UNSPOKEN CONNECTIONS:
SCIENTISTS' INTERSUBJECTIVE EXPERIENCES WITH ANIMALS

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Approval of the Dissertation

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Doctor of Philosophy in Mind Body Medicine

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Abstract

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Little is known about the scientist-animal relationship; therefore, the aim of this study was to learn how moments of intersubjectivity, or "oneness" are created and experienced by scientists. It is by appreciating the risks and vulnerabilities intrinsic to human-animal relationships that propel the present investigation. The current cultural bias of valuing objectification and detachment as the predominant form of scientific investigation overlooks relational subtleties intrinsic to deriving meaning from human-animal studies. By examining scientists and their descriptions of intersubjectivity with their animal participants, a greater understanding of society's philosophical and ethical deliberations on the human-animal relationship may be revealed. An exploratory, sequential mixed-method design was utilized to phenomenologically examine intersubjectivity as well as to measure the prevalence of its dimensions within the larger academic population. Phenomenological analysis from ten interviews identified human-animal intersubjectivity as having four significant phases: *joint mindfulness, synchronized embodiment, intrinsic belonging*, and *transcendental awareness*. Spearman correlational analysis from fifty-four responses to the online survey supported these findings as well as identified a potential link with the variables of proximity (r_s = .469, p < .05, n=25),

closeness (r_s = .483, p < .01, n=25), similarity (r_s = .483, p < .01, n=25) and embodied awareness (r_s = .421, p < .01, n=25) that account for variation in the scientific population. When examining past behavior as it related to current scientific practices, gender differences emerged that resemble those reported by neuroanatomical studies. Lastly, further mixed analysis identified academic and cultural risks that were met by employing concealment and silencing strategies. These results add valuable depth in the interpretation of intersubjectivity and its relationship with scientific behavior as well as insight into the role of intersubjectivity within ethical and philosophical debates.

In Gratitude

To the most beautiful of all living beings,
those who have graced my life with theirs.
The path is one we walk together,
and is lived as one.
My heart has been filled, emptied and widened by your presence.

In remembrance of:

Poochie
Nina
Ernie
Twinkles
Tigger
Velvet
Fuzzy
Eliza
Ishka
Electra
Sage
Theroux
Emerson
Fred
Simon
Koda Bear
Harry Bear
Wolfie Bear
Lizzie Bear
Big Girl
Greta
Olli

And to my present partners:
Klaus
Sabine
&
Bruce

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Chapter 1: Introduction

"Nature is reported not by him who goes forth consciously as an observer, but in the fullness of life. To such a one she rushes to make her report. To the full heart she is all but a figure of speech."

Henry David Thoreau (2006)

When I was two, I lived with a tiger under my bed. This was not anything special to me, as I routinely conversed with the animals and trees encountered along my walks and playtime in the outdoors. My favorite photos of my childhood are those showing a little girl silently conversing with the many dogs, birds, cats, deer, goats, and horses met along the way. I was in awe of each and every one of them as my heart leapt out to greet them. This excitement was always entwined with a deep sense of respect and knowing, likened to a close intimate friendship. In these moments, my sense of identity lived within a state of "we" that was filled by an awareness of expansive unity, unbounded by time or space.

These embodied experiences molded my beliefs and attitudes, resulting in an interconnected perspective of the world that I came to realize many had given up as they matured into society's culture of detachment and objectivity (Gilligan, 2011). My perspective was based upon observations of strength and coherence that were cultivated through active participation between species and individuals. I soon came to realize that others saw these interactions instead as measurements of "survival of the fittest" and where human exceptionalism reigned (Darwin, 1859; Ryder, 1970). Today, this cultural bias of valuing objectification and detachment runs the risk of missing the relational subtleties intrinsic to deriving meaning from experience and information. As seen by my example, there is a way to know each other without words, through an invisible familiar tie that many species use to understand each other (Brandt, 2004: Goodall, 1990; Kropotkin, 1902). It has been this nonverbal understanding that flowed between animals and myself that has deepened and grown more complex over the years. These experiences, more commonly known as *intersubjectivity*, have also been accompanied by a growing sense of fragileness and risk. This fragileness signaling a sense of danger of losing this connection with animals due to the daily challenges presented by current society to this kinship through society's bias towards detachment and objectification.

It is this appreciation of the risks and vulnerability intrinsic to human-animal relationships that propels the present investigation. By exploring scientists' descriptions of intersubjectivity with their animal participants, a greater understanding of how this particular relationship influences society's philosophical and ethical structures may come to light.

Central to the purpose of this study is exploring how moments of intersubjectivity influence experiencing what scientists have called the *animal voice*. This term refers to the to the "wholeness" of being, as in the animal, that is the integration of internal and

external qualities inherent within relational contexts (Midgley, 2002; Wemelsfelder, 2012). It is within these interspecies relational contexts that understanding and communication is thought of as nonlinear or dynamic, and as such, intrinsically creative (King, 2004). Unlike the predetermined format that many objective theories use to define movement and behavior, dynamic systems theory views "mutual understand as something that emerges as both partners converge on some shared feeling, thought, action, intention, etc." (Iverson, Caprici, Longobardi & Caselli, 1999, p. 72). Using this perspective on human-animal interaction, meaning and understanding between human and animal are seen as a dynamic dance between the two. A dance where gestures, intention, desire, movements, and vocalizations are also influenced by the relational history between the two and become communicative when the pair enters an interaction. As such, neither individual is fully autonomous, but rather dynamic in nature due to the nonlinear aspects of engagement, transforming the other through interaction that continually evolves and develops in complexity and meaning (Sanders, 2003).

More specifically, this experiential term, *animal voice,* represents animals as whole agents with constructed personalities, sentience, purpose, and goals that are actively voiced and recognizable through their interaction with humans (Bekoff, 2005). Using such a perspective of animals, this study examined how moments of intercorporeality transformed each individual that in turn may lead to a larger communal ethos that underscores attitudes and scientific practices toward animals.

Research Question

Building upon intersubjectivity's assumption that one can understand another's subjective experience through reciprocal kinesthetic empathy that gives rise to corporeality moments (Churchill, 2003, 2006, 2007, 2010; Sanders, 2003; Shapiro, 1990), the question posed in this study was: How do scientists describe the scientist-animal intersubjective experience?

Little is known about the scientist-animal relationship, so the purpose of the inquiry was to discover the qualities, characteristics, themes, and contexts that people who are directly working in human-animal and animal-focused fields use to describe these human-animal intersubjective moments. Most significant to understanding this experience is learning how these intersubjective moments are created and how they transform these individuals. This deeper focus on investigating the embodied and contextual factors of intersubjectivity may lead to understanding its link with empathy, mindfulness, and intention.

In order to identify the multiple relational elements of the scientist-animal intersubjective experience, an exploratory mixed method design was used. To address the study question, the first phase was designed to draw out rich and meaningful descriptions through the use of interviews to provide significant themes and qualities that were then quantifiably examined in an online survey within a larger sample in the second phase.

Background of the Problem

Understanding the reciprocal and subjective elements of the human-animal relationship has often been defined by sociology's focus on intersubjectivity (Churchill, 2010; Dutton & Williams, 2004; Sanders, 2003; Shapiro, 1990) and the evidence from

animal sentience that together give an evolving understanding of shared emotions (Balcombe, 2010a; Bekoff, 1992, 2005; Burgdorf & Panksepp, 2006; Panksepp, 2005). Current understanding of intersubjectivity also relies upon the findings from neuroanatomy that suggest significant differences in empathetic responses based upon gender (Schulte-Rŭther, Markowitsch, Shah, Fink & Piefke, 2008; Shamay-Tsoory, 2011) as well as feminist philosophy's focus on the emotional qualities of this relationship that assist in forming society's ethical guidelines toward animals (Derrida, 2008; Donovan & Adams, 2007; Latour, 2009; Midgley, 2002).

Debates concerning the place and essence of animals have been a part of Western philosophy since Greek times (Linzey, 2009; Nussbaum, 2004). Plutarch and Hippocrates, for example, discussed sentience from observations of pain and suffering. These were, however, overshadowed by the Age of Enlightenment's focus upon intellect and reason, which detached mind from body, resulting in a separation between subjective and objective forms of knowledge acquisition (Duncan, 2006). Yet, at the same time, this dualistic view was challenged by the argument that an animal's value could not be fully understood in its entirety if only viewed from the detached perspective of rational thought. Instead, a wider perspective, one that focused on subjectivity, was offered by Jeremy Bentham (1789) that called into questioned the role of paradigm in developing a structure for animal ethics. It was his influential statement of *"*The question is not, Can they reason?, nor Can they talk?, but Can they suffer?*"* that lead to a reframing of the problem to focus on sentience as the essence of the debate.

It was Darwin's (1859, 1872) reporting on a wide range of animal emotions and some exhibiting self-consciousness as used by Peter Kropotkin (1902), a Russian naturalist, that first challenged the idea of "survival of the fittest" through writings that described reciprocal forms of behavior occurring between species. Kropotkin's theory of mutual support and mutual aid was based upon rich, detailed observations of animals assisting each other within their own species as well as across species. These observations produced direct evidence that, unlike the current thought of competition driving evolution, the greatest influence upon survival was how an individual supported another through acts of cooperation, altruism, and empathy.

The beginning of the 20th century saw the advent of the behaviorist movement, formally introduced by John Watson and the behaviorist school of psychology in 1913 (Watson, 1913). The objective and detached perspective taken by behaviorists in understanding species-specific movements has increased our knowledge of the role of reinforcement patterns and conditions, but lacks any acknowledgement of the subjective experience. This separation between physical and felt states has had a lasting impact on how humans interact and value animals. By the 1960s, the philosophical debate on animal sentience and animal rights had begun to splinter into multiple competing arguments based upon findings in neuroanatomy and the re-emergence of subjectivity as a topic of study through qualitative methods. These arguments, variously characterized as utilitarian (Singer, 1975), capabilities (Sunstein & Nussbaum, 2004), moral rights (Linzey, 2009), and feminist thought (Donovan & Adams, 2007; Gruen, 1996), developed specific assertions as to the value of rational as well as subjective qualities essential to establishing animal rights.

Of these, utilitarianism sees physical pain and suffering as the basis of its argument that results in a hierarchy of species. This hierarchy allows for variation in

human use of individual species based upon the complexity of their central nervous system linked to the perception of pain. Using physiology as the evaluation tool, species are compared and contrasted in order to determine their value and categorization as either a "lesser" or "higher" species. In utilitarianism it is argued that lesser animals can be ethically used for human means because they cannot experience pain or suffer like more complex species. What is concluded from this argument is that lesser animals, who are typically invertebrates do not have the neuroanatomy necessary to assimilate the emotional components associated with pain and therefore, their reactions to noxious stimuli are merely muscle contractions and do not warrant legal or ethical discussion (Stelling, 2014).

Today, ethical use of animals based upon neuroanatomy is highly scrutinized due to recent findings suggesting that animals with different nervous systems, such as fish and octopi, do experience their own sense of pain (Berridge, 2003; Braithwaite & Boulcott, 2007). In stark contrast to the utilitarian focus on biological valuation are feminist arguments highlighting the subjective and relational aspects of suffering that are neglected when determining ethical treatment of animals (Donovan & Adams, 2007). Demonstrating that each argument is in fact only a slightly different approach to the topic of human-animal studies, since each is derived from a human-only perspective that does not elicit understanding of the animal from her or his own perspective.

Yet, most of these paradigms follow the same underlying premise and function of science, which is to generalize findings to entire populations and systems. Although this quantifiable aspect of science has proven extremely valuable, it has also overshadowed the qualitative dimensions that exist between individuals and add context and depth. Furthermore, what would happen if animals were finally heard and science actively sought out their perspective as a means of understanding the whole?

Some believe that subjugation and keeping animal participants voiceless in scientific research is slowly changing, as seen by the increase in animal sentience studies over the last two decades within the scientific literature (Proctor, Carder, & Cornish, 2013) as well as the increase in anthrozoological research and academic programs (Balcombe, 1999). A possible factor influencing this change may be the evolving shift towards greater globalization between cultures that is driving science towards more holistic epistemologies and methodologies that take into consideration the multiple ecological participants linked to the human-animal problem (Gruen, Jamieson, & Schlottmann, 2013; Maxwell, 2002). As a result, this change in scientific scope begins to set the stage for greater inclusion of the animal voice, which may then lead to a richer and deeper understanding of the innate complexities of how humans and non-human animals come to understand and influence each other (Latour, 2009; Midgley, 2002; Thoreau, 2006).

The unavoidable paradox within human-animal studies is that even though sentience has been established in both vertebrates and some invertebrates (Dawkins, 2001; Panksepp, 2004), little attention has been paid to understanding the animal's subjective experience. This runs counterintuitive to many biomedical methods, which implicitly use emotional language in describing results (Proctor et al., 2013). Furthermore, as Proctor (2012) stated, the topic of sentience thus far has drawn little attention to exploring the qualitative aspects of sentience itself. This void of understanding the experiential facets of an animal's life seems important to address.

Especially, considering that the animal's experience is tied to her or his relationship with those who study them within the various settings animals inhabit. It was hoped that by exploring how researchers engage with sentient beings while using a variety of scientific methods would prove significant in resolving the animal's subjugation within science.

This gap in the literature is the basis for the present study's focus on exploring how scientists understand the animal voice in human-animal research. In order to hear the animal voice, how the animal voice is encountered and approached by academics focused on the problem must first be understood. As expected, specific qualities, themes, and strategies of how the animal voice is experienced adds to the literature in a manner that may lead towards developing a more holistic epistemology in human-animal and animal-focused research.

Definition of Terms

Several important keywords are used in the present study.

Animal voice. In addition to what has already been discussed, the term *animal voice* (AV) refers to an animal's entire wholeness and agency that is experienced within a particular moment of time (Midgley, 2002; Wemelsfelder 2012). It is the integration of subjective, cognitive, and physiological experiences of the individual that are in constant relationship with the external environment and others around them. Furthermore, this term includes the concept of *spirit* or *Qi* to establish an inclusive holistic epistemology of animal agency that can actively be sought and encountered.

Intersubjectivity. *Intersubjectivity* denotes a sense of reciprocity between individuals through shared movements, emotions, and routines that result in a mutual recognition and intelligence (Sanders, 1993). It is a mutually shared reality that produces somatic and cognitive understanding of the other and self within the present (Dutton & Williams, 2004). It encompasses verbal and nonverbal forms of communication and knowing that create shared meaning of the phenomena being experienced. Consequently, it is expressed through a second-person perspective that resembles "I-thou descriptions" (Buber, 1970; Churchill, 2007, 2012).

Sentience. *Sentience* describes "the ability to feel, perceive, or be conscious, or to experience subjectivity" (Bekoff, 2013b, para. 1). Within most human-animal and animal-focused communities, it refers to an individual's ability to feel and or be conscious of a wide spectrum of feelings that include pain and pleasure (Balcombe, 2010a; Nussbaum, 2004). In this study, the term is expanded to include the subjective experience derived from the physical, psychological, and spiritual aspects of a lived life. Here, all animals are viewed as sentient beings.

Purpose

The present study proposed to understand the lived experience of the researcher during moments of intersubjectivity with animal participants and how the animal voice is revealed during such moments. The purpose of this inquiry was to examine how these shared moments influence the individual and what, if any, transformative properties are manifested that lead towards greater inclusion of the animal voice in human-animal and animal-focused research. By investigating questions that highlight the qualities responsible for assisting scientists and animals in cultivating these intersubjective

moments, the findings of this study help to support the establishment of the animal voice in scientific work.

This study, moreover, helped to identify potential and real risks associated with the intersubjective experience. In understanding the nature of these current barriers to the animal voice, it can become easier to support its integration into the scientific literature and practical application. By examining participants whose work directly influences the development of animal ethics and welfare guidelines, greater insights into the animal voice and our relationship with animals were gained.

Significance

Examination of the literature reveals a real gap in understanding how scientists experience intersubjective moments with their animal participants and how these shared moments influence their work. Since human-animal and animal-focused fields of inquiry still contain a paradox between existing knowledge of animal sentience and the debate on what the animal's role should be within research, drawing greater attention to this paradox with those in the midst of this dilemma seems essential to promoting equality for the animal voice.

By drawing attention to how the embodied intersubjective experience comes to reveal the animal's voice would provide meaningful interpretations of the multiple variables involved in human-animal interaction that are commonly missed in the literature. Drawing upon these qualities, it would be possible to develop applications aimed at enhancing and maintaining positive human-animal relations that allow individuality and context to become central in decisions involving an animal's welfare and well-being. By focusing on scientist-animal relations and not the general public, the discussion begins to address the underlying historical biases expressed in scientific behavior that continue to evolve more slowly than actions called for by national and international animal welfare organizations, advocates, and the typical companion animal guardian.

Lastly, revealing how scientists reflect upon their behavior, feelings, and beliefs about the animal voice can offer an opportunity to re-evaluate current perceptions and areas regarding animals that may need greater attention.

Assumptions

There were two main assumptions in this dissertation study. First, the paradox found between knowledge of animal sentience and scientific behavior toward the animal voice is actually an outcome of the Cartesian epistemology that objectifies individuals and subjugates the subjective experience of relationships (Donovan, 1996; Francione, 2004; Gruen, 2011). Secondly, although this duality between mind-body, subject-object, and thought-feeling is treated as real, reality's underlying principles show the opposite (Radin & Schlitz, 2005; Radin et al., 2008). For the purposes of this dissertation study, individuals were viewed within a theory of mutuality that maintains a coherent and dynamic system among species that forms the foundation on which all intersubjective knowledge is accessed. Therefore, all beings have an innate ability to sense, assimilate, and organize their behavior based upon this shared understanding that ultimately leads towards harmony in various forms.

Researcher Disclosure

In keeping with the tradition of bracketing found in phenomenological research (Husserl, 1960), I offer my known biases as a means to regulate their influence upon the process of data interpretation in the present study. Most importantly, the perspective held by myself is that of an advocate for the animal voice and as an individual who has experienced a multitude of intersubjective events with various species. Therefore, the research is entered with a historical bias towards the phenomenon and a resulting belief in its transformative qualities. Although this historical bias is recognized, it is equally acknowledged that it this position is one advocated for by feminist philosophy's *ethic of care* (Gilligan, 2011) that "encourages the capacities that constitute our humanity and alerts us to the [patriarchy] practices that put them at risk" (p. 177).

Feminist arguments advocate action when unjust behavior places animals within a subordinate role in practices of Western society. This action-orientated philosophy is enhanced by the addition of the animal-focused *tradition of care* offered by Carol Adams and Josephine Donovan (2007) to specifically seek out the animal voice. "We look at animals as speaking 'others' whose [sic] language is considered a dialect that must be revalidated and heard, rather than 'theorizing' discourses that take out the subjectivity of the animal" (p. 17). Adams and Donovan's description of animals characterizes my own when they say that animals are "individuals with feelings who can communicate those feelings" (p. 7). As a means to control for this bias, critical reflexivity was brought to the research journaling the transformative aspects of doing this research in order to maintain awareness and openness to alternative or additional interpretations (Mertens, 2009).

Limitations and Delimitations

This dissertation study was focused on examining the scientist-animal relationship where the researcher is or has actively studied human-animal related topics. This sample does not include those academics who do not have direct interaction with animal participants, such as scholars in the humanities.

Participants were briefed on the topic under investigation and participated on a volunteer basis, so there is a potential for a skewed sample reflecting an established behavior pattern toward incorporating the animal voice into their work that may not reflect the larger population. This potential bias was tested for in the online questionnaire carried out in the second phase of this study that solicited participants from a wider population. Since it has been documented that women publish the majority of research on human-animal topics (Uttley, 2012; West & Jacquet, 2014), an equal number of men were recruited for the qualitative interviews in the first phase to control for potential gender bias. Lastly, the human-animal relationship is a complex one and knowledge of all the intra-relationships between experienced emotions cannot be fully understood by one study alone and requires additional investigation to bring forth a more comprehensive overview.

Summary

Scientific understanding of the human-animal relationship has steadily gained interest and significance, yet still remains in conflict over the role the animal herself plays in this understanding. This increase in attention has established animal sentience as a core element in all human-animal research and while most researchers within animal

studies believe in this theoretical shift towards sentience, their methods and behaviors can be contradictory to this belief at times. It is this lack of attention to this paradox within the scientist-animal relationship that is significant due to its influence upon animal ethics and philosophical debate. To address the paucity of research on the scientist-animal relationship and how it relates to scientific practices, this dissertation study focused on how scientists describe their animal experiences and how within shared embodied moments the animal voice is revealed. Findings from the present study offer meaningful insights into human-animal intersubjectivity that can be utilized to create applications designed to enhance the cooperative qualities of human-animal relationships.

Chapter 2: Literature Review

"The degree of our aliveness depends on the degree of our awareness."

Terry Tempest Williams (2012)

The fate of human-animal relationships is intrinsically vulnerable to the judgments and implications presented by Western's society's attachment to Cartesian rational thought that espouses detachment and speciesism as a means of knowledge. This preoccupation with objectification has subjugated humanity's innate ability to understand the language of animals and changes in the natural landscape. Instead of cultivating and sharing these skills through the generations as many indigenous cultures have done, Western society has chosen to recently replace this natural face-to-face connection with technology's skill in objectifying these qualitative forms of knowledge. In doing so, society's reliance on inanimate objectification in solving living system problems runs the risk of missing the relational features that comprise today's global culture.

The interplay between object and subject has been a key feature of philosophical debate in animal ethics and sentience that continues to shape animal welfare practices. Few philosophical arguments have helped move ethical consideration toward greater inclusion and awareness, as have moral (Francione, 2004; Linzey, 2009) and feminist opinions (Birke, 1986; Bleier, 1984; Donovan & Adams, 2007; Gruen, 2011).

An increase in animal sentience studies has supported this shift in research examining animal awareness that has additionally cultivated attention to such abilities in previously ignored species (Bekoff, 2005; Burghardt, 2009; Cabanac, 2002). This new era of knowledge about animals has opened our eyes to the inner lives of animals and in doing so challenges scientists to examine their seemingly contradictory behaviors in relation to this knowledge. By examining the relationship between knowledge of sentience and a scientist's behavior toward those same animals would allow greater understanding and inclusion of how these deeper ethical dilemmas and epistemological assumptions are actually manifested within scientific work. Yes, science discusses the use of animals for testing, but how the findings in some biomedical research and others are reported typically rely upon the expressed subjective experience of each animal participant that the human researcher must be able to properly interpret (Proctor, 2012). For example, avoidance behaviors would be evidence of affect that encompasses pain and suffering. This empathetic mode of interpreting animal behavior establishes the intersubjective experience between scientist and animal participant that assists in scientific inference.

By evolving beyond the linear perspectives of the dominant forms of sentience research, intersubjectivity repositions human-animal inquiry into the contextual and emotional features of relationships. By reorienting the study's perspective away from detachment and objectivity to a view of animals as whole dynamic agents, data interpretation can draw upon more diverse and inclusive themes to describe results that exist within the context of relationship.

Review of the Literature

To understand the paradox between belief and action, it is important to see the influential relationship that culture has with science. As Lori Gruen (1996) states, "Science is a social process and is influenced by the history, politics, and culture in which it is situated" (p. 18). Consequently, to understand the depth and scope of challenges faced by qualitative forms of research that actively solicit the animal voice, one must consider holding a systems view of the relationships between gender, power, belief, and behavior and how they potentially interface with the cultivation of scientific knowledge.

This chapter provides an exploration of animal-focused philosophy, sentience, and the emerging role of intersubjectivity to provide the context for the present study and a picture of the inter-relationship among these facets. Animal-focused philosophy explores how humans create evaluation criteria in order to calculate the worth of an animal individual within human society. Recent findings in sentience present significant challenges to the Western world's established ethical structure towards animals, and its influence can be seen in feminist arguments seeking equality for the animal voice. As a result of these shifts, alternative topics and approaches are emerging to address the richness and essence of the human-animal relationship.

Animal-focused philosophy. Globalization, cultural norms, religious beliefs, and economic incentives are but a few variables that directly influence one's attention and awareness leading to a specific dominant paradigm. Consequently, a large variation exists among human-animal and animal-focused scientists as to the value and place of the animal within research and humankind's responsibility toward non-human animals (Aaltola, 2005; Adams & Donovan, 1995; Bekoff & Pierce, 2009; Burghardt, 2009; Donovan & Adams, 2007; Gruen, 1996). This difference of perspective is most readily seen between rational or moral opinions with that of feminism's ethic of care. Rational arguments are typified by the exclusion of emotions, either toward animals or from animals themselves, and instead focus upon the significance of pain and suffering in establishing rights (Linzey, 2009).

In contrast, feminist arguments of embodied empathy call upon individuals to act against suppression and suffering by the hands of humans (Donovan & Adams, 2007). Feminist philosophy uses the findings of power imbalances and the role of hierarchy between men and women (Birke, 1986; Gilligan, 1977) to identify similarities that animals and animal advocates encounter in most cultures (Aaltola, 2005). The duality between rational and feminist opinions exemplifies the Cartesian mind-body separation that has been established in Western cultures that serves to disconnect humans from animals and the natural world. Feminist opinions argue that this detachment between thought and emotion has resulted in humankind's sense of exceptionalism and entitlement, allowing for the continued exploitation and subjugation of other species with deeper implications characterized by humanity's resistance to and distrust of embodied forms of knowledge.

This contrast between philosophical paradigms is mirrored in the distinction between current philosophical approaches toward identifying the role the animal plays in his or her own life as well as humankind's responsibility toward him or her. The two most relevant arguments in positioning the present study are moral and feminist arguments.

Moral rights. Gary Francione (2004) positions the moral argument within the framework of the *principle of equal consideration*: "A rule that we ought to treat like cases alike unless there is good reason not to do so" (p. 121). The moral position relies upon the argument that humans, being moral agents, have an obligation to act justly towards others who do not possess consciousness. Positioning the argument on the capabilities of animals to hold rational thought and consciousness that is then compared and contrasted against human capabilities in order to determine an animal's value and worth. In contrast to this traditional view is Andrew Linzey's (2009), a prominent Christian theologian at Oxford University, reframing of Aristotle's idea of natural hierarchy. Linzey maintains that Aristotle has been misinterpreted and used to continue suppressive action because the debates have assumed that natural hierarchy denotes a moral hierarchy. This misrepresentation of Aristotle's natural hierarchy favors a valuation of species based upon the mind's intellect. Linzey questions the relevance of intelligence to the moral experience of life when he says, "It seems there is a gap in Aristotle's thinking; he simply does not provide the crucial intellectual elaboration that demonstrates that those who are naturally inferior should be treated as morally inferior as well" (p. 13).

The underlying assumption for evaluation of an animal's worth is that rationality is the basis for the moral consideration of whose suffering matters the most. From this view, human suffering is worthy of greater consideration when aligned against another animal's suffering because humans are moral rational agents who can recognize impending harm or death. Linzey (1994, 2009) counters this assumption by highlighting how humans can communicate and comprehend future suffering, and that this intellectual understanding may, in fact, soften the impact and greatly reduce anxiety and suffering. Comparatively, some animals seem not to hold this ability and therefore may not be able to comprehend future suffering, which may instead be considered to experience greater suffering in comparison. Due to this potential lack of future awareness in some animals, I would argue, as have others, that human suffering cannot justify its privileged position over another animal's suffering (Balcombe, 2009; Bekoff, 1992; Bekoff & Pierce, 2009; Broom, 2008; Rollin, 2007; Tillman, 2013).

Although Linzey (1994, 2009) refines the rational argument towards a more just and moral code of ethics, this rational approach avoids three areas of importance: the emotional component of relationships, the link between intellect and behavior change, and the fact that humans more often hold a position of power in human-animal interactions. First, there is an emotional component inherent in all relationships that are not void of thought (Donovan & Adams, 2007). How are people supposed to link their intellect with behavior if not through emotion or the senses? Most behavior change comes from facing the contradictions between belief and behavior through direct experience. This impact can be represented in the form of thought, but it has been well documented in psychophysiology that the mind and body are inextricably wired together and show immediate reciprocity (Andreassi, 2007; Moss, McGrady, Davies, & Wickramasekera, 2003). These findings counter the moral argument's position that rational debate is a process that can be done in isolation, a process without embodiment.

The weakness in Linzey's position (2009) is that he characterizes rationality as being more valuable than other forms of experience and seems to exemplify the type of power imbalances pointed out in patriarchal systems where philosophy is reduced to

thought alone (Gilligan, 1977; Midgley, 1981). The insistence on using only a rational argument establishes a hierarchy of values and ethics that is thought to be enough to instill and cultivate reciprocal action towards animals as a whole. The weakness in this portion of the argument is that if animals are seen through the lens of hierarchy, where human-only forms of cognition are valued over other forms of intelligence, the different forms of knowledge and expertise that animals possess are fundamentally positioned into a subjugated role. This hierarchical view of animals runs the risk of dismissing individual differences in expression as well as how humans and animals experience intersubjective moments that tend to offer more holistic views of animals.

Secondly, Linzey's (2009) argument maintains a human position of power and privilege over animals and does not seek to address this inequality (Donovan, 1996; Donovan & Adams, 2007; Gilligan, 1977; Luke, 1995; Gruen, Jamieson, & Schlottmann, 2013). Moral philosophical arguments stay bound to the value of pain and suffering, leaving behind the spectrum of positive affect necessary for health and well-being. The avoidance of negative affect or outcome at best only partially addresses the larger continuum of emotion and experience that makes up any life.

Lastly, the moral argument does not actively seek out the animal voice to inform or qualify the soundness of these rights and privileges since rationality does not view animals as moral agents. This line of reasoning runs in contradiction to the findings from ethologists that describe animals exhibiting the concepts of justice and fairness within social contexts (Bekoff & Jamieson, 1996; Bekoff & Pierce, 2009; Shapiro, 2006). In particular, the work of Marc Bekoff (2013b), Frans de Waal (2008, 2013), Friedereke Range and associates,(see Range, Horn, Virany, & Huber, 2009), and Francine Patterson with W. Gordon (1993) confirmation accounts of fairness and moral behavior in animal individuals in a variety of species that live in cooperative societies. Experiments using unequal food rewards between individuals who live together show that primates and dogs exhibit an acute sensitivity for fairness (Bronson & de Waal, 2003; Range et al., 2009) of who had done what and received what kind of reward in comparison to another for doing it.

Feminist philosophy. Feminist philosophy improves upon earlier works of moral arguments by identifying the inherent power imbalances in human-animal relationships and the emotionally embedded characteristics of this relationship (Adams, 1990; Birke, 1986; Donovan, 1996, 2011; Gruen, 1996, 2012; Haraway, 1988, 1989). To begin with, feminist thought uses a more comprehensive perspective in establishing its assumptions about animals. "We look at animals as speaking 'others' who's language is considered a dialect that must be revalidated and heard, rather than 'theorizing' discourses that take out the subjectivity of the animal" (Donovan, 1996, p. 17). By allowing the animal's subjective experience to be recognized, Carol Adams (2006) entices communication between humans and animals to be a tangible and accessible feature of interaction in her statement that animals are, "individuals with feelings [and] who can communicate those feelings" (p. 7). Adams' view that animals are "speaking others" sets the stage for intersubjectivity.

Advancing the debate, feminist philosophy argues that empathy, compassion, and caring should be the foundations of theories regarding human treatment of animals and how the argument should be constructed (Donovan & Adams, 2007; Luke, 1992; Meyerding, 1982; Oliver, 2010). Unlike moral approaches where action is left to be

realized by rational thought, feminist positions advocate action to end suffering that also educates dominators about their role in creating the suffering. This participatory view of human-animal interaction draws attention to the importance of awareness and how one sees another. Donovan's (1996) and Adams's (2006) work in particular advocate for greater awareness of the living environment and of animals as distinct, different, but knowable entities. They position knowledge and change as outcomes of the embodied experience that can reveal the realities of the subjugated and how humankind has constructed animals as objects.

One of the more significant features of feminist philosophy is how it presents a worldview where others are seen through the lens of interconnected relationships and where each party brings a unique history, perspective, and understanding of the context (Adams, 2006; Adams & Donovan, 1995; Donovan & Adams, 2007). This line of thought diverges from patriarchal perspectives exemplified by moral arguments by returning the elements of emotion and relationship to the discussion. Even so, this brings with it the underlying paradox that Gilligan (1977) speaks of when she describes the duality assigned to women through male-centered positions:

> The very traits that have traditionally defined "goodness" of women, their care for and sensitivity to the needs of others, are those that mark them as deficient in moral development. The infusion of feeling into their judgments keeps them from developing a more independent and abstract ethical conception in which concern for others derives from principles of justice rather than from compassion and care. (p. 484)

When examining Gilligan's words, the same duality that women face in society is often ascribed to animals and is seen by how Donovan and Adams (2007) express their tradition of care ethic. The tradition of care ethic is based upon engaging with animals as sentient moral agents reconnects rational thought with embodied emotions within a context of historical power imbalances.

The second noteworthy contribution of feminist thought has been its attention to the added barrier of human *exceptionalism* encountered by the animal-voice that previous challenges to inequality have not faced (Francione, 2004). This alternative view contests that humankind's sense of exceptionalism in the world should be dismantled to allow the development of more inclusive concepts (Regan, 2001). As a consequence, feminist approaches have assisted researchers in expanding their focus to consider issues of gender and power and to seek out marginalized voices in order to provide a more realistic interpretation of events under study. Although this philosophical approach is relatively novel in human-animal and animal-focused research, it provides an inclusive structure more advantageous for the animal voice that examines mind and body as well as feeling and behavior as dynamic qualities within all living beings.

Animal Sentience

Animal sentience is an interdisciplinary topic dealing with the thought and emotions of animals. As a topic of inquiry, it is broadly based upon the findings of comparative psychology, ethology, evolutionary biology, zoology, neuroscience, and others. This interdisciplinary approach has resulted in a diverse array of paradigms that is exemplified by the field of anthrozoology. The topic of sentience has primarily focused

upon understanding how and to what degree do non-human animals experience emotion. Findings in these areas have been typically used to build ethical and welfare arguments aimed at challenging the larger established behavioral norms of Western societies.

Historically, findings in animal behavior have evolved from "individuality" (Stevenson-Hinde & Zunz, 1978) to "behavioral style" (Feaver, Mendl, & Bateson, 1986) to "temperament and personality" (Gosling, 2001), utilizing objective assessment to compartmentalize the dynamic expression of the whole individual into reductionistic terms. Following the path set out by Bentham's (1789) repositioning of animal suffering, the current literature investigates the topic of pain and suffering as a means to substantiate and challenge animal practices (Proctor et al., 2013).

Only recently has the field embraced positive affect (Balcombe, 2009; Boissy, Manteuffel et al., 2007; Burgdorf & Panksepp, 2006; Matheson, Asher, & Bateson, 2008; Wemelsfelder, 2012). In order to provide a balanced perspective of the animal subjective experience, instruments relying upon qualitative methods, such as the Emotions Profile Index (EPI; Plutchik, 1980) and the Free Choice Profiling (Minero, Tosi, Canali, & Wemelsfelder, 2009; Wemelsfelder, Hunter, Mendl, & Lawrence, 2001) as well as anthropological (Goodall, 1990) methods, have used human subjective descriptors to reflect an animal's emotional state in a variety of species (Bekoff, 1992; Balcombe, 2010b; Boissy, Arnould et al., 2007; Walker et al., 2010). Wemelsfelder et al. (2001) used Free Choice Profiling to model the affective expressions of farm animals as observed by human participants (e.g., joyful, disdain, angst) that additionally assessed the frequency and intensity of each of those emotions listed. Analysis revealed significant inter-subject reliability between participants when compared with results from veterinary professionals responsible for assessing animal welfare in farm settings. Results suggest a shared spectrum of physiological and neurological features of the subjective experience that resides within each species. These findings support Darwin's (1872) original theory of a shared continuum of emotions and capabilities that has overlapping facets between species. By shifting toward a more holistic understanding of the animal subjective experience, this perspective has deepened the discussion to examine aspects associated with the quality of an experience.

Emotions and the significance of pain. Most sentience studies investigating emotions focus upon finding the mechanisms associated with a particular emotion, rather than exploring the variation of experience among individuals, which is exemplified by the literature showing ample reporting on pain and suffering and not on positive affect (Mather, 2011; Proctor et al., 2013). This seems reasonable considering the majority of animal ethics and welfare positions still frame their arguments based upon Jeremy Bentham's (1789) argument. Neurological studies have documented a central nervous system in all vertebrates from apes to fishes (Butler, 2008; Sneedon, 2003, 2009) and in some invertebrates like bees (Bateson, Desire, Gartside, & Wright, 2011) and octopi (Butler & Hodo, 2005). Adding to the significance of these findings is the statement made by *The Cambridge Declaration on Consciousness* (Low, Panksepp, Reiss, Edelman, & Van Swinderen, 2012) declaring that sentience is not limited to those species having a neocortex. Unlike previous theories suggesting that affect and consciousness were only able to exist within those species with a neocortex, convergent evidence in neuroanatomy, neurochemistry, and neurophysiology show that nonhuman animals

possess the neurological substrates responsible for generating consciousness and intention. This shift in how animal consciousness is viewed reframes the topic to present individual sentience resting within a continuum that spans across all species (Berridge, 2003; Boyle, 2009; Damasio, 2001; LeDoux, 1996; Mather, 2001; Merker, 2007).

The prominence of pain in establishing sentience is readily seen in Proctor et al. (2013) systematic review of two decades of scientific literature that examined the frequency and type of affective descriptors used in animal studies. They found that 74% of the 2,546 articles reviewed produced the key terms of fear (22.68%), stress (21.65%), pain (10.88%), anxiety (9.52%), and depression (7.92.%). Results suggest a clear tendency in research to focus on negative emotions in animals rather than positive ones.

Those who do focus upon positive animal emotions, such as Michel Cabanac (1992, 2002), Jonathan Balcombe (2009, 2010a), Marc Bekoff (2005, 2007, 2013a), and Françoise Wemelsfelder (1997, 2001, 2005, 2007) show how viewing the problem from a holistic approach has provided robust and authentic knowledge; that is, they perceive experience as an integrated concept, not a one dimensional quality. For example, Cabanac and Balcombe argue that pleasure is an equally important and common evolutionary element among species as is pain that establishes sentience in non-human animals. This biological approach is supported by Wemelsfelder's (2007) Qualitative Behavioural Assessment method, whereby participants develop qualitative adjectives describing the expression of viewed animals that can then be quantified to assess quality of life. Her approach is inclusive of "all potential attributes in that quality refers to a dynamic notion rich in complexity" (p. 25).

This framework values the dynamics of the whole over reducing behavior into separate constructs to be individually measured. Findings from examining a range of animals, such as pigs (Wemelsfelder, Nevison, & Lawrence, 2009), cows (Rousing & Wemelsfelder, 2006), horses (Napolitano et al., 2008), and dogs (Walker et al., 2010) show significant inter-participant agreement of observational descriptions of animal expressions regardless of professional background (Wemelsfelder et al., 2012).

Of these qualitative reports, only one study considered direct interaction between an animal and a human, in this case a young foal and novel handler, in examining the effects of handling on future behavior (Minero et al., 2009). Even though qualitative descriptors of foal expression were noted, there was no attention to the influence of the intersubjective or relational facets of these engagements between researchers and animal participants. Focus on behavior that aims to elicit subjective understanding is bounded by the chosen method, which in these studies is observation, rather than direct interaction between participants that may provide added richness to understanding the animal's experience. The lack of direct engagement is a general critique of mine toward most sentience research, as the studies are heavily reliant upon quantitative methods to assess subjective experience that may not be readily ascertained or found meaningful due to their final focus on quantification. For example, in determining sentience in fish, Braithwaite and Huntingford (2004) and Braithwaite and Boulcott (2007) observed behavior changes as a reaction to noxious odors. These current studies show how even in an effort to establish sentience in a previously subjugated species, pain, suffering, or discomfort is held as the standard emotional experience for comparison instead of a positive affective response. Primate research has shown this bias by basing social constructs of justice and fairness between individuals being reduced to food choices

under caged conditions, rather than measuring these concepts in natural settings within group dynamics that may show individual variation that would align with ethology's work in morality (Bekoff, 2005; Bekoff & Pierce, 2009; de Waal, 2013).

However, positive affect is slowly gaining more attention in research (Irvine, 2004; Proctor et al., 2013) and appears to be influencing global justice arguments in human-animal philosophy (Jamieson, 2013; Nussbaum, 2004) by restructuring ethical guidelines to include the dynamic and full range of emotions necessary for health and well-being, not just the avoidance of pain, fear, or suffering. Combining the findings from these diverse studies highlights the significance of animal sentience as well as its relationship with philosophical paradigms and cultural norms that in combination influence a scientist's approach to animals and interpretation when conducting research. Instead, what may assist in developing sentience as a topic of enquiry would be to examine it through noninvasive methods aimed at understanding the animal voice. Additionally, when examining and interpreting an animal's present behavior, particularly within an applied context, it is important to understand the historical, social, environmental, and health features unique to that particular human-animal pair that may influence the observed behaviors. Being able to appreciate the complexity of those qualitative aspects within the lived experience rests on relational knowledge and exposure. Therefore, as sentience continues to emerge as a key factor in animal philosophy and ethics, the scientific methods used to explore qualitative questions need to become richer and more complex to provide authenticity to the animal's subjective experience that is expressed through emotion, intention, and movement within a relational context.

The study of sentience is primarily driven by the biological sciences and examines the animal through an objective lens that has been slow to assimilate qualitative forms of understanding. Although these findings have appreciably strengthened the knowledge of subjective mechanisms and the capabilities of animals, the methods employed often lack a means to integrate this objective knowledge with qualitative forms to derive greater meaning. How then is this rational form of information to be integrated holistically if not through empathetic mechanisms that allow one to internally imitate another's subjective experience as a means to derive reflective knowledge representative of the intention and motivation of the other? It therefore seems reasonable to assume that in order to understand the intention and meaning of the animal voice, humans must utilize an empathy-based system in which to draw meaningful conclusions about their experience (Panksepp, 2004, 2005).

Using the evidence linking mind and body (Dossey, 2009; Moss et al., 2003), thought and feeling (Churchill, 2003; Derrida, 2008; Dutton, 2012; Latour, 1990, 2009; Merleau-Ponty, 1968), this dissertation study argues that people assimilate new information through psychosomatic pathways that support intersubjective experience with animals. This evidence-based perspective also assumes that animals learn and understand humans through similar objective and subjective mechanisms as shown in the literature (Balcombe, 2010a; Bekoff, 2013a; Darwin, 1872; Panksepp, 2004, 2005). Sentience has been established in multiple species and believed by the scientific academy. This evidence-based perspective also assumes that animals learn and understand humans through similar objective and subjective mechanisms as shown in the literature (Balcombe, 2010a; Bekoff, 2013a; Darwin, 1872; Panksepp, 2004, 2005).

Sentience has been established in multiple species and believed by the scientific academy's most prominent researchers on the topic (Low et al., 2012), which positions both human and animal to continually encounter each other as an evolving process. Placing the topic of intersubjectivity, not only as a evolutionary capability across species, but as a unique phenomenon attuned to address the multiple facets of the animal voice due to its foundation in mutuality and corporeality. Mutuality inherent in intersubjectivity suggests a potential for transformative change to be experienced by both parties that may result in elevating the animal voice out of its subjugated role in science.

Intersubjectivity

The recent emergence of intersubjectivity in human-animal research (Churchill, 2003, 2012; Taylor, 2007, 2012) allows a more inclusive and shared epistemology between thought, emotion, and movement. Grounded in sociology and psychology (Husserl, 1960, 1973; Merleau-Ponty, 1968), intersubjectivity frames the mind as a social construct. Quite simply, mind is a mutual product of social interaction among individuals that leads to a shared reality. This corporeality perception of the world as a social network allows the inclusion of animals as active, equal participants in human interactions (Taylor, 2007). As Goffman (1967) pointed out, "while it may be true that the individual has a unique self all his own, evidence of that possession is thoroughly a product of joint ceremonial labour" (pp. 84-85). Goffman expands upon Mead's (1934) earlier anthropocentric definition that social interaction must contain verbal (i.e., human) language, by recognizing the inherent aspect of non-verbal exchanges in social interaction. By allowing interaction to be defined as anything that the participants agree to, Goffman treats the interaction as explicit between two individuals that are co-present with each other, highlighting the role of spatial proximity and how each must have a sense of being perceived by the other (p. 17).

These corporeality episodes leads human-animal interaction to being mutually derived that carries the elements of awareness and motivation (Welder, 1980). Viewing intersubjectivity as a social construct assumes the philosophical position of constructivism in which "rather than there being a 'reality' 'out there' to be discovered, persons play an integral role in creating the reality they perceive and grasp experientially" (Leitner & Epting, 2001, p. 421). Where intersubjectivity is the expression of a co-mingling of individual identities that merge and understood through the psychosomatic features of embodiment. Corporeality then becomes a phenomenon understood through *kinesthetic empathy* (Shapiro, 1990) or *empathic intuition* (Churchill, 2003). Both kinesthetic empathy and empathic intuition refer to the psychophysiological processes representing embodied awareness that give rise to emotions and thoughts that support understanding of the Other through the use of one's bodily senses. Hence, understanding and experiencing another individual is attainted by the body's capabilities coupled with the emotional and psychological facets that comprise living. Shapiro and Churchill theorize that it is through the present embodied experience that one understands another and one's self. Dutton (2012) has labeled mutual embodied awareness within the present as *attunement* and theorizes that it leads toward transformation within the individual.

In reviewing the intersubjectivity literature, the three major topics covered thus far by scholars examine how constructs of personhood for animals are developed (Alger

& Alger, 1997; Sanders, 1993, 1995, 2003; Taylor, 2007), modes of embodiment (Dutton, 2012; Dutton & Williams, 2004; Garza & Fisher Smith, 2009; Haraway, 2009), and establishing phenomenological methods appropriate for human-animal interaction (Churchill, 2003, 2012; Churchill, Lowery, McNally, & Rao, 1998; Shapiro, 1990, 1995). When all three areas of intersubjectivity are combined, the result provides an overarching paradigm that substantiates access to the animal voice through embodied mechanisms that are co-created by each individual that lies simultaneously outside and within the individual. Thereby, positioning intersubjectivity as a phenomenon accessible for empirical research through the findings on mirror neurons. Mirror neurons assist in understanding another's perspective and motivation and are associated with empathy and intuition (Firth & Singer, 2008; Schulte-Rŭther et al., 2008). Evidence from psychophysiology shows a direct association between mind and body that supports empathetic forms of embodiment (Achterberg et al., 2005; Radin, 1997, 2004; Radin et al., 2008; Schlitz, 1996; Schlitz & Braud, 1997). The cumulative understanding from these fields characterizes intersubjectivity as a mutually experienced phenomenon.

Evidence for intersubjective mechanisms. Drawing upon the evidence for intersubjectivity, this study sought to establish its merits in human-animal and animal-focused studies. To do so, at least two areas of study are important to review in order to understand how intersubjectivity potentially works. These areas are the neurological features associated with empathy as well as the various forms of embodiment that support reflective knowledge.

Shared empathy. Empathy is associated with two distinct subsystems within the human brain, an emotional system and a cognitive system (Schulte-Rŭther et al., 2008; Singer et al., 2006; Shamay-Tsoory, 2011). Shamay-Tsoory (2011) defined empathy as a process within the individual that "refers to the cognitive, as well as the emotional reactions of one individual to the observed experience of another" (p. 18). This integrated definition of empathy represents emerging subjective knowledge that is derived by combining the emotions and thoughts that arise from observing those expressed by another. Shamay-Tsoory categorizes the subsystem of *emotional empathy* as a process whereby one experiences an affective reaction to an observed experience of another or is a shared "fellow feeling" (p. 18). Similarly, the other subsystem of empathy, that of *cognitive empathy* describes the role-taking ability or the capacity to actively take on another's psychological point of view (Firth & Singer, 2008). Supporting the theory that empathy has distinct subsystems or phases, evolutionary biologists explain empathy as a shared quality across species. From this perspective, empathy shows three distinct stages of *emotional contagion, sympathetic concern*, and *empathetic perceptive-taking* (de Waal, 2008, 2013; Goodall, 1990). Using these three phases of empathy as the basis for altruism, Frans de Waal (2008) defined empathy as "the capacity to (a) be affected by and share the emotional state of another, (b) assess the reasons for the other's state, and (c) identify with the other, adopting his or her perspective" (p. 281). De Waal reflected that while this evolutionary description goes beyond what some animals may have the capacity for, the term empathy applies by meeting just the first criteria.

Central to the neurophysiology of empathy, imitation, and emotional contagion is the mirror-neuron system (MNS) located in the inferior frontal gyrus (IFG) and the inferior parietal lobule (IPL; Shamay-Tsoory, 2011). The importance of a MNS in the

IFG is that this is where observed facial expressions are converted into neural patterns of activity that produce similar facial expressions and provide the neural bases for emotional contagion (Keysers & Gazzola, 2006). Several studies have shown that participants' empathy scores were predictive of their IFG activation while viewing facial expressions (Jabbi, Swart, & Keysers, 2007; Nummenmaa, Hirvonen, Parkkola, & Heitanen, 2008; Schulte-Rŭther et al., 2008).

Neuroimaging studies show gender differences in the neurofunctional mechanisms linked with emotion and cognition in specific brain areas that imply that women and men utilize different strategies when processing cognitive and emotional information (Cahill et al., 2001; Gur & Gur, 2004; Hall, 1978; Hall, Cartet, & Hogan, 2000; Hofer et al., 2006; Killgore & Yurgelun-Todd, 2001). Although the mechanisms of how the cognitive and emotional sub-processes communicate has yet to be fully understood, the work of Schulte-Rŭther et al. (2008) suggests that those with high empathetic scores tend to utilize a specific activation pattern within the brain that provides them with the ability to temporarily suspend identity boundaries between Self and Other during face-to-face interactions. Women primarily exhibited this shared sense of identity. This gender difference in neuroanatomical lateralization patterning may provide women with an advantage in understanding and describing intersubjective moments and may account for the disproportionate number of female academics studying human-animal interactions.

Yet, what happens when an individual is not empathetic towards another, but is still in relation to them? One potential answer may be found in the neurological evidence suggesting that the cognitive subprocess of empathy may be able to mitigate some of the effect of the emotional subsystem, especially within the context of justice (Schulte-Rŭther et al., 2008). This interaction between the subprocesses was noticed by Schulte-Rŭther et al. while conducting a fMRI study where participants where given a short story simulating a fair or an unjust outcome between two individuals that was later correlated with participant empathetic scores. Results showed gender to be a significant variable associated with lateralization patterns, suggesting that men utilized the cognitive subprocess to override empathetic response under the unjust condition. Juxtaposing with this finding, women showed less context judgment in their reactions and proceeded to respond more similarly across both stories. This difference in gender may account for the cognitive, or rational thought, approaches to human-animal philosophy that mostly men have espoused (Francione, 2004; Linzey, 2009; Singer, 1975) in contrast to feminist arguments incorporating the body and emotion (Diamond, 1978; Donovan, 2011; Gilligan, 1982).

Still, regardless of the outcome in participant's empathetic behavior to the initial context, the emotional subprocess of empathy is nonetheless activated in perceptions of another's experience. This finding by Schulte-Rŭther et al. (2008) implies that empathetic response is an automatic unconscious one. Bringing this example into the human-animal context, Churchill (2003) described this sense of automatic response in an unexpected interaction with a captive bonobo at the Dallas Zoo:

> As I looked out upon the large, almost empty exhibit on this rainy day in November, one of the bonobos enthusiastically returned my head bob. For a moment, I felt called out of my own heavy mood self-absorption, and

> began bobbing my head vigorously, as though I had spotted a long lost friend in the distance and was really glad to see him. (p. 20)

He continues to describe the interaction as one where "I was no longer 'in my head' but totally 'in my body' – it would be better to say that I was dwelling less within my 'own' sphere, and more within the sphere of 'in-betweenness'" (p. 24). When watching Churchill's video of a similar experience with a bonobo at the zoo, the mutual reciprocity between the two is hard to miss. The video vividly depicts both Bonobo and human watching and attenuating to the other that presents a rhythmic dance of reciprocity between their bodies unlike common mimicry, and where time seems to stop during this moment of oneness. Churchill himself seems to lighten and become more animated without thinking or being distracted by the dozens of people surrounding him. Nor does the bonobo seem agitated by the increasing number of people, but rather is at ease, engrossed, and happy in the exchange that includes playfulness and creativity. These descriptions and documentation of personal stories (e.g., Goodall, 1990) establish the innate openness of empathy as a means to perceive another using a co-created moment-to-moment reality that can suspend other cognitive states. One's openness to intersubjectivity and maintenance of such experiences seems to correspond with certain neurological activation patterns in individuals showing high empathetic abilities.

This broadened interpretation of intersubjectivity considers the interconnected relationship between cultural norms and of evolutionary neurological adaptations that could answer why there are significant differences between the genders. More specifically, the variation in lateralization patterns and number of loci activated that are recognized in the brain could be viewed as the manifestation of psychosocial pressures exerted over time (Davis, 1996; Lawrence, 2006; Longino, 1990; Longino & Doell, 1987; Schulte-Rŭther et al., 2008). Giving a socio-evolutionary interpretation of empathy as a shared, but varied, biological process across species.

Forms of embodiment. In approaching the intersubjective experience, the subtle framing of who is the first person and who is the second person at any moment within the "I-thou" (Buber, 1970; Churchill, 2006, 2007, 2010) encounter is necessary to linguistically understand how one embodies such experiences. Churchill (2012), using the historical works of von Uexküll (1934), Heidegger (1995), Binswanger (1958), and Merleau-Ponty (1968, 2003), framed access to the animal voice within the *second-person perspectivity* that goes beyond third person approaches used in psychology and behaviorism. He defined it as:

> A special mode of access to the other that occurs *within* the first person plural: in *experiencing the other within the we*, we are open to the other as a "thou," another "myself" – and, in this same moment, I become an intimate "Other" to the one with whom I find myself in a "exchange." Thus, the trick to understanding second person perspectivity is realizing that it works *in both directions at the same time.* (p. 2)

De Quincey (2000) added to second-person perspectivity when he explained, "what matters most is our willingness and ability to acknowledge and be open to the *presence of*

the other as a locus of experience that can reciprocate that acknowledgment" (p. 152). The significance of understanding second-person perspectivity to describe intersubjectivity is that it is not bound by gender or species due to intersubjectivity's existence through joint co-production. Descriptions of intersubjectivity then are unlike descriptions from objective or detached methods that only respond through reflection of first person interpretations. Instead, in second-person perspectivity, the other is understood through an experience of the 'we' in relationship.

Approaching second-person perspectivity as a shared, reciprocal understanding that is experienced through embodiment affords the construct of intersubjectivity a means to be analyzed that goes beyond first- and third-person perspectives. Churchill (2012) states that the problem of reflecting upon or "adopting" the first-person perspective of the animal voice is its reliance upon one's ability to imagine the subjective experience of another that is bound by the confines of that person's own framework. Similarly, by using the third-person perspective of behaviorism, the subjective first-person experience of the animal voice remains distant and limited due to the objectification of the whole individual into parts that misses the total impressions being shared (Köhler, 1971).

In the embodied model of intersubjectivity, empathy plays an integral role in describing and accessing intersubjective experiences (Churchill et al., 1998; Dutton & Williams, 2004). Not only does it seem that sentient beings use empathy as a foundation for second person perspectivity, but also due to empathy's multifaceted structure it could be approached as an innate skill primed to be more fully developed that may act as a change agent for the animal voice within humankind.

Although there is limited scholarly discussion on the developmental properties of intersubjectivity, it does seem reasonable that human-animal understanding and bonding would hold such qualities seeing the significant role empathy plays. Diane Dutton (2012) and colleagues (see Williams, Dutton, & Burgess, 2010) have postulated three progressive processes underlying intersubjectivity. These processes are *embodied attention, attunement*, and *transformation*. Building upon Shapiro's (1990) kinesthetic empathy and Csordas's (1993) somatic modes of attention, she emphasizes shared somatic awareness as, "often characterized by an initial shift in attention manifesting as an increased awareness of one's own or another's bodily state, together with a reflection upon this awareness" (p. 99). Dutton continues to describe embodied awareness as having a spontaneous, involuntary quality such as conveyed in Churchill's (2003, 2006, 2007) account with a bonobo at the Dallas zoo.

In the first stage, that of embodied attention, the shift in awareness from thought to body is characterized by a release of self-conscious modes of thought and replaced by a more animated sense of aliveness that is symbolized by a merging of identities (Dutton, 2012). Similar to Churchill's (2003) account with captive bonobos, primatologist Barbara Smuts (2001) portrays this new awareness while living in the field with a baboon troop that hints at embodied attention when she states, "Increasingly, my subjective consciousness seemed to merge with the group-mind of the baboons. Although 'I' was still preset, much of my experience overlapped with this larger feeling entity" (p. 229).

Dutton's (2012) second stage of intersubjectivity, that of attunement, involves an experience of intercorporeality in which one orientates his or her somatic awareness to the gestures and actions of another that creates a co-constructed reality. Imagine the somatic forms of non-verbal communication in intersubjective moments that develop

between horse and rider that can be characterized as a heightened sense of awareness of not only the signals between the two themselves, but the meaning behind them. Behnke (1999) defined this shift as a "kinesthetic dimension movement from a separative to a more connective experiential style" (p. 109). She further describes experiencing intercorporeality as a "surrendering," or an expansion of the typical focus on self to one that is unbounded (Dutton, 2012).

The last process, that of transformation, is characterized by the "intertwining of mood, intention and action that may involuntarily occur in close relationships [that] can co-create a new, shared, intersubjective meaning and identity" (Dutton, 2012, p. 105). Consequently, intersubjectivity may, in fact, be a heightened awareness from a shared state of mindfulness. These intersubjective moments hold the potential to shift current scholarly modes of inquiry toward a focus on what emerges out of relationships. Encountering the animal voice through a shared identity may bring insight into species-specific knowledge that could assist scientists in delving deeper into the complexities of the human-animal relationship. Understanding the human-animal relationship more completely would similarly challenge further development in methodology and pedagogy currently utilized by human-animal and animal-focused fields.

Repositioning human-animal topics to include more intersubjective forms of knowing would necessitate a greater understanding of the mutually derived "I-thou" (Buber, 1970) or "we" space that is co-constructed. Essential in exploring the foundations of intersubjective experience is finding ways to explain how the co-constructed intersubjective moment is sustained between each individual. Sociology and psychology have offered a phenomenological framework for describing intersubjective moments in human-animal relations (Husserl, 1960, 1973; Merleau-Ponty, 1968), yet have not explored if there are aspects of this experience that may exist outside of embodiment. Nor has there been any attention spent on understanding how these experiences are sustained, fostered, or how they may influence the individuals involved. As such, this dissertation study sought to understand how these moments may be cultivated and if there are any skills or qualities that seem to enhance intersubjectivity between human and animal.

Summary

Animal-focused philosophical arguments typically exemplify the dualistic tendencies of Western cultures. Moral perspectives value intellectual and rational thought as a basis for animal ethics, whereas feminist opinions seek to highlight the emotional aspects of relationships. Hence, feminist arguments view the animal voice as dynamic and fluid within the context of relationship and power among humans and animals. By reframing the human-animal bond through the lens of relationship, entire ecosystems have been noted to use mutual support and aid (Darwin, 1859, 1872; Kropotkin, 1902) as the most significant forces for survival. This sense of mutual affinity between individuals and groups is mirrored in the neurological and evolutionary subprocesses of empathy (Schulte-Ruther et al., 2008; Shamay-Tsoory, 2011) as a means to take advantage of this shared reality (Dutton & Williams, 2004).

By attenuating to the relational underpinnings of human-animal studies, sociology's repositioning the concept of mind into a mutually experienced reality that is a product of social interaction provides a platform for intersubjectivity. It is this

interconnectedness of mind and body that intersubjectivity uses to explore the shared reality between individuals. The little attention on intersubjectivity (Churchill, 2007; Dutton, 2012; Shapiro, 1990) has suggested that when humans enter into a state of oneness with animals there are three distinct stages experienced. Exposure to intersubjectivity has suggested changes in awareness and behavior that can hold transformational qualities. These changes in behavior and attunement are significant in understanding the relational dynamics between scientists and their animal participants that may lead to novel methods of generating mutually derived understanding where little exists.

Chapter 3: Method

Due to the unknown facets of the scientist-animal relationship and the wish to understand intersubjectivity's prevalence within academic arenas, the research question posed in this study is how do scientists describe intersubjective moments with their animal participants? The methodology employed needed to be robust enough to account for both qualitative and quantitative elements of the topic, as well as availing the researcher the ability to integrate and measure the relational properties among different forms of data. For these reasons, a sequential exploratory mixed method study was designed to identify the specific qualitative themes and characteristics of scientist-animal intersubjectivity and to gain an understanding of the prevalence of such experiences in human-animal and animal-focused fields.

The qualitative first phase of the study allowed for specific qualities, themes, characteristics, or strategies to emerge from the data that described moments of intersubjectivity. From these data, an online instrument was constructed to further validate the findings and test the relationship between facets. The second phase of the study examined the relationship between constructs and descriptions to assess the relevance of these intersubjective themes within a larger academic sample. By using the qualitative findings as the framework and language to develop the quantitative online survey both methods are blended in a manner to provide robust understanding that could not be accomplished using only one method alone (Creswell & Plano Clark, 2011).

Exploratory Design

Of the mixed-methods designs being used today, the exploratory design was chosen due to the unknown facets of the topic under investigation and the need to examine it in depth from a phenomenological stance in order to measure the prevalence of its dimensions within the larger academic population (Creswell & Plano Clark, 2011; Plano Clark & Badiee, 2010). This design provides the researcher with the flexibility to hold multiple perspectives linked to the specific method being employed at that particular phase of the study, either qualitative or quantitative, ultimately supporting an inclusive interpretation of the findings (Creswell, Plano Clark, Gutmann, & Hanson, 2003; Plano Clark, Creswell, O'Neil Green, & Shope, 2008). Specific to exploratory design, the results of the qualitative method informed the creation of the quantitative instrument used in the second phase of the study (Tashakkori & Teddlie, 2010).

As such, the current project was carried out in two connected phases. The first phase was composed of qualitative interviews and analysis that produced an online survey used in the second phase as seen in Figure 1. One of the key features in mixed methods is the ability to weigh one method more strongly than the other to signal varying levels of significance. Particular to the present study, the qualitative phase is weighted more heavily than its quantitative counterpart due to the unknown aspects of the research topic.

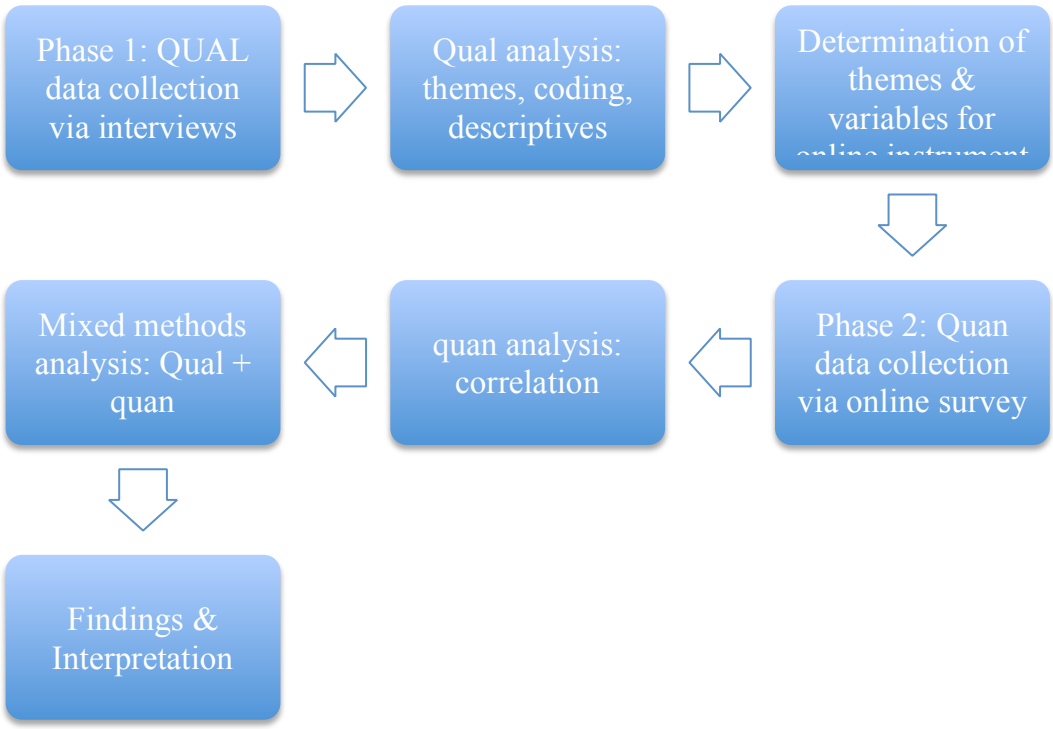

Figure 1. Design Flow Chart.

After data collection and analysis of both phases, all results were integrated to form a final mixed analysis and interpretation whereby the quantitative phase is viewed as a means to support or offer additional interpretations of the qualitative findings.

Phase 1: Qualitative Section

The initial phase of the project consisted of 10 (N=10) hour-long telephone interviews that were semi-structured in nature to allow flexibility while maintaining consistency across all interviews. A phenomenological approach was chosen due to its establishment in the human-animal literature and its focus on understanding the essence of the lived experience (Churchill, 2006, 2007; Dutton, 2012; Dutton & Williams, 2004; Husserl, 1960, 1973; Merleau-Ponty, 1968). It allows for intersubjectivity descriptions of what participants experienced and how they experienced it (Moustakas, 1994) without undermining the dialogue with anthropomorphic arguments. More specifically, the empirical or transcendental phenomenological approach offered by Moustakas (1994), drawing from Husserl's (1970) *bracketing*, assists the researcher in setting aside his or her own biases to view the data with fresh eyes. Data were analyzed to produce textual and structural descriptions that together convey an overall essence of the experience. The results of this first phase were then examined quantitatively in the second phase to assess the relationship between themes within the larger scientific population.

Participants. Criteria for participation were: (a) a history of publication on the topic of human-animal interaction, (b) a doctorate degree (e.g., Ph.D.) or its equivalent,

(c) come into close proximity with their animal participants, and (d) are able to fully participate.

The first two interviews (1 male and 1 female) were conducted and used to pilot the initial questionnaire (see Appendix A). Initial analysis revealed the need to modify specific questions in order to acquire greater depth and reflection from responses focused on intersubjectivity. This analysis resulted in a revised list of semi-structured questions (see Appendix B) that were used throughout the remaining interviews.

Participants were recruited using snowballing and purposeful sampling techniques. Participants were given the option of being interviewed using audio-only or an Internet VoIP program that had integrated video. Three interviews were conducted using audio-only and the remaining interviews used the integrated VoIP protocol. All VoIP audio data were collected using either GoToMeeing or Fuze online platforms.

Qualitative data collection and analysis. After supplying basic demographic details, each participant was asked questions aimed at soliciting personal accounts of their relationships with animals from childhood, their general relationship with animals at home and at work, descriptions of intersubjectivity, and any experiences resulting from these events. Questions were based upon Moustakas' (1994) phenomenological procedure to gain contextual and structural data. Audio recordings of the interviews were analyzed using techniques from phenomenology within the framework of feminist theory. A toll free telephone number was provided to each participant who did not participate online, so the interview could be recorded and then transcribed. Interviews were semi-structured to allow the researcher flexibility in adding or altering questions as the need arises to gain a more rich description that answers the research question.

Each participant emailed a signed Audio Consent and Release Form (see Appendix B) prior to the interview. After each interview, a written transcription was emailed to the participant for verification and correction to maintain accuracy, quality, and cultural sensitivity (Mertens, 2009, 2011; Nagy Hesse-Biber, 2010; Teddlie & Tashakkori, 2012). Additionally, the researcher kept field notes and a journal to document reflectivity and evaluate her own transformation during the project as means to keep in check biases as well as to assist in maintaining rigor that could have been weakened through selective attention (Mertens, 2009).

Transcriptions were coded and analyzed manually using mind mapping-based techniques to allow greater flexibility and visual representation of themes. To begin, each interview was manually transcribed using a third-party consultant who signed the Saybrook Confidentiality Agreement. The resulting written documents were then read through several times in order to gain a general appreciation for the participants' perspective on animals and their animal experiences. During the third and forth read through of each transcription the location of specific descriptions related to the research question as well as overall tone and language were highlighted. Next, descriptions related to the research question were color-coded to represent the multiple qualities, characteristics, and the accompanying shifts in awareness and behavior that were experienced during moments of intersubjectivity.

These self-reported changes and qualities were then arranged into themes. Each theme was examined for relationship, comparison and contrast within and between participants to verify analysis and to assess the robustness of the variation described

within each theme. Themes and their descriptions were arranged visually to examine the inter-relationships between each theme. By representing the data visually, the subtle underlying inter-relationship between themes resulted in identification of the inherent qualities that assisted participants in transitioning from one theme to another. Another benefit derived from using this graphical method of analysis was that it allowed the sequential and cyclic qualities within the descriptions to emerge. By using multiple analysis techniques, results provided a typography or composite interpretation used to answer the research question (Creswell, 2007; Tashakkori & Teddlie, 2010). In order to properly represent the distinctions and inter-relatedness between the themes, a visual model was created that identified each theme as one of four distinct phases experienced during human-animal intersubjectivity. These phases were labeled joint mindfulness, synchronized embodiment, intrinsic belonging, and transcendental awareness.

A late addition to the design was the inclusion of a free association question posed to the interviewees within one month after all interviews were conducted. The free association question was stated, "Using free association, how might you represent your intersubjective moment with an animal? What are the facets, feelings and complexity that words cannot fully express? I imagine answers could be in the form of art, music, movement, a setting, color, sensation, etc. Something that resonates with you deeply and puts into feeling what words cannot."

This question emerged during analysis as a means to draw out further complexity and richness from participants in a way that was unexpected and did not follow typical norms of scientific investigation for those working in animal-focused fields. Results showed that not only was this tactic unexpected, but provided representation of the subtle complexities experienced in intersubjective moments that have not been previously elicited. In addition, the use of a free association technique was seen as a means to test the worthiness of exploring similar unique methods of data collection that may assist in providing somatic and emotional features that spoken language may miss.

In order to appreciate the contextual aspects of each participant, discourse analysis was performed to examine the type of language found in the descriptions and how it related to experiences of intersubjectivity. To ascertain the variations within participants' language, each transcription was coded to identify specific forms of speech used to characterize animals. This secondary coding was aimed at revealing more subtle concepts inherent in the use of specific language (e.g., labels used to identify animals, such as "it" or "she") as well as associations that reflected issues of power and risk at the social and professional levels (Mertens, 2009; Nagy Hesse-Biber, 2010, 2014).

In order to corroborate the findings from the first phase and test for the relative prevalence or importance of different dimensions found within the different phases of intersubjectivity, the characteristics and qualities revealed in the interview descriptions were used to develop the questions and quantitative variables within the online instrument.

Instrument Development

The choice of using an online format was due the Internet's flexibility, ease of use, and its saturation within most global communities, providing the largest avenue for cross-cultural reach. To develop the questionnaire, the model from Creswell and Plano Clark's (2011) foundations for connected data was used to create the questions. By using

the major themes and their associated features that were identified from analysis of the interviews, a 29-question survey was developed that covered the areas of demographic information, lifestyle habits, childhood animal experiences, and intersubjectivity (see Appendix E). These four categories corresponded to the same areas covered in the interviews. The types of questions developed were yes/no, open-ended, multiple-choice, 5-, and 7-point Likert. The survey used those findings form the interviews that provided variation in human-animal intersubjectivity experience in order to examine the prevalence of a range of qualities and potential relationships between themes. Vernacular from the interview responses served as the basis for question dialect and structure that aimed at soliciting verification of interview themes as well as categories describing differences among participants (e.g., gender, academic status, topic of research) found in the first phase analysis. These categories were based upon the expressions and language of the participants to facilitate item development in the online questionnaire.

Prior to publishing the online questionnaire, it was scored and then placed on the secure and encrypted website of Qualtrics (see http://www.qualtrics.com) for distribution and data collection. The Qualtrics site offered tracking of all email invites, anonymous reporting of timing and completion as well as a hyperlink to the questionnaire.

Due to the exploratory nature of the current study and the lack of literature on the topic of human-animal intersubjectivity, it is acknowledged that findings from the interviews and online survey would be limited to the samples. To accommodate this limitation, it was felt that the minimization legitimation effect inherent within mixed-methods research (Onwuegbuzie & Johnson, 2006), where the potential weakness of one method is counter balanced by the strength of the other, would provide a more through connection between each analysis phase that would add to the literature. Therefore, it was expected that the resulting instrument would be strengthened due to its connection with the qualitative findings, rather than developing an instrument in isolation or based solely on other quantitative-driven surveys.

Phase 2: Quantitative Section

Participants. Of the 77 respondents who began the online survey, 54 fully completed all questions. Participants were sought by direct email to authors publishing in peer-reviewed journals and books, faculty listings from departmental websites, human-animal and ethology network sites, strategic social media, academic and research institutions, scholarly organizations, and known academics to the researcher. Participation was completely anonymous and voluntary. The only criteria for participation were: (a) they hold a doctorate degree (e.g., Ph.D.) or equivalent, and (b) have published on the topic of human-animal studies. Consent was obtained through an online mandatory question in which a "yes" answer had to be selected in order to enter the study (see Appendix C). At any time during the session, participants were free to choose to opt out of a question or end their activity. Following their participation, a brief debriefing statement was shown (see Appendix D).

Quantitative data collection and analysis. An anonymous direct link to the survey was provided in all recruitment material. Similar to other online survey sites, questions were directly created using the software. Qualtrics software was chosen due to

its flexibility in format, design, layout, length, item scoring, respondent IT preferences (e.g., smart phone, desktop, iPad), reporting, and its capability to embed various forms of media. Upon completion, responses were coded and downloaded into SPSS to test measures of association through Spearman correlation, as well as descriptive statistics (Onwuegbuzie & Combs, 2010). Variables correlated in analysis were those defining specific qualities of intersubjectivity (e.g., trusted, boundary-loss, absorbed), awareness (e.g., in the moment), and embodiment (e.g., belonging, close, joyful). In addition, items defining demographic and lifestyle habits were correlated to understand their potential role in the occurrence of intersubjectivity.

Final Mixed Analysis

Due to the sequential manner of this study, a development mixing strategy was employed since the first phase results were used to develop the online survey in the second phase (Creswell & Plano Clark, 2011; Tashakorri & Teddlie, 2010). Using a developmental mixing strategy entailed a strategy where aspects of planning, creation, interpretation, and write up of this dissertation study needed to attenuate to both the qualitative and quantitative features sought out in investigating intersubjectivity as well as how each stage influenced all others. This blending technique was developmentally used where each step of the current project informed the next. As such, results from the interviews were used to establish the four areas covered in the online survey as well as the specific qualities and characteristics of intersubjectivity referenced in the multiple-choice and open-ended questions. Similarly, the findings from the second phase were sought to verify the results of the first phase in order to show trends and relationships between facets of the phenomenon that are held within the larger scientific community. The final analysis examined areas of similarity between data from both phases to strengthen emergent themes as well as uncovered divergent results that produced an expanded interpretation.

Results Reporting

A summary report of the results from the first phase was disseminated to all participants for feedback and comment. At the end of the study, an online link to the final summary of the study was posted on all network sites used to recruit participants.

Ethical Considerations

Since the first phase participants were able to decline being recorded or to stop at any time and no identifying information revealed in the writing of this project, it was felt that there was little to no ethical issues. The second phase's use of total anonymity and access to decline any question was deemed as being no risk to the participants.

Limitations

The primary challenge in a study on human-animal intersubjectivity is that of how to solicit the animal's descriptive experience in order to provide a true representation of the dynamics within this particular phenomenon. In order to address this issue, the topic of intersubjectivity between human and animal was chosen due to the phenomenon's inherent characteristic of being a mutually constructed understanding that primarily relies upon nonverbal gestures and intentions that do not seem to be based upon species-

specific knowledge. Critiques can be made that since intersubjectivity's understanding is not based upon a verbal form of language it may fall short of total inclusion. To answer this criticism, I highlighted the fact that having a shared verbal or written language such as human do, does not guarantee total truth or inclusion of all voices. In actuality, it may be because of this challenge that mutual understanding between the species manifests through alternative means, such as the shared embodied aspects of intersubjectivity that have evolved over time and across many species. It may be that science itself may have to devise alternative methods of discovery that are more suitably aligned with the various existing forms of communication and understanding found throughout the world.

The second limitation of this study is that it can only be generalized to the extent of its sample. Similarly, due to the dissertation's format and structure, it does not represent all forms of understanding. Due to this limitation and to explore what kinds of data may be revealed with a less structured format, the interview participants were asked a free association question one month after their recorded sessions. The aim of this question was to see if responses would elicit different forms of understanding and representation. The findings from this open-structured format suggest that some participants are able to provide richer, more complex descriptions that show unique qualities not found in their earlier responses.

Summary

Due to the unknown nature of the topic under investigation, an exploratory mixed-method design was chosen to elicit descriptions of human-animal intersubjectivity and to discover its prevalence within the larger academic community. The first phase of this sequential study used purposeful and snowballing sampling in order to collect qualitative descriptions of human-animal intersubjectivity from scientists working with various animals within diverse settings across the globe. The second quantitative phase verified the findings from the first phase through an online survey.

The survey was open to all scientists who met the criteria. Recruitment was done using existing networks, online academic organizations, direct solicitation from departmental faculty listings, and social media sites. As expected, the results from the second phase provided evidence on the prevalence of intersubjectivity between scientists and their animal participants that offers further insight into how this phenomenon is manifested and sustained. Mixing of the data occurred throughout the analysis phase in order to compare and contrast subtle emergent results. The next chapter presents the results from both phases of the study.

Chapter 4: Results

This chapter presents the findings from both phases of the study employed to answer the research question. Results are reported as an integrated set that detail how scientists describe moments of intersubjectivity with their animal participants and identify the factors influencing its occurrence. Phenomenological analysis produced thematic patterns that where substantiated and expanded upon by the online survey. Details of the quantitative results are presented in charts giving contextual detail to the trends reported. Outcomes on the frequency and duration of intersubjective moments, along with the intersubjectivity's relationship with scientific behavior, are discussed showing that experiencing intersubjectivity is associated with shifts in awareness and methodology. To convey the relational aspects of the themes and elements found in both phases, two models are presented to convey their roles in establishing the phenomenon and how it was experienced.

Overview of the Results

The aim of the present study was to describe intersubjective moments between scientists and their animal participants in order to understand the underlying processes of the phenomenon and to ascertain how these moments influence scientific practices. The study phenomenologically-explored scientist-animal intersubjectivity with 10 scientists and investigated its prevalence from online reports by 54 academics from multiple scientific disciplines. Of the nine interview participants who had experienced intersubjectivity, they described intersubjectivity lasting on average of a few to several minutes. Survey results paralleled this range with the majority of respondents having positively reported experiencing intersubjectivity lasting a few minutes (n=18). When examining frequency of intersubjective moments, the two highest frequently reported intervals were "occasionally" (48%) and "frequently" (24%). In order to examine if years of experience had any association with the occurrence of intersubjectivity as well as its frequency or duration, a correlational analysis was performed that revealed no relationship between these variables ($r_s = .042$, $p > .05$, n=51).

Qualitative analysis of the interview data revealed that human-animal intersubjectivity encompasses four major stages that showed cyclic sequencing and how experiencing intersubjective moments were associated with changes in methodological practices.

The emergent themes of intersubjectivity that were found were *joint mindfulness, synchronized embodiment, intrinsic belonging,* and *transcendental awareness*. The first phase of joint mindfulness represents how scientists become aware of their animal participant as a unique individual and viewing them beyond typical species boundaries. As they become more mindful of the bodily aspect of this engagement, both human and animal begin to synchronize their movements. This synchronization brought about a deeper innate feeling of belonging to and of the world in human participants. The descriptions of the last phase, that of transcendental awareness, were characterized by an expansive quality in their awareness that transcended their day-to-day awareness. This capacious awareness was associated with production of new knowledge about the animal and the inter-relatedness of individuals.

Spearman correlational analysis (two-tailed) supported these themes by assessing the strength of the relationship between specific qualities of each phase found in the interviews with the occurrence of intersubjectivity within online responses. Results also showed a potential link with four additional variables needing to be present in order for intersubjectivity to be created. These precursors were identified as *proximity, similarity, closeness,* and *embodied awareness*. Understandably, intersubjectivity relies upon both parties inhabiting the same physical space and being close enough to actively engage. Likewise, participants in the quantitative portion of the study responded that those who experienced intersubjectivity also viewed their relationships with animals being similar across work and home environments. This was additionally tied to feelings of closeness to their animal participants at work and became more aware of their lived bodily experience. Blending of the results from both phases provided an understanding of human-animal intersubjectivity, how it emerges, the resulting changes in behavior as well as the perceived risks in communicating these experiences within the academic community.

Participants

Ten semi-structured, hour-long interviews were conducted with participants from different geographical locations that included the United States (U.S.; n=4), Canada (n=1), United Kingdom (U.K.; n=2), Hungary (n=1), and Italy (n=2). Of the 10 interviewed scientists, nine of them reported having experienced intersubjective moments with animals. Six participants were male and four were female with a range of 6 to 44 years of scientific experience. The scientific fields represented were animal welfare, primatology, applied animal behavior, ethology, archeology, veterinary medicine, and psychology. The average number of years having worked directly with animals was 20.9 years ($M = 20.9$, $SD = 11.14$), with two having 10 years or less experience and two reporting 33 or more. Participants were employed at academic institutions, not-for-profit organizations, or were independent researchers.

The online survey was initiated by 77 and fully completed by 54 (70%) of the respondents (see Appendix C). Twenty-five online participants reported having experienced intersubjectivity. Of the total number of online respondents, 40 (74%) identified themselves as women. The highest number of years working in their chosen fields was 11 to 15 years (21.5%), closely followed by 21 to 25 years (15.4%) and 26 to 30 years (12.3%). The majority of online participants took 15-20 minutes to complete the survey.

Dynamic Phases of Intersubjectivity

Using the qualitative data from the interviews and data collected from open-ended questions from the survey, four interconnected phases of joint mindfulness, synchronized embodiment, intrinsic belonging, and transcendental awareness were found (see Figure 2).

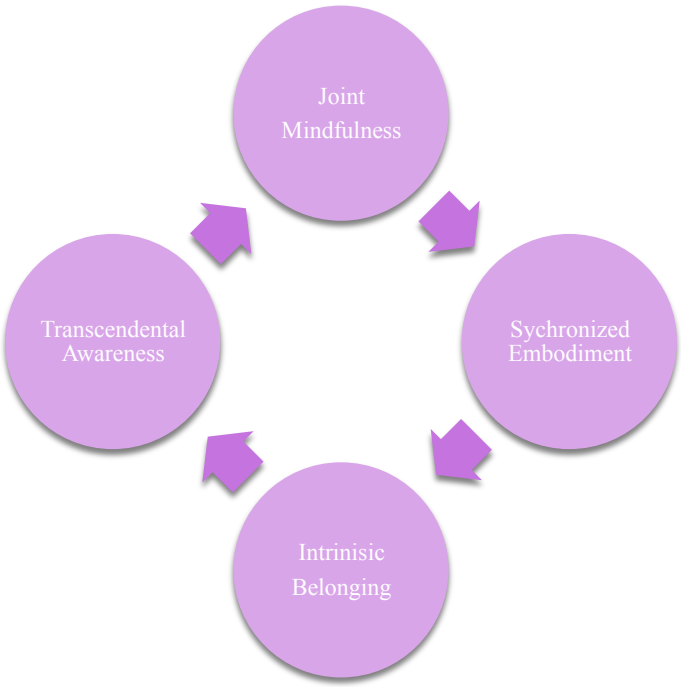

Figure 2. Dynamic Phases of Human-Animal Intersubjectivity.

From the analysis of the interviews, participants described moving through their intersubjective experiences in a cyclic pattern that continually evolved in clock-wise fashion once entered through the phase of joint mindfulness. These descriptions follow the literature's reports on intersubjectivity (Churchill, 2007; Dutton, 2012; Shapiro, 1990). It was found that each phase is dynamic and developmental in nature, lending each phase to be experienced at different depths. Data indicate that participants begin the experience through the phase of joint mindfulness, but entry from another phase cannot be empirically ruled out at this time due to the small number of participants. Once engaged, the sequencing stays within a clockwise pattern that can be re-experienced at a later time allowing greater understanding of each phase. Finally, when examining how intersubjectivity comes to exist between human and animal, analysis indicated an innate ability with variation within individuals. The following topics explain each phase of human-animal intersubjectivity, starting with joint mindfulness.

Joint mindfulness. Results from the nine interviews showed the initial phase of intersubjectivity to be characterized by scientists becoming aware of the animal participant as a distinct individual, unrelated to its species or context. Building upon established definitions of *mindfulness* where one's senses become rooted in the present (Kabat-Zinn, 2006; Richards et al., 2003), joint mindfulness is an interpersonal awareness shared between human and animal individuals. Participants described "seeing the individual" with an open mind and heart, while becoming aware of their own presence as it relates to the animal's experience. The result of becoming mindful of the individual animal was a "loss of self" that later fully developed into a state of we. Descriptions of

this phase were illustrated by a conscious shift in attention and awareness in order to allow sensing of the animal participant more holistically.

Experiences of joint mindfulness revealed that the animal is seen as a distinct, mindful individual with whom the participant actively engages with to co-create the present moment. This focused state of awareness is described in these two interview responses:

> Non-dominating, non-controlling, calm and gentle and to respond to the animal in a way that honors her or his own expression . . . I see them as sentient beings who have very valuable lives and very conscious and very feeling lives.
>
> I immediately personalize them. Personalize them means not bring them into my life, but individualize them…feeling beings who I can connect with. Letting them be who they are. Not judging them, trusting them. See them for who they are and not for what they can do for me. (Professor D, March 13, 2014)
>
> Respecting the other…not being afraid to connect and to truly listen to what you are sensing…I experience animals as equal subjects. I am always welcoming. (Dr. H, March 31, 2014)

Responses to questions of how participants enter intersubjective moments revealed some variation in awareness states. For the majority of interviewees, their initial awareness focused on their current embodied experience. While a few actually reported being mindful of the potential influence of earlier thoughts and actions on their present engagement with animal participants. This minority described practicing a daily mindfulness technique in order to cultivated present moment awareness, as seen in these two accounts:

> Spending one or two minutes revisiting my thoughts and the way I behaved that day and try to re-adjust. Leaving out possible tensions, breathe smoothly and [have] better control [over] the way I move and behave. I think of how I feel and how I move. (Professor W, April 23, 2014)
>
> I meditate for 10-15 minutes prior to every session, using breathing and visualization techniques to quiet my mind. (Dr. V, August 16, 2014)

This state of attentiveness is symbolized by the loss of self into a state of "we." Participants reported giving up their sense of control in the moment that allowed an emergence of co-created projects. There is a sense of respect for the other that intensifies the reciprocal ebb and flow between the individuals. These aspects of identifying with the other and co-creating these moments are revealed in these two descriptions from an interview:

> I would find a bird and I would watch the bird for a few minutes make a nest or something and I would just be totally absorbed, in that the horizons of my own world would fade. I would get a sense of the world of this other being…and I would identify with that. [A] lived experience as opposed to reflected. Absorbed in the moment. Forgetting of the self. Transcending of the self into the other.
>
> We have co-projects that are very, very complex, evolving in their dimensions. Like when we go for a walk, it's amazing what's going on in terms of what path we take and who looks at who. When we get to a division on the path, the dog looks at me, I look at the dog. Who's going to decide? We decide who's going to decide when are we going to come back. (Dr. B, April 9, 2014)

Narratives from the interviews also revealed that the animals move into a state of mindfulness towards the embodied human as someone to engage with as a distinct other through shifts in body language and attention. This straight forwardness from animal participants disarmed many, but was understood as an invitation for further joint exploration:

> Sometimes they [baboons] make "come here" faces, indicating that they want to socialize with you. In those bits, when I mean they've crossed the line, I think that they've forgotten that I'm not a baboon. (Dr. Y, April 23, 2014)
>
> From the beginning, she [Asia the tiger] initiated our interactions and drove as many, or more, of our interactions as I did throughout the 6 years. She would let me know if she wanted to play, or if she wanted to talk. I never physically touched her; I was not allowed.
>
> But we were physically close. If she was not out in her yard, I would call her and she would come running and chuffing. I learned many things from Asia. One of the most significant is that she initiated and continued our friendship despite the fact that I never fed her, bather her…I provided nothing but friendship. (Dr. U, August 23, 2014)
>
> I was working with captive chimpanzees to study their metacognition – the way that they maintained solid eye contact and their desire to connect and play imitatively with me blew my mind. (Dr. J, September 2, 2014)
>
> There was this one pig that just sort of walked up to me and stood. And it sort of cocked its head and it looks at me very intently. It really intently focused on me with this absolute, completely benign, gentle, kind look. It was very disarming and very direct. I was just so incredibly struck by the presence of that pig. Like the sweetest little girl walking up to you and looking at you with this incredibly warm, surprised, benevolent gaze. I

> really felt then that there was [an] absolute connection of that being looking at me and me looking back. (Professor Z, April 23, 2014)

Descriptions showed not only the conscious choice of the animal, but the emerging qualities of the next phase, that of synchronized embodiment where both human and animal begin to move together in reciprocal ways. This transition between mindfulness and into more active embodiment are described in these online descriptions:

> The anis huddle together at night, and my pet anis liked to huddle against my neck during rest times. They made a soft noise at these times that seemed to indicate the desire to cuddle (and not that they would be aggressive). (Dr. M, August 22, 2014)

> At the sanctuary I run, I give the chickens their own eggs to eat. One hen used to follow me into her house in the early morning (the time of day when I used to gather the eggs), uttering distinctive sounds, straining her head and neck upwards toward me. It was quite obvious that she was asking me for the egg and the understanding of the communicative relationship between us. (Dr. A, August 23, 2014)

Experiencing at least a modest amount of joint mindfulness provided a platform for more vibrant forms of engagement. As this phase, transitions into the next phase of synchronized embodiment, data showed an increase in reciprocal, coordinated physical activity.

Synchronized embodiment. This second phase signals a transition into a state of more lively physical engagement. Physical contact is commonly made and maintained through synchronized reciprocal movements. This intersubjective phase builds upon joint mindfulness through the addition of embodied forms of knowledge and communication. Through the addition of embodied features, scientists experienced a deeper sense of wholeness or attunement that seemed to further support collaborative projects. It was characterized by the dissolving of physical and mental boundaries through a new felt sense of a shared identity. This embodied synchronicity fosters freedom in expression and closeness that relies upon intuitive forms of communication that acknowledges intentionality from the animal. One participant described this synchronicity as:

> Experienced boundary loss through movement. It's a very embodied thing and it's an entrainment.[1] It's the whole notion of entrainment where two nervous systems come to drive each other essentially. [Its] a transcendental experience when you really do get into the synchrony mode and you are entraining. Its boundary loss, it's being a part of something

---

[1] Footnote: *Entrainment* refers to the confluence of movement and rhythm between two individuals. A coming together of these individuals where each influences the other's movements and experience through biology, which produces a new shared corporeality. This shared corporeality is a somatic commonality between living beings (Acampora, 2006).

> bigger than yourself. And sharing in a bidirectional way, identities. (Dr. H, March 31, 2014)

Furthermore, this synchronicity happens unconsciously (Jung, 1973). Descriptions revealed a hidden awareness that relies upon subtle nonverbal communication. It is a phase where one becomes mindful of the present as well as its meaning and significance and where a greater assortment of movement was commonly reported. Synchronicity in movement is seen in this description from an interviewee who recounts an intersubjective moment, while closely working in the field with his "canine co-researchers." This event shows an evolving awareness of the synchronization between him, the dogs, and the wild animals that can occur spontaneously while individuals simultaneously move in various ways and patterns.

> As they were working with their noses down, we were watching the ravens that were basically indicating to us where fresh kill was and basically told us where the coyotes were. I remember thinking, in the early relationship of humanity with canines, and with nature actually, there was this constant intercommunication between beings.
>
> Reading nature and experiencing this is quite remarkable. We were looking for the coyotes and without knowing it the ravens were telling us where they were, and dogs were bringing us in the right direction. There was something really magical about this. It's extremely subtle and hard to verbalize. It's more like implicit communication. It's tangible when you're in it. (Professor P, March 25, 2014)

Since this phase seems to utilize unconscious forms of knowledge and communication, what participants reported was an ability to seamlessly intuit the future actions of their animal participant:

> How did I know to turn my head at just a point in time when my horse saw the snake and was going to run blind and I needed to let go of the rope? I'm not sure that those are the kinds of things that usually flow up to the conscious level. I think they might be operating at a level below and therefore its very visceral. (Dr. H, March 31, 2014)

This ebb and flow between individuals was described as a state of se saw the snake and

> Relaxed because I trust…alert because I am interested and know something novel is always bound to happen. The feeling is similar to that arising from a comfortable asana, or performing Tai chi. Familiarity, comfort, trust, movement. The energy ebbs [and] is all music. (Professor F, April 21, 2014)

To test if these findings of joint mindfulness and synchronized embodiment were universally held, 25 online participants who identified themselves as having had

intersubjective experiences with their animal participants were given a list of 25 mindful and embodied qualities and asked to identify which ones represented their experience. The various qualities listed were derived from the results of the first phase interviews that used adjectives such as, mindful, mutual, empathy, nonjudgmental, and intuitive (see Figure 3). Frequency distribution of these qualities supported the descriptive language found in the interview findings.

Those qualities reported by a majority of participants were communication (88%), trust (80%), empathy (76%), nonverbal (76%), physical closeness (64%), mutual (64%), living in the moment (56%), and moving in synchrony (52%; see Figure 3). These qualities, in particular, represent key characteristics of each phase as well as several overlapping features that assist people in moving from the first to second phase of intersubjectivity. As seen in the narrative and survey results, when mindful of the reciprocal synchronized movements, scientists understand and communicate intuitively and without judgment with their animal participants. While some may argue that my assumption that participants can understand the animal's experience is highly debatable, I argue that it was directly because of this issue that I chose animal-focused scientists due to their professional expertise in understanding an animal's intention and meaning. While I address this important philosophical issue in greater detail in Chapter 5, when examining the descriptions of reciprocal animal movement they mirror the evidence from ethology that suggest a purposeful synchronization that animals exhibit when engaged with others (Balcombe, 2010a; Bekoff, 2013a; Churchill, 2003).

As seen in Figure 3, a blending of mindful and embodied qualities are reported in different frequency. Even though each quality may not itself fully represent previous definitions associated with mindfulness (Davidson et al., 2003; Kabat-Zinn, 2006; Williams & Kabat-Zinn, 2011), what it does identify is the mixing of the physical and mental aspects of experience that make up the first two phases of intersubjectivity. The results are provided in this blended format to draw attention to the evolving and dynamic aspects of the intersubjective phenomenon.

This greater sense of openness cultivates a deeper intimate relationship where both individuals may explore together the dynamic qualities of each other and their surrounds. Through this embodied state, human participants become aware of a profound sense of belonging and unification with animals that marks the next phase.

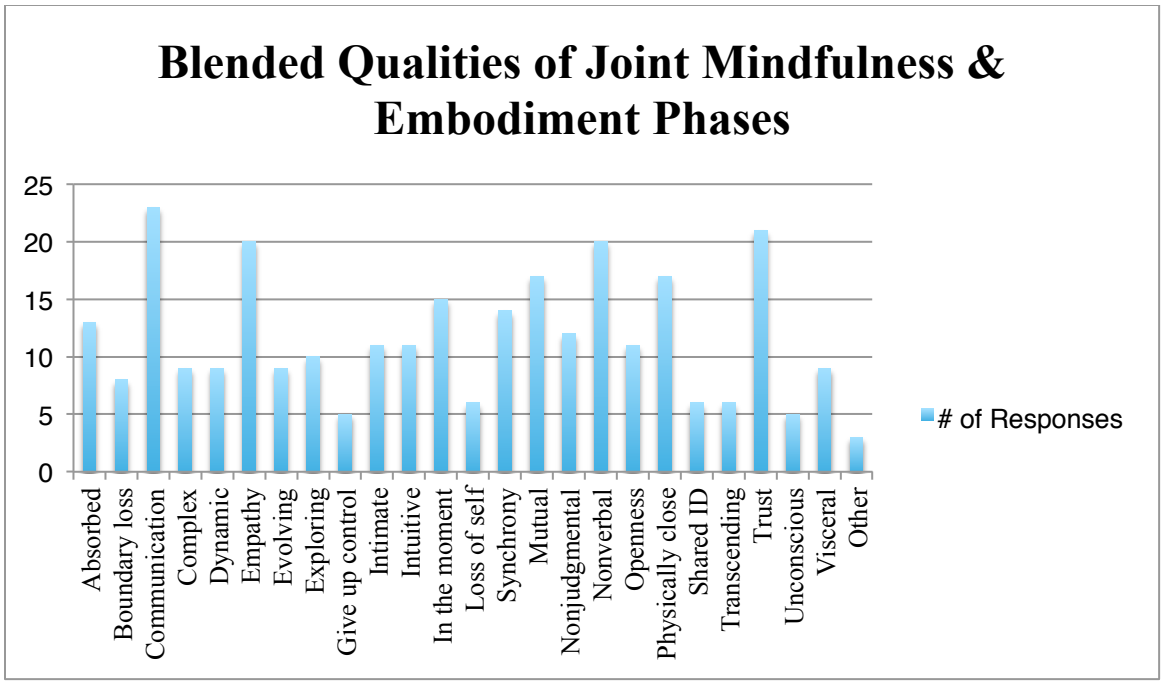

Figure 3. Blended Qualities of Intersubjectivity of Joint Mindfulness and Embodied Phases by Online Participants.

Intrinsic belonging. As participants progressed through synchronized embodiment, phenomenological analysis of the interview data revealed how a sense of intrinsic belonging to and of the world emerged. It is a phase that reveals inborn qualities of connection that can be developed, lost, or broken down. As seen by this description, when a participant recalls an experience in Africa with animals and how the natural environment begins to become a part of the unified context:

> I remember thinking it was almost like some sort of latent, deeply hidden, indigenous thing in me. It's an ancient territory and that it was another level of greeting your relations. It was compulsive. [It] was like coming home. It's an incredibly deep quality. (Professor Z, April 23, 2014)

Other participants provided descriptions that represented feelings of warmth and acceptance:

> It feels like a benevolent, encompassing warmth. It is a feeling of acceptance and being accepted, of understanding and being understood, of liking and being liked. The *being* rather than the doing comes to the forefront. But it is not only a solo sense of being. It is also, a sense of being a complete single self, and also a part of a 'we.' (Dr. H, March 31, 2014)

Through these experiences of warmth and comfort participants in both the qualitative and quantitative phases reported outward behaviors, such as smiling and a sense of peacefulness that provided them with a shift in perception. By feeling a part of the natural world around them, participants developed a larger awareness of the intricate connections between humans and animals.

Transcendental awareness. The last phase of intersubjectivity labeled *transcendental awareness* is characterized by a shift in consciousness that provides an expanded view of the world and of one's place in it. It is an awareness shift that is described as a consciousness state where human and non-human individuals are seen and known instinctively as closely knitted relations. This awareness is accompanied by feelings of exhilaration, amazement, and surprise that leave participants feeling rejuvenated. At this phase, narratives showed how scientists use this shift in consciousness as a pathway toward understanding their animal participants from the animal's point of view. Scientists seem to take on the animal's perspective that can challenge their own knowledge and perceptions. One interview participant characterized the effect of this phase as:

> I feel rejuvenated when I've been to the field [with my canine assistants]…I feel very privileged and awestruck…I can't stop smiling [and] I can't stop grinning. I feel incredibly satisfied and excited. (Professor P, March 25, 2014)

This participant continues their description that highlights the expansive shift in awareness:

> They help me, as a scientist and as a non-scientist to look at the world that's around me with different eyes. They force you to rethink completely your environment…to see things that you would have ignored. I feel like a kid a lot of the time.

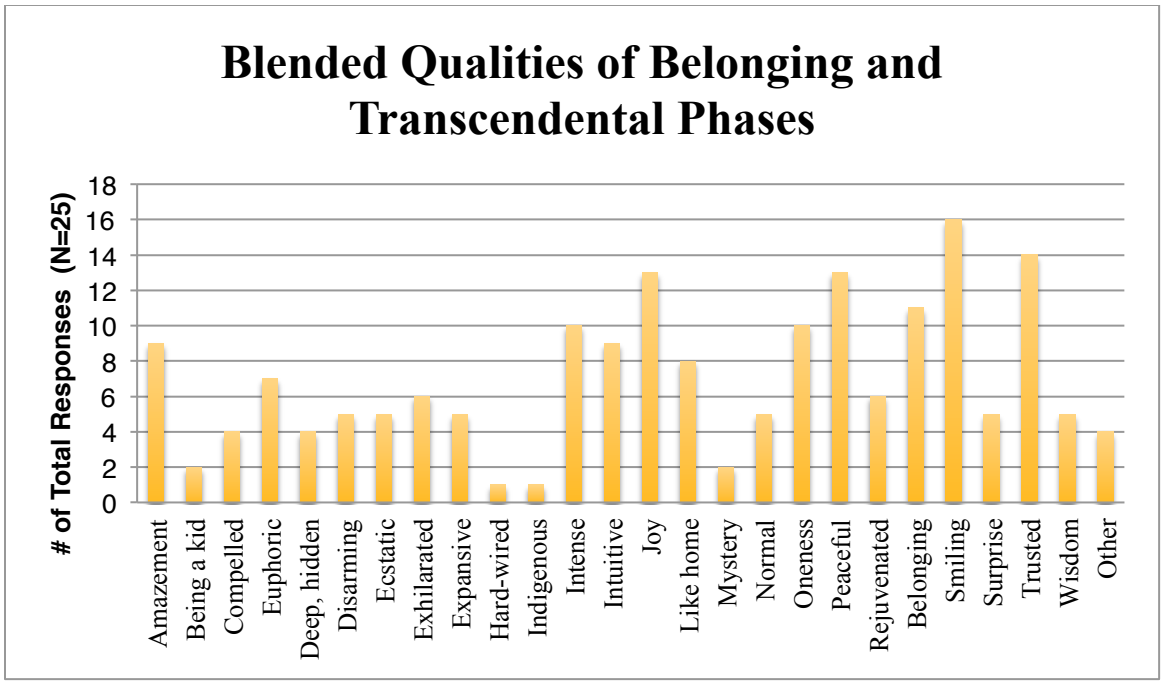

Figure 4. Blended Qualities of Intersubjectivity from Belonging and Transcendental Phases by Online Participants.

The aspects of this last phase and those of the previous phase were examined together by testing the frequency distribution of 25 qualities taken from the phenomenological analysis that described phase three and four of intersubjectivity and were tested for their occurrence by the online survey. Some of the 25 qualities described in the interview data were peaceful, indigenous, hidden, and belonging. Survey results from those who had reported experiencing intersubjectivity identified having intense feelings of intuitive oneness that were accompanied by joy, amazement, and peacefulness. Analysis found smiling (64%), trust (56%), peaceful (48%), joy (52%), belonging (44%), intense (40%), and oneness (40%) to be the most frequently cited qualities of these last two phases.

Since analysis from the first phase provided an overarching concept of human-animal intersubjectivity and how it is experienced by scientists, I sought to discover how intersubjectivity was cultivated between species that seemed to surpass the influence of setting, years working with animals, type of species studied, and academic research focus. It seemed that cultivation of intersubjectivity must be influenced by specific individual characteristics, such as their personal perspective about animals, their choices of interaction with animals or their behaviors.

Based upon the literature and the findings from the interviews, four areas were selected to be explored and measured in the online survey, through Likert scale questions. These four variables were proximity, similarity, closeness, and embodied awareness. Although the small number in the sample cannot provide a robust picture to answer this question, initial examination of this facet could provide areas for future investigation.

Cultivating Human-Animal Intersubjectivity

Exploring how these four variables may assist in understanding the contextual aspects necessary for intersubjectivity to be jointly created, Spearman two-tailed correlational analysis was performed. Results found that all four were associated with each other, but that only proximity and embodied awareness showed any association with the emergence of intersubjectivity. Questions were asked in the format of 7-point Likert-scale (see Appendix E) for all four variables in order to test the relationship between each variable as well as each variable's relationship with the occurrence of intersubjectivity.

To measure the influence of proximity, participants were asked to report how often they were in close spatial proximity to their animal participants. The second variable of similarity, referred to how alike scientists viewed their relationship between work and home animals. Likewise, embodied awareness denoted the degree to which participants "tuned-into" or became mindful of their bodily experience. The fourth variable of closeness measured how intimate, familiar or attached scientists felt toward their animal participants.

Spearman correlational analysis found significant relationships among all variables. As seen in Table 1, analysis comparing the occurrence of intersubjectivity with these four variables suggests that all four show some amount of modest association with intersubjectivity that would warrant further exploratory investigation.

Table 1
Variables Associated with the Occurrence of Intersubjectivity

Variables	Spearman Correlation (2-tailed)
Proximity + Intersubjectivity	$r_s = .469$, $p < .05$, n=25
Embodied Awareness + Intersubjectivity	$r_s = .421$, $p < .01$, n=25
Similarity + Intersubjectivity	$r_s = .483$, $p < .01$, n=25
Closeness + Intersubjectivity	$r_s = .483$, $p < .01$, n=25

As expected, in order for intersubjectivity to be created individuals needed to be in close proximity to each other. Frequency distribution of online responses to rankings of proximity yielded 63.5% of participants worked in close proximity either "often," "most" or "all of the time" with the remaining 36.5% stating "rarely" or "none of the "time." This result supports the literature in that both human and animal need to be in close physical proximity in order to create a shared, reciprocal reality (Churchill, 2007; Dutton, 2012; Shapiro, 1990). Even though proximity was associated with the occurrence of intersubjectivity, it did not influence the duration of these events ($r_s = .335$, $p > .05$, n=18).

When participants were asked how frequently they ted with the occurrence of intersubjectivity, it did not inn=53) did “all of the time,” 26.4% stated “often,” 30.2% did “sometimes,” 18.9% did “rarely,” and 11.3% “never” became attentive to their somatic experience. These results coupled with the occurrence of intersubjectivity suggest that as participants spent more time with their animal participants, the greater their awareness became of their own embodied experience. It could also suggest that as pairs spend more time in close proximity to one another, scientists begin to acknowledge the somatic aspects of this engagement in their awareness, as seen in this description:

> Some field people have ‘animal sense’, move in ways that minimize disturbance, and can anticipate what the animal is likely to do next. I have always been good at that. It is not an easy thing to teach a student if they lack the native ability. (Dr. N, August 21, 2014)

This awareness changed for some depending upon the specific animal participant:

> Since I try to be as quiet as possible, I have to tune into my body and the environment. When working with farm animals, of course, this is less of an issue. (Dr. O, August 13, 2014)

An online participant explains the mirroring effect this awareness provides in this description:

> I notice extremely mindful states in other animals. For instance, there is a look of intense concentration and I believe pleasure in their eyes and faces when they are sun bathing which they enjoy. Their savoring reminds me to tune into my body.
>
> I am also aware of my use of my own senses to observe them, particularly as they are highly prone to illness and their symptoms of illness can be very subtle. Using my sense of sight, smell, hearing, and touching enables me to assess their health. These same senses are what allow me to enjoy their company so much. (Dr. A, August 23, 2014)

Building upon the shifts reported in somatic awareness and the mirroring that is seen in the animal’s behavior, this description alludes to how this awareness helps cultivate a pathway toward intersubjectivity:

> Being able to tune into the animal’s body and then my body to be able to sense and feel clearly is important in order not to have projected thoughts and feelings. Sensing at no distance. (Dr. X, August 22, 2014)

This acknowledgement of embodied awareness appears to symbolize a shift in consciousness away from a focus on mental activity to a more holistic awareness that includes physical and affective states encountered during human-animal interaction. This shift in awareness may indicate that increases in embodied awareness assists in the development of mindfulness and synchronistic aspects of intersubjectivity.

Embodiment was also found to be associated with a sense of closeness ($r_s = .304$, $p < .05$, n=54). The term closeness refers to the degree one feels a sense of familiarity or attachment to their animal participants. This correlation suggests that there is a positive association between participants' feelings of connection or intimacy with their animal participants and that of an awareness of the embodied qualities of this interaction. Frequency statistics showed that very few (6.6%, n=60) believed this aspect was either not important or they did not feel close to their animal participants. The remaining participants reported feeling "somewhat close" with 20%, "close" was represented by 21.7%, of respondents, and the remaining 51.7% felt "very" or "extremely close" to their animal participants.

Closeness was additionally correlated with intersubjectivity ($r_s = .483$, $p < .01$, n=25) and proximity ($r_s = .294$, $p < .05$, n=62). These findings indicate a potential relationship between feelings of intimacy and spatial proximity with the emergence of intersubjectivity. Suggesting that as scientists develop a greater sense of closeness to animal participants the more likely they are near each other and to experience intersubjective moments.

Closeness was also positively correlated with similarity ($r_s = .483$, $p < .01$, n=59), which infers an interaction between feelings of attachment with views that this relationship is similar to others across various settings and species. The opposite is suggested as well, where seeing similar qualities in the multiple relationships participants have with animals is associated with a greater sense of closeness with animals. Further examination of the qualitative data from the online survey revealed that proximity and closeness were not limited to normal physical presence. Two narratives outside the norm described proximity and closeness as precursors of intersubjectivity, but with animals who were deceased. These narratives described experiences where the animal was not empirically present, yet the descriptions held the same qualities and characterizations expressed by participants working with embodied animals. The crossing of physical barriers is exemplified in this description:

> My German shepherd Ebony had just died after almost 16 years together. A few months later, I was at my parent's gravesites when suddenly I had a vision of Ebony coming over a knoll. She was so excited to see me that she broke into full speed, her 80 pounds knocking me to the ground. She was in my arms. I could feel her licking my face; my hands were caressing her thick fur; and I could hear her whining happily. I could FEEL all these sensations physically. I sat there holding Ebony, feeling her and talking with her for several minutes. [This] was over 11 years ago. (Dr. T, August 5, 2014)

This description challenges assumptions that intersubjectivity can only be experienced through physical presence. Since a very small number (n=2) reported having experienced these unconventional intersubjective moments, their occurrence would be interesting to explore in further detail to see how they relate to other precursor variables as well as intersubjective moments.

When examining similarity between the kinds of relationships scientists had with those animals they worked with and those they lived with, results showed that nearly half

viewed the two types of relationships as very or extremely similar (49%, n=62; see Figure 5).

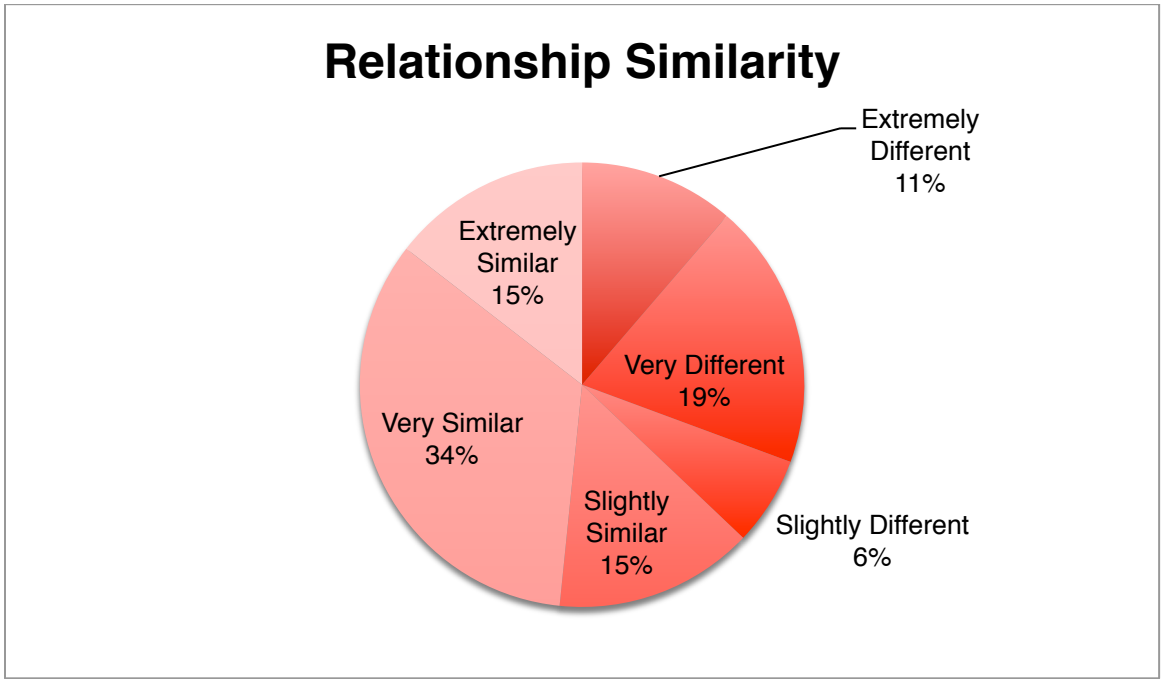

Figure 5. Animal Relationship Similarity.

Of those participants who viewed work and home relationships to be either "very" or "extremely" different (30%), several of the comments revealed a "rational" vs. "emotional" way of relating to animal participants. As described by this participant:

> Rational in this case means that I keep more control over my behavior and thoughts, having in the background of my mind what I should do to reach the pre-set aims [of my work]. Emotional means that I behave more freely, not thinking too much. (Professor W, April 23, 2014)

Other descriptions spoke of context being the significant factor influencing similarity, not how they personally felt towards animals in these roles.

> Working with wild animals entails not interfering as far as possible. Companion and farm animals are just the opposite. To the extent that wild animal behavior corresponds to that of companion/farm animals it is easy to understand them. Wild animals that differ a lot from tame animals are more difficult to read and understand. (Dr. O, August 13, 2014)

Focusing on those participants who found their relationships both at home and at work to be similar (49%), proximity was thought to potentially influence this result. When examining how proximity may relate to the degree of similarity, a modest

correlation was found (r_s = .294, p < .05, n=62). As the degree of similarity increased, a higher frequency of close proximity was found, which one would assume in order for intersubjectivity to occur. Likewise, as proximity was reported to happen more frequently, it was linked with higher degrees of similarity between animal relationships.

Awareness distinctions associated with intersubjectivity. Since not all participants reported having experienced intersubjective moments, it was important to begin to understand and identify some of the differences between those who reported intersubjective experience (n=25) with whose who had no such familiarity (n=32). Participants were asked to identify from a list of 21 qualities that were derived from the qualitative interviews those that best described their state of awareness when working with their animal participants. The list of qualities reported on included the descriptives relaxed, methodical, nonverbal, smells, and watching with the option of adding more words that would better describe their working awareness state (see Figure 6). Since the first phase interviews suggested a difference in general awareness between those who experienced intersubjectivity with the one participant who did not, this area was further explored. Linguistic characteristics from the interviews were used to generate the list of 21 adjectives used in the multiple-choice survey question. Analysis sought to compared and contrasted these two groups in their general awareness when working with animal participants.

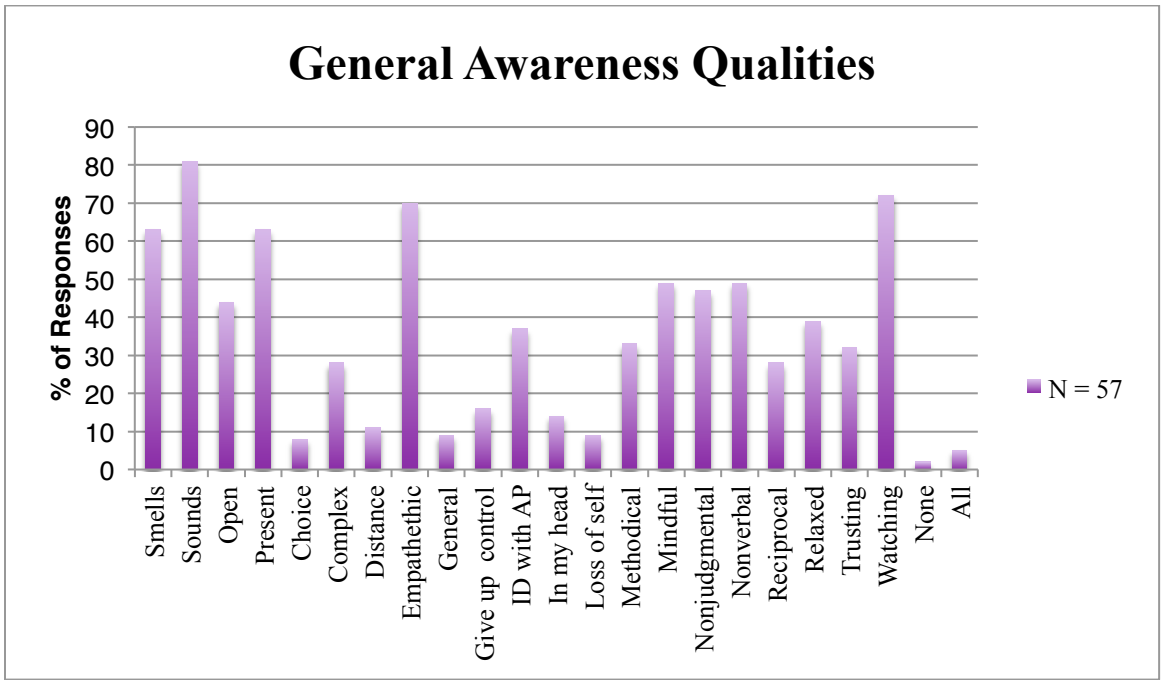

Figure 6. General Awareness Qualities During Work.

The most commonly reported qualities were awareness of noises and smells, watching, being empathetic, and being present from the entire sample (see Figure 6). This question was posed in order to gain better insight into how experiencing intersubjectivity may influence participant's states of awareness when dealing with their animal

participants (see Figure 7). When comparing the differences between these two groups, some variation emerged in awareness.

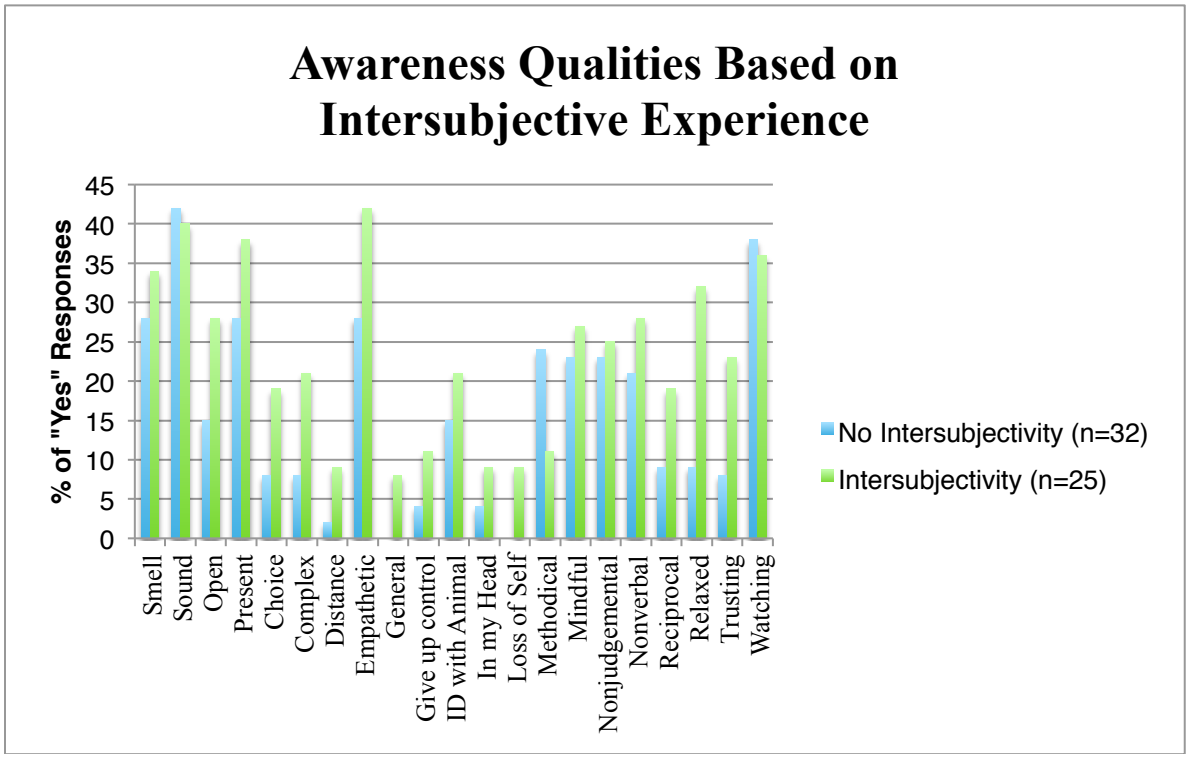

Figure 7. Variation in Awareness Qualities Linked to Intersubjective Experience.

As seen in Figure 7, there are distinct differences in awareness between these two groups. Frequency distribution showed those having experienced intersubjectivity (n=25) characterized their awareness as open, present, relaxed, trusting, and empathetic. They also acknowledge a loss of self and the interaction being complex and a choice. The trend in awareness in participants having no familiarity with the phenomenon showed a strong focus on methodical observation and on the physical senses. Correlational analysis supported these differences by showing some distinction between these two groups even when considering the low sample numbers. Those reported intersubjective experience showed a correlation between the phenomenon and the qualities of open, present, choice, complex, general, loss of self, empathetic, relaxed, and trusting (see Table 2).

Table 2
Awareness Qualities Correlated with Experiences of Intersubjectivity

Awareness Characteristic	Spearman Correlation (2-tailed), n=25
Open	$r_s = .317, p < .05$
Present	$r_s = .279, p < .05$
Choice	$r_s = .291, p < .05$
Complex	$r_s = .329, p < .05$
General	$r_s = .302, p < .05$
Loss of Self	$r_s = .342, p < .05$
Empathetic	$r_s = .374, p < .001$
Relaxed	$r_s = .508, p < .001$
Trusting	$r_s = .367, p < .001$

Interestingly though, several features that both groups of participants reported in high frequency, such as environmental cues perceived by smell and sound were not found to be associated with intersubjectivity.

Risks Associated with Intersubjectivity

Even though human-animal intersubjectivity was found to inhabit a wide array of contexts and species, participants rarely discussed these episodes with their colleagues or friends. Three primary reasons were found for this lack of communication. First, academic environments did not support the relational aspects of working with animal participants and actively diminished its scientific importance. Secondly, they perceived significant professional risk to their credibility and stature. This particular risk held across tenure, setting, and species. Participants who held long-term positions and were

highly regarded in their fields described paradoxes in perception and perceived value from colleagues. Thirdly, the events are regarded as very personal experiences.

These participants summed up the paradoxical and unspoken experience within many academic departments:

> I've seen this many times with engineers and people in the medical establishment that there's this resistance to accepting that biological systems [i.e., dogs] can be better than diagnostic tools or gadgets that took years and millions of dollars to develop. It's a strange divide in people's minds, in the same individual sometimes. Like "Wow, this is cool, but I would never fund that crap." The perception that a lot of my colleagues [have] is they love to stop in the lab and come to see the dogs, pet them and say "Hi." I've heard from others that they think all we do here is play with dogs all day long, so its not serious research. (Professor P, March 25, 2014)

> I feel very close to my wild and captive study animals, not least because I am 100% responsible for their welfare, but I value each and every animal as an individual. However, I don't feel that this is a belief held by many within my department. (Dr. O, August 13, 2014)

> The essence of the concept of sentience is that it changes our entire outlook on animals, and that has to be honored in science and that's not happening. It's the source of all my work. I can't imagine it any other way, and I'm hugely aggravated and upset and angry about the moral primacy that is given to distancing. (Professor Z, April 23, 2014)

This last participant continued by describing the risk associated with scientific training upon the ability to connect with animals that can lead to intersubjective moments. A duality emerged between being authentic to the intersubjective experience with animal participants and the risks associated with discussing these experiences within academia that they actively avoid:

> I was very tired [of being in a natural science department]. My decision to go [on sabbatical] and be a part of a social anthropology department for a year where there was a very strong [focus on] indigenous cultures and relationship with animals…like I thought it would be almost like a homecoming and people would understand me and I would share in [this] holistic understanding [of animals]…none of that happened, it was far harder.

> I think your life path has enormous influence in how you live with that [connection with animals] and perceive it and develop it. So, you grow up with animals or live in an emotionally cold family or if you go through scientific training, all of these have massive effects [upon intersubjectivity]. I think everybody has it [an ability to connect], but I

> also think you can definitely develop it. You can also break it down. I think what happens is, from my perspective, these scientists feel it and see it as much as we do, [and] they have lost the ability to trust that. I believe this personally, although *I never, ever talk about this professionally* [emphasis added]. (Professor Z, April 23, 2014)

The last reason given for not sharing intersubjective experiences with others was due to its personal meaning, revealing a conscious decision to avoid discussion with colleagues all together. As recalled in this account from an online participant:

> To be honest, it is the kind of thing I will share with my friends, but not something I will share as a rule with my colleagues. Even with my friends I will not share it often, but rather treasure it for myself. I am more likely to take people into the wild to experience it for themselves than talk about it. (Dr. O, August 13, 2014)

Narratives revealed strategies that commonly incorporated limited or no discussion of intersubjectivity within the academic community. To examine this trend of risk, data from two male participants who identified themselves as having openly discussed the topic with colleagues were further analyzed. Their responses revealed that they actually focused on the topic of sentience, not intersubjectivity. Therefore, results showed that nearly all participants actively avoid discussion of the phenomenon due to perceived risk.

Gender Differences in Scientific Practices

Due to the large number of female respondents to the online survey, it was worth noting how gender may play a role in episodes of intersubjectivity. In order to evaluate how representative this sample was to the larger academic population, gender distribution rates reported in the anthrozoological literature were compared (Uttley, 2012). Uttley (2012) reported that women comprised 57% of all first authorships in the peer-reviewed interdisciplinary journal *Anthrozoös* between 1987-2011. When trying to contrast this study's online gender distribution with professional and academic organizations, it was found that very few actually collect this data. The only organization contacted that had this information was the U.S. section of the International Society for Applied Ethology that stated just under 70% of its members are female (M. DeMello, personal communication, October 10, 2014; M. Makagon, personal communication, October 14, 2014).

This gender distribution was also associated with significant changes in scientific behavior. Phenomenological analysis showed the majority of men experienced a significant intersubjective moment best described as an epiphany that resulted in substantial changes in scientific methodology and practice. It was during these spontaneous intersubjective moments that they heard the *animal during* and responded empathetically. When male participants heard or felt the animal's voice this resulted in dramatic changes in behavior. These alterations in behavior were characterized by departures from invasive methods to noninvasive approaches like fieldwork. A male interview participant who had been conducting neurological testing on cats described this shift:

> We'd put electrodes and remove part of the brain and then test them [to see] the impact on neurosurgery techniques in humans. I think ["Kitty"] was my fourth cat to test and they said euthanize him. I went to get him out of the cage and he locked eyes with me. He would not stop looking at me.
>
> I felt he was saying, "Why are you doing this?" I just stopped and I said "I can't do this." I just quit. I didn't make a big fan fare about it. I just decided I did not want to be in the program anymore. I left the program because I didn't want to do that anymore and I didn't want to train myself to spend the rest of my life torturing animals. (Professor D, March 13, 2014)

From the online data, another male participant echoed similar shifts in awareness. His response to the question, "Please briefly describe this significant experience with an animal that changed your perception or behavior," was:

> In my early research, I studied the effects of frightening and frustrating animals (mainly poultry species). This was with a view to being able to avoid frightening and frustrating situations in practice. The significant experience was how long animals remember the person who has inflicted the stress.
>
> The animals communicated to me that the things I was doing to them had a huge negative effect on their well-being. They had a memory of it for a very long time AND they associated me with the negative effect. This made me reconsider my approach to studying welfare and developed methods of 'asking' the animals. (Dr. R, August 22, 2014)

In addition, qualitative analysis revealed several descriptions of psychosomatic responses in male participants that lead to significant alterations in behavior. As shown in this account:

> When I was exposed [to] neuroscience [in the laboratory] I used to do fairly invasive research on rats. I studied neurotoxins in rats and fish later. I had rats during neuro-toxic surgery waking up in the middle of the surgery; that's not pleasant. More frequently, rats [were] dying of infection following the surgeries, [having] seizures. I was basically feeling actual physiological manifestations or symptoms of stress. Gastro-intestinal issues and things like that.
>
> I was starting to get sick out of doing this stuff. It's empathetic in a sense that I felt for the rats, and it was making me feel very uncomfortable. That's what really helped me to think it [wasn't] worth it. The project was eight months and when I finished it, I said to my supervisor, 'I'm done with this kind of neuroscience. I'm not doing this again.' After that I started working in the field. (Professor P, March 25, 2014)

These accounts by male participants were remarkably different from their female counterparts in that none of the interviewed or surveyed women described their work

histories as having practiced invasive methods. Instead, women reported a higher frequency of meaningful experiences with their animal participants that happen over a longer period of time. These intersubjective experiences tended to reinforce existing beliefs and practices. Online responses were:

> "Most of my experiences with animals change my perceptions and behavior." (Dr. S, August 16, 2014)
>
> "This is one of many…" and "Too many to note here…" (Dr. T, August 5, 2014)
>
> "There are many – they occur almost every day." (Dr. L, August 24, 2014)
>
> "I worked with a tiger at a small zoo. Actually she initiated our relationship. Although I had previously interacted with and studied animals of several species, this tiger confirmed and strengthened my views and commitments." (Dr. U, August 23, 2014)

Similarly, responses in the interviews supported this theme. Like these:

> "I experience animals as equal subjects." (Professor Z, April 23, 2014)
>
> I've always had the vibe. I always have felt like I knew what was going on with them; I have always kind of spoken for them. I think from a very early age I always considered that they were just differently-abled beings with whom we could connect. (Dr. H, March 31, 2014)

This difference held even when controlling for setting, such as in this account from a woman working in a laboratory. Yet, unlike her male counterparts, the resulting modifications in practice and methodology were based upon what she objectively saw in the animals, not through intersubjectivity or hearing the animal's voice.

> I once hand-reared three litters of animals, which were destined for the laboratory for my own behavioural studies. After moving them into the laboratory and watching their psychological health deteriorate this has changed my entire perspective on the use of animals in research. I have turned vegan and actively campaign against the use of captive animals in research. (Dr. G, September 2, 2014)

As seen by these accounts, descriptions begin to suggest that the women and men sampled in this study entered animal-focused science from distinct pathways. Women participants were inclined to not engage in invasive methods, whereas the men typically referred to significant intersubjective experiences that happened during invasive methods that were linked to shifts in their behavior and scientific practices.

Animal participants. The species cited by participant's spanned vertebrates and non-vertebrates within multiple settings. Scientists mentioned lizards, ants, wolfs, birds,

fish, rats, turtles, primates, pigs, cows, dogs, horses, tigers, and others. These animals were from a wide range of habitats and ecological settings. Many lived in natural free-ranging systems with others in semi-closed systems, completely structured and captive, and even preserved states in museums.

