Animal Assisted Therapy
For
Autistic Children

A Descriptive Narrative

University Honors
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THESIS WITH DISTINCTION

Camille A. McElwain
Animal Assisted Therapy
For
Autistic Children

A Descriptive Narrative

Camille A. McElwain
Outline for Paper

I. Introduction
   A. Outline
   B. Abstract
      1. Background of Autism
      2. Research and Hypothesis
      3. Child I studied: Austin

II. Body
   A. Autism
   B. Research Background
      1. Problem: research intended to explore animal assisted therapy for autistic children.
      2. Hypothesis: Animal assisted therapy will increase the frequency of social behaviors
      3. Procedure: contact 10 children w/ autism. Subjects attend 3 sessions per week, 15 min. each. Session conditions alternate between interaction with a non-social object (orange rubber ball), a stuffed dog toy that resembles the therapy dog, and a real dog. Dogs are randomly assigned to children. Video each session, code behaviors. Results averaged for each behavior coded for each condition through Excel/SAS. Results compared and evaluated.
   C. My Role
      1. I worked Aug. 99 to December 2000, project completed April 2001
      2. F. M. article in paper. I went from there
      3. C. M. began by contacting interested subjects; schools; psychologists; videotape kids; coding videotapes
   D. Results
      1. Averaged scores
      2. Discussion
Abstract

Autism is a disorder of the Pervasive Developmental Disorder family. It affects all aspects of a child’s development, including personal and social relationships, cognitive growth, and sometimes physical maturity as well. Currently, there is no cure for Autism, but a wide variety of therapies are used to treat the symptoms of Autism.

People-Pet Partnership, a division of the College of Veterinary Medicine at WSU, is currently conducting research on one type of therapy called Animal Assisted Therapy. Dr. F. Martin, Director of PPP and lead researcher in the study, has hypothesized that the use of an animal (in this case, a specially trained dog) during therapy sessions will aid in the development of pro-social behaviors.

Preliminary research has shown support for this type of therapy, and results for the actual research will be available in August 2001. This paper is a descriptive analysis of the project and preliminary results for one child in the study.
Autism

Autism is a misunderstood and complex disorder. Part of the Pervasive Developmental Disorder (PDD) family, Autism affects all aspects of a person, including personal and social, cognitive, and physical domains (American Psychiatric Association, 1994). It is diagnosed three times more often in boys than in girls (Grandin, 1995). Unfortunately, there is no cure for this disorder, and many different treatments are currently used in an attempt to alleviate the symptoms presented by this disorder.

A child with Autism will exhibit several stereotypic characteristics. An abnormal or impaired development in social interaction and impairment in communication characterize autistic disorder (American Psychiatric Association, 1994). A child with Autism may fail to develop adequate peer relations, and may lack the understanding of conventional social interaction. The autistic child may lack social reciprocity, and may prefer solitary activities. The autistic child’s awareness of others and others’ feelings and needs may be severely impaired. In terms of communication impairments, the autistic child may not develop spoken language or may be unable to sustain meaningful conversation. In children who do learn to speak, there may exist abnormal pitch, tone, or rhythm to the language. The child may exhibit repetition or metaphorical language tendencies. Often, an autistic child shows restricted, repetitive and stereotyped patterns of behavior, such as a preoccupation with an object or behavior. This preoccupation is abnormal in either intensity or focus, such as clapping, finger flapping, rocking back and forth or swaying side to side. In many cases, the child has mental retardation, though cognitive skills may be uneven in any child, regardless of intelligence level (American Psychiatric Association, 1994). Examples of treatments that can aid in alleviating the symptoms of this complex condition are speech, occupational and physical therapy.
Persons with Autism can sometimes overcome the obstacle of their disorders. Temple Grandin is a professor from Colorado State University. She also, however, has Autism. She is but one example of an Autistic person who has experienced success in society despite the symptoms of the disorder and lives an almost-normal life. Persons with Autism, in some cases, can be trained to live in society and be successful through continued treatment and outreach programs.

Research

People-Pet Partnership, a division of the College of Veterinary Medicine (Appendix A), designed, and is currently experimenting with, a type of therapy that would serve as treatment for the autistic child, called Animal Assisted Therapy (AAT). PPP’s mission is to promote and research the applications of the Human-Animal Bond. Animal Assisted Therapy is based on the premise that the interaction with a live animal gives the subject incentive to change his or her behavior (Burch, 1991). It is believed that the interaction with the animal can break down the barriers that stand in the way of “normal” behavior (Burch, 1991).

