs are calming, motivational, add sensory qualities of touch, are non-judgmental, non-verbal, and do not engage in prolonged eye-contact. "They make just enough eye contact...I really think it's the non-judgement of them...it's easier for them to

interact...there's a trust there." (Irene). The dog's presence and actions normalized the environment, encouraging interactions with peers. Gina described her therapy dog and clients playing with peers, saying what is "more normal than...having a dog out...playing ball with kids...it was just kids being kids, playing with a dog." The dogs promoted social interaction with other children and assisted clients in transitions. Claudia owns three therapy dogs, one she called her "calming dog" who "does not do well with constant change & movement." When she works with kids with high energy levels, she chooses a different dog "because she does better with change of pace." She described her third dog as one who was skilled in assisting children in transitions and movement. Meredith had raised and trained several dogs, including one named Bailey who loved agility obstacles. "...That was a really nice way to work on executive function and sequencing and motor planning and get them outdoors. She was a very active dog...You have to take into consideration each dog's personality."

Therapists serving as dog handlers is a key factor that arose in the interviews. Whether to serve the dual role of the therapist and a handler or have a second professional is a unique aspect in planning that should be considered in the use of AAT by OTPs. Some participants expressed ethical concerns over holding dual roles of being a therapist and a handler at the same time. One respondent discussed having a second person assist as the dog handler during the occupational therapy sessions. This allowed the OTP to focus on the child, while the handler monitored the dog's needs. The remaining respondents served as both the therapist and handler, and all respondents described their attention to their dog's needs during and between therapy sessions. Break times were arranged ahead of time, but OTPs also responded to their dog's stress signals and adapted by giving additional breaks or allowing the dog to come and go during the session freely. Ellen described a time when her dog's behavior signaled to her that he was not able to go

to school with her one day, saying “there was one time last year or two years ago...he just “said” no fun, taking a sick day.” Irene reported that she has to give her dog a break even if he doesn’t seem to want it because he would get over tired. “...we see kids 9:00 to 10:00, and then I give him a half hour break because he’ll just keep going, but I know him...he stops listening to commands...he gets overtired.”

Some participants noted that some of their clients did not either pay attention to the dog or did not appear interested or motivated by it, which then factored into their decision to have the dog present for the next session or interaction. Participants whose dogs also functioned as facility dogs had additional opportunity to observe clients from afar, for instance, Gina described that she and her dog would be outside a school when buses arrived. “Some kids couldn’t be bothered, they’re just not dog people.” The participant assessed their client’s preferences not to be involved with the dog and did not allow their own preferences to take hold in the treatment planning for clients who did not favor dogs.

Participants discussed certification and registration of dogs and handler teams. There was not a uniform system for training and testing handlers and teams. “...the word certification is thrown around a lot for therapy dogs, but it isn’t accurate. Really, it’s more registered...I’m certified as a therapist...” (Ellen). Another participant reported therapy dog training programs offering testing for certification, with concerns of bias.

Adding AAT to OT practice requires expertise beyond novice

The third theme that emerged from the data is the expertise needed of the simultaneous coordination of the OTP’s self-awareness, awareness of the client’s needs, and awareness of the dog’s needs. Most of the participants had at least six years of practice or more, demonstrating the advanced knowledge that is foundational to best practice using AAT. At the current time, this

is not a requirement, but reflects the level of expertise needed to include an animal partner in practice. Andrea discussed needing an independent body offering certification for therapists to participate in AAT in their occupational therapy practice, and that therapists who are novice to AAT may want to begin partnering with a volunteer visitation organization that provides trained therapy dog and handler teams, so that the OTP can direct their focus on the child.

Some participants reported that it took extensive background preparation and planning to develop a program partnering with a dog at their area of practice. They generated support from stakeholders. An essential piece to developing AAT in their practice was participating in the training and credentialing of a dog as an animal handler. “We want to understand our dogs and we want to make sure they have the very best life and that they truly enjoy their work. Because if they enjoy their work and they’re not afraid, then our clients are going to make more progress...” (Andrea). Careful planning and preparation were a prerequisite for a successful practice with a dog partner.

One participant discussed that keeping a trained, careful eye on both the client and dog’s behavior and reactions to each other was imperative for AAT practice, in the case that the pairing was not beneficial to either the child or the animal. Another discussed how she assessed each time by observation if the method of using AAT was supporting environment for the child’s progress.

Discussion

The art of occupational therapy is comprised of, in part, the multiple factors a therapist draws upon, including evidence, experience, and client factors in reasoning to determine, decide, and discover the best treatment methods for that client at that particular time. The questions posed by this study sought to understand how OTPs decide to involve dogs in therapy sessions

for children, what factors are used to screen clients, and what clinical evidence and experience is used. How OTPs select dogs to help them address client's goals was also explored.

The study explored the decision-making process of pediatric OTPs with dogs as a part of OT intervention with AAT. Data from the participant interviews revealed that OTPs continue to use standard occupational therapy evaluation practices for children whether AAT will be used within treatment sessions. Use of evidence and screening processes both for the selection of dogs and client factors were also explored. The OTP draws on evidence-based evaluations and begins the discovery of their client.

The data from the observation and evaluative testing of the child along with parent interview was the central piece in clinical reasoning for occupational therapy treatment plan, and data from observation and reassessment directed further decision making in using AAT in treatment (Schaaf, 2015). Some participants were clear in stating that their dog was not present during the evaluation. Surrounding that central piece are the therapist's, client's, families', and community's background and setting, reinforcing the use of critical reasoning processes supported in the profession and within the OTPF-4. Participants reported collecting information from families and observation of the client to help them understand the background and context of their client. The client's family and community tie into the picture of the client's functioning providing a backstory and context for the client's place in their life. Determining the best course of occupational therapy treatment or perhaps that treatment is not indicated begins with the clinical reasoning process. Whether to use AAT with a dog is then part of the clinical decision-making process of how the therapist chooses to assist the client in reaching their goals. Participants in this study selected AAT for the moderate adjunct effects as previously identified in a meta-analysis by Nimer and Lundahl, (2007), reinforcing the literature perspective. Animal

Assisted Therapy offers OTPs options for interventions for children with behavioral and emotional needs as well as for the autistic population. The participants in this study reported they involved the families prior to that decision by using their own questionnaires and intake forms to discover any exclusion criteria, such as allergies or fears. Based on their evaluations of whether a child would benefit from a motivating element or a calming element, OTP's can select different approaches to meet treatment goals, and the participants often, but not always, chose their dog to partner with them to deliver the unique therapy milieu.

Participants discussed developing functional goals for clients that did not include their dog or AAT but met IEP requirements. They explained that the dog contributed to the child's environment, either indirectly by being present, or in a direct manner. Review of data showing progression in therapy sessions was conducted to support the OT process. Occupational therapy practitioners adapted the environment by having a dog present or participating directly in the session. Occupational therapy practitioners also developed interventions indirectly related to their dog, such as following steps to baking dog treats, if they chose to have an intervention without the dog present. Multiple types of adaptations and alterations of the environment were presented by the participants, supporting the EHP model (Dunn, 1994), including altering and adapting the environment.

Therapists' judgement also played a role in clinical decision making when using AAT, reinforcing the process of conditional reasoning. Occupational therapy practitioners need to engage in self-awareness and reflection to understand their backgrounds and inclinations to separate those from their client's (Schell & Cervero, 1993). As practitioners gain knowledge and expertise, they can select treatment approaches with specificity. Kristen (a study participant) described when they first started having their dog at school, they thought every student would

benefit, but as the participant gained experience, they carefully selected clients to participate in AAT, reinforcing the concept of the uniqueness of the dog. Clinical reasoning begins with the past experiences and expertise of the OTP and the OTP learning of past experiences of the client and understanding the similarities and differences between the two (Mattingly, 1991).

Clinical reasoning provides a window to the decision-making process OTPs use in practice. Schell's operational definitions of clinical reasoning provided the first step in understanding how OTPs selected AAT within service delivery options. Respondents used procedural and interactive reasoning the most frequently, followed by pragmatic reasoning, ethical reasoning, conditional reasoning, and diagnostic reasoning. Scientific reasoning was mentioned the least by OTPs in this study as they trusted their abilities in the profession to guide intervention processes. Occupational therapy practitioners described typical screening and evaluation procedures for children that aided in their diagnostic reasoning, and some emphasized that the evaluations and goal development did not include AAT. At the time of screening and evaluation, OTPs are in the discovery phase, where scientific reasoning may have occurred with standardized testing as part of evidence-based practice, and some participants specifically mentioned this process. The use of clinical reasoning to guide decision making in the treatment planning process is where AAT with a dog was introduced. As all participants in this study possessed expertise with AAT, this afforded them an advanced option within their set of skilled interventions as a part of an occupational therapy session. As a result of this tacit knowledge about the partnership benefits of dogs, this addition to the session may have appeared as a sub-conscious option.

Participants reported aspects of procedural reasoning and interactive reasoning they most frequently considered in planning their practice with AAT and in reasoning and decision making

for individual children's treatment planning. Participants were firm in their ethical reasoning, emphasizing the welfare of the dog and client safety even though this element was not mentioned as frequently. Scientific reasoning was reported the least, and participants expressed frustration over the difficulty in finding evidence-based material for occupational therapists, as well as confusing terminology and certification processes in the AAI community. They did not comment on their ability to contribute in this area.

Procedural reasoning is "characterized by therapist using therapy regimes or routines thought to be effective with problems identified..." (Schell, 2019). Procedural reasoning can involve either scientifically based treatment or treatments found to be effective by observation and habit. Procedural reasoning is the process of determining the details or the plans and procedures of the therapy practice. The process began with the evaluation of the client, seeking information from families, and determining needs and goals, but even before that, years of training with the dogs occurred. Participants had to judge whether a dog was suited for therapy or not. Occupational therapy practitioners adapt the therapy session by the addition of the positive influence of the dog which is supported by the EHP model as well as the OTPF4 (AOTA, 2020; Dunn et al., 1994). The details of including AAT in practice contributed to decisions and judgements made by the participants regarding the safety and welfare of their dogs and their clients. Animal welfare is of utmost importance, and includes giving dogs regular breaks, limiting session lengths, and allowing the dog the choice to participate. The therapy sessions should be enjoyable to the dog as well as the client. Two organizations, Pet Partners and AAI are both saying therapists need protocols for animal assisted therapy that include the elements of procedural reasoning. Hill (2020) also called for AAT guidelines for the occupational therapy profession. Currently, none exist.

The theme of the dog being an exceptional therapy partner answers the research objective of discovering how pediatric OTP's select dogs to assist in their client's meeting therapy goals. The participants described the process of training the dog and themselves as the handler in preparation for including AAT in their practice. The process can take several years, from researching breeds and breeders to rescue organizations, to training and raising a puppy, to membership and certification with organizations such as Pet Partners, Animal Assisted Intervention International, Alliance of Therapy Dogs, and Therapy Dogs International, as well as volunteer visitation organizations. Dogs do not have to start training as a puppy. Recommendations varied, but only when a dog is at least a year old, or an adult was it recommended for them to participate in AAT. Not all dogs have the temperament or personality to be therapy dogs. Likewise, some dogs' personalities are more suited to distinct types of work and clients. Participants discussed pairing particular dogs with particular clients or tasks. Dogs were described as calming, motivating, and active. Mendoca (2017) discussed the calming presence of a dog with children in therapy. Participants described providing an environment suitable and safe for both dog and client, including a crate or quiet place for the dog to go to for a break from interactions.

Developing a therapeutic relationship with clients is central to occupational therapy practice. Interactive reasoning involves the therapeutic relationship the practitioner develops with the client (Schell, 2019). Participants also described their relationship developing over time with their dog, allowing them to respond more effectively to the dog's needs. Practitioners consider the client's preferences, attempting to understand the client's world and client's point of view which supports the client's engagement in the therapeutic process. Practitioners want to know what their client's like and dislike and consider how they can support the client in an

empathetic manner. The participants discussed the unique value a dog brings to interactions with their clients, as well as the OTP's attention to their own relationship with the dog and the dog's preference and needs. The non-threatening presence of an animal who doesn't judge, doesn't require verbal interactions, does not have care for society norms provides welcoming company for many children.

Working with a child in occupational therapy with a dog brings benefits to not only the child but within their community. The participants described both the dogs' and clients' backgrounds and stories, using narrative reasoning. Their histories, personalities, and stories were important to being selected for their roles in therapy. Not all dogs are appropriate for therapy dog work, as Gina stated "[for] some dogs, it's just not there." The OTPs understanding of the client and their dogs' personalities, wants, fears, and motivations was a main driver in their decision making of whether and how to include their dog in treatment sessions. OTPs altered the environment with the welcoming presence of the dog, as a motivating or calming addition, and adapted tasks such as activities with peers, with the dog encouraging social interaction. They had to exercise judgement, drawing on their experience with training a dog, and pairing a particular dog with a specific client, and judgement of how the dog would interact.

Pragmatic reasoning captures the programmatic elements of practice. Participants described a lengthy and detailed process to get their practice started when involving a dog. Not only did OTPs need to plan for the dog they were training and caring for, but they had to get support from stakeholders and develop how AAT would fit into their practice. Checking with other industry professionals for guidance along with certification of the handler/dog team was necessary. Participants incurred costs for liability insurance, certification and training fees, care

for their dog, and their time, although that was not a deterrent for their practice. Planning included ensuring the environment was safe and suitable for the child and the dog.

Ethical reasoning is essential for OTP's who involve dogs in practice. The OTP must plan for and continue to monitor the health and safety of their client and their dog. Participants discussed planning break times for their dog, and also being aware of their dog's stress signals and providing unscheduled breaks. The dog in therapy sessions is also a living being who must be attended to along with the client and their needs.

Conditional reasoning intertwined with other types of clinical reasoning, as participants described continual, ongoing assessment of the benefit of having their dog participate with a particular client. Conditional reasoning involves a compilation of other types of clinical reasoning, expertise on drawing on observations over time. Six out of the seven participants had at least 6 years or more of experience as an occupational therapist. Thus, to use AAT within occupational therapy intervention, one needs to have foundational understanding of OT prior to engaging in AAT. Within practice focused on children and youth, one needs time, experience, and advanced training before adding AAT to one's repertoire.

Implications

Occupational therapy practitioners who include AAT with dogs in their practice with children draw on client factors, animal factors, environmental factors, and community factors for their clinical reasoning and decision making that follows for their clients and their dog.

Practitioners who wish to add AAT to their practice with children need to consider their knowledge and development as well as the training and care of the animal involved. While clinical reasoning may occur subconsciously, practitioners need to identify how to best prepare themselves, the dog who is involved, and what information is needed, with self-awareness of

how they are making clinical decisions. Occupational therapy practitioners in the study evaluated clients with occupational therapy standardized and non-standardized assessments, observations, and input from families. One's bias of an affinity for dogs should be kept in check, so as not to overpower the objective observations of the client's and dog's needs and responses. The OTP will need to plan whether they will act as the handler or whether a second party will fill that role.

Occupational therapy practitioners who involve dogs in therapy need a more robust base of evidence. To build robust evidence, existing defined terms need to be upheld, occupational therapy evidence further developed and shared in the AAI community. Guidelines are needed for the profession of occupational therapy (Hill et al., 2020). Certification and registration of dogs and handlers vary which adds to uncertain levels of expertise (Serpell et al., 2020). Unification of standards is needed as OTPs continue to use AAT for intervention. Participants noted several organizations providing certification or registration of dogs and handlers, which leads to inconsistencies in expertise. A cohesive body for occupational therapists would help lead to consistent practice. For example, the American Hippotherapy Association provides this structure, continuity, and support for therapists who involve horses in treatment. A standard established would also contribute to the body of evidence for AAT when studies are published.

Continued attention to human and animal welfare is needed to sustain AAT in practice as evidenced by the results of this study. Animals should be viewed as participants in therapy and given choice to participate. Therapists with practice experience who are newer to AAT may want to consider partnering with a volunteer visitation service, to have access to a trained dog and a handler. Further, they should participate in advanced professional development to enhance their clinical reasoning skills.

Strengths and Limitations

The study's scope was limited to OTPs who practiced with children, and the interview process focused on dogs being included, so findings may be limited to these two groups. The study sought six to eight participants, and seven participant interviews were conducted. Saturation of categories of data was achieved.

Future Research

Some participants expressed the need for more literature specific to occupational therapy, related to AAT with dogs and its application and efficacy. The existing literature overall is limited in amount, and thus difficult to use for evidence-based practice by OTPs. Scientific reasoning is needed to support an OTPs' complex process of clinical reasoning to determine if clients would benefit from a partnership with a dog. Studies with specifically defined terms and specific to occupational therapy are needed to support evidence-based practice with AAT. The OHAIRE coding system may offer a tool to measure behavioral and social outcomes in occupational therapy with AAT quantitatively (O'Haire et al., 2018). Use of this system would add a structure for scientific reasoning to evaluate AAT use by occupational therapists. Animal Assisted Therapy in occupational therapy practice with other populations should also be explored.

Conclusion

Occupational therapy practitioners have engaged in extensive work to develop practices involving dogs in AAT with children. They use multiple types of clinical reasoning to determine if the approach is the best choice for their clients. Occupational therapy practitioners consciously and subconsciously use multiple types of clinical reasoning to determine if their client would benefit from AAT with a dog. The process begins with program planning and continues with a

specific with the occupational therapy evaluation process. The OTP then synthesizes the wide range of data and information sources in a clinical reasoning process to determine if their client would benefit from AAT, and whether their dog would be an appropriate partner who would also benefit from the experience.

Animal Assisted Therapy with dogs can be a wonderful adjunct for occupational therapy practice, however it is not one to take lightly. While dogs offer a great and unique benefit for clients, AAT is an advanced area of practice for OTPs, which requires using complex skills in two different areas with ease, while managing the needs of two living beings at the same time. Occupational therapy practitioners need to gain experience in both their area of occupational therapy practice and in addition, AAT and dog behavior, handling, and animal welfare. The diverse types of information come together, as a mosaic would, in the practitioner's mind in the process of clinical reasoning. This study validates what AAI associations and professionals are asking for and are working on and identifies what is needed to support OTPs who choose to work with dogs in therapy. While the clinical reasoning that participants described was thorough and included a wide variety of types of information, further research is needed to add to evidence based practice solid scientific reasoning when including dogs in occupational therapy practice.

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Appendix

Appendix A: Institutional Review Board Approval for Capstone Project



Hello Catherine Goodman,

Congratulations! Using a limited review process, the Institutional Review Board at Eastern Kentucky University (FWA00003332) has approved your request for an exemption determination for your study entitled, "Clinical decision making when using dogs in occupational therapy practice" This status is effective immediately and is valid for a period of three years as long as no changes are made to the study as outlined in your limited review application. If your study will continue beyond three years, you are required to reapply for exemption and receive approval from the IRB prior to continuing the study.

As the principal investigator for this study, it is your responsibility to ensure that all investigators and staff associated with this study meet the training requirements for conducting research involving human subjects and comply with applicable University policies and state and federal regulations. Please read through the remainder of this notification for specific details on these requirements.

Adverse Events: Any adverse or unexpected events that occur in conjunction with this study should reported to the IRB immediately and must be reported within ten calendar days of the occurrence.

Changes to Approved Research Protocol: If changes to the approved research protocol become necessary, a [Protocol Revision Request](#) must be submitted for IRB review, and approval must be granted prior to the implementation of changes. If the proposed changes result in a change in your project's exempt status, you will be required to submit an application for expedited or full review and receive approval from the IRB prior to implementing changes to the study. Changes include, but are not limited to, those involving study personnel, subjects, recruitment materials and procedures, and data collection instruments and procedures.

Registration at ClinicalTrials.gov: If your study is classified as a clinical trial, you may be required by the terms of an externally sponsored award to register it at ClinicalTrials.gov. In addition, some medical journals require registration as a condition for publication. In the case of journals with membership in the International Committee of Medical Journal Editors, clinical trials must be registered prior to enrolling subjects. It is important that investigators understand the requirements for specific journals in which they intend to publish. In the case of sponsored project awards, timeline requirements will vary for awards that require

registration. Approved consent forms must be uploaded in the system for all Federally-funded clinical trials after subject enrollment has closed, but earlier registration is not required for all agencies. If you have questions about whether a sponsored project award requires registration and on what timeline, please send an email to tiffany.hamblin@eku.edu before beginning recruitment so that the specific terms of the award can be reviewed. If you have a need to register your study and do not have an account in the system, please send an email to lisa.royalty@eku.edu and request to have a user account created.

If you have questions about this approval or reporting requirements, contact the IRB administrator at lisa.royalty@eku.edu or 859-622-3636.

For your reference, comments that were submitted during the review process are included below. Any comments that do not accompany an "I approve" response have been provided to you previously and were addressed prior to the review process being completed.