In order to define the influence of certain contextual aspects, work settings and disciplines were examined for potential associations. Two-tailed Spearman correlational analysis showed no associations between experiences of intersubjectivity and any work settings (i.e., laboratory, field, or zoo). The lack of relationship to setting was interpreted as supporting the relational qualities between and within individuals, rather than the ecological context.

Summary

Human-animal intersubjectivity has been shown to be an evolving, dynamic relationship. It is an experience that is defined by four inter-connected stages where individuals create a shared mindfulness that is enhanced through synchronized movements. This joint corporeality imbued participants with a sense of intrinsic belonging that is then associated with transcendental properties. This sense of belonging to and of the world resulted in a transcendental awareness of the inter-connected relationship between humans and animals. This transcendental shift in awareness supported greater understanding of the animal's lived experience by scientists. Human-animal intersubjectivity is based upon innate abilities that lend themselves to be developed, resulting in shifts in attitudes and scientific practices that invite reoccurrence of the phenomenon.

Results also showed a range in depth and awareness of each stage as well as the phenomenon itself. This variation in descriptions revealed that not every participant experiences the same level of awareness in and of intersubjectivity. Descriptions ranged from deep, insightful reflections to those of a more general awareness. Analysis also found intersubjectivity to be a constantly evolving and dynamic phenomenon. Not only was each phase dependent upon the others, but also each theme could be experienced at various depths. These fluctuations in phase experience resulted in a phenomenon that seemed to further develop over time. Analysis supported this dynamic model of scientist-animal intersubjectivity and additionally identified the areas of proximity, similarity, closeness and embodied awareness as key elements showing promise in determining how intersubjectivity is cultivated between participants. All four elements were found to be positively associated with each other and the occurrence of intersubjectivity.

The differences in participant awareness states suggest that as scientists become better able to identify and allow themselves to more fully experience intersubjectivity moments, the associated shifts in movement and awareness become more frequent, transparent, and reinforced. These shifts were associated with change in daily awareness states that were characterized as being open, receptive, and holding a non-dominating stance towards animals where "seeing the individual" is central to all animal interactions. Quantitative analysis confirmed differences in certain awareness qualities that were attribute to experiences of intersubjectivity.

Finally, examination of responses revealed that those who have experienced intersubjectivity perceive significant professional and personal risk that result in active avoidance techniques. Many of these participants reported distorted perceptions by

colleagues of their relationship with animal participants that exposed an unspoken subjugation amongst scientists, regardless of field of study. The repression felt by these participants illuminates the daily challenges presented to those scientists who strive to be authentic to the animal's voice, who must also be cognitive of the daily risks associated with such scientific behavior in their work environments.

Chapter 5: Discussion and Conclusions

This chapter presents the results from the study and discusses the important conclusions drawn from the results presented in Chapter 4. Limitations and the implications of the findings, particularly those of the phases of joint mindfulness, synchronized embodiment, intrinsic belonging, and transcendental awareness that the phenomenon comprises are explored. Discussion of the identified precursor variables of proximity, similarity, closeness and embodied awareness will show how they relate to the variation in awareness states reported in scientists. Furthermore, I review how these results relate to the literature and implications for further research and action.

Limitations

Using the evidence from ethology and neurology to provide support for the occurrence of human-animal intersubjectivity, how well the present findings can be generalized must be addressed. In order to lend greater creditability to the results that are challenged by sample size, it was believed that by exploring intersubjectivity specifically with scientists, responses would contain a certain amount of control for anthropomorphic interpretation that would otherwise significantly challenge generalization. Although the intersubjective sample from the online survey was small (n=25), the richness derived from the interviews paired with the level of expertise offered by recruiting scientists as the sample imparts improved integrity and reliability toward some generalization.

As mentioned in the first chapter, there were areas needing extra attention due to their potential influencing of the results. First, gender bias was towards females due to their higher presence in animal-focused publishing. Therefore, equality of the sexes was controlled for in the interviews. Online responses followed typical norms for gender differences with more women responding than men. Yet, statistical analysis showed no correlation between gender and the occurrence of intersubjectivity in this sample. A larger and more diverse sample would be one way to verifying the results.

Despite women responding in greater numbers to the quantitative phase, this difference may be related to the topic under investigation. Since the topic of intersubjectivity is one rooted in emotional and somatic features, it may simply be that women felt more comfortable answering the questions. Whereas the men may have felt less inclined to do so because of cultural or societal pressures that tend not to allow men to express themselves as openly as women in Western countries. This cultural bias does not negate the fact that women are the minority in academia and hold relatively few positions of authority in college departments. The difference in response rates could be attributed to this existing inequality. As such, women may have identified with the position of subjugation of the topic and responded in solidarity.

Speaking from personal experience as a woman and the many years of professional work doing clinical animal psychotherapy within families, it does seem pertinent to address the female perspective on how understanding is achieved. Women see the world and their lives through a state of inter-related relationships (Gillian, 2001) that would lend them to use qualities that would assist them in this endeavor, qualities such as openness, trust, presence, empathy, and feeling relaxed that were reported in the results. This does not imply biological difference between the genders, but that women

in general may reside along a spectrum of intersubjectivity that tends to present opportunity for the phenomenon to occur more easily. This argument could answer why women and men presented variation in the contextual features (i.e., laboratory vs. field work) in their accounts of intersubjectivity.

Another issue that limits the generalizability of the results is sample size. Ideally, any researcher strives to recruit large samples to address variability within the population. Recruitment for this project spanned four months for the interviews and an additional four months for the online portion. Although recruitment time was deemed adequate, practice showed competition existed between the necessary allotment of time to participate and the multiple responsibilities of academics. Since participants represented a vast array of professional expertise and backgrounds, the issue of sample size in the qualitative phase was minimized. The smaller sample in the first phase allowed for greater, richer detail and exchange with participants to draw out the complexities of human-animal intersubjectivity that a large-scale quantitative study would not be able to offer.

Likewise, the responses from the survey showed professional and geographical variation that was sought to allow differences to emerge in the data. Future investigation should account for challenges in recruiting scientists by determining breaks in teaching schedules to reduce competition for attention. Lastly, the limitations of time and finances were directly impacted by dissertation expectations and boundaries.

Replacing Objectivity's "Moral Primacy" with Intersubjectivity

Humans and animals have been working and living together for tens of thousands of years, yet little attention has ever been placed on understanding what moments of oneness reveal about our character, our beliefs, our attitudes, or how they define the practices and animal questions we seek to answer. How we come to experience the animal other defines species boundaries and influences ethical structures and welfare regulations.

These fundamental aspects of society have typically relied upon evidence from practices of detachment and objectification in order to develop parameters for the animal's subjective, lived experience. These objective methods typically subjugate the evolving relational qualities of human-animal relationships, especially those drawing attention to the inherent issue of power and perception that resides in these interactions. It was the deep appreciation of these risks and vulnerabilities intrinsic to the human-animal relationship that propelled the current study.

Scientific understanding of the complexities occurring within human-animal relationships is gaining interest by some areas of academia, yet the role of how the animal herself plays in this understanding is still being debated. To address the limited research on scientist-animal intersubjectivity and its association with scientific behavior, the present study investigated how scientists experience the emergent phenomenon of intersubjectivity with their animal participants and identified the variables associated with its occurrence. Moreover, results identified the emergent transformative qualities that resulted in shifts in awareness that produce opportunities for changes in scientific practices.

In order to tackle the complexity of the topic, an exploratory mixed-method design was employed in two sequential phases. The initial phase used a

phenomenological approach to identify and define four inter-related stages participants' transition through during the experience of human-animal intersubjectivity. These dynamic stages were termed joint mindfulness, synchronized embodiment, intrinsic belonging, and transcendental awareness.

Following arguments within the literature stating that phenomenological approaches are more acclimated than ethnographic or case studies due to the emergent and reflective qualities in human-animal relationships (Burghardt, 1991; Churchill, 2007; Dutton, 2012; Sanders & Arluke, 1993), the present study employed qualitative interviews in the first phase and an online survey in the second. The online instrument used Likert scale questions, open-ended questions as well as questions posed in the form of check lists presenting descriptions of intersubjectivity from the interviews in order to elicit data in various forms and perspectives.

Utilizing an exploratory design proved advantageous in collecting rich descriptions, as well as unique responses previously unrecorded. The additional facet of this strategy that proved to be valuable in attaining atypical responses was that of posing a free association question to interview participants. This particular question seemed to allow participants greater creativity in answering how they would describe intersubjective moments that delivered visual and auditory descriptions not present in the initial data collection. By allowing a reflective space, responses took on somatic and emotional forms of expression experienced in human-animal intersubjectivity such as these:

> "A deep blue color, harmony in the sound, and a calm sea wave coming and going." (Professor W, August 26, 2014)
>
> "Intersubjectivity between the horses and I feels like a benevolent, encompassing warmth." (Dr. H, August 26, 2014)
>
> "Like jazz, it is sometimes discordant, but usually lively and stimulating." (Professor F, September 11, 2014)

Data from the free association responses created a deeper understanding of the experience of intersubjectivity that transcend normal verbal descriptions bound by behavior and place (Shapiro, 1990). Instead, they depict varying perspectives of intersubjectivity that could be used as pathways for future investigation.

The second phase of the study quantitatively supported the initial phase's findings and also discovered four potential variables associated with intersubjectivity's occurrence. The inter-related aspects of proximity, similarity, closeness, and embodied awareness showed moderate association with the occurrence of human-animal intersubjectivity. In evaluating the prevalence of intersubjectivity within academic settings, it was found that almost half of those surveyed reported frequent experiences of intersubjectivity in their work. Surprisingly, intersubjectivity was not associated with work setting or species. Rather, it appears that intersubjectivity's emergence relies upon certain qualities within awareness that are related to the embodied and reciprocal aspects of the human-animal engagement.

By contrasting the "moral primacy" (Professor Z, April 23, 2014) placed on distancing in today's scientific culture with that of intersubjectivity, a broader picture is presented of the human-animal relationship. Scientists who experience intersubjective

moments with their animal participants show a greater appreciation and awareness of the multiple facets related to working with animals that support re-experiencing of the phenomenon. The findings from the present study add to the literature by providing empirical evidence to support the dynamic stages of human-animal intersubjectivity (Churchill, 2007; Dutton, 2012; Shapiro, 1990).

The study further discovered a set of precursor variables associated with the occurrence of intersubjectivity. These associations lay out the relationship among the four variables of proximity, similarity, closeness, and embodied awareness as well as their link to experiences of intersubjectivity. Lastly, data collection and analysis provided evidence for two additional phases of intersubjectivity itself, those of intrinsic belonging and transcendental awareness that together identify the emotional elements missing from the literature (Dutton, 2012; Sanders & Arluke, 1993).

Transcending Empathy: A New Mindfulness of Animals

Previous understanding of intersubjectivity has framed the topic as a reciprocal, shared reality with somatic features where both individuals come to experience and understand the other through mutually created movements, habits, and awareness (Buber, 1970; Churchill, 2007; Dutton, 2012; Sanders & Arluke, 1993; Shapiro, 1990). The three most prominent ways of understanding the phenomenon that influenced my interpretations are Scott Churchill's (2007) empathetic imitation, Diane Dutton's (2012) modes of embodiment, and Kenneth Shapiro's (1990) kinesthetic empathy. All three authors provide meaning and understanding of the animal Other through different forms of embodied awareness.

His descriptions of being "locked into the moment" and "caught under the spell" resemble those cited by participants in the current study during the phases of joint mindfulness and synchronized embodiment. This sense of giving up control or letting go is also represented within Dutton's (2012) initial state of embodied attention. She similarly describes this state as a "shift in attention that manifests as an increased awareness of one's own or another's bodily state, together with a reflection upon this awareness" (p. 99). She contends this mutual understanding is a visceral process in which one becomes attentive to different aspects of embodiment, which she further identifies as *attunement* and *transformation*.

Like Churchill's (2007) definition of intersubjectivity that is bounded by physical movement, Shapiro (1990) argues that access to the lived experience of the animal is by mutual acknowledgement of shared bodily expression best understood through the human's reflection. He additionally argues that animals, using his dog Sabaka as his subject, are place-dependent in defining who they are and how they experience life. His illustrations describe Sabaka's experience of play as "prelinguistic, nonreflective, sensori-motor judgment . . . an intelligence consisting of know-how, again, or possible moves" (p. 5). Although this focus upon environment as a facet of the animal's embodied self has a role in welfare and ethical considerations, it seems only a modest move away from behavioral interpretation. The lack of attention in Shapiro's description (1990) drawn to the inherent power dynamics between animal and human, and the potential gender influences seems limited in its scope and generalizability from the perspective of feminist theory. His analysis is done in reflection of his dog's expressed behavior and is limited by the 'give and take' view of this relationship. His discussion seems to define

intersubjectivity as a mutually constructed reality, but the Other is only understood through human self-reflection.

It is here that I argue that the evidence shows the development of a mutual state of "we" that is not limited to simple absorption into the projects of the Other, nor limited to reciprocation. Instead, the current findings suggest that scientists and animals elicit and maintain a joint sense of oneness that for humans transcends beyond their daily self-reflective state. This reciprocal aspect of joint mindfulness and synchronized embodiment points toward the use of empathy by both individuals in order to develop and experience intersubjectivity and not bind it to one-sided understanding.

The limitation of kinesthetic empathy (Shapiro, 1990), as a complete method for understanding the animal's lived experience, is that interpretations derived from this practice would presumably present different perspectives based upon setting and species since the animal is viewed as being defined by place. Instead, I argue that kinesthetic empathy (Shapiro) and embodied attention (Dutton, 2012) represent the initial somatic understanding of the complexity that is human-animal intersubjectivity.

It may be that this inter-related complexity of intersubjectivity method for understanding the animal's lived experience, it that interpretations derived from this -constructing meaning between species that propels scientists beyond place and somatic features. Furthermore, the findings from the present enquiry provide expanded descriptions of somatic features, but more importantly attenuate to the emotional and transcendental features of intersubjectivity that have been lacking in previous explanations (Churchill, 2007; Dutton, 2012; Sanders & Arluke, 1997).

The discovery of intrinsic belonging and transcendental awareness phases of intersubjectivity point to a multi-layered experience of the phenomenon that proves to not only connect participants in somatic experience, but also provide expanded forms of perception and knowledge of the animal. For example, the literature places empathy as the key element necessary for understanding another's experience (Barrett, Lane, Sechrest, & Schwartz, 2000), but the quantitative results in this study showed trust was identified more frequently with episodes of intersubjectivity. This minor change in perception of intersubjectivity suggests that other qualities, like trust, openness, and being relaxed exist between human and animal participants that probably have a larger role in cultivating and maintaining intersubjectivity than previously thought.

Churchill's (2007) and Shapiro's (1990) use of embodiment either in reciprocation or imitation relies upon the use of empathy. Both use the body as the basis for interpretation; whereas, Dutton (2012) focuses upon shifts in awareness that additionally incorporate embodied facets. Placing Dutton's interpretation of intersubjectivity as a phenomenon initially developed by the mind that is the basis for understanding the animal Other. The phase of joint mindfulness resembles Dutton's awareness states of embodied attention and attunement by scientist's characterizations of "seeing the individual."

This facet also corresponds to Churchill and Shapiro's focus upon the animal's bodily expression as the means for co-created awareness. All interpretations and descriptions of human-animal intersubjectivity in the literature are founded upon the concept of awareness (Churchill, 2007; Dutton, 2012; Sanders & Arluke, 1993; Shapiro, 1990). In contrast to this term, I contend there is a distinguishing difference between participant descriptions of mindfulness and awareness that have gone unnoticed in

previous interpretations of intersubjectivity and it is this reliance upon awareness that I draw attention to now.

In order to capture the nuances within the descriptions, the term mindfulness reveals not only a reflective component of one's present moment experience, but sets a different approach in understanding the animal's experience that additionally draws upon the emotional aspects of relating. Analysis revealed a difference between states of awareness and mindfulness by participants. This distinction was shown in the results by several illustrations by scientists identifying mindfulness states in their animal participants that included emotional facets as in these descriptions:

> So pigs have an incredibly strong personality, they all differ but there was this one pig that just sort of walked up to me and stood. And it sort of cocked its head and looks at me very intently and was so sweet. I was so incredibly struck by the presence of that pig. Its like the sweetest little girl walking up to you and looking at you with this incredibly warm, surprised, benevolent gaze and stood. And it sort of cocked its head and connection of that being looking at me and me looking back. This pig stopped and it looked and it really intently focused on me with this absolute, completely benign, gentle, kind look. (Professor Z, April 23, 2014)

> He looked at me. We just locked eyes. He would not stop looking at me They basically ease into you, its almost like they lean into you when they trust that you're not trying to manipulate them. (Professor D, March 31, 2014)

Contrasting with the emotional elements in mindfulness definitions (Williams & Kabat-Zinn, 2011), awareness depicted in the intersubjectivity literature (Churchill, 2007; Dutton, 2012) encompasses reflection of one's surroundings and the others that may inhabit it, but do not necessarily state that one is conscious of the emotional aspects of the experience. Mindfulness incorporates the mental, physical, and emotional complexities that inter-relate in the present (Kabat-Zinn, 2005; Ludwig & Kabat-Zinn, 2008; Williams & Kabat-Zinn, 2011). Mindfulness holds a reflective embodied quality mentioned by Dutton (2012), yet arguably it is more authentic to the dynamic or systems view of the dimensions of mind, body, and emotion that intertwine in intersubjectivity.

Present findings also featured the subtle synchronization characteristics of embodiment that had not been discussed in the literature. Churchill (2007) described embodiment based upon imitation of gestures, and Shapiro (1990) similarly reflected upon reciprocity. This dissertation study maintains these initial facets of the phenomenon, but narratives go further to describe a shift out of this give-and-take form of interaction and into a nonverbal sense of "knowing." This sense of knowing was not described as being bound by a shared history, repetition or habits that previous definitions acknowledged. Rather, this deeper sense of knowing resembles the characteristics of intuition, premonition (Dossey, 2009), and flow (Csikszentmihalyi, 1990). Using the characteristics of intuition, flow and premonition to authentically represent this sense of knowing experienced by scientists during moments of intersubjectivity, reframes this concept to hold multiple levels of embodiment and awareness that exist, and where the

literature only presents a basic understanding of how movement reflects this inner sense of knowing.

Through habits and shared routines, one becomes accustomed to the other's movements well enough to predict or anticipate the next. Shapiro (1990) describes this in his dog Sabaka who was "concernfully absorbed" (p. 4) in his actions and general state and as a result how Sabaka would correspondingly adjust or respond with his body to that of the author's. Shapiro's description seems limited to a behavioral assessment of this bi-directional awareness. Furthermore, this account seems to only describe the initial stage of intersubjectivity where individuals interact through general awareness of the other and choose to reciprocate.

Developed from Shapiro's general reciprocal awareness state of the phenomenon, the deeper sense of knowing that was presented in the current findings explain how participants use reciprocal interaction to shift into a state of synchronized flow that accompanies this deeper sense of knowing. This deeper state of flow between individuals represents an alignment of movements that arise from intuition that looks and feels like effortless harmony and unison. This flow and unison in movement seems to allude to a shared state of mindfulness between animal and human participant in which each bases their future reactions. Accounts of this aspect were readily depicted in human-equine interactions where the impending actions of the horse were intuitively known prior to the occurrence of the event:

> How did I know to turn my head at just a point in time when my horse saw the snake and was going to run blind and I needed to let go of the rope? I'm not sure that those are the kinds of things that usually flow up to the conscious level. I think they might be operating at a level below and therefore it's very visceral. (Dr. H, March 31, 2014)

An unexpected finding was that when animal participants were believed to be behaving mindfully themselves by scientists, this change in attention and demeanor seemed to provoke a deeper, grounded sense of the mind-body connection in their human counterparts. This grounded sense of one's self had the noteworthy effect of aligning interpretation with the actual animal experience, rather than objectifying it, which can run the risk of anthropomorphic or detached forms of interpretation. Two online participants describe this deeper mind-body awareness as:

> Being able to tune into the animal's body and then my body to be able to sense and feel clearly is important in order not to have projected thoughts and feelings. "Sensing at no distance." (Dr. X. August 22, 2014)

> I notice extremely "mindful" state in other animals. For instance, there is a look of intense concentration and I believe pleasure in their [chickens] eyes and faces when they are sun bathing. Their savoring reminds me to tune into my body…I [become] aware of my use of my own senses. (Dr. A, August 23, 2014)

This mindfulness state showed several positive differences when compared to general awareness states in those participants who had no prior experience with intersubjectivity. Participants who had experienced intersubjectivity had higher frequencies of empathy, trust, relaxation, and openness than those with no familiarity with intersubjectivity. They viewed intersubjectivity as an interaction holding the qualities of choice and complexity, thereby allowing opportunity for the animal's expression to be integrated. Those having no experience with the phenomenon reported awareness having greater focus on the methodical and physical senses more commonly associated with objective methods. These distinctions support the argument for mindfulness and highlights how animal-based beliefs influence interaction and interpretation of animal behavior.

As I proposed in Chapter 1, beliefs and perceptions of animals play a role in scientific behavior and thus ethical and philosophical debate. There is an exchange between science and animal ethics that has been recognized, but little attention has been drawn to how these biases shape the debate beyond the topic of sentience. Findings from this dissertation highlight variability among individuals based upon intersubjectivity that is associated with practices that conform to their beliefs. Those who described animals as objects (i.e., "it") typically described objective methods of inquiry that were associated with general states of awareness. This objective or distancing language emerged in this interview response when questioned about how they felt during regular day-to-day interaction with their animal participants versus laboratory experiments:

> I think the problem I have with your question is that word feeling. I don't really feel in that sense because I'm working. I mean there's no feeling in that from a personal sense. So if I'm checking my animals in the morning, I'm working, I have a job to do, but I don't really feel anything. I don't really feel anything when I'm doing the experiments because I'm concentrating on the action, what's going on. (Professor C, May 19, 2014)

This same participant's additional description highlights the differences in language use when talking about a family dog:

> These past [sic] years obviously had an effect on me so how I pet a dog or how I play with one or what sort of interactions I initiate with the dog and so on…I am the type of scientist that, for me, the animals are still sort of the challenge so the object, if you like, and that's in the sense what I want to understand.

As the interview progresses, the narrative reveals a duality in the interaction and perceptions of animals based upon setting that those familiar with intersubjectivity did not have:

> Its [my relationship with work animals] very different form when I come home. Immediately I forget. I separate the two things completely. It's a dog, which I can pet, he looks at me, I like him and then both dogs are more like if you look at a child. If you are a psychologist during the day

> and you see those cranky babies, testing them in different experiments, but then you go home. You don't see your child as an experimental subject. I don't take work home. So that's the real difference for me with the dog. Its easy because it happens…the dogs are cute…they immediately have this affect on me, so it clicks off.

Thus, the relationship between objective beliefs about animals seems to positively correspond and reflect objective forms of knowledge. This link between language and methodology trended across those having experienced intersubjectivity. Participants who recalled intersubjective moments characterized animals as complex whole beings who were identified as distinct individuals through the use of "she," "he," or "they." Descriptions from these participants showed an awareness or mindfulness of the animal that bore focus upon the subtle shifts in human-animal engagements that lead to intersubjective experience.

Similarly, their awareness states were characterized by qualities of relaxation, choice, reciprocation, and being in the present moment. Since these individuals were more open and trusting of the animal in the interaction, I argue that their understanding of the animal would be more comprehensive and authentic of the animal's experience. Thereby, providing a richer basis for dialogue in ethical and philosophical discussion because the animal voice is acknowledged and attenuated to with less bias.

The argument for using intersubjectivity, as a means for greater animal-focused understanding is further supported by the emergence of the last two phases of intrinsic belonging and transcendental awareness. These two stages provide insight into the relationship between emotion and holistic appreciation. As stated previously in Chapter 4, participants believe that intersubjectivity is a shared intrinsic property. These results further positioned current understanding of intersubjectivity as a spectrum of experience that includes why some scientists experience the phenomenon and others do not.

Interpretation of the findings situates intersubjectivity as an innate ability subject to the influence of societal norms and practices. It is an ability that could be enhanced and developed as much as running the risk of its eradication. The variability among individuals having experienced the phenomenon and those who have not could be understood as a consequence of cultural pressures and expectations unrelated to biological differences. For example, gender is commonly associated with norms for public expression of emotions. In Western societies, females usually are allowed this expression in public more than males. Overlaying this cultural norm to the results, it could be that males tend not to report the phenomenon as frequently or experience it as differently due to the influence of societal expectations that are present within the scientific culture.

Even though gender was associated with distinct pathways to intersubjectivity, these dissimilarities may be better understood by viewing human-animal intersubjectivity within a spectrum that considers cultural norms as well as biological differences. Ends of this spectrum range from infrequent, basic experiences of intersubjectivity to frequent, deep intersubjective moments with animal participants. Seen from this alternative viewpoint, individuals may inhabit any position along the spectrum at any particular time; and each position along this spectrum is understood through the interconnected relationships that human-animal intersubjectivity comprises.

Mirroring this bias in the scientific community, we see that methods of investigation focused on animals have been predominately shaped by objective interpretations where the animal has no voice and emotional components are rarely encountered. Counter to this cultural influence is the finding that nearly half of those studying animals experience intersubjective episodes that change their appreciation of animals and the world around them. Interpretation of the last two stages of intersubjectivity, that of intrinsic belonging and transcendental awareness is that when one moves into the emotional state of intrinsic belonging people relinquish feelings of detachment and isolation.

The emergence of intrinsic belonging is accompanied by the appearance of hidden innate feelings of attachment to the landscape and other animals. Where being alive is no longer an isolated experience, but instead an embodied collective sense within relationship to those around them. From this point of view, intrinsic belonging then describes an emotional progression beyond identification with just one animal participant, but a shared identity with an entire animal community that encompasses animals beyond the current setting. This inclusion of emotion is important in understanding variation in the experiencing of intersubjectivity as well as its influence upon scientific behavior.

The resulting feature of intrinsic belonging is an expanded view of one's place in the world, which seems to allow the progression of transcendental awareness. This last phase of intersubjectivity unravels the embodied self to position it into a new unified, unbounded sense of awareness. This expanded transcendental state shares similar characteristics and qualities previously described by nonlocal mind theorists, were understanding is experienced collectively and simultaneously by individuals (Bischof, 1998; Dossey, 1982). As a result, participants describe a state that challenges their current beliefs and attitudes about animals. As in the words of this participant:

> They help me, as a scientist and as a non-scientist to look at the world that's around me with different eyes. They force you to rethink completely your environment….to see things that you would have ignored. (Professor P, March 25, 2014)

Good News for Animals

One of the primary reasons for conducting the present study was to explore whether intersubjectivity may reveal the animal's voice and if so, how do these experiences relate to changes in scientific behavior. It was shown that the animal's voice is experienced more holistically during intersubjective moments, and it seems to influence conscious shifts in scientific practices that are positive for the animal.

When participants altered their scientific methods, they shifted toward practices that tended to present further opportunities for intersubjectivity. These changes in practice were characterized by discontinued use of invasive practices toward methods of inquiry that were non-manipulative and afforded greater freedom for the animals and variation in how scientists engaged with their animal participants. These changes in work setting and practice resulted in further opportunities for human-animal intersubjectivity. Considering these changes from the animal's perspective, it seems paramount to support

and explore how these shifts in scientific practice and belief can assist research in developing an active approach that respects the animal Other as an equal partner.

Even though it is still debated if a human can know for sure what an animal experiences and vice versa, part of the purpose of this dissertation was to lay the groundwork for discussing how cross-species understand takes place and its influence upon scientific behavior. Examination of the responses from both interview and online participants mirrored the documented evidence from ethology that show animals purposefully synchronizing their actions with other animals (Bekoff & Jamieson, 1996). This observed synchronization across and within species seems to provide the essential capability needed to support the joint mindfulness and synchronized embodiment phases of human-animal intersubjectivity.

Since nearly all participants shared perceptions of significant professional risk associated with conversing about intersubjectivity, it seems prudent to speak to this unspoken bias. If scientists choose not to disclose meaningful information due to predispositions or prejudices, society misses opportunities for personal growth as well as for those animals dependent upon human perceptions of them. Granted that feminist theory has highlighted issues of subjugation and it is logical to assume that nearly half of all animal-focused scientists experience intersubjectivity with their animal participants, the academic community needs to attenuate on how best to reduce the risks associated with disclosing this information. Current academic culture maintains its partiality toward detached forms of knowledge construction so strategies aimed at changing this power dynamic may need to explore alternative methodologies that reinforce the individual's worth and value in sustaining scientific advancement.

Inclusive strategies that assist scientists who have experienced intersubjectivity to communicate and discuss its role and value toward advancing human and animal knowledge at the departmental and university level would begin to challenge current animal practices that inhibit innovation and creativity. Comprehensive strategies that include the analytical, emotional and somatic features linked with risk and exposure could create a safer platform for meaningful dialogue at the organizational level. In addition, if more scientists were actually supported in using qualitatively driven methods, our understanding of an animal's individual needs and desires could rise to the forefront in making decisions concerning his or her health and well-being.

From this action-oriented view, the documented descriptions of psychosomatic symptoms associated with the practice of invasive research show another avenue holding promise. Based upon the findings reported in the present study, many scientists eventually come to associate the status of their own health with that of their animal participants. By helping to reduce or alleviate the suffering and stress these particular scientists experience, the health and well-being of the animal participant may be re-evaluated from a personal basis that may then lead to advantageous changes for the animal.

Areas for Further Exploration

As women continue to show rising academic numbers in animal-related disciplines, the scientific community would be well served to acknowledge the changing needs and interests of this majority stakeholder. New anthrozoological and animal studies degree programs continue to be established across the globe that elevates human-

animal interaction to the forefront of discussion and investigation. The review of the literature shows the limited knowledge and attention on how meaning is jointly derived across species boundaries, yet significant decisions are made for animal individuals on a daily basis without their voice (Churchill, 2007; Dutton, 2012; Sanders & Arluke, 1993; Shapiro, 1990). Current results identified four key aspects warranting further research.

First, exploring intersubjective moments experienced by human-human pairs, human-landscape pairs, and human-flora pairs would further understanding of intersubjectivity itself. By using a multispecies approach that encompasses global relations with the natural world, current interpretation of intersubjectivity would be greatly improved. Ideally, this multispecies approach would reflect upon the cultural influences that may illuminate various ways to elicit the animal voice presently undocumented.

Second, by utilizing an exploratory mixed-method design, several new emergent aspects of intersubjectivity were found and verified that would not have been possible using only one methodology. Embodied and somatic characteristics from the literature were supported and expanded by the addition of emotional features characteristic of intrinsic belonging and transcendental awareness (Dutton, 2012; Shapiro, 1990). Future research utilizing pluralistic and qualitative approaches would continue to develop our understanding of the intrinsic relationship between intersubjectivity and human-animal interaction in general. In reflection, by employing strategies that continually mixed both approaches throughout the project, analysis and interpretation were more robust, corroborated and provided opportunity for subtle characteristics to emerge that probably would not have had the data sets been examined as isolated projects.

The continuous attention to the communicative aspects of this design revealed challenges in the subtle aspects of mixing and analysis needing supplemental training that was sought through academic communities networked across the country and abroad. This unexpected element drew attention to the need for advance methodological training should researchers choose this design. By experiencing these challenges established biases and limitations placed on researchers was emphasized and the resulting appreciation for innovative approaches necessary to appropriately handle the multiple facets of communication and understanding that exist in interspecies research was realized (Bazeley, 2013; Frost, 2011; Nagy Hesse-Biber, 2014; Warkentin, 2010). In order to attend to this challenge, specific courses and continuing education should be stressed in doctorate programs that focus on human-animal and animal-focused fields to deepen the epistemological discourse.

Third, it is recommended that based upon the identification of specific skills and qualities correlated with intersubjectivity, experiential applications aimed at developing mind-body skills would support researchers by enriching their work. Practices such as mindfulness meditation, guided imagery, diaphragmatic breathing, and tai chi have been shown to lower psychophysiological stress while increasing attentiveness, openness, and quality of life indicators that may avail scientists further insight into the animal experience (Gordon, 1996; Moss et al., 2003; Richards et al., 2003; Rossman, 2000; Williams & Kabat-Zinn, 2011).

Lastly, since the present study only examined animal-focused scientists, it would be of interest to compare and contrast between this population and other non-research populations. Specifically, exploring how might this sample compare and contrast with

veterinary practitioners, ethicists, philosophers as well as scholars from the humanities. In widening the sample pool, areas of bias, convergence and divergence may emerge to advance animal welfare and ethics. Understanding how intersubjectivity influences each group and the risks associated with discussion among colleagues within each discipline would illuminate areas of variability worthy of attention. Questions that explore fields and settings where open discussion of intersubjectivity happens may prove insightful in identifying epistemological and power biases.

Concluding Remarks

Human-animal intersubjectivity has been a vastly under-reported phenomenon that is experienced by scientists as significant events in their lives, which shape and mold their beliefs and practices. Even when researchers enter science through divergent means, once they experience the first phase of intersubjectivity that culminates in "seeing the individual," their behaviors and beliefs were altered to assimilate this new experience. These changes can have a significant positive impact for the billions of animals who are dependent upon human perceptions of their value and place in this world should enough scientists be rewarded for their innovation and risk taking.

These animal and human voices continue to be subjugated within academic communities (Adams & Donovan, 1995; Midgley, 1981; Wemelsfelder, 2012). As found in this study, animal understanding gained through moments of oneness was devalued by academic colleagues due to its inclusion of embodied and emotional facets. This association with embodied and emotional features presents the additional dilemma of professional risk should they converse with colleagues. The inherent power dynamics within academic hierarchical structures seems to continue even when women hold the majority. This imbedded bias seems to be continuously perpetuated without much attention drawn to it within the anthrozoological literature. Therefore, calling attention to this unconscious bias between different forms of knowledge should be addressed in order for more inclusive and holistic approaches to be established.

Drawing upon the mindfulness qualities in awareness referenced in the present findings, mind-body medicine seems to be well positioned to effectively develop specific skills (Moss et al., 2003) that are linked with those qualities associated with human-animal intersubjectivity. Unique to the mind-body medicine approach is the increased attention to the scholar/practitioner's fundamental ability to properly identify fluctuations in awareness states between subjective, intersubjective, and objective experience (Gordon, 1996; Moss et al., 2003). By being actively mindful of these oscillations within embodied experience, anthropomorphic interpretation could be significantly reduced or potentially avoided.

The findings also show that once intersubjectivity is experienced, animal participants become distinct individuals who are cared for, respected, and highly valued in their own right. This shift in perspective seems to elevate the animal's voice as a part of the daily decisions humans make concerning their value, care and use. Those who repeatedly and deeply experience intersubjectivity seem to develop an array of nonverbal skills that allows them to understand and converse with other species more authentically and intuitively that make them significantly insightful for ethicists and philosophers. By combining objective, subjective and intersubjective understanding into animal-focused

discourse, arguments can begin to construct an authentic basis of knowing that would exceed current myopic approaches to animal ethics.

Lastly, drawing upon the results of this project and my own professional animal expertise that has included multiple intersubjective moments with hundreds of various animals, I propose a more elaborate construction of human-animal intersubjectivity by connecting the last phase of transcendental awareness to that of nonlocal mind theory (Bischof, 1998; Dossey, 1982). Although this characterization of the transcendental phase has not been examined in the animal-related literature, it has been addressed in physics, alternative medicine, and the noetic sciences (Dossey, 2009; Radin et al., 2008; Sheldrake, 2012).

When the perception of mind is expanded to account for aspects of awareness and mutuality between individuals, the concept of mind exhibits analogous characteristics to the cited sociological literature where mind is regarded as a jointly created and shared concept (Dutton & Williams, 2004; Sanders & Arluke, 1993; Taylor, 2012). By identifying several aspects of intersubjectivity that produce joint and universal awareness, the mind is repositioned as a nonlocal quantum field accessible and used by all (Atmanspacher, 2003; Bischof, 1998; Katkin, Wiens, & Ohman, 2001; Laszlo, 1995; Radin & Schlitz, 2005). Therefore, mind is reframed and freed from the boundaries imposed by speciesism and could explain the intuitive, unconscious flow reported in intersubjective experience. Whether or not this hypothesis is found to be true or false, I believe it is exactly this kind of innovative interdisciplinary interpretation that challenges our current ethological beliefs and drives creative ways to explore some of the most meaningful relationships of our lives; those with our animal partners.

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Appendix A

Interview Questions

Demographic Questions:

- How long have you worked within the human-animal/animal-focused field?
- What is the primary focus of your research?
- Who are your primary animal participants?
- What is the structure or context when working with these animals?
- What kind of direct contact do you have with your animal participants?

Lifestyle Questions:

- Do you currently live with any animals?
- What kind of exercise do you do, if any? How frequently do you exercise?
- How would you define your eating habits?
- Have you any experience with mindfulness practices (e.g. meditation, yoga, etc.)?
- On a scale from 1-10, with 1 being the lowest, how empathetic do you feel towards people in general? How about towards animals in general?

Primary Questions:

- What has been your earliest experience with animals?
- How do you describe your relationship with animals? Who are they to you?
- What have you experienced in terms of reciprocal, shared moments with animals?
- How do you experience these moments in your body?
- How do these experiences relate to those you study?
- What have you experienced in relation to those you study?
- What contexts or situations have typically influenced or affected your experiences with animals?
- What contexts or situations do you think typically influence or affect the animals with animals
- How have these experiences influenced you and your work?
- How do you think this sense of oneness exists? Why does it?
- When do you notice that you feel detached from these animals?

Appendix B

Revised Interview Questions

Lifestyle Questions:

- Do you currently live with any animals?
- What kind of exercise do you do, if any? How frequent?
- How would you define your eating habits?
    - Has your choice been influenced by your work?
- Have you any experience with a mindfulness practice (e.g. meditation, yoga)?
    - In what way has this practice helped you in your work?

Demographic Questions:

- How long have you work with in your field?
- What is the primary focus of your research?
    - Is there a particular question or topic you're drawn to?
- Who are your primary animal participants?
- What is the structure when working with these animals?

Primary Questions:

- What has been your earliest experience with animals?
- How did these earlier experiences influence you?
    - Did they influence how you interact or approach animals now?
- Are there similarities and differences between how you engage with your family animals and those you work with?
- In regards to your work, how do you become open and receptive with animals?
- What kind of mindset or perspective do you enter with when working with these animals?
- Is there a particular approach you use with them?
- What are some of the most relaxed and easy forms of engagement you have with these animals?
- What's the most difficult type of engagement you've experienced with them?
- How have these changed how you interact with them?
- What do you do to stay present and aware with these animals?
- How do you react when an individual purposefully tries to interact with you?
- How do you come to understand them from their perspective?
    - How do you know what their intention is in these interactions?
- During these moments of interaction, how would you describe your experience?
- How do you feel after these types of moments?
- How do these moments inform your work?

Appendix C

Audio Consent and Release Form

I,_____, agree to be audiotaped as part of my participation in the study, "Towards a Science of We: An exploration of scientist-animal intersubjectivity and its implications" conducted by Angeline Siegel. I understand that the audiotape will only have my name and date of the interview for identification purposes.

I understand that the audiotape and any transcription will be kept in a secure, locked location and then destroyed according to Saybrook Institutional Review Board guidelines (i.e., five years after completion of the study). Information collected as part of the study will be used in the dissertation work of Angeline Siegel, as well as, in other future publications and professional presentations prepared by the researcher. No part of the audiotaped interview will be published, as the tapes are for the sole purpose of ensuring accuracy in the data analysis process.

I grant the Principal Researcher, Angeline Siegel, a doctoral candidate at Saybrook University in the College of Mind-Body Medicine, permission to audiotape me during our interview. I understand that I will receive a copy of this signed consent form for my records.

_____

Participant Signature Date

_____

Participant Name

_____

Principal Researcher Signature Date

Angeline Siegel, M.S.

Principal Researcher Name

Appendix D

Online Questionnaire Informed Consent

Welcome to *Towards a Science of We: An Exploration of Scientist-Animal Intersubjectivity and Its Implication* Web page. Before taking part in this study, please read the informed consent form below and check the "I Agree" button at the bottom of the page if you understand the statements and freely consent to participate in the study.

Informed Consent Form

This study involves online data collection to examine the role of empathy in women researching the human-animal relationship. The study is being conducted by Angeline Siegel, a doctoral candidate at Saybrook University, and has been approved by the Saybrook Institutional Review Board. No deception is involved, and the study involves no more than minimal risk to participants (i.e., the level of risk encountered in daily life). Each participant is asked to provide a current email address, first name, and basic demographic information. This information will only be seen by the researcher and collected for possible further participation in the study.

Completion of both surveys typically takes 20-30 minutes. All responses are treated as confidential. All data will be pooled and published in summary form only. The website is secure with SSL.

Participation is voluntary, participants may withdraw from the study at any time, and they may decline to answer any questions if they experience any discomfort with the questions asked. Participants will not be paid to participate in this research study.

If you have any questions about this study or your rights as a participant, you may contact the Principal Researcher, Angeline Siegel, by email at asiegel@saybrook.edu, or her Dissertation Chair, David Blake Willis, PhD, at dwillis@saybrook.edu. Questions or concerns about your rights as a research participant may also be directed to the Director of the Saybrook IRB at SIRB@Saybrook.edu.

If you are 18 years of age or older, understand the statements above, and freely consent to participate in the study, check the "I Agree" button to begin the survey. If not, thank you for your time.

[ ] I Agree
[ ] Do Not Agree

Next

Appendix E

Online Survey Questions

1. In which geographical area do you currently reside?
2. What discipline(s) or field(s) do you associate yourself with the most?
3. How long have you been working within your chosen field?
4. What are your predominant work environments?
5. What are the typical settings in which you engage with your animal participants?
6. How frequently are you in close proximity to your animal participants?
7. How similar is your relationship with family companion animals to that of your relationship with animal participants?
8. Did you have any close childhood experiences with animals?
9. How important where these childhood experiences to you?
10. How strongly do you feel these earlier experiences have influenced you?
11. Would you say these early experiences with animals influenced your current beliefs and/or behaviors?
12. Overall, how close do you feel toward your animal participants?
13. Overall, how would you rate your ability to understand an animal's intentions and/or communication?
14. Have you ever had a significant experience with an animal that changed your perception or behavior?
15. Please briefly describe this significant experience:
16. Briefly, what was it that the animal communicated to you? (i.e., intention, meaning and/or significance for the animal)
17. When working with your animal participants, how would you describe your state of awareness?
18. How frequently do you "tune into" your body while working with animal participants?
19. How important is this embodied knowledge in informing your work?
20. Have you ever had the experience of becoming at "one" with an animal participant? This is often referred to as intersubjectivity or I-Thou moments that denote a sense of reciprocity between individuals through shared movements, emotions and routines.
21. How frequently do these moments of "oneness" happen?
22. On average, how long do these moments last?
23. During these moments of "oneness", which of the following, if any, describe this experience between the two of you?
24. In reflecting upon these intersubjective moments, which of the following, if any, describe how you felt during these moments?
25. How important are these moments of "oneness" in informing your work?
26. Have you had any experience with a mindfulness-based practice? (e.g., yoga, meditation, Tai Chi, etc.)
27. How would you define your eating habits?

28. Have your experiences with animals influenced your eating choices?
29. What is your gender?

Appendix F

Debriefing Statement

Dear Ms./Mr. XXX,

Thank you for your participation in my study, the purpose of which is to examine the role of empathy and mindfulness in anthrozoological research by scientists, as I explained in the beginning. The intent of this online portion of the study is to look at group data, as well as variation between individuals. Since individual identification information was collected, I would like to assure you that is it kept in strict confidence and will only be used to pool potential participants for recruitment of the last phase of this study.

Thank you again for your help!!

Angeline M. Siegel