François Martin, director of People-Pet Partnership, is the primary researcher with this project. He proposed that the social interactions of ten children with Autism be observed during their sessions with a therapist and three different stimuli, including a non-social object (orange ball), a stuffed dog, and a real dog. During the sessions, the therapist will elicit pro-social behaviors from the child. The therapist elicits these behaviors accomplishing a list of pre-determined tasks, developed by the therapist, D. Martin, and F. Martin. During the sessions, the therapist asks the child questions such as, “Would you like to come play with my dog?”, “Where is the dog’s head? Where is your head? Where is my head?”, or “Which one of these do you use to clean the dog?” (when three objects are laid out, a brush, a ball, and a treat) (Appendix B).
Dr. F. Martin hypothesized that the therapist will elicit more social responses during the sessions with a real dog. This is determined through careful analysis of coded data from the sessions by trained observers. After 45 sessions with the different stimuli, the data was processed through the Statistical Analysis Software (SAS) program and evaluated.

PPP began preliminary research on Animal Assisted Therapy for autistic children in September 1998, testing the methodology of the research using one child as a case study. Results of the preliminary research showed a correlation between the use of AAT and an increase in social behaviors. In September 1999, the organization began the actual research, and the results will be presented in the fall of 2001 in a scientific journal.

The Role of Camille McElwain

As a professional educator, I will be faced with diverse situations and students. To be successful as an educator is to integrate all students, regardless of abilities or needs into the educational system. To accomplish this goal, one must have a basic understanding and knowledge of the diversities one will encounter. A successful teacher will have the experience and the skills necessary to effectively teach all students who are integrated into his or her classroom.

One such integration I will face may be the inclusion of autistic children. Though I have worked with a child with Autism in the informal setting of a YMCA day camp, my experience has not been thorough enough to lend the appropriate skills to my professional life. After learning of the study through People-Pet Partnership, I recognized the invaluable skills I would hone not only in research methods but also in my understanding of Autism and the options available for treatment.
My association with the AAT Research began in August of 1999. Intending to complete the credits for my Senior Thesis, I volunteered to be part of the People-Pet Partnership team along with Dr. Daun Martin (Child Psychologist), Tony Ezetta (videographer), and Dr. François Martin (director of PPP). I first began by contacting those who had expressed interest in their child’s participation in the study. I interviewed each person, finding information about their child and his or her abilities and disabilities (Appendix C). The parents and/or guardians were also asked to complete a consent form before their child could participate in the research (Appendix D). Through a newspaper ad, PPP made contact with approximately three individuals who were willing to participate. Next, school psychologists and local daycare directors from Pullman, Moscow, Colfax and Lewiston were contacted to identify more subjects for the study. By the end of 1999, ten children were signed up to assist in the research. In addition to contacting these resources, I was granted permission to observe and participate in the meetings between Dr. Martin and the intended resources; I attended three such meetings.

When the subjects had been identified, Dr. Martin and I collaborated to revise the behavioral definition codes. We edited and revised the codes for the verbal and behavioral definitions, reaching a final copy by November 1999, the time when the first child’s tapes were beginning to be coded (Appendix E).

**Developing Coding Sheets**

*Behaviors*

The child’s behaviors were divided into six distinct categories, both prosocial and non-social. The first category is Hand Flapping. Hand Flapping is a stereotypic behavior exhibited by the child with Autism whence the child begins to wave his or her hands in the air. Exhibiting
this behavior would signify the child reverting to Autistic tendencies, and it is not considered a "pro-social" activity.

The second category is Touching. This category is sub-divided into two types of touching, touching the therapist and touching the object in question. When the subject touches the therapist or the object on his own initiative, it is considered pro-social because the subject is initiating contact, a characteristic not common in children with autism.

The third category is identified as Throwing a Small Ball. This category can only be coded during sessions with the real dog or sessions with the stuffed dog, as it is defined as "throwing the small ball in order to play with the live dog or the plush dog." When the child exhibits this behavior, he is again showing initiative to interact with another being. The hypothesis of the study would dictate that this pro-social behavior would occur most frequently during the sessions with the real dog.

The child is also coded during the Giving of Treats. The child can give Treats to the real dog, the stuffed dog, or the therapist. However, it is stated in the definition of this category that the child will be coded as giving a treat only if he throws the treat to the object; otherwise, the child is coded as "touching the object."

Next is the Laughs category. Laughing is considered a pro-social behavior because it is an expression of happiness or pleasure. Both frequency of the laugh and duration of the laugh were coded, to determine how much the subject enjoys the stimulus.

Finally, the child is evaluated on where he is looking. There are three places the child can be looking during his session, at the therapist, at the object, or elsewhere. Looking at the therapist or the object is considered pro-social, while looking elsewhere is considered non-social. Again, the hypothesis dictates that the subject will look at the therapist and the object more
frequently during sessions with the real dog. For unidentifiable behaviors, or behaviors not relevant to the research, the codes of “other behaviors” and “impossible to know” were used.

**Verbal**

The child’s verbal communications were also coded, and were much more complicated than the behavioral coding. The verbalizations of the child are coded into eight categories, again, pro-social and non-social. Every utterance of the child must be coded into one of the categories; therefore, this type of coding is extremely tenuous. The first category identified is answering a question. During the session, the therapist asks a variety of questions, including requests for the child to perform different actions. The child can answer one of two ways: either with a yes or no response, which includes complying with the therapist’s request to speak a word. The second category includes the child answering a question with a non-verbal answer, such as performing an action. The therapist may ask the child to come closer to the dog, and the child’s response can be coded as “answering a question with a non-verbal answer,” should he come closer. This also includes nodding one’s head.

The next category is Not Answering a Question. This can be exhibited in several ways. The child can follow a question with a statement about the therapist, the child himself, the child’s family, the object, or any other topic (coded as “other”)—in other words, a topic that is not related to the question asked. The child can also ignore the question entirely.

When the child initiates a statement about a topic, this can be coded in the fourth category, Talking. The child can be coded as talking about the therapist; about himself; about his family; about the object; or about any of the objects in prior sessions; the child can also talk to the object, or can make a statement that does not apply to any of the categories and is therefore coded as “other.”
A pro-social behavior such as Social Agreement can be categorized as well. "Social Agreement" includes utterances such as "mm-hmm," "yes," or "there!" This is a category that is coded when the child responds to the therapist's suggestions or statements.

If a child's verbal expression does not fit into any of the prior categories, it is categorized as "impossible to code," such as when the child begins, but doesn't finish, a sentence: "She, she, she...." Or, the child can be coded as engaging in echolalia or nonsense talk. Echolalia is another stereotypic behavior exhibited by children with Autism, and is defined as the repetition of words spoken by another individual (American Psychiatric Association, 1994). This category can also include incoherent words spoken by the child.

**Videotaping**

During the first year of the research, I was lucky enough to be able to videotape the sessions with the children. This experience was useful because I was able to see directly how each session was conducted. In addition, I observed intricate nuances of the children's behavior that are better observed in person. For example, in viewing one interaction between Dr. D. Martin and a subject, I observed the two "barking" back and forth, imitating the sound that "Hilde" (the therapy dog) makes. As the observer, I could tell that a special interaction was taking place, as it seemed as if the two were truly speaking back and forth. The conventions of conversation were in place, and it was the first time that I had observed this particular child engage in a give-and-take conversation with Dr. D. Martin. I was simply awestruck by the interaction between the child and therapist, and was disappointed to learn later that the interaction I had observed was not as powerful on videotape. The basic interaction was there, but the connection I had observed was missing.
In another instance, I was videotaping my subject, Austin. He approached me and commented "eyebrows" as he pointed to my eyebrows. This feature fascinated him, and as I sat behind the camera and looked into his eyes, I glimpsed great intelligence. It was as if this incredibly gifted individual was trapped inside a body that wouldn't allow him to express his true self. I feel that this observation is best experienced in the live setting; videotape cannot capture the feelings of the observer.

Coding Research

In November of 1999, coding began of the videotapes of Austin. It is important to establish inter-rater reliability to ensure that all coders are interpreting the data the same way, and the research remains valid; Dr. F. Martin carefully trained me before beginning the actual coding. The tapes of all sessions were carefully reviewed, and the behaviors and verbalizations were coded, one by one, onto coding sheets designed for this research (Appendix F). Coding one session, both the verbal and behavioral aspects, took approximately one hour; thus, coding all 45 sessions took approximately 45 hours. The coding was completed over the course of a year, with coding occurring at various times. During that time, two more research assistants were hired to complete the coding of the other 9 children's sessions. I trained them as Dr. F. Martin had trained me, and again, inter-rater reliability was calculated to ensure that the results were valid.

Subject

For the purposes of this paper, I analyzed the codes from one particular child, who shall be called "Austin." Austin is now a second grader who was diagnosed with Autism only recently, at the age of six or seven. His family reports that he exhibited Autistic tendencies by the age of three, and was diagnosed as having a Pervasive Developmental Disorder at the age of six. Austin spent two years in Kindergarten, with the same teacher, to develop his skills further.
Austin is quite self-sufficient: he can dress himself; he is potty-trained; and he can brush his own teeth. Austin writes his name, though sloppily. At the time of the research, he was learning to use scissors, though he is not particularly interested in crafting activities. Austin is bright with numbers, though he has limited reading skills.

The Psycho-Educational Profile Revised (or PEP-R) (Schopler et al., 1990) was administered to all of the children to determine their abilities and developmental deficits. A score from the PEP-R will confirm a child's developmental age, which often differs from the chronological age. It covers a range of developmental areas, including physical and cognitive. The score is derived from assessment of the following seven domains: Imitation, Perception, Fine Motor Control, Gross Motor Control, Eye-Hand Coordination, Cognitive Performance and Cognitive Verbal. The administration of the Psycho-Educational Profile reveals that Austin has a developmental age of 3 years, 10 months. The PEP-R shows that Austin has a good memory, and responds almost immediately to questions and requests for action. The Therapist who administered the assessment believes that “despite the developmental delays, he is quite bright and anxious to learn” (D. Martin, 1999). She also reported Austin’s high attention span for topics related to animals.

Results

The results of the coding were analyzed using the SAS program; however, for my purposes, the same results were calculated using the Excel Program. After calculating the total numbers of interactions during a session, the information was entered into an Excel Spreadsheet. After isolating each condition, the results were averaged, showing how many times the subject performed each action in the specified condition. Finally, the numbers were compared to
determine the frequencies of pre-determined “pro-social” behaviors during the different conditions.

The primary indication of a supported hypothesis will be a greater occurrence of specific behaviors identified as “pro-social” during the dog condition, and fewer behaviors identified as “non-social” exhibited. Results are determined through the comparison of the frequency and duration of the behaviors among sessions. The durations of all behaviors have been measured in seconds.

The data has been divided into the three conditions; condition one refers to the sessions with the orange ball. Condition two is the sessions with the stuffed dog. Finally, condition three is the sessions with the real dog, Hilde. Please refer to Appendices G and H for the averaged scores in this area.

Verbal

We observed a difference in the frequency of non-verbal responses from the child in the different conditions. Austin responds non-verbally nearly three times as often during condition three (with Hilde) than during conditions one and two (1.33 in condition three, 0.54 in condition two, and 0.76 in condition one). This indicates that Austin is acting in a compliant manner during his sessions with Hilde, brushing the dog when asked and walking her as well. In addition, we see an increase in the duration of the time Austin talks about the object during the sessions with Hilde. Austin talks about the object twice as long during his sessions with Hilde (a score of 0.90 during condition one, and 2.23 during condition three, with Hilde). Related to this is Austin’s verbalizations directed towards the dog. During his sessions with Hilde, Austin talks to the object much more often than in any of the other conditions. In fact, our data shows that Austin does not talk to the ball at all (a score of 0), while he talks to Hilde, on average, every
session (a score of 1.0). The time (duration) Austin spends talking to the object is greater in the
sessions with Hilde than with the stuffed dog (0.84, condition three, to 0.31, condition two).

Another interesting finding in Austin’s verbalizations is how often he talks about other
topics. For example, during the sessions with the ball, the score is 5.54 for talking about other
things. However, during the sessions with Hilde, the score is 1.75, which seems to indicate that
Austin attends to the dog better than to the ball.

The final finding that seems to support the hypothesis from Austin’s verbalizations is the
occurrence of Echolalia. During the sessions with the ball, the data shows an occurrence of
Echolalia as 1.57. During sessions with the stuffed dog, the occurrence is even higher, at 2.60.
However, during the sessions with Hilde, the score is 1.31. Austin’s echolalic verbalizations are
reduced during his sessions with Hilde.

Many behaviors not discussed in this section were determined to be too similar across the
conditions to yield any support to the hypothesis. For example, the code of “Not Answering a
Question followed by a statement about the therapist” revealed a score of zero for all three
conditions. This trend was noted for the following codes as well: Not answering a question
followed by a statement about the family; not answering a question followed by a statement
about the object; talking about the family; talking about the ball in other sessions; and all refusal
to comply categories.

Interestingly, some verbalizations seemed to directly contradict the hypothesis. One such
example occurred in the code “Talking about the Object, Frequency.” Reported earlier was the
duration of the time Austin talked about the object; however, the number of times Austin talked
to the object was higher during the sessions without the dog (1.45, condition one; 1.38, condition
two; 0.67, condition three). In addition, the data reports a higher frequency and duration of
Austin talking about the therapist during conditions one and two, with no occurrence of this behavior in condition three (frequency: 1.17, condition one; 0.04, condition two; duration: 0.22, condition one; 0.20, condition two).

**Behavior**

The data shows a discrepancy in scoring during the behavior of giving treats to the object. We noted that Austin gave treats to Hilde more than five times more often than he gave treats to the stuffed dog (0.09, condition two; 0.51, condition three). Another noteworthy score is the frequency with which Austin gave treats to the therapist: 0.02 during the condition two, and no occurrence reported in condition three.

The frequency of laughter during the sessions with Hilde is identical to the condition of the ball (a score of 1). However, we noted an increased duration of the laughter during the sessions with Hilde (4.82, condition one; 0.45, condition two; 5.71, condition three).

The data also shows the frequency with which Austin looks at the objects in his sessions increases during the time with Hilde. Austin is more attentive to the object when the object is the real dog, showing scores of 3.29 for condition one (the ball), 2.29 for condition two (the stuffed dog), and 3.96 for condition three (Hilde). The data also shows that the duration of Austin’s attention to the object is much longer during his sessions with Hilde, at more than twice the duration from condition one (13.58, condition one; 28.43, condition three). In addition to this finding, the data shows that the frequency of Austin’s attention on objects elsewhere declines during the sessions with Hilde (3.83, condition one; 3.53, condition three; 3.24, condition two).

The data shows a higher frequency of Austin Throwing a Ball to Play with the Object. For conditions one and two, no occurrence of this behavior was observed. However, in condition three, this behavior scored 0.07. Austin throws a ball to play only in his sessions with Hilde.
Again, some data of Austin’s behaviors seemed to be too similar to lend information to the research. One such behavior is Hand Flapping. No occurrences of Hand Flapping were observed. Quite possibly, Austin’s experience with the disorder is so mild, he does not exhibit this tendency.

Discussion and Conclusion

Research

The data reported in the prior sections show support for the original hypothesis of the study, that pro-social behaviors will be increased during a child’s sessions with the animal. During the sessions with Hilde, Austin demonstrates a compliant behavior when he follows the therapist’s requests non-verbally. His compliance and attentiveness shows that he is listening and understanding the therapist’s questions at a higher level during his sessions with the real animal.

The data shows that Austin expresses more original verbalizations and fewer echolalic tendencies during his sessions with Hilde, revealing his interest in her and the desire to communicate this interest. This is further demonstrated by Austin’s attention toward Hilde, which is greater than the attention paid to any other object. The high score for “talking about other” during the sessions with the ball and the stuffed dog seems to indicate that Austin is unable to focus on the task during these sessions. However, a low score in this category during the sessions with Hilde show that Austin’s attention is focused during his interactions with Hilde.

Laughter, an indication of pro-social behavior, is an expression of pleasure. Our research reveals that Austin’s laughter changes considerably during his sessions with Hilde. Austin maintains a lengthy duration of his laughs with Hilde. He seems to take pleasure in his sessions with Hilde.
The data in this analysis of one child has supported the hypothesis originally proposed by Dr. F. Martin. As the research concludes, the other nine subjects will hopefully show the same support. The preliminary results of this single child show that Animal Assisted Therapy may be a method for increasing the pro-social behaviors of a child with Autism. If the research concludes that AAT is indeed an effective therapy, it is an easy, non-invasive way to include the child with Autism into a standard classroom. Not only will the presence of animal aid the child with Autism, but also will perhaps lend a happier tone to the classroom itself.

As a classroom teacher who supports the theory of inclusion, where the students with special needs stay in the classroom for most of the day with an aide, I fully support the idea of using AAT in the classroom. The presence of a well-trained therapy dog will not impede the teacher's education goals, with the exception of the early transition time when other students are becoming acclimated to the presence of the animal. Observing Austin’s progress with the dog during his sessions has shown me that the inclusion of animals into a classroom can only mean success and development.

The Research Experience

This project has been overwhelmingly beneficial to my quest to understand the complexity of Autism. Not only have I had the remarkable experience of participating in valuable research, but, in addition, I have interacted with children with Autism and have personally observed different severities of the disorder. Background research has provided me with a look at the disorder of Autism itself, as well as the literature that is available to further enhance my knowledge in this subject. Perhaps the most beneficial part of this project has been my experience in the research process. I have followed the research from the beginning to nearly the end. I participated in the work that was necessary to get the research rolling, including
background knowledge, contacting possible subjects, and actual conducting of the research. I observed the work necessary to begin the research, including submission of a proposal to the ethics committee. It has been very interesting, and very hard work at times, but also very rewarding to know that I was a part of this research.

The experience that I have had will affect my future in that I now have a good understanding of the research process, should I choose to pursue that endeavor. I learned about the disorder of Autism, and I gained familiarity and experience in the research field. I am very satisfied with my experience with the research on Animal Assisted Therapy for Children with Autism.
Bibliography


Resources


Appendices

A. People-Pet Partnership Flyer

B. Questions asked of the child

C. Interview questions for the parent

D. Consent form for the parent

E. Definitions of Codes

F. Coding sheets

G. Average Verbal Scores

H. Average Behavior Scores
Appendix A
PPP conducts research aimed at generating scientific knowledge on the human-animal interaction and its applications. PPP explores how animals, in therapeutic settings, can participate in the well-being of people. Specifically, PPP tries to find answers to the following questions:

- Who benefits from animal-assisted therapy?
- What constitutes a proficient AAT session?
- What is the role of the therapist?
- How can the interaction between the animal and the person receiving therapy be measured?

Research findings will result in new and innovative ways of using animals to improve human health.

Teaching children about responsible pet care and the human-animal bond is an important part of developing caring adults. Frequently, educators may not have the time to develop this important curriculum on their own. PPP has produced a manual, Learning and Living Together: Building the Human-Animal Bond. This pet education manual includes sections on how to start a pet education program, how to train volunteer instructors, and teaching methodologies. The manual includes detailed lesson plans for preschool to middle school as well as for students with special needs. Extensive bibliographies accompany each lesson plan, and follow-up materials are provided for relevant classroom activities.

PPP has received a generous gift from the Kenneth A. Scott Charitable Trust to write and field test an animal welfare curriculum extension for students with developmental disabilities. The hope is that this extension will assist them in building social and work related skills. In addition, lessons were written for middle school students that emphasize the many aspects of truly responsible pet care. The lessons build empathetic skills through relationships with companion animals, as well as breaking the cycle of violence, a cycle that destroys our society’s whole fabric.

To order the PEP Education Manual, contact the PPP at the address listed below. For each copy enclose a check for $30 (U.S. currency) for U.S. surface delivery; $34 for Mexico and Canada; and $40 for all other international destinations.

Photos Bob Hubner, Tina Gates
People-Pet Partnership is a nonprofit public service activity of the College of Veterinary Medicine's Center for the Study of Animal Well-being at Washington State University. PPP exists to research and educate the public about humane treatment of companion animals and the reciprocal responsibilities inherent in the human-animal bond and its applications.

Washington State University's veterinary students have the opportunity to experience the power of the human-animal bond firsthand by participating in PPP's three community service programs and through enrollment in the Professional Orientation and Ethics coursework.

PPP began in 1974 with companion animal visits to local convalescent homes. In 1975, PPP initiated several educational programs. The first was offered to veterinary students involving community outreach, education, and ethical responsibilities. This course evolved into student presentations on responsible companion animal care and responsible environmental stewardship for area residents and local elementary school students. In 1979, a recreational, therapeutic horseback-riding program for people with physical, mental, or emotional challenges was created.

"In order to be healthy, I maintain we must be in a nurturing posture, that is, nurturing other humans or animals."

(Dr. Leo K. Bustad)

Dr. Leo K. Bustad, Dean Emeritus of the WSU College of Veterinary Medicine, was an outstanding educator, scientist and humanitarian. He envisioned a world where there was reverence for all life. He believed that all people benefited from an awareness and appreciation of the sanctity and interrelatedness of all living things. To this end, Dr. Bustad founded the PPP, a pioneering organization that through its community service programs could model this sensibility of the human-animal bond, its applications, and benefits.

To ensure the continued health and growth of PPP, WSU established the tax-deductible Dr. Leo K. Bustad Endowment Fund in 1983. This fund supports the work of PPP. Entering its third decade of operation, PPP now oversees three programs that utilize animals to improve the lives of people in a variety of populations.

Pet Education Partnership

People who learn as children to extend justice, kindness, and mercy towards animals act in this manner as adults. These are lifelong attributes encouraged in children through the curriculum of the PPP.

The goals of the PEP are to demonstrate to children the benefits of interaction with a companion animal and teach them how to be responsible pet owners. PEP instructors educate students about their responsibilities toward all animals and stewardship of their environment.

Palouse Area Therapeutic Horsemanship

Humans are social creatures needing a nurturing environment to stay physically and emotionally healthy. Frequently, as we become overly involved in the hectic pace of today's world, we often find ourselves far removed from the very sources that gave us nurture as children—the natural world and satisfying relationships with other individuals. Often people must spend an extended period of time alone in a care facility. A visit from a caring individual partnered with a companion animal can be very welcome and beneficial.

CAP personnel and their companion animals visit local care facilities and hospital residents providing animal-assisted activities and therapy. This process initiates and maintains new intergenerational and interspecies friendships.
Appendix B
DOG AND STUFFED DOG

1. WOULD YOU LIKE TO COME & PLAY WITH BONBON?

2. WHERE IS THE DOG’S HEAD-WHERE IS YOUR HEAD-WHERE IS MY HEAD?

3. WILL YOU PET _______ LIKE I DO

4. DO YOU REMEMBER THE DOG’S NAME?

5. WILL YOU THROW THE BALL FOR _______?

6. CAN YOU TOUCH YOUR NOSE LIKE THIS?—CAN YOU TOUCH _______ NOSE LIKE THIS?

7. DO LIKE I DO AND GIVE A TREAT TO _______.

8. ASK _________ TO COME.

9. WHAT SOUND DOES _________ MAKE?

10. CAN YOU POINT TO WHAT COLOR THE DOG IS?

11. WHICH ONE OF THESE DO YOU USE TO BRUSH THE DOG?

12. WILL YOU BRUSH THE DOG?

13. WILL YOU HUG _______ & SAY GOOD-BYE FOR TODAY?
BALL

1. WOULD YOU LIKE TO COME & PLAY WITH _____ THE BALL?

2. WHERE IS MY HAND, THIS OR THIS?

3. WILL YOU BOUNCE _____ THE BALL LIKE THIS?

4. DO YOU REMEMBER WHAT THE BALL’S NAME IS?

5. WILL YOU TOSS THE BALL LIKE THIS?

6. CAN YOU TOUCH YOUR NOSE LIKE THIS? MY NOSE?

7. DO YOU WANT TO PUT SOME STICKERS ON _____ THE BALL?

8. DO YOU WANT TO CATCH THE BALL? SAY THERAPIST’S NAME COME ON!

9. WHAT DOUND DOES THIS BALL MAKE?

10. CAN YOU POINT TO THE COLOR OF _____ THE BALL?

11. WHICH ONE DO YOU USE TO CLEAN THE BALL?

12. WILL YOU CLEAN THE BALL?

13. WILL YOU HUG THE BALL LIKE I DO AND SAY SEE YOU LATER?
Appendix C
When was child diagnosed with PDD?

Where does the child attend school?

Name of therapist or physician:
    May we contact this person?

Is the child on medication or any other treatment for this disorder?

Has the child been evaluated using the psychological education profile (revised edition)?
    If yes, may we access the results?

Please briefly describe the abilities of your child (verbal skills, physical limitations, etc)

If it is okay with the teacher, is it possible to participate during school hours?
    If this is not possible, is it possible for you to travel to WSU to participate?

Will you be taking any vacations or leaves of absence during the next semester, Fall 1999?
Appendix D
Dear Parent or Guardian:

People-Pet Partnership (PPP) Program of WSU exists to promote and research the applications of the Human-Animal Bond. One of the projects that is presently going on at PPP is research on the potentially beneficial impacts of the presence of a dog during therapy sessions with children with autism.

We believe that a child with autism could benefit from animal-assisted therapy. Some research has shown that animals used in a therapeutic setting improve prosocial behavior in children with autism and other pervasive developmental disorders. A member of our research team, Dr. Daun Martin has a doctoral degree in educational psychology, and is an animal-assisted therapist. She will work with your child. Dr. François Martin, who is the director of PPP and an ethologist, will supervise this research. An ethologist is a scientist who studies human or animal behavior from an evolutionary point of view.

Three therapy dogs will be used. They have been obedience trained and temperament tested for this work. Their vaccinations are current and they meet rigorous grooming standards.

Washington State University and the College of Veterinary Medicine support the practice of protection of the rights of research participants. Accordingly, this project was reviewed and approved by the WSU Institutional Review Board. The information in this letter is provided so that you can decide whether you wish to participate in our study. It is important that you understand that your participation is considered voluntary. This means that even if you agree to participate you are free to withdraw your child/ward from the experiment at any time, without penalty.

The purpose of this study is to create a better understanding of the impact of animal assisted therapy (AAT) on the social abilities of children with autism. For this study, your child/ward will be exposed to three treatment conditions: a) therapy with a counselor, b) therapy with a counselor and a plush animal toy, c) dog-assisted therapy with a counselor. The child will meet with the counselor three times a week on an individual basis, for 15 weeks. The sessions will be held at your child’s school during weekdays. During the study, your child will also be assessed with the Psychoeducational Profile (Revised Version). This assessment tool estimates the developmental stage of children with autism. Each therapy session will
take 15 minutes. The councilor will try to elicit social behaviors from your child. The behavior of the child will be videotaped. The following behaviors will be coded: a) smiles, b) laughs, c) looks, d) leans, e) touches, f) verbalizations, g) other social behaviors. These videotapes will be viewed only by project personnel, who will transcribe them, and then the tapes will be placed in a locked file cabinet in PPP’s office until the end of the study, when they will be destroyed. If you have some concerns about what is going on during the sessions or if you wish to see how your child is reacting, we would be please to show you the videotapes. During this period only the investigators will have access to these tapes. Once we have analyzed the results, we would be happy to share them with you.

This experiment poses no known risks to your child’s health and your child’s name will not be associated with the findings. There is no remuneration for participation in the study. If you have any questions not addressed by this letter, please do not hesitate to ask.

We thank you for your time.

François Martin, Ph.D.     Daun Martin, Ed.D.

CONSENT FORM

I have read the above comments and agree to participate in this study. I give my permission my son/daughter/ward to be videotaped, under the terms outlined above. I understand that if I have any questions or concerns regarding this project I can contact the investigators at the above location or the WSU Institutional Review Board at (509) 335.9661.

Parent/Guardian’s name

Parent/Guardian’s signature    Date
Appendix E
Behavior

GENERAL BEHAVIORS:

1. Hand flapping (frequency and duration)  
   (stereotypic hand movement)

2. Touching (frequency and duration)  
   a) the therapist  
   b) the object (ball, plush dog, dog)  
   (If a child is touching a piece of the therapist's clothing, code as a "2a")

5. Throw the small ball (frequency)  
   (throwing a small ball in order to play with the live dog or the plush dog)

6. Give treats to (frequency)  
   a) the dog  
   b) the stuff dog  
   c) the therapist  
   (Only use this code if the child throws the treat to the object; otherwise code as "touching the object")

LAUGHS:

7. Laugh (duration)

LOOKING AT:

8. Looking at  
   a) the therapist  
   b) the object (dog, stuff dog, ball)  
   c) elsewhere  
   (If a child is looking at a piece of clothing, code as "8c")

---

1 More than one behavior can be coded at the same time

2 Those behaviors are to be coded separately

3 We consider that the child is looking at the therapist, the dog or the ball when his/her face is oriented towards them.
Or:

9. Other behaviors

10. Impossible to know
Autism research

Verbal coding

General rule: a pause of more than two seconds indicate a new occurrence of verbal duration (even if the child starts to talk about the same subject again. Ex. 4a – two second pause – 4a).

Indicate duration unless indicated otherwise.

1. Answering a question
   a. Yes/no
   (Includes “Yes, they do”. When the therapist asks the child “Would you say good bye to the dog?” and the child says “Good bye”, this is to be coded as 1a.)
   b. With explanation
   (Can be preceded by yes/no. An answer can be given in the form of a question. For example: “Q: Would you like to choose a pretty color for the dog? A: What about this one?”

2. Giving non-verbal answers
   no length
   (If the child gives a verbal and a non-verbal answer, code both)
   (If a particular behavior of the child is an answer to a question of the therapist, this behavior should be code as a non-verbal answer and not another type of behavior.)

   Example:
   • After being asked, to come closer to the dog
   • To point at a color on the color chart
   • To nod one’s head

3. Not answering a question/request
   a. followed by a statement
      1. about the therapist
      2. about herself
      3. about her family
      4. about the object (ball, plush dog, dog)
      5. other
   b. Ignoring the question/request
      no length

4. Talking
   a. about the therapist
   b. about herself (includes talking about his/her shoes, clothes, etc)
   c. about her family
   d. about the object
      ABOUT OBJECTS FROM OTHER SESSIONS:
      e. the dog
      f. the stuffed dog
      g. the ball
      h. to the object
      i. other
(Includes questions and requests about those categories. Cannot be preceded by a question by the therapist – this would be coded as #1b. But the following is possible: Daun asks a question, the child do 1a and, after, 3a1)

5. Social agreement
   ("hum, hum", "yes", "yea", "there!")

   no length

7. Impossible to understand/code
   Ex. Incomplete sentence "She, she, she...", "It was"

8. Echolalia/ non sense talk
   (repeating therapist's sentences, or a single word by the therapist. Also includes incoherent words spoken by the child.)
Appendix F
Behavior Coding Sheet

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