Teammates Across Species: Exploring the Construct of Psychological Safety and Team Learning in Human–Animal Working Teams

A dissertation submitted

by

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This dissertation has been accepted for the faculty of Benedictine University.

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Abstract

Keywords: human–animal work, teaming with animals, psychological safety, team learning.

This study is a qualitative phenomenological exploration of themes associated with the construct of psychological safety and learning at the group level in human–animal working teams. One goal of this study is to enrich the body of literature in human and animal working teams within organizations that rely on partnering between human and other species in order to accomplish organizational missions. The second goal is the understanding of the possible universality of psychological safety in the workplace and how the observation of human and animal working teams might provide insight into organizational behavioral models.

Questions engaging this study include whether the animals perform a specialized role within the team that is critical to organizational mission success; whether human–animal working teams exhibit the same organizational behaviors as human teams in aspects of psychological safety, such as speaking up in the workplace; and whether or how team learning occurs between human and animal team members as a group.

Data for thematic analysis across selected human–equine and human–canine working teams were obtained through semi-structured interviews of human team members and contextual field notes. The findings of this study indicate that speaking up in the workplace in human–animal teams is related to physical safety and fear of physical harm. The findings suggest that the inclusion of a dimension of speaking up for physical safety may be related to the model for psychological safety as a possible antecedent. Limitations include the opportunistic sampling of a small number of human–animal working teams, the geographic limitation to the continental United States, and a lack of interrater observation and coding.
Dedication

for

My father, the late Gregory P. Alexander
My sister, the late Diane B. Alexander
And my grandmother, the late Harriet Roebas Coste

May their memories be eternal.
Preface

All dissertations are intended to be works of scholarship. While this is not an exception, I have endeavored to make this approachable and interesting for the more casual reader.

Hopefully this study will be enlightening as well as engaging for those in academia that are often confronted with drier and perhaps tedious manuscripts, studies, drafts, and journal articles. While this is, in fact, a qualitative and empirical study and nonetheless highly analytical in nature, it is purposefully not quantitative in methodology.

More than anything, I consider myself lucky to have had the liberty to pursue an area that few other academicians in the area of organizational management have ventured into. The idea to examine how psychological safety plays out when your working team, and perhaps your primary working partner, livelihood, successful work assignments, projects, and career depend upon a dog or a horse was intriguing for me as a professional project manager. I was intently curious to know what it is like to be free of the concerns and judgements—positive or negative—that come with human working teams. This is probably the result of having spent too many decades enmeshed in the politics and predicaments of working with a variety of project teams in corporations. This is not to say that these were bad experiences. Some, indeed, were amazing. In other cases, it might have a been a source of comfort to know that
the teammates that I relied upon came with less conditional approval for me or my work. Because this study is entirely self-funded, and because I had the flexibility to travel across the continental U.S. to speak with interviewees, I was able to follow my interests.

In the way of acknowledgements, I thank not only my committee but all those who supported me (friends, colleagues, mentors, and those previously unknown who agreed to be interviewed for this study). While others in management sciences thought that the study of human–animal working teams was crazy, outlandish, strange, or—worse—non-contributory to the academic discipline of organizational management, I beg to differ and hope that the ensuing pages will provide justification for my choice of questions for research. Like almost all dissertations, this was both a labor of love and a test of perseverance.

I particularly want to call out a medical doctor who asked me how my dissertation was going and, after I excitedly told him that I got to see the 2018 Triple Crown Winner Justify live and in-person at Ashford Stud in Kentucky, said to me, “How do you know it was the real Justify? What if it was a substitute?” Hmm, like a body double? This was probably the only question that I was unprepared to answer. Some things still need to be taken on faith.
Invocation

And God said, “Let the earth bring forth living creatures according to their kinds—livestock and creeping things and beasts of the earth according to their kinds.” And it was so.

-Genesis 1:24 (English Standard Version)
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| Picture 1 | Area of Inquiry (Author, 2018) |
Some Guiding Definitions

Team Learning (Kozlowski & Ilgen, 2006)
“The concept of group or team learning refers to the acquisition of knowledge, skills, and performance capabilities of an interdependent set of individuals through interaction and experience.”

Work Teams (Edmonson, 1999)
“Groups that (1) exist within the context of a larger organization, (2) have clearly defined membership and (3) share responsibility for a team product or service.”

Psychological Safety (Edmonson, 1999)
“A shared belief held by members of a team that the team is safe for interpersonal risk taking.”
As a group level construct: “It must characterize the team rather than the individual member of the team, and team members must hold similar perceptions of it.”

Speaking Up in the Workplace (Edmonson, 2003a)
“Speaking up in the context of in-role behavior while learning new tasks and coordination routines.” The ability to “speak up with observations, concerns, and questions.”

Successful Implementation (Edmonson, 2003a)
“Is defined as ongoing incorporation of new practices into the team’s repertoire of capabilities.”

Team Effectiveness (Kozlowski & Ilgen, 2006)
“Team effectiveness (i.e. performance evaluated by others, members satisfaction, viability) is an emergent result that unfolds across levels (individual to dyadic) and over time.”

Learning Behavior (Edmonson, 1999)
Learning behavior “consists of activities carried out by team members through which the team obtains and processes data that allows it to adapt and improve.” Examples of such behaviors at the group level include “seeking feedback, sharing information, asking for help, talking about errors, and experimenting.”
Chapter 1: Introduction

Louisville, KY, May 7, 2017, Associated Press

“A succession of Brooklyn accents spoke loudly in the joyous aftermath of Always Dreaming’s 2¾ length victory as the favorite at Churchill Downs.

Leading the way was Anthony Bonomo, who thanked many people for claiming one of sport’s most coveted trophies, including grooms, hotwalkers and exercise riders. ‘I don’t even know if there’s [sic] words that could describe this,’ Bonomo said. ‘It’s a team. We can’t forget.’”

Always Dreaming, official winner, 143rd Kentucky Derby, May 6, 2017, Distance 1¼ miles; winner’s purse $1,645,800

- Owners: Anthony Bonomo’s Brooklyn Boyz Stables and Teresa Viola
- Trainer: Todd Pletcher
- Jockey: John Velazquez

(Associated Press, May 7, 2017)

“The trained police dogs are viewed by experts as a leading biological detection and deterrent system for law enforcement. In 1992, police and sheriff’s departments in the State of California were contacted…among their 12,543 officers, these departments reported a total of 375 officer-canine teams in operation or 3% of their officers. 98% [of officers responding to the survey by University of California, Davis] believed dogs were important or very important for this task.

“The most common uses were for searching areas or tracking suspects, burglaries, robberies, and felonies. The officers estimate that most of their calls were high risk (60.9% of the calls). More than one third of the officers (38.1%) reported that the canine had saved the officer’s life.”

(Hart et al., 2000)
The keystone article for my questions was David Hannah and Kirsten Robertson’s *Journal of Management Inquiry* piece published in January 2017, which I stumbled upon (literally) during my Qualifying Paper 1 research. The title “Human–animal work: A massive, understudied domain of human activity,” intrigued me. The premise is that millions of people globally are working substantially with non-human animals (note that, as humans *are* animals, some scholars in the field are quite particular about the nomenclature). The economic impact in certain industries—notably agriculture, laboratory use and medical research, and game keeping as well as other industrial and agency and governmental work—is significant. Very little, however, is known about how “the presence of animals” impacts humans at work, particularly in organizations and teaming situations.

As a team leader and manager of projects within business organizations, questions arose for me regarding the behavior of teams when an integral role is played by other species. How are trust and safety operational for these teams? What similarities are there with the teaming models and literature describing research with human teams where there is a central mission, goal, and strategy that must be clearly understood and communicated across the internal team, and often outside of immediate team boundaries?

What is it like to rely on another species to fulfil a team role in a highly complex, often risky, operation that is part of the organizational mission? What is different for the human team members who need to rely on working animals to succeed?
As Hannah and Robertson point out, numerous occupations require animal support; however, they do not constitute what I would describe as a teaming relationship.

Human–animal work (HAW) is defined as a specific sub-set of a field of study known as human–animal studies (HAS). HAS is a relatively new discipline, having developed in the last 20 years in terms of serious academic research, moving from medical and scientific studies into the social sciences—notably anthropology, sociology, and, more recently, social psychology.

With a focus on human work as the backbone of study (as opposed to animal studies, which are often limited to the biological and zoological), Hannah and Robertson define HAW as work that is *not* work done in the presence of animals or work done where animals are not alive and integrally involved in creating a deliverable or a service or accomplishing a mission. This is not “take your pet to work.”

HAW *is* work that requires humans and animals to perform, communicate, and interact in ways to achieve a specific organizational goal, mission, project, or performance. These projects or performances have economic as well as political and public consequences for the viability of the organization. The human and animal activities are vital for the organization to perform its role, meet its objective, or deliver its benefits.

Following are three primary streams of research that are combined interests for this study:

1. Project teams and team learning for organizational success.
The newer discipline within the social sciences termed human–animal studies (HAS), specifically what Hannah and Robertson (2017) call the “understudied area of Human–Animal Work in organizational behavior; this is a new interdisciplinary field in social science that combines sociology, psychology, anthropology, and zoology among other perspectives.”

This sub-field of sociological study has little or no organizational academic literature that I have been able to uncover, notably the relationship of traditional theories of organizational development, organizational behavioral science, and management science to human and animal working organizations.

The collective research and theory of Amy. C. Edmonson, PhD, of Harvard University and colleagues on psychological safety and organizational learning for groups or teams as may apply to or inform HAW.

**Role of the Researcher**

According to Bloomberg and Volpe (2016), it is at this juncture that a researcher should state something about his or her background or credentials for embarking on a dissertation. It may seem unusual for a former Director of Project Management and currently certified Program Manager in the medical and pharmaceutical industry to pursue this avenue of research. There are a number of reasons why I find the research on human–animal teamwork compelling for a dissertation. I find that learning about new organizations and understudied subjects is a broadening experience for a scholar. Too often we tend to stay in a “theoretical rut” of sticking with one type of
organization or study population or approaching a subject from the same platform of our applied experience because it is convenient. Because I am not invested in defending a specific position within the academic community, nor am I invested in commercial institutions that have expectations for the results of my work, it is my hope that researcher bias will be minimal. To further reduce bias, I come to this study with no prior experience in human–animal working teams or industries. Accordingly, I have spent the last 24 months doing field visits within the continental United States (Illinois, Indiana, Kentucky, Wisconsin, Missouri, Maryland, New York, California, Pennsylvania, and Delaware). These included taking horseback riding lessons, becoming part-owner of a racehorse, completing a college-level certification program for veterinary assistants, and doing an externship at an animal hospital in order both gain to hands-on knowledge about equines and canines (other than pet ownership) and to intermingle with people who do work with and depend upon animals for their livelihoods.

Finally, although the study that I have completed may never become a widely read landmark for organizational development or organizational behavior, I believe that it will have value as a departure from standard populations of organizational study, as practically centered on active work teams in the field, and may be useful for shining new light on human–human teamwork in complex and critical projects or highly risky work.
Questions for This Research

Amy Edmonson (1999, 2003, 2014, 2019), and others in organizational behavior and organizational development have called for scholarship in areas of previously untapped research. The area of human–animal teaming as a subset of HAW is a completely open area for researchers interested in cross-disciplinary learning about the workplace and working organizations.

I have used an inductive approach from a phenomenological perspective to conduct research using a qualitative methodology of thematic analysis with the following objectives:

1. To develop semi-structured interview questions for humans in the law enforcement, not-for-profit, and commercial industries to compare the teaming of humans with canines and equines.

2. To investigate the responses to compare or contrast with the findings of organizational scholars’ research in psychological safety and its relationship to teaming.

3. Most importantly, to explore the results for human–animal teams with team success.

What can we learn about humans that team with animals? What are the findings and/or implications that may be useful for human teams? The central question is: What team dynamics and team learning occur within working teams when one of the team members is an animal that has a major role on the team? How does
psychological safety and learning as a cross-species operate when a combination of people and animals are engaged?

This study is limited to three categories of HAW teams across both equine and canine working teams:

1. Law enforcement organizations, often with highly dangerous and/or complex activities that have life or death consequences.
2. Not-for-profit HAW teams where equines or canines are part of an organized teaming function with humans in order to carry out the team’s mission.
3. Industries where teams of individuals are partners with an animal whose work activities are central for team success, such as thoroughbred horse racing teams.

In the context of HAW team subjects, it is also important to note what types of working animal teams are not included in this study:

1. Studies of herds or working animals that humans work with as animal populations but do not team with humans in terms of having a specific trained role in a project or operational team that is core to the mission of the organization. Examples are zoos and circuses (where, in fact, these still exist).
2. Therapy dogs and physical assistance animals as they are working in a dyadic relationship with their owners but not truly in teamwork with specific goals and mission outcomes.
3. Investigation of one-to-one animal therapy-based interventions.

Is there a pattern of learning that takes place in HAW team formation due to the specificity of training required for humans and animals to work together that creates
early role definition which lasts as long as the animal and the human team are
together?

We might posit that animals are conditioned to respond to a teaming situation no
matter what humans are included; i.e., their conditioned responses take place
regardless of the behavior of other team members. Is that true?

What are the implications of early team building patterns for human partners as well
as the animal team members?

One area that is not being considered for this study is that of circus performers and
human–animal entertainment. Is this HAW work that is part of the entertainment
industry? Are the human performers reliant upon animals in the same teaming manner
as those in military, law enforcement, or industry? Perhaps, but these questions may
be better addressed through other behavioral sciences.

This study is limited to canine and equine human–animal teams; however, that does
not preclude the study of other animals that are teemed with humans. Because this
study is organizational research, the hypotheses and propositions will be those that
offer some insight into organizational behavior as it may be researched in HAW.

I find it helpful to indicate, visually, where the line for inquiry for this study fits
within the realms of organizational behavior and human–animal studies, as shown in
Picture 1.
Human–animal Studies

Organizational Behavior

Teaming

Team learning

Human–animal Work (HAW)

Medical / Laboratory Animals

Wildlife

Agriculture

Animal-Assisted Therapy/Intervention

Companion Animals

Psychological Safety

Organizational Teaming: The Critical Nature of Teamwork and Learning

Hackman (2002a)

J. Richard Hackman is considered to have been one of the great intellects in the study of and writing about teams in organizations. Through decades of research and consulting, he developed a theoretical basis for the creation of teams and the challenges of the creation and sustainment of viable and successful organizational teams. Although much of his work speaks to senior leadership, the basic principles that he put forth are applicable across organizational levels. Hackman is acknowledged by Edmonson as an intellectual precursor to her work. In a number of ways, she has taken the themes and theories of Hackman and used them to further develop her studies on teamwork.

Hackman (2002a) recounts the three criteria that exhibit the overall effectiveness of a team:

1. Does the team produce a product [or service] that is acceptable—to consumers, to clients, to the organization, and/or to society?

2. Does the team evidence growth in its capabilities through learning and appropriate feedback loops—it is a growing, learning entity?
3. Is the team participation experience meaningful and, hopefully, personally valuable to its individuals and collective members?

To achieve these measures of effectiveness, Hackman identifies five conditions or building blocks that organization leadership must ensure are operative to develop and sustain effective teams:

1. Teams are “real” teams, externally identifiable as teams and self-recognizing.
2. The team has a compelling mission or goals or meaningful direction for its work or deliverables.
3. The team’s enabling structure supports the practice of teamwork.
4. The team is operative within an organizational culture and framework that supports and facilitates its mission.
5. Appropriate coaching and/or facilitative training are available to the team as needed for team growth in capabilities and team members’ satisfaction with participation.

As Hackman explains, these are critical dimensions that organizational leadership has neglected to verify in many team situations. In his unique platform among scholars and consultants, Hackman was able to develop these basic and comprehensible tenets as a call to leadership for more effective team implementation.

**Tannenbaum, Beard, and Salas (1992)**

Scott Tannenbaum has been recognized as another seminal voice in the scholarship of team building and team effectiveness. Tannenbaum et al. (1992) use the literature of
the 1980s and early 1990s to review four approaches to team building based on interventions by organizational scholars and consultants.

The Goal-Setting Approach uses consulting facilitation to guide teams (or groups as the terms were frequently mixed) into the self-development of team goals, whether strategic or project-specific. Goal setting is not limited to work productivity and output. Internal processes and change initiatives are equally viable subject matter. The key role of consulting in guiding this process is similar to the recommendation by Hackman that facilitation and coaching become an integral part of team development.

The Interpersonal Approach focuses on the affective dimensions of teaming, including the development of group trust, supportiveness, and interpersonal competencies. This approach emphasizes the dimensions of teaming that set it apart from individual contributorship. It is notable that, throughout history, major achievements in architecture and building, transportation, military activity, and various changes that we would today call “disruptive” originated with team activity. The need for not only companionship but mutual goal seeking, whether in sports or enterprise, has a psychological draw to many team members that cannot be fulfilled when working alone. Not everyone subscribes to this, obviously. But emphasizing interpersonal aspects of teams in team learning and formation can be an attractive method of development that should not be underestimated.

The Role Approach strives to reduce role conflict and ambiguity, or overlapping responsibilities, with role clarification from the outset. Role conflict and associated ambiguity relate well to the interpersonal approach: unless team members understand
their roles, and agree to adopt them, there is great potential for the type of anxiety and psychological safety issues later described by Edmonson.

The Problem-Solving Approach is more task-focused and encourages the actual problem-solving activities and data generation, evaluation, and action planning as the mechanisms for bringing the teams to together. This approach may also build interpersonal trust through action and experience in working with other team members. It also may provide assistance in role clarification, from my experience, as team members interact while focused on specific task criteria; oftentimes the unique skill sets or traits that team members bring to the table are exhibited in “real time” activity.

Tanenbaum et al.’s (1992) well-developed team effectiveness model includes input factors such as task organization, task, type, and task complexity; the work structure of the organization, namely work or project assignment, other team norms, and communications, both formal and informal; team characteristics, such as resources, distribution of power, group cohesiveness, and homogeneity of team members; and the individual characteristics the team members bring with them that uniquely produce advantages (or disadvantages) in performance. These may include skill sets, level of intelligence, previous experience, motivational and attitudinal components, and mental models. To these I would also add physical skills and abilities for certain teams—e.g., pilots must have vision qualifications, sports teaming involves physical ability, other teams may require manual dexterity, and for knowledge workers certain mental abilities to focus or remember may be required. I would also note that this is a
critical area in HAW where animals’ sensory superiority (smell, hearing, vision) and physical abilities (to run, jump, carry people or loads) are factors for team inclusion. Inputs are mediated by *throughput characteristics* involving *team processes*, including rules, standards, coordination, communication, conflict resolution, problem solving, and boundary spanning; and team interventions, which include formal and informal training and team-building activities.

The outputs of organizational teaming fall into three major categories of team changes, team performance, and individual changes. In the case of organizational products, the concern is foremost with team performance, including the quality of the team’s output, the time-budget-cost metrics, and other indicators of competence. From an organizational behavior perspective, however, two additional categories, *team changes* and *individual changes*, are also critical output of team activity within the enterprise.

Looking at each one in succession, *team changes* includes the development of new processes but also the team’s ability to both be an incorporator of change and act as a change agent on its own terms. Bringing this concept closer to more recent scholarship, the necessity for teams to not only adapt to change but to both embrace and implement change as part of their normal output is extremely timely. As Edmonson (2012a) points out, innovative organizations and complex adaptive organizations are two forms of enterprise that critically require teaming.

*Individual changes* for team members with respect to not only skills and abilities but attitudes, feelings of competence and motivation, and healthy mental models are the
third category of output that Tannenbaum et al. (1992) include in their team effectiveness model.

It is notable that Tannenbaum et al. (1992) give much attention to the nature of interventions and research methods, particularly those from the 1980s, and have specific recommendations for research. These comments more aptly inform a methodological rather than a theoretical discourse and will not be reviewed here.

**Katzenbach and Smith (1993)**

To these ideas, Katzenbach and Smith, following in the footsteps of Hackman, with the publication of the *Wisdom of Teams* (Harper Business, 1993), followed by recounting the “how to build a team” advice with an article in the *Harvard Business Review* aimed at the educated but non-academic audience as a quick-read. Basically, the authors distill much of the work of earlier scholarly thinkers on teaming to provide “how to” messages to leadership.

The interesting item in their contribution is the distinction they make between working groups and true teams, definitions that are often taken for granted or overlooked.

**Gratton and Erickson (2007)**

In an interesting 2007 article on building collaborative teams during organizational acquisitions in companies, Gratton and Erickson speak to large, virtual, diverse, and “highly educated specialists” that work in a high-pressure, one-shot-only, time-bound group to deliver a sophisticated system.
The interesting part about the eight ways to build collaborative teams is that the authors’ definition of teams (e.g., NBC’s journalistic team of thousands for coverage of the Olympic Games) appears to be the antithesis of human–animal teams. But are they? The dysfunctional practices of being less likely to share knowledge freely, communicating across large-sized teams, issues with virtual teams (which more recent research has touted as an essential way to do future business), cultural diversity, and the herding of highly educated “experts” into collaborative teams are counted among the issues for teaming.

Research conducted with roughly 1,500 respondents to a survey across 55 company teams yielded a set of factors to increase the probability of collaborative teaming that seem quite similar to those outlined by Hackman (2003).

Briefly, the authors include the general culture of the company and human resource practices (reward systems and promotion processes), along with socialization processes and network engagement, as the top recommendations for encouraging team collaboration. To these three factors, Gratton and Erickson add task design, requiring collaborative work and boundary spanning as well as team leadership and the behavior of senior executives in modeling collaborative behaviors within their own teams.

Emphasis is placed on the selection of team leaders that model collaborative behavior, building a sense of community, mentoring and coaching at all levels of the organization, reducing role ambiguity and increasing role clarity, and, interestingly,
making “highly visible investments” in the team—whether it is furniture, IT equipment, training, or other resources.

**Gersick (1988)**

An earlier but important work on the life span of teaming by Connie Gersick is certainly worth including here as another seminal piece of research published in 1988. Based on the study of eight working teams over time, Gersick observed that they did not progress evenly through team development stages but rather exhibited what she termed “punctuated equilibrium” characterized by periods of high energy and relative quietude or “inertia” based on temporal aspects of the work and task dynamics. From this study Gersick developed a new theoretical model that indicated a midpoint transition as a predictable event in the life cycle of teams. During the first phase of a team’s life, that is, before the midpoint, early patterns are formed that persist through the life of the team. First impressions, it seems, are lasting ones in how teams face problems, how they resolve conflict, how they treat each other, and how they set expectations for individual and group performance. Gersick makes analogies to a person’s mid-life by offering that greater sensitivity to the constraints of time and how one spends it seems to be reflected in the midpoint of groups. Gersick suggests a reality where team developmental changes may be impacted by interactions with the team’s external environment. This could include other teams, supplies, customers, regulators, and a host of others.
Kolbe (2013)

Dr. Michaela Kolbe, a psychologist in Zurich, is a researcher of interaction patterns and performance in high-risk teams, particularly in acute care situations. Kolbe has developed a set of five team processes that she considers to be important for effectiveness in high-performing teams. High-risk environment studies include healthcare, aviation, and off-shore industrial settings. High-risk is characterized by Kolbe as involving ambiguity, complexity, and consequential results performed by team members with specialized skills who must both coordinate with each other in time-bound situations but also must be able to improvise and flex their skills in adjustment to immediately changing situations.

To capsulize Kolbe’s recommendations, the five processes include the following:

1. Situation awareness is defined as the ability to monitor environmental surroundings and other team members, actively perform information-gathering activities, verbalize or communicate their assessments, use closed-look communications, and “back each other up” (Kolbe, 2013).

2. “Talking to the room” is the engagement of the whole team with the interpretation of information and the ability to comment on their own current activities.

3. Explicit reasoning exhibited by verbally seeking feedback from other team members, regardless of status or positions, summarizing information, and linking action to verbal information related to cause-and-effect occurrences.
4. Speaking up, where team members are able to both verbalize their observations as well as express doubt about a course of action, ask for clarifying information, correct task-relevant actions of another team member, and make attempts to alter a potentially dangerous activity.

5. Closed-loop communications that incorporate task-appropriate terminology (e.g., specific, not ambiguous) and provide follow-up to ensure that communication was correctly received. (Note: closed-loop communication and double-loop communication were constructs developed extensively by Argyris and Schon. Many authors have referenced their important contributions; however, this work was not specifically reviewed for this paper).

I suggest that it would be instructive to see if some or all of these constructs are exhibited by high-risk HAW, either partially or totally, and if so, what differences in communication and implementation would be present. In other words, how would we know if these processes were being used through observation and the reports of the human team members with respect to the ways in which animal team members communicate kinesthetically or otherwise? The evidence from the interviewees included in this study sheds some light on the use of feedback for learning and subsequent changes in teaming work (see Table 6, “Evidence of Themes by Team Category: Canine”); however, double-loop learning, defined by Argyris as including the root cause analysis of learning activities for the further modification of work, was not specifically indicated. This does not mean that double-loop learning does not exist
in HAW teaming; it does mean that this was not specifically included in the data acquired.

**Psychological Safety: The Role of Safety in Team Learning**

Schein and Bennis (1965)

One of the earliest references to psychological safety arose in the publication of Edgar Schein and Warren Bennis’s classic on *National Training Laboratories* and the training effect on individual and organizational learning behavior. Written six decades ago, Schein and Bennis approach learning from the individual change perspective. “The learning process at the outset, hinges upon a person’s becoming willing and able to reveal his own feelings and reactions, and upon his becoming willing and able to listen and pay attention to the feelings and reactions of others” (Schein & Bennis, 1965).

The authors posit that overall change in attitude and the ability to accept change begins with a state of disequilibrium, which the individual feels impacts his self-image or self-expression. Despite the discomfort or anxiety produced by disequilibrium, the individual cannot remain frozen in fear. This is the point at which psychological safety becomes an operative mitigating factor in the ability to learn and, hence, change. “In order for change to occur, however, some psychological safety must be present in the situation or else the person will simply become defensive and more rigid” (Schein & Bennis, 1965). In other words, psychological safety frees up the individual’s ability to cognitively revisit beliefs about the self and
others. On the individual level, this presents psychological safety in the context of the emotional component of willingness and ability to change.

**Kahn (1990)**

Many authors, including Edmonson, point to Kahn as the genesis of the term “psychological safety” in his study on the psychological conditions of individuals’ engagement and disengagement in the workplace. This classic in organizational behavior researched “self-in-role” processes and posits three psychological conditions that are present in engaging individuals at work: meaningfulness, safety, and availability. It is the concept of safety that is most relevant for the current study. Kahn concludes that it is critical to establish psychological safety, which he defines as “feeling able to show and employ one’s self without fear of negative consequences” and feeling safe in circumstances in which they “trusted that they would not suffer for their personal engagement” (Kahn, 1990). Kahn’s results point to the conclusion that psychological safety was linked to personal engagement at work. Kahn puts forth four factors that include the presence of psychological safety.

1. Interpersonal relationships (e.g., flexibility without fear of consequences)
2. Group dynamics (intra- as well as inter-group—e.g., constructive criticism)
3. Management style and work process (that are conducive to the establishment of psychological safety)
4. Organizational norms, in effect organizational culture building upon Schein and Bennis (1965)
Critical, with respect to acceptable and unacceptable organizational behavior, to the establishment of psychological safety and trust are the notions of clear boundaries and the clarity of consequences for not respecting those boundaries within the organization culture or within the group culture.

Supporting and trusted relationships occurred where behavior was clear, consistent, predictable, and non-threatening. These are precisely the points enlisted in the training of many HAW functional working teams in order to maintain both discipline and stability. Kahn’s major finding through this grounded theory study is that personal engagement in work and related work outcomes were connected to the concept of psychological safety as he defined it.

This finding is particularly relevant to organizational development and change: unless we understand the organizational behaviors that drive individuals, and small groups or teams (since much work is performed increasingly by multiple individuals working together to achieve a common goal), we cannot effectively make the changes in the workplace that organization development addresses. In order to increase the chances of success in achieving organizational goals, missions, projects, and their deliverables, the organizational behavior construct of psychological safety becomes a foundational requirement. Because of this, organizational development has a vested interest in examining behavioral principles that drive successful team behavior.
Edmonson (1999a)
Edmonson defines organizational work teams as “groups that (1) exist within the context of a larger organization, (2) have clearly defined membership and (3) share responsibility for a team product or service.”

This exact definition will be used for the subject work teams (HAW teams) population with one additional qualifier: In HAW teams one of the defined members is an animal with a shared responsibility for team service or measurable result.

The service provided by the animal team member must be observable, and the animal must be accountable for contributing to the result: this may include bomb or weapon detection, crowd control, criminal apprehension, or winning sports (racing) contests in the context of team performance, among other possibilities.

The examples of learning behaviors in human teamwork include the solicitation of feedback, information sharing, asking for guidance, experimentation, and debriefing or discussing past performance. In HAW teams, such learning must be conducted with one team member who is nonverbal, however well-developed the animal’s other sensory or kinesthetic capabilities may be.

This fact may provide additional insights into how psychological safety operates for influencing/mediating the team learning process.

In human teamwork Edmonson (1999a) and Edmonson and Moingeon (1999) note that some people “in a position to initiate learning behavior may believe that they are
placing themselves (i.e., their reputations, team membership, actual jobs) at risk through admission of error or fear of being judged as incompetent.” In the case of humans, psychological safety mitigates fear that unfavorable impressions on management, possible impact on promotional opportunities, and other measurable costs may determine that generally speaking up toward learning (and learning behaviors) could (socially or emotionally) put them at risk in terms of saving face, public shaming, and embarrassment.

Using Edmonson’s model of team learning, when we examine the stated behaviors by humans on teams and with each other, do the same dynamics hold true for the team behaviors based on the animal–human relationship? And does this stated behavior of humans depend on their team role in relation to the animal team members, that is, primary animal handler, trainer, or other human team role within the HAW teamwork unit?

It is notable that, as with human working teams, the humans within HAW teams are shown to have different roles. Just as with human teams, proximity and experience in working with each other do matter. Not only is face-to-face behavior critical for HAW teams; many human roles also incorporate body contact with animal working team members. Some animals have greater interaction with individual team members—this is particularly true for canines. For example, canines in law enforcement work when their primary human handler works, whereas horses in law enforcement may have multiple riders. In the case of hitchers of horses, some horses
can substitute for other team members within the hitch. Drivers often have special abilities to communicate with one or another of the horses, but not exclusively. Jockeys are assigned to racehorses based in their availability, and their work is negotiated by their agents. Certainly, some jockeys are associated with individual trainers and/or race tracks; however, their relationship with the mounts is more fluid than that of a law enforcement officer and her/his horse. Trainers for both canines and equines may be internal to the organizational unit or external to the team (e.g., consulting roles). Of the subject interviewees, trainers, and primary handlers (riders, grooms, canine officers, drivers of hitches, canine handler-owners who perform search and rescue missions), all indicate that they have responsibility for the physical safety of the animal and team learning. Although trainers and primary handlers seem to be more visible in the learning activities of the animal team members, other human team unit members may be equally engaged in feedback and speaking up in the workplace.

Does psychological safety exist in HAW teams? If so, what is the influence of feelings of mutual trust and respect among all HAW team members on psychological safety—is it the same regardless of the team member’s role? Is psychological safety in HAW teams positively associated with team learning behaviors? Do team learning behavior mediate between team learning behaviors and work performance outcomes?
The driver for my study was the original Edmonson model for psychological safety and learning behaviors as mediators for team outcomes (success-driven outcomes for the team’s goals and missions), as described by Amy Edmonson (1999a).

This landmark study and the original hypotheses tested by Edmonson have become the litmus for the majority of psychological safety studies references and constitute the key reference by subsequent scholars on the subject of psychological safety and individual and well as team performance. The construct of psychological safety as a mediator between team learning and team outcomes (team performance) resulted in a model that was first introduced by this study.

The original Edmonson definition of team psychological safety is that it is “a shared belief held by members of a team that the team is safer for interpersonal risk taking.”

The results of the model for the effects of team psychological safety, along with the construct of team efficacy, on learning were developed in Edmonson’s study of 51 work teams within one manufacturing organization. The original model developed by Edmonson (1999) for working-team learning is reconstructed here:
The central question for the subject population of HAW teams is: is it safe for inter-species risk-taking in the context of working missions, project, and performance? The reliance on teams to actually and successfully accomplish work tasks and produce successful outcomes is not limited the human teams or to business and management teams in general. In HAW teaming, as with human teaming organizations, it is worth examining the behavioral factors that enable learning to take place across human and other animal species to fully utilize their individual and unique skill sets brought to their working roles within the team. It is beyond the scope of this study to provide evidence of animal behaviors and human behaviors that facilitate learning. Volumes have been written on human learning behavior as well as on animal behavioral characteristics. The extensive literature on human learning behavior and the experimental work done by animal behaviorists should be revisited to shed light on these factors. As an outgrowth of this study, a specific and deeper
look at the learning behaviors of both humans and animals when they are learning to
work in tandem could offer insights into how each species brings its specific skills
and genetic abilities to teaming.

In human working teams, the skill sets, for example among project team members in
a technical or pharmaceutical development project, may include subject matter
experts in a variety of specialty skills that are required at different times during the
team’s life cycle. In the case of HAW teams studies, each animal brings to the team
special skills that are both unique and fundamental to the team outcome. They may be
faster; be stronger; have more acute sensory detection or outstanding aural or visual
capabilities; or have height, strength, or other physical attributes that allow them to
uniquely perform within the team’s mission. (For example, the ability of a police
horse to raise a human police officer 10 feet above a standing crowd has unique
advantages over both foot and car patrol as well as helicopter or drone surveillance.)

The key construct is of psychological safety as a precursor to learning behaviors that
drive team performance. Learning behavior is posited as the “mediator” between
psychological safety and performance. Team psychological safety is not synonymous
with individual psychological safety: the reliance on teams for the performance of
work, particularly given the expanded use of project teams in all types of
organizational settings, increases the spotlight on factors that impact team learning.

The literature on group learning has established that team effectiveness is enabled by
structural conditions and leadership and management that support team learning.
Edmonson’s study of organizational learning theory by scholars such as Argyris are the platform from which she seeks to understand “learning in organizations by examining to what extent and under what conditions learning occurs naturally in organization work groups.” Team learning, therefore, as a key factor in organizational outcomes and constructs that impact team learning are critical in nature for team success.

The key definitions from Edmonson are as follows:

1. **Work teams**: “Work teams are groups that exist within the context of a larger organization, have clearly defined membership, and share responsibility or a team product or service” (Edmonson, 1999). This is based on Edmonson’s review of such scholars as Hackman and Alderfer. It is notable that shared beliefs are not strictly required for shared responsibilities. This is an important point with respect to HAW teams for consideration. It is important that the role of the animal in the HAW team be defined and that responsibility for outcomes is shared—and “knowable” by the animal—in other words, the animal cognitively understands there is a role that it is to perform. This can be backed by animal behavioral science and will be included in the HAW team discussions. The same definition for organizational work teams will be used in this study for the selection of HAW teams with one additional qualifier: one of the defined members of the working team must be an animal with the shared responsibility for the team product or service—that is, output. The
outputs may be as diverse as crowd control, explosives detection, the pursuit of a suspected criminal, winning a racing contest, performing in public according to schedule for a specific purpose that can be measured (i.e., organizational financial goals), or the discovery of cadavers or rescue of living persons.

2. **Psychological safety** as a construct was developed to investigate the implication of shared knowledge across human team members that may not be initiated because team members believe that they are “placing themselves at risk; for example, by admitting an error or asking for help … appearing incompetent, and thus suffering a blow to his or her image” (Edmonson, 1999). The intangible costs in self-esteem may also be (Edmonson, 1999) with “tangible costs if their actions create unfavorable impressions on people who influence decisions about promotions, raises, project assignments” (Edmonson, 1999). In addition, the concept of “face saving” is strongly implicated in the tacit beliefs in team “social acceptance,” as Edmonson noted through referencing the work of Goffman. In Edmonson’s later work regarding the consequences of medical errors in hospitals as a result of the fear of speaking up, the relationship to HAW teams is more direct: in many, but not all, cases, the lives of the human team members and the animals themselves are at risk if team members are unwilling or unable to speak up for fear of risking personal psychological safety.
The studies by Edmonson are mainly concerned with the impact on patients, students, and others in the workplace and/or the team’s performance. In HAW, as we shall discuss, the consequences of not speaking up extend to the health and welfare of the team members themselves, including animal team members, during team performance. It is also notable that the notion of “shared values” or “shared beliefs” is not attributable to animal team members as beliefs and values cannot be determined. This distinction is important because it sets apart HAW teams from the original definition of the construct of psychological safety as put forth by Edmonson’s.

3. **Learning behavior** “consists of activities carried out by team members through which the team obtains and processes data that allow it to adapt and improve” (Edmonson, 1999). Examples of such behaviors at the group level include “seeking feedback, sharing information, asking for help, talking about errors, and experimenting” (Edmonson, 1999).

4. **Team performance** may be defined as the measurable outcome of team activities and tasks toward team mission or goals. It is goal-directed group behaviors for specific purposes. This definition is critical for the selection of HAW work team subjects as it serves to further narrow the definition of the working team: the definition for a HAW working team used here builds on that by Edmonson.

5. **Team learning behavior**, according to Edmonson, is described by Argyris (1997) as “a process of detecting and correcting error.” A key question for
HAW teams is whether learning is “an iterative process,” of “reflection and action, characterized by asking questions, seeking feedback, experimenting, reflecting on results, and discussing errors or unexpected outcomes.” How does this occur within HAW teams when a key team member is nonverbal in terms of shared language? Is learning defined though language alone or may learning at the team level also be defined through nonverbal gestures, actions, and visual and audio cues. It is to be discovered whether team learning composed of other activities, including “verbal” but not linguistic in terms of human language, can occur.

For dimensions of human–animal learning, an examination of some of the human–animal work literature may be valuable in providing insights into how team learning can occur under other, perhaps more physical, circumstances. It is worth noting that some of the HAW teaming learning variables may also provide insight into human team learning across multiple languages (i.e., when language is not commonly shared) or when human teaming must include physical learning—think of pairs skating, synchronized swimming, water polo, volleyball, or other team athletics where movement between team members is critical for team performance—either in dyads or across a larger team. The working language of HAW teams includes much more than verbal signals. The kinesthetic and visual communication across team members is expressed often. Human team members working with canines speak of the communications “traveling down the leash” to the animal; similarly, equine teams
are noted for communication through slight body movements: pressure from a rider’s knee on the horse or pressure from the rider’s foot on one side or another or both signal messages that are as clear to the trained animal team members as verbal language between human teammates. Communication through the reins, taut or loose, has meaning and is a form of communication. One canine police officer noted that officers may be told to remove their sunglasses so that their canines can gauge eye movements and “read” their human team members without verbal signaling.

For the study of HAW in general and teaming in particular, it is important that, as organizational scholars, we extend the definition of organizational teaming beyond the framework of business and management, healthcare institutions, educational institutions, and other oft-studied organization populations. In general, a great deal of scholarly research in organizational development has taken place either with samples from industries that offer consulting opportunities in the public or private sectors, those known to the researchers through previous work experience, or in convenient academic settings. For organizational development to encompass a great landscape of organizations, the research of other subject populations may provide new insights and is considered important to this study.

Edmonson notes that the “shared belief that the team is safe for interpersonal risk taking … tends to be tacit—taken for granted and not given direct attention either by individuals or by the team as a whole.” The roots of Edmonson’s work stem from the work of Schein and Bennis (1965) as well as that of Kahn (1990). The critical premise as stated by Edmonson is “the need to create psychological safety for
individuals if they are to feel secure and capable of changing.” This is the tie to Schien and Bennis insofar as change management and individual readiness for the acceptance of change is concerned. Edmonson noted that “Psychological safety is not the same as group cohesiveness.” Cohesiveness has been shown to often have the opposite effect of shutting down dissent for fear of undermining or upsetting the group equilibrium. Cohesiveness, then, does not equate to mutual respect and trust required for true speaking up. As Edmonson notes, Golembiewski and others have described trust in terms of the willingness and ability to hold expectations that the team will be supportive of the individual membership to the extent that the individuals are able to exhibit their vulnerability without fear of loss of esteem, position, or value. These definitions matter when the construct of psychological safety is explored at the group rather than at the individual level.

The notion that all team members “must hold similar perceptions of it [psychological safety]” is problematic in teams comprised of populations of different species and may be problematic in human-only teams of diverse cultural backgrounds. Is it really true that all members across the team must hold similar perceptions? For HAW teams there is no way to conclusively say that the perceptions held by the animal team member(s) in its/their roles are similar to or different from those of the other team members.

What can be observed however is the impact of team learning, and exploration of psychological safety as a construct that facilities learning behavior may be of value for this subject population.
Accordingly, of the eight hypotheses put forth by Edmonson in her study, the first four hypotheses have merit as background for interview questions developed for this study to determine whether HAW teams operate in accordance with the teaming constructs and whether psychological safety may be similarly defined for HAW teams as they are for human teams as well as whether psychological safety is, indeed, a precursor to team learning for HAW teams.

Table 1 indicates the original hypotheses developed through Edmonson’s qualitative work and then tested through survey data that are relevant for this study. As noted, the first four hypotheses relate to this exploration of HAW teaming. Edmonson’s hypotheses six and seven relate to psychological safety and leadership. As leadership is not one of the themes included as a construct for thematic analysis, these two hypotheses were not drivers for interview questions. Hypotheses five and eight were not supported by the original Edmonson study and so were not considered for inclusion.

It is notable that this study is not a test of these hypotheses that Edmonson found to be true for human teaming. It is an exploration of whether these dimensions of teaming, learning, and psychological safety merit further study, and possibly testing, for HAW teams and, if so, for what types of multispecies teams?

Accordingly, the subsequent table in the Methods chapter uses the four hypotheses of Edmonson’s as a starting point for interview questions. Questions are mapped to the hypotheses based on the order in which they were discussed with the interviewees.
H1—Learning behavior has been shown through numerous studies prior to Edmonson that learning behaviors have a positive impact on team performance. This is a starting point for her model and the role that psychological safety at the group level may play in the ability of the team to learn. It is notable that Edmonson discusses her conceptualization of learning as a process, rather than an outcome, based upon the definition of learning developed by Argyris and Schoen in 1978 as “a process of detecting and correcting error” (Edmonson, 1999). Edmonson goes further to state that “I conceptualize learning at the group level of analysis as an ongoing process of reflection and action … seeking feedback, experimenting, reflecting on results and discussing errors or unexpected outcomes of actions.” As noted in Table 6 and described in the results from individual interviewees, learning as a process is very much evident in HAW teams as a prerequisite for the animal in learning its role on the team and for many of the human team members that must learn with the animal to perform as a unit. Edmonson notes that “learning behavior consumes time without assurance or results.” The criticality of learning behavior is supported in HAW teaming as it is for human teaming. Repetition of task learning, which is highly critical in HAW team performance, does not guarantee successful outcomes but does increase the likelihood of task success. As she notes, “teams that perform routine (production) tasks may still require learning behavior for effective self-management as a team …” (Edmonson, 1999).
H2—Edmonson notes psychological safety “means that the team will not embarrass, reject, or punish someone for speaking up. This confidence stems from mutual respect and trust among team members.” Observations within multispecies team members, therefore, need to consider whether “mutual respect and trust” can be exhibited across species.

At the group level, Edmonson notes that team psychological safety involves but goes beyond interpersonal trust; it describes a team climate “characterized by interpersonal trust and mutual respect in which people are comfortable being themselves.” The aspect of comfort in being oneself is likely to be supported when it comes to human and animal interactions because there is less inclination for artifice with interspecies interaction—again, the notion that “team members must hold similar perceptions.” This, however, may be more difficult in reality for human teams. The question is, perceptions of what? The perception of physical safety in performing work and the actual task responsibilities may be somewhat similar across species due to the extensive role training that accompanies human–animal work. There is little question that the roles are specific enough to preclude the notion that humans or animals will attempt to perform each other’s responsibilities—that is, job envy—because of the differences in tasks. Additionally, the notion of political awareness and fear of being seen as incompetent may be missing from the animal team role. To suggest that an equine or canine will be embarrassed by not winning a race, performing according to training, or missing a cue is for an experimental animal behaviorist to address. It is
likely, however, that animals do not fear embarrassments within a team that there is “excessive concern about others’ reactions to actions that have the potential for embarrassment or threat.”

H3—This hypothesis argues that team learning behavior mediates between team psychological safety and team performance. Based upon this line of thought, psychological safety is hypothesized to support team learning, and it is notable that Edmonson says that psychological safety “will vary from team to team,” and that “dyads or groups” may differ in their tacit beliefs about interpersonal threat.

In addition, psychological safety is posited to play a facilitating role in team action for the successful accomplishment of tasks. For this reason, Edmonson posits that team learning is a mediator of the effects of psychological safety on performance outcomes. This proposition within HAW teams is less well-supported in this study.

Again, the intent of this study was not to prove or disprove the original hypotheses with respect to HAW team subjects. The intent of this study is to inquire into whether psychological safety exists in HAW teams and, if so, what nature it may take as interpreted from the qualitative interviews conducted.

H4—Edmonson noted that previous studies indicate that there is a “relationship between group efficacy and group performance,” although the exact mechanisms through which “shared perceptions of efficacy lead to good performance” have not been conclusively set forth.
With respect to types of teams within organizations and team learning models, Edmonson notes that the hypotheses above should be applicable “across multiple types of teams” and that “the association between team psychological safety and team learning behavior should apply across different team types.” This is a critical point and the impetus for my study.

Edmonson notes that, based upon her research, new product development teams and production teams should equally exhibit the association between psychological safety and learning behavior. In subsequent studies, Edmonson’s and her colleagues have gone on to discuss the construct within hospital operating room teams and educational institutions. Other academic researchers have extended the study of the construct of psychological safety and team learning to other team types in other industries as well as to organizational-level learning.

To test these hypotheses, Edmonson used mixed methods in an investigation and measurement of the constructs delineated in her model. The research subject teams were located within one 5,000-member organization that manufactured office furniture. A variety of 53 work teams of various types and sizes were included. Initially, interviews and observations of the team interactions in the field served to “verify that the theoretical constructs of team psychological safety and learning behavior could be operationalized,” and subsequently develop survey items to measure the constructs in language that would leverage the contextual settings.
The constructs developed by Edmonson based on qualitative data were the most useful portions of this research for my study. Because any follow-up quantitative research is open for future investigation, the measurement scales developed by Edmonson were not reconstructed for this study. Part of the difficulty in using survey instruments in multispecies teams is that the survey questions are only accessible to the human members of the team, thus the depth and richness of the measurement would be questionable with respect to HAW teams. Accordingly, the constructs developed through qualitative research in Edmonson’s work were the drivers for the thematic analysis of this study.

Edmonson’s results indicated that learning behavior within teams was positively associated with team performance and that psychological safety significantly predicted team learning behaviors toward team performance.

The goal of this study for HAW teams is to learn more about how HAW teams function with respect to these constructs versus a confirmation or rejection of Edmonson’s model.

One aspect missing in both Edmonson’s (1999a) study and this study is the temporal element in the development of psychological safety. The time requirements for psychological safety to be established and mediated by learning to effectively impact team performance outcomes is varied across both human teams and HAW teams. Much of this involves the various nature of the work and the time allotted for teams to engage.
Thoroughbred racehorses begin their training as yearlings and may not be matched with their ultimate trainer until two or even three years of age. Two-year-olds often race as juveniles. At three years old, top racehorses for the premier graded stakes races, such as those in the Triple Crown, must be ready. They have one shot as three-year-olds to run in these prestigious events. Older horses may run in the Breeder’s Cup Classic and other graded races on dirt and on turf, however the need to “get up to speed” early is evident. Justify, the winner of the 2018 Triple Crown, was retired at three and is already in his first stud season. American Pharoah, the 2015 Triple crown winner, was retired at the end of his third year. Much of this has to do with the economics of racing teams. The stud value of these horses is counted in the millions of dollars. They must be in good health to cover mares (breed with female horses), and so it is economically desirable to have them at stud when they are in their prime and most valuable—and unhurt.

Compare this with the Budweiser Clydesdales, who start training as juveniles but are not usually considered for a working hitch until they are at least four or five years old, and often do not reach their full potential until six or seven years of age with continual training. The time cycle for the development of behaviors related to the construct of psychological safety and team learning is much longer for these equines than for thoroughbreds. The hitch Clydesdales are not used for breeding purposes (they are all geldings, i.e., castrated males), and so their working lives may be
extended. The veteran horses on hitches are especially prized because of their knowledge and training. The same may be said for police equines.

Canines also have different cycles of training and learning and may work with different extended team members (SWAT teams, narcotics teams, FBI investigation teams, and so forth) over varying periods of time. Puppies (under one year of age) are too young for law enforcement or search and rescue teams even though they may be paired with their handler and the team unit at a young age.

For human teams, rookies are typically given leeway for learning even if they are performing with their future teammates and managers, coaches, and so forth. The time to assimilate into the team culture, including a culture of psychological safety, takes different paths and may not be identical for any two individuals, whether human or non-human.

Edmonson’s study of leadership and learning in surgical operating rooms examines the important of “voice,” or speaking up, in the coordination of multi-disciplinary teams facing uncertain and risky situations. It is notable that many of the characteristics of action teams, rather than virtual teams, apply to human–animal teams in both law enforcement and public agencies. Many of the human–animal work teams would qualify as action teams using Edmonson’s definitions. Team learning processes described in models of surgical teams could provide an interesting basis for the study of human–animal teams with respect to the practice, training, and reflection that take place in team learning and how these go on to support organizational
success. Indeed, the research design used for the study of operating teams could be closely followed and, with some adjustments, be utilized to compare and contrast the data analyses for human only and human–animal work teams.

In 2003, Edmonson produced another work (Edmonson, 2003a) based on studies with teams in multiple industries (notably, manufacturing and healthcare), discussing psychological safety and trust as precursors to specific types of team learning. In the paper, she distinguished trust as “the expectation that others’ future actions will be favorable to one’s interests,” with psychological safety referencing “a climate in which people are comfortable being (and expressing) themselves.” Psychological safety then is very much evidenced by team members’ willingness to speak up within the collaborative structure of teams. Trust is considered to be synonymous with mutual respect among team members.

It is interesting that Edmonson notes that psychological safety is particularly relevant for small groups, whereas trust has special emphasis for teaming in dyads. Trust, however, does not completely convey all of the nuances of psychological safety in work relationships, notes Edmonson. Two additional dimensions are important in psychological safety: the extent to which team members feel valued in the work setting and the amount of comfort team members experience within the context of work.

Psychological safety is distinguished from trust based upon the following three dimensions:
1. Focusing on the self by determining the extent to which the subject will allow other team members to accept the subject’s speaking up, acting on behalf of the group or allowing mistakes versus trusting others, and giving them the benefit of the doubt or the opportunity to speak without fear of retribution.

2. The time differential between psychological safety, which is often a very short-term circumstance based on situational actions, versus the longer-term implication of a trusted relationship.

3. The relationship of psychological safety is more of a *group* process in that there are “observers” or other participants who provide collective judgment based on team norms or group culture, versus a trusted relationship, which is more *dyadic* in nature.

Edmonson’s field research in psychological safety incorporated primary data from studies of medication errors in hospital settings, organizational change initiatives within a large manufacturing company, cardiac surgery teams in the operating theater, and manufacturing departments with a number of varied teams. Qualitative data were coded to develop quantitative measures that could be compared across settings to support theoretical propositions. The first set of propositions deals with the five key factors that she considers antecedents to both trust and psychological safety.

The first set of propositions put forward was based on previous or anticipated research and includes the following five factors:
1. Leadership behavior that sets an example for team member behavior indicating that the leader’s power will not threaten their psychological safety. This behavior includes the leader’s accessibility for team member discussion and feedback (private and team-based) as well as the creation of a climate that invites and encourages input from team members.

2. Interpersonal relationships among team members that support the belief that team members are seen by others as competent and are trusted to be given the benefit of the doubt in unclear situations.

3. The universal use of practice or rehearsal situations, similar to those used in sports teams and musical organizations, have been shown to be supportive of the development of psychological safety. These practice situations were a concept introduced by Peter Senge in the early 1990s (Edmonson, 2003) and have not been universally and repetitively used in many operational or working teams. This concept is another interesting point to investigate for HAW working teams as the combination of humans and animals requires some sort of formal training in the communication dynamics between team members and is necessarily different due to the innate differences of the species.

4. Supportive organizational infrastructure and culture is another precursor to psychological safety in working teams. Note that Edmonson refers to this as the “organizational context” that provides “access to the information and resources that are “likely to reduce insecurity and defensiveness in a team” (Edmonson, 2003).
5. The information and developing group dynamics within the team that permits team members to try on different “hats” or roles, to play the devil’s advocate, or to speak up outside the formal boundaries of their roles without fear of retribution.

Once psychological safety is established, the following learning behaviors are posited to be facilitated or enabled:

1. Seeking help from those “in a position to judge” performance without fear of being judged as incompetent.

2. Seeking feedback that is often important for task success without fear of interpersonal risk and without anxiety over vulnerability.

3. Finding the voice to speak up about mistakes or vocalize concerns by alleviating fear of repercussions.

4. Stimulating innovative behavior through increased comfort level by communicating new or novel methods or ideas for teamwork as well as new processes and products. The intellectual and emotional freedom to develop breakthrough or next generation ideas without fear of ridicule is part of this concept.

5. Boundary-spanning communications and behaviors across individual teams within an organizational as well as across external or environmental agents.

More recently, Amy Edmonson’s publication *Teaming* (2012), which describes how team learning helps to spawn innovation in complex operations in the “knowledge economy,” contrasts leading and learning across routine operations, complex operations, and innovation operations. One of the central points of the book is that the
benefits of teaming, and team performance as preceded by team trust and psychological safety, specifically lead to better performance, and better performance leads to organizational learning, which is a precursor to innovation.

**Kotsiopoulos and Bozionelos (2011)**

This study extends the knowledge of factors that influence team performance by investigating the nature of team learning, how team learning is related to team performance, and the interrelationship with team characteristics—notably psychological safety. The authors present a model indicating that psychological safety is an antecedent for two basic types of team learning:

1. **Exploratory**, defined as learning activities related to searching, discovery, experimentation, and innovations, and
2. **Exploitative**, defined as team learning that facilitates efficiency, refinement, execution, and selection in furthering team performance and organizational success.

The authors explain that psychological safety will positively relate to exploratory learning, using the seminal definition that Edmonson set forth in 1999. “Edmonson’s landmark article established the construct of psychological safety and team learning in exploratory learning at the team or group level. The high levels of risk taking and uncertainty in exploratory organizational learning require the stabilization of psychological safety across team members” (Kotsiopoulos & Bozionelos, 2011). However, Kotsiopoulos and Bozionelos also note that low levels of psychological
safety “mitigate against feelings of embracing novelty” and team-focused trail blazing. “The greater the motivation to engage in thinking that challenges the status quo, the more incremental the psychological safety basis becomes for the team to continue to become even stronger as the values of the two variables increase—a positive non-linear relationship between psychological safety and exploratory learning.

In the Kotsiopoulos and Bozionelos model, psychological safety serves as an antecedent to team learning, which is a mediator between psychological safety and team performance. Task conflict, also discussed, may have a moderating influence on the psychological safety impact on team learning; however, the authors’ study gives substance to the claim that psychological safety is positively related to both categories of team learning.

**Edmonson and Lei (2014)**

This meta-analysis reviews the salient literature of the last two decades during which there has been a “renaissance in the examination of the construct of psychological safety, most especially regarding the consequences of taking interpersonal risks in the workplace.” Organizational research has come to recognize the criticality of psychological safety as a factor in the establishment of successful outcomes for teamwork and team learning as well as for individual and organizational learning.
This review looks at the construct over three streams of research—at the individual level, at the organizational level, and at the group or team level—and presents a case for psychological safety as being most impactful in group- and team-level activities. Accordingly, the models of psychological safety at the individual, organizational, and team levels are included as they have evolved during successive additions to the construct through various scholars in the U.S. and in other countries.

“Organizational research has identified psychological safety as an important factor in understanding how people collaborate to achieve a shared outcome, thus making it a critical concept for future research.” Note the word people and the notion that collaborative work occurs among humans only.

The definition used for this study harkens back to the earlier work by Edmonson: psychological safety describes “The perceptions of the consequences of taking interpersonal risks in a particular context such as the workplace.”

The central theme of this construct is that it enables a contribution of ideas and actions in an unfettered manner to a shared mission or objective.

Psychological safety as an enabler of learning and successful performance has most recently been examined by Carmeli (2007), Carmeli and Gittell (2009), and Bunderson and Boumgarden (2010) along with Edmonson and her associates. Historically, the roots of the construct harken back to Schien and Bennis (1965) in writings on interpersonal risk in the workplace. These scholars posited that psychological safety was essential for the security of individuals to enable them to adapt to behavioral change in the workplace. Schein (1963) later added that
psychological safety played a role in organizational learning, in that it helped individuals to overcome “learning anxiety.” Psychological safety was posited as a mechanism for individuals to be able to put their attention on problem prevention and goal achievement “rather than on self-protection.” This last statement is telling: initially the construct of psychological safety was associated with self-protective mechanisms; however, the “protection from what?” question was not specified. Presumably this was protection from psychological and emotional stress associated with speaking up and accepting new learnings—about the self and others—within the work setting.

In the study, Edmonson and Lei identified theoretical and empirical work published in management research journals and books that were identified through database searches. The focus was limited specifically to psychological safety as a construct. The results were culled to identify empirical studies—whether qualitative or quantitative methodologies.

The literature was then associated with one of the three levels of psychological safety analysis: individual, organizational, or group. It is also notable that that research from each of the levels does cross-over and that the constructs are not completely isolated from each other.

In brief, the research at the individual level of the construct has been associated with people’s ability to fully engage at work and the relationship of engagement with individual innovation and creativity. Scholars such as Gong et al. (2012) and Kark and Carmeli (2009) conducted studies in Taiwan and Israel, respectively. Two
particular areas of psychological safety appear to have garnered the most study. The first, individuals’ in-role behavior, refers to individual productivity, creativity, and knowledge sharing. These behaviors are, it was argued, moderated by an individuals’ level of self-confidence. A second category of research contributed to the notion of speaking up and individual voice in the workplace as directly related to creativity such that psychological safety’s relationship to speaking up is as a mediator between antecedent variables such as leadership behaviors (Edmonson) and proactive behaviors (Gong et al.,) on “improvement-oriented voice.”

It is interesting to note that “voice” itself was identified as either “promotive voice,” which expresses work process improvement and problem solving, or as “prohibitive voice,” which relates to the ability to speak up about concerns and the freedom to offer alternatives to stated plans as well as disagreements with existing conditions or cautionary admonitions. It is germane here to note that Edmonson and Lei present Liang et al.’s research in 2012 with Chinese retail workers, which found that “psychological safety [was] strongly related to prohibitive voice.” Detert and Edmonson (2011) posited that specific beliefs about when and why it is risky to speak up in the workplace, also supplement psychological safety as “exerting an independent effect” on the use of voice in the workplace.

We shall examine the concept of prohibitive voice in the context of HAW teams’ speaking up experiences later in this paper.

Most of the organizational-level research in psychological safety is related to organizational climates that incorporate trust and respect and organizational learning.
tied to the outcomes of organizational performance. Antecedent actors in supporting the establishment of a climate of psychological safety and trust were found to include human resource practices, the strength of working relationships (e.g., “high-quality relationships”), and the effort to incorporate process innovation into organizational learning and performance.

The analysis of psychological safety at the group- or team-level entails a rich set of studies that includes the examination of psychological safety as a mediator, moderator, and direct antecedent for both team learning and team performance. In addition, studies by Edmonson (1996, 1999a) found that psychological safety may influence groups differently within the same umbrella organization. Despite a strong organizational climate, the beliefs of individual working teams varied across the organization (Edmonson, 2002, 2003), providing impetus to suggest that psychological safety may be more of a group-level construct after all.

Edmonson and Lei’s discussion of psychological safety at the group level views the construct alternately as an antecedent, a mediator, and a moderator, with respect to organizational outcomes and learning, and also, as an outcome of its own antecedents. As an antecedent, psychological safety is most often related to team outcomes and team learning. It is in this vein that my research exploration into HAW teams is targeted. Edmonson (1999a) began with the presentation of psychological safety as a mediator of team learning. More recent studies (Huang, 2008) through surveys of 100 team members in 60 working teams in Taiwan also suggested that psychological safety promotes team performance through the impact on team learning.
Psychological safety has also been examined as a predictor of performance improvement through observations, interviews, and surveys within hospital care practices. Results indicated that psychological safety was particularly associated with learning how to perform tasks and performance improvement through the implementation of behavioral skills and on-the-job tasks, experimentation, and revised work practices. Other group-level studies in hospital units showed that psychological safety and problem-solving efficacy served to reduce operational failures during hospital shift work.

A handful of studies of more recent vintage built on psychological safety research to examine trust and cooperation as predictors of team learning and as influencers on psychological safety as a mediator of team learning. Edmonson and Lei include these influencers in their model of group-level psychological safety.

Other studies cited by Edmonson and Lei posited psychological safety as a mediator of other antecedents for outcomes of groups performance improvement, learning, and these antecedents may include organizational context, team characteristics, and team leadership. Additional studies at the group level showed that supportive team structures were enablers of psychological safety, which, in turn, led to team learning and team performance behaviors. This was the original proposal by Edmonson in 1999 in her landmark study of 496 people in 51 working teams within a large manufacturing organization. The qualitative interviews and field observations led to the initial survey scale of seven items that have become the standard for team psychological safety research:
1. If you make a mistake on this team, it is often held against you.

2. Members of this team are able to bring up problems and tough issues.

3. People on this team sometimes reject others for being different.

4. It is safe to take a risk on this team.

5. It is difficult to ask other members of this team for help.

6. No one on this team would deliberately act in a way that undermines my efforts.

7. Working with members of this team, my unique skills and talents are valued and utilized.

These seven survey questions, as will be described later, were regarded as of 2016 as the standard for validated survey items with respect to the construct of psychological safety.

Additional studies by Edmonson and colleagues at the group level focused on relationships of leader inclusiveness and leader support as antecedents to psychological safety.

Studies conducted during the past 10 years continue to build on earlier research. These have included research on information sharing and conflict among team members and have made distinctions between internal learning, that accomplished within the team itself, and external learning, which included learning from others outside of the team’s boundaries.

It is noteworthy that Edmonson et al. (2001) used qualitative data in their field study of 165 operating room team members across 16 hospitals that were undergoing the
implementation of new cardiac surgery technology and found that psychological safety played an important role in some team’s ability to establish new procedures. This study also provided evidence that teams within a single organization may have very different measures of psychological safety.

The use of qualitative methodology by coding semi-structured interview data and using field observations to draw conclusions was instrumental in justifying the design of my study using only qualitative data gathered through similar techniques: semi-structured interview questions and interviews conducted face-to-face and one-on-one in the field.

Further study not covered here includes examination of the group construct of psychological safety in virtual or dispersed teams, with geographic and cultural diversity reliant upon electronic media for communications. Findings showed that teams indicating higher levels of a psychologically safe climate for communications may serve to mitigate some of the more negative aspects of geographic dispersion and virtuality.

Edmonson and Lei state, “the studies of psychological safety as a mediator in explaining team learning and team performance suggest potential boundary conditions for when psychological safety is particularly helpful.” Contextual conditions related to team complexity, team size, co-location, or dispersion create variations in how psychological safety presents itself. As further noted by the authors, “psychological safety alone may not lead to team learning and performance but rather requires the presence of conditions that call for learning and communication.”
It is notable that none of the aforementioned studies includes physical safety as a condition for psychological safety, either as an antecedent or as a moderator. This gap will be examined further in the findings and conclusions of my study.

**Newman, Donohue, and Eva (2017)**
Newman et al.’s work is notable as this is the most recent meta-analysis of psychological safety and comprises a systematic review of research dating back to the original Kahn (1990) and Edmonson (1999a) publications.

The authors note that “The majority of studies have followed Edmonson’s 1999 definition” even though other definitions of the construct have been proposed from time to time.

These authors say, “although psychological safety shares some overlap with trust, psychological safety is conceptually different as I focus on how group members perceive a group norm, whilst trust focuses on how one person views another.” This point must be kept in mind, particularly in examining and coding HAW team responses as it is not possible to know how key team members—that is, team members of other species—“perceive” the group norms. Therefore, in pursuing this population, we rely on the human members of the team to speak for themselves and speak for other team member(s).

According to Newman et al., as of 2015, there were over 83 published articles on psychological safety. Not all were empirically based, and the publications were across a variety of disciplines. They note that they examined a larger number of publications
than did Edmonson and Lei in their 2014 meta-analysis or other meta-analyses conducted during the same time frame.

Nonetheless, they set the Edmonson definition of psychological safety at the group level and the original seven-item scale that she developed as the model for operationalizing psychological safety as a construct. Although other researchers have developed proxies using similar constructs they often depart from “Edmonson’s (1999a) precise and constitutive definition of psychological safety.” They further note that Edmonson’s original scale was developed based upon “rigorous scale construction protocols,” and “the fact that nearly all of the extant studies examining psychological safety at the team or organizational levels applied Edmonson’s (1999a) definition of the construct”; it is recommended that these measures become the de facto model for further quantitative studies.

It is notable that the call for future research meets some, but not all, of the following criteria for the selection of HAW teaming to examine the construct:

1. Adopting alternative methodologies to study psychological safety, including qualitative data analysis;

2. Researching the influence of culture on the development of psychological safety and how it is manifest. This would, of course, include other cultures with communication styles that lend different perspectives on what it means to “speak up” within the society at large, let alone within a working team;

3. Studying possible negative effects of psychological safety;
4. Studying more cross-level aspects of psychological safety to determine the influence of antecedents on the construct.

Newman et al. state that “Psychological safety is becoming increasingly important to organization success in today’s business environment.” My comment on this article is that the construct of psychological safety, if it is be relevant across a multiplicity of organizations, needs to be studied apart from the “business environment”; healthcare and education are a start. Not-for-profit organizations and public sector organizations such as law enforcement may provide additional insights on the construct.

**Humans and Animals: Since the Dawn of Civilization**

*DeMello (2012)*

In 2012 DeMello published a book that serves as a formal introduction to the field of human–animal studies, entitled *Animals and Society*. This work is notable in its intent to define the field of HAS as it has been historically developed and include definitions of the field as a different approach to seeing the relationship between humans and other species, including methodological hurdles for the field and theoretical underpinnings. Notably, DeMello introduced the subject of “real-world implications” of HAS that includes such topics as animal legislation, animal rights, and all forms of animal-assisted therapy (AAT) as well as animal-assisted intervention (AAI), including such newer areas of study as “compassion fatigue”—the study of animal welfare workers, volunteers, and veterinary professions. (Note:
One even more recent area of study is the case of canine therapy “overload” in which canines used for therapeutic visitations and support are, effectively, breaking down from the stress of constantly assisting others.

DeMello’s work, widely quoted in HAS, is notable as a touchstone for legitimizing the discipline of HAS within the social sciences as more than a branch or veterinary science or zoology, or even anthrozoology—another made-up name for human–animal studies. The key emphasis is the relationship between animals and society, at all levels and in a variety of capacities. While medical, therapeutic, and laboratory work; agriculture; companionship; and wildlife preservation as part of planetary ecology have been studied and continue to be addressed, the area of HAW has not been widely investigated. Searches in scholarly literature for human–animal teams and human–animal work resulted in only a few “hits.” Hannah and Robertson (2017) were correct: this is a little studied area of organizational behavior.

**Serpell (1986)**

Serpell’s work (Serpell, 1986) is referenced extensively in HAS studies as one of the earlier modern works on animals and society. He examines the role of companion animals, especially “pets” in various forms, and discusses the companion animal as viewed over history as substitutes for other humans and instruments of health and bonding and human friendship.

Although he discussed a variety of species, it is clear that the human–dog and human–horse relationships have been historically important and the most relevant for the study of the relationships of humans and animals. Decidedly anthropological,
Serpell considers the role of pets in tribal societies and engages in a discussion of the ethical treatment of animals.

Although not directly related to HAW, his study is considered to be important in the development of human and animal social constructs.

**Hippos Athanatos** [ἨΠΠΟΣ Ἀθάνατος] (“The Immortal Horse”)

Horses have had working relationships with humans or human-like gods going back to ancient mythology. Horses were integral to the transportation of gods before they were available to mortals as a major mode of work, leisure, and relationships.

The *hippoi anthanatoi* were the horses that drew the chariot of Zeus and achieved god-like recognition. The name “immortal horse” suggests that, like gods, horses were considered to be worthy of eternal life along with the gods that they were associated with (Zeus, Diana, and Athena, to name a few).

**Domini Canis** (“The Dog of God”)

Canines have been associated with mythological as well as Christian literature for centuries. It is notable that, according to the Roman Catholic history of the Dominican Order, the mother of St. Domenic dreamed of a “dog with a torch in its mouth,” and the association of St. Domenic with dogged defense of religious beliefs became a hallmark of the order he founded. Renaissance art depicts dogs with Dominicans. Indeed, dogs were often included in paintings as a metaphor for the Dominican order; particularly Dalmatians, with their black and white coats, were associated with the religious frocks of the monks.
Maran et al. (2011)
Maran et al. wrote extensively about the philosophical roots of animal and human relationships in a seminal work in the field of zoosemiotics. In discussing the centuries-old debate about whether animals had the ability to use reason, the authors note that Aristotle’s declaration of humans as the rational animal supported the argument for human superiority; however, this marks the beginning of the formal observation of animals’ behavior and methods of communication. In the 1200s Thomas Aquinas posited that a lack of freedom causes a lack of rationality in animals. This line of thought is brought to a pinnacle in the 1600s with Rene Descartes’s observation that “animals can be compared to a machine without a soul” since, he believed, the presence of reasoning is indicated through language, presumably language that humans can understand. John Locke, in the same century, as well as Immanuel Kant in the 18th century, pointed to animals’ “lack of self-reflection” as justification for their lesser existence.

A contrasting stream of thought, however, also developed regarding ethics and animals, maintaining that animals do think and communicate. Porphyry famously asserted that logos does exist in non-human animals. It is with Voltaire in the 18th century that the opposition to Descartes more clearly developed with his stance that animals do learn and have experiences. Others who argued for animal consciousness included David Hume in the 18th century and Charles Darwin in the 19th century. They also expressed the counter-Cartesian viewpoint that animals are able to think;
therefore they are not merely “machines.” Perception and memory, thus, become hallmarks for the argument that animals are sentient beings.

Although this history is meaningful, we cannot assert at this time that we have a method to measure an animal’s “shared values” within human and animal working teams; therefore, we must conclude that the original construct of psychological safety as defined by Edmonson in 1999 cannot fully apply. What is still worth examining, however, is the aspect of speaking up in the workplace and other indicators that psychological safety may be operative in HAW teams.

Sankey et al. (2010)
Extensive physiological study of the biological mechanisms behind behavioral responses indicates that horses successfully associate humans with positive experiences if rewarded to do so. In addition, horses within the herd do exhibit strong preferences for certain social partners; for example, mares are selective in socializing with their own foal, and equines can discriminate between humans through facial characteristics. Studies have also shown that horses are able to transfer this ability to discriminate among photographic representations of humans.

The points of interest for equine and human communications in working relationships are as follows. When positively reinforced, horses were able to respond to the vocal commands of humans, whether they were familiar or unfamiliar; however in the experimental testing of behavior they were able to discriminate between their familiar humans and new persons. This indicated that horses do have different bonding levels across species.
Although horses are responsive to vocal commands, tactile (kinesthetic) communications are the basis of equine training. The equine hearing range regarding the human voice is broader than that of canines, according to references research, and they are “able to learn and memorize human words that are auditory stimuli in association with a task.” Horses do have the ability to know a limited vocabulary. Studies have also shown that horses do recall problem-solving strategies for a minimum of seven years. Longitudinal studies on the long-term memory of horses indicate a long-term memory capacity that may allow for horse–human social exchange over several years. The confirmation of the study was that horses are able to establish relationships over repeated encounters and that, once established, these encounters may exist in long-term memory and may help to inform future horse–human interactions.

**Dawkins (2014)**

The intent to discuss whether animals are conscious of pleasure and pain draws many researchers to the study of animal consciousness as a critical element in animal welfare. As Dawkins states, “Consciousness is the most elusive and difficult to study of any biological phenomenon.”

Animal scientists have not yet solved the questions of human consciousness; currently animal scientists have differing viewpoints that fundamentally reflect either a behavioristic approach that is based in natural history and the science of ethology. In the 1950s and 1960s, scientists such as Lorenz and Huxley argued that “the subjective experiences of animals should be part of any study of their behavior.”
The issue in animal science has been to develop a method to prove animal consciousness: feelings that humans share through language are simply conjecture about the possible state of the animal’s thinking.

In the 1960s ethologists began studying subjective feelings in animals as a result of behavioral observations of other species’ complexity of behavior—such as using tools, problem solving, and communicating via means other than human language. Donald Griffin was a vocal researcher in the argument for increasing the study of complex behavior in animals.

These studies led scientists to draw conclusions about animals’ “mental experiences” in terms of their capacity to think about events that are not in current sensation or awareness. The following two general kinds of awareness were then posited:

1. Phenomenal consciousness, meaning the ability to sense pain, please, taste, and so forth, and
2. Access consciousness, which is defined at the “ability to think and reason.”

Cognitive animal science has often centered on phenomenal consciousness, or “sentience,” and the ability to distinguish positive and negative experiences.

The proposition that “animals with only limited cognitive abilities might still suffer pain or hunger” is not equivalent to saying that animals have the ability to reason. As with human studies and the behaviorists’ conviction that “methods of introspection widely used in the nineteenth century were invalid,” 20th-century researchers and scientists placed a premium on the use of direct and measurable
evidence rather than the use of analogs from what is observable behavior to what cannot be observed (consciousness).

Although not part of this study, it is critical to note that in working with animals, interviewees will sometimes attribute personality and emotional attributes to the animals that they are in constant contact with.

More recently, scientists have come to regard human emotions as having separate categories: physiological (body processes), behavioral (facial expressions, body language), and the “conscious experience of emotions.”

That non-human animals share the first two conditions has been tested and validated as they are observable. The question among animal welfare advocates had become one of trying to make the connection between the physiological and behavioral elements as indicators of the conscious experience of other species.

Recent studies have engaged in the development of methods to gauge animal responses or indicators to “what is happening to them.” Much experimental work has been done in laboratory settings or in contrived experiments where animals can indicate preferences and, presumably, imprint these preferences; however, none of these has been conclusive enough to make any strong claims. Neurological work on human consciousness has focused on the “correla(tion) of neural activity in human brains, and then to look for similar activity in the brains of nonhumans.” The issue of finding physiological connections for consciousness has been difficult and without a conclusive map of brain to consciousness. In addition, the brain structures of other species are quite different, so making any analogous conclusions is quite risky.
It is important to understand what animal behaviorists say about the limitations of animal studies in general when it comes to making statements or conclusions about animals working with humans. It is important to, again, rely on behavioral and observable actions and reactions for these are the most meaningful for learning in the team environment.

**Human–Animal Work (HAW): A Specialized Area of Organizational Behavior Studies**

**Brandt (2004)**

Keri Brandt, a sociologist from the University of Colorado, published the results of a study on human and horse interaction and the approach to communication that is distinct to this human–animal relationship. The study involved 25 in-depth interviews and two years of observations of horses and owners/riders/partners to “explore the process by which humans and horses co-create a language system.” Using the principles of symbolic interaction, Brandt applies the symbolic interactionist approach as a theoretical model for nonverbal communication challenges for “all alingual beings—human and nonhumans alike.” Brandt’s descriptions of kinesthetic empathy in sport and between humans (e.g., ice dancing, pairs skating, other nonverbal dyadic sporting events) closely parallel those of equestrian activities.

As a qualitative scholar, Brandt developed open-ended questions that provided insight into communications between humans and animals that could help to inform a survey of human–animal work.
The conclusions drawn include the following:

1. The co-creative process between humans and horses helps to “ensure safe and human interaction for both species.” Given that a 1200-pound horse could inflict considerable injury on humans, there are mechanisms to work together “in a goal-oriented fashion” that develop between horse and human.

2. Rather than taking an anthropocentric approach, Brandt considers the animals to be “active participants” in the co-created communications and goes on to posit that there is a “complex set of negotiations” that takes place between horse and rider. The racing industry and horse–rider–trainer triads may shed additional light on what teaming with alingual beings entails.

Brandt concludes her discussion by noting that research must address the question of communications across species in order to generate new possible constructs for the working lives of those who cannot speak. This could be a very interesting application of knowledge gained by studying HAW.

**Hosey and Melfi (2014)**

These authors, representing the U.K. and Australia respectively, are important to include in this review as they performed a meta-analysis of all literature published related to human–animal intervention (HAI) and human–animal relations (HAR), also known as human–animal bonds (HAB) in 2013. As a subset they also singled out animal-assisted therapies (AATs) and animal-assisted interventions (AAIs). In
literature searches up through the year 2012, only 329 papers were produced in these multidisciplinary areas in the following categories:

1. Companion animals (n = 161 papers)
2. Agricultural animals (n = 76 papers)
3. Laboratory animals (n = 18 papers)
4. Zoo animals (n = 22 papers)
5. Animals in the wild (n = 21 papers)
6. General papers (n = 31 papers)

Throughout the study there is no mention of HAW as a distinct subset of human–animal relationships or work capacity. There is no mention of animals in organizational settings outside of containment, farming, or companion settings.

As of the date of the study, there were roughly 80 peer-reviewed journals that had published only a small number of papers in the human–animal studies area over the past 20 years.

The categories of subjects covered did include “productivity” and “other”; however, outside of animal-assisted therapy or interventions, there was no publication specifically regarding animals in other working capacities.

I believe that this meta-analysis helps to confirm that organizational behavior between teams of humans and animals in complex and adaptive work situations is very open for research.

In conclusion, this review of some of the literature for learning, which informs the original construct of psychological safety, the evolution of the construct of
psychological safety and its criticality to teaming, and the very brief introduction to
current studies regarding animals within society and their innate abilities to perform,
is but an introduction to the research begun here. It is by no means all-inclusive of
every aspect of scholarship that impacts HAW teaming nor the usefulness of the
construct of psychological safety. It does, however, serve to both introduce the
construct as well as to support the selection of the subject population of HAW teams
as valid and important for expanding our knowledge about the nature of teaming
when multiple species hold critical roles in organizational task accomplishment.
Chapter 3: Methodology

In preparation for the development of questions for human and animal teaming, approximately one year was spent reviewing non-scholarly literature, including current and historical multi-media accounts of thoroughbred racing and mounted or canine police within the United States. Also reviewed were various publications on canine training for search and rescue as well as performing site visits to equine and canine working venues, before engaging in scholarly research on the applicability of the construct of psychological safety as it relates to learning in human and animal working teams for equines and canines. This preparation included equestrian riding lessons, thoroughbred racehorse ownership, and the completion of a certification training course and externship in veterinary assisting. This immersion prior to actual data collection proved extremely helpful for qualitative discovery during the actual study.
This introduction to the contextual data was critical in determining what subject populations would provide a broad yet concise vista of the current HAW team landscape. Personal accounts, biographical work on famous equines and canines at work, and casual discussions with working team members all preceded the development of the concepts of HAW teams that would guide this study. It is critical to note that, for a qualitative analysis with heavy phenomenological content, I chose to engage in sufficient background work to feel comfortable in developing questions for interviews. The ability to engage with subjects using their lexicon for working terms helped to create investigator credibility with the human subjects interviewed and provided networking opportunities, which later proved valuable for accessing subjects for this study.
I entered this study from a personal philosophy of pragmatism. The methodology used for obtaining, reviewing, and evaluating data was based on qualitative induction: the aim was to examine the themes of psychological safety and its relationship to learning within a unique set of organizations that were understudied: human and animal working teams. My initial exploration was prompted by a singular question: What is it like to work with team members in an organization where the team’s mission and purpose included an equine or canine team members with a distinct role in actualizing the organizational goals of the team? My approach to the questions stems from decades of work in project management teaming within large corporations in technology, medical products, and pharmaceuticals. Project teaming in traditional human teams is a keystone of solid project management results. Projects are generally team endeavors in managerial and corporate environments, such as those often studied in organizational development and change.

The question led to a specific interest—psychological safety—as a construct that has been studied with human–human teams only. The call for expanding the study of the construct in different organizational types and venues prompted my interest in studying this construct and its relationship as a mediator of team learning with a population of a cross-section of equine and canine HAW teams. Because these organizations have typically been the subject of scholarship in sociological or behavioral (animal and/or human behavioral) studies, the opportunity to explore them presented me with a basis for a phenomenological approach to the
investigation of whether psychological safety and team learning are manifest in similar ways in HAW teams.

From this outset, there has been no intent to either develop new theory or to “test” the underlying hypotheses of the construct of psychological safety. I approached this study the way that an anthropologist might consider learning about new populations: the HAW work and teaming was unknown territory. My decision to employ thematic analysis as my primary methodology came about after the initial subject data revealed that the Edmonson’s (1999a) definition of the construct of psychological safety could not realistically fit the HAW teaming organization. The very nature of teaming with an animal means that the notion of “shared values” cannot be proven or validated though the observation of animal team members’ roles. As this study relied on the responses of the human team members about teaming with animals and not responses from the animals themselves, the identification of themes that might include or overlap with the psychological safety construct and its relationship to team learning inspired the primary objective of this study.

Thematic analysis is one of the qualitative methodologies that is available to scholars studying organizational phenomena. Because I was looking for very specific themes that traced back to the original construct of psychological safety and its relationship to learning, I examined the construct and four of the hypotheses developed by Edmonson in the original 1999 study and then developed a set of semi-structured, open-ended interview questions to gather data from human team members in face-to-
face interviews. Two of the interviews took place via telephone; however, in both cases, I met the interviewee in person on another occasion of observation.

As a researcher, I began this quest from a true *tabula rasa* embarkation point. The hallmark of a purely exploratory study is the inductive sensibility that the researcher is able to approach the data with a completely open mind: there was no preconception of whether or how the construct of psychological safety and learning plays out in this unique working population.

According to Boyatzis (1998), “A theme is a pattern found in the information that, at the maximum, interprets aspects of the phenomenon.”

As Boyatzis further notes, “thematic analysis is a way of seeing. Often what one sees through thematic analysis does not appear to others. Observation precedes understanding.” The phenomenology of a critical behavior, recognizing it (in this case the work by the team) as a codable revelation, must occur before anything is encoded, and certainly before that coding is analyzed.

In the case of thematic analysis, coding may occur through the systematic observation and questioning of those engaged in the organizational behavior. As qualitative methodologists have noted (Boyatzis, 1999; Guest, MacQueen, & Namey, 2012), thematic analysis is a method for researching phenomenological data being assembled for inductive exploration of a new research agenda, or, as in this case, the exploration of an existing theoretical platform within an entirely new subject population. It is critical for the reader to understand that inductive investigation is aimed toward
directional scholarship and often precedes the development of theory or the testing of extant theory.

As noted by Boyatzis (1998), “For the scholar, thematic analysis allows the collection or use of qualitative information in a manner facilitating communication with a broad audience of other scholars or researchers.” In the case of this study, the facilitation of communication is intended not only for discussion by other scholars in organizational sciences but also includes those researchers across such disparate disciplines as animal behavior and organizational development interventions. Added to this audience may be a number of interested parties who work within the subject organizational areas who might wish to use this work as a diving board for entering the untested waters of other areas of HAW, from law enforcement to industrial marketing.

Whether the resulting pattern recognition from this thematic analysis is of sufficient interest for further publication is not a driving factor in my selection of questions or methodology. Qualitative methodologies such as thematic analysis are not often held in the same regard as statistically validated, multi-rated, and relatively “airtight” quantitative studies. To be perfectly honest, obtaining the approval of journal editors was not a major motivation for my choice of methodology. What was most important for this researcher was to honestly and open-mindedly discover where along the spectrum of psychological safety and learning in the workplace of HAW teams might be found, if at all, and to represent the subjects interviewed in their own words, in the
context of their daily work, and with the curiosity of an anthropologist entering a new cultural milieu.

The absence of psychological safety as defined by Edmonson (1999) was not only a real possibility but, one could argue, a probability since shared values cannot be proven to be held between animal and human team members. This did not deter my study from being conducted for the following reasons:

1. My question of what it is like to team with an animal could possibly lead to new observations about the construct of psychological safety and learning that might be useful for further study.

2. The investigation of HAW as an organizational type has been notably absent from much scholarly work, and, therefore, the time may be right to shed more light on this working population.

3. I was innately curious about the context of organizations outside of business and corporate study. The opportunity to follow one’s interests for exploration without reliance upon external funding or sanction by either academic employers or corporate sponsors permitted complete freedom in the pursuit of knowledge.

The search for a codable moment according to Boyatzis (1998) begins with “the researcher [being] able to ‘sense themes’: that is, to recognize a codable moment.” The craft of pattern recognition and the ability to tease-out pertinent information, and then to view it in terms of abstract principles, is not as straightforward as interviewing subjects and performing a word analysis or the administration of a survey.
Although digital tools exist to aid in the coding and aggregation of phrases and survey data, the need to sense underlying themes—what is conveyed through expression, intonation, and sense of place—cannot be developed through a digital algorithm. For these reasons, I elected to forego the use of software applications and manually review each transcribed piece of dialogue to extract meaning.

Pattern recognition

Likewise, there is no claim for reproducibility of the results. Face validity is based upon external accounts by primary and secondary sources within the HAW organizational world. Validity, then, is measured against the trustworthiness of the subjects and the relevance and plausibility of their responses as credible HAW team workers or adjuncts in HAW organizations. (An example of an adjunct would be the Chief Financial Officer of the stallion breeding farm that owned the 2018 Triple Crown winning horse.) The danger with face validity is that the researchers may be prone to “unfounded leaps of logic” (Guest et al., 2012). The continual reference to the construct of psychological safety and models of psychological safety and learning in previous literature served to create boundaries for the development of arguable conclusions based upon actual evidence from the subjects themselves.

**Process of Thematic Analysis**

In the development of this research I purposefully engaged in the following four stages of thematic analysis development as outlined by Boyatzis (1998):
1. Sensing the themes. This was aided through tying back the questions and themes to the original Edmonson hypotheses and theoretical model as the keystone for investigation.

2. Encoding information reliably. Although external support was engaged in actual transcription, the coding was done by this author.

3. Developing a schema for coding themes. This occurred through the definition of the three themes of
   a. Evidence of true teaming in the HAW teams studied: effective questioning as to whether the animal performed a true team role in the accomplishment of the organization’s mission;
   b. Evidence of the construct of psychological safety operative in HAW teams studied through a comparison of responses with the Edmonson (1999) model. This study is an example of thematic analysis that is driven by prior research;
   c. Evidence of team learning, including the animal and human team members, in order to perform successfully.

4. Interpreting the themes in the context of a theoretical framework to contribute to the development of knowledge. The results of the study of the construct of psychological safety did not match the original definition; however, the act of “speaking up” in the workplace was found to be essential in many of the subject organizations studied. For those organizations, patterns could be discerned that offered signposts for future research and expansion of the
contemporary model of psychological safety in the workplace to include an element of speaking up for the physical safety of the working team members.

Table 1 shows the four of the original hypotheses developed by Edmonson in 1999 for the construct of psychological safety. The four hypotheses were taken from the original eight hypotheses developed by Edmonson. Two of the original hypotheses were not supported and were not included in this study. Two additional hypotheses were related to leadership and the model of psychological safety. As team leadership was not an aspect of HAW teaming in my study, these two hypotheses were not included.

<table>
<thead>
<tr>
<th>Hypothesis 1 (H1)</th>
<th>Learning behavior in teams is positively associated with team performance.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesis 2 (H2)</td>
<td>Team psychological safety is positively associated with learning behavior in organizational work teams.</td>
</tr>
<tr>
<td>Hypothesis 3 (H3)</td>
<td>Team learning behavior mediates between team psychological safety and team performance.</td>
</tr>
<tr>
<td>Hypothesis 4 (H4)</td>
<td>Team efficacy is positively associated with team learning behavior.</td>
</tr>
</tbody>
</table>

**Table 1.**
Development of Themes
The three themes were derived from a semi-structured interview consisting of nine questions. These questions are included in Table 2. The questions were created to evoke the factors in human–animal working teams to verify that they did indeed meet my criteria for the definition of working teams and that there was a relationship to the construct of psychological safety and team learning. What that relationship might be, however, was left open to discovery.

Although the questions were related to the four hypotheses that were relevant to this study from Edmonson’s original work, there was no attempt to validate these hypotheses for this subject population. They are included as a matter of tying the threads of the subject interviews and the exploratory findings back to the original Edmonson model.

Because there were no expectations for hypothesis-building or presumptive new theories, the methodology was purely inductive as to what indicators might present themselves once questions were asked of the interviewees.
### The Semi-Structured Interview Questions

From initial set of 18 questions, the list was reduced to the 9 essential questions after initial interviews indicated that additional questions were superfluous or redundant. Attempt was made to structure questions that were "species neutral"—i.e., applicable to team work with either equines or canines. Within the interviews themselves, clarifications and differences across species and kind of work were noted.

<table>
<thead>
<tr>
<th>Maps to Hypothesis from Edmonson (1999)</th>
<th>Mapped to Study Thematic Category</th>
<th>#</th>
<th>Semi-Structured Study Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesis 4 (H4)</td>
<td>Team efficacy is positively associated with team learning behavior.</td>
<td>1</td>
<td>What types of activities do the animals engaged in your work actually handle?</td>
</tr>
<tr>
<td>Hypothesis 2 (H2)</td>
<td>Team psychological safety is positively associated with learning behavior in organizational work teams.</td>
<td>2</td>
<td>What part does trust in the animal play for you in feelings of personal safety in the performance of your work? How do you build safety and trust with your animal and/or other animals in your workplace?</td>
</tr>
<tr>
<td>Hypothesis 3 (H3)</td>
<td>Team learning behavior mediates between team psychological safety and team performance.</td>
<td>3</td>
<td>Does your organization ever engage with other organizations in performing your work?</td>
</tr>
<tr>
<td>Hypothesis 1 (H1)</td>
<td>Learning behavior in teams is positively associated with team performance.</td>
<td>4</td>
<td>How does the animal's performance on the job impact the entire team's performance as a working unit? What makes the human workers and the animal feel good about their mission?</td>
</tr>
<tr>
<td>Hypothesis 4 (H4)</td>
<td>Team efficacy is positively associated with team learning behavior.</td>
<td>5</td>
<td>After a working event / session / mission does your team meet to discuss or debrief what happened and what went well or what could have gone better? Is there feedback that gets incorporated into the team’s future work performance?</td>
</tr>
<tr>
<td>Hypothesis 1 (H1)</td>
<td>Learning behavior in teams is positively associated with team performance.</td>
<td>6</td>
<td>How do the human team members communicate with the animal on the job (visual, verbal, hand signals, not applicable)?</td>
</tr>
<tr>
<td>Hypothesis 1 (H1)</td>
<td>Learning behavior in teams is positively associated with team performance.</td>
<td>7</td>
<td>How are human team members trained for their roles? How are the animals trained for their specific roles in this organizations?</td>
</tr>
<tr>
<td>Hypothesis 2 (H2)</td>
<td>Team psychological safety is positively associated with learning behavior in organizational work teams.</td>
<td>8</td>
<td>Do the human team members feel free to speak up about anything unusual that they observe regarding any of the animals or each other? What kinds of feedback are given regarding the animal's performance on the job? What do you speak up about?</td>
</tr>
<tr>
<td>Hypothesis 4 (H4)</td>
<td>Team efficacy is positively associated with team learning behavior.</td>
<td>9</td>
<td>What kinds of feedback are given regarding the animal's performance on the job?</td>
</tr>
</tbody>
</table>

### Table 2.
**Selection of Subject HAW Team Organizations**

Data for this study were gathered from semi-structured interviews with 27 human subjects that were engaged with HAW with either equines or canines. Each group (canines and equines) had representatives from multiple categories of organizations, including equine law enforcement, the thoroughbred horse industry, other for-profit and not-for-profit equine industry, canine law enforcement, canine not-for-profit search and rescue, and canine public relations work for university marketing and athletics.

The initial grids of types of equine and canine organizations were developed to provide a broad cross-section of organizations across both equine and canine HAW teams.

As such, the determination was made to start with equines and contact HAW organizations in for-profit, law enforcement, and not-for-profit. This grid is represented in Table 3.

Subjects interviewed covered a total of 10 states across the continental United States. Some interviews required multiple trips. These interviews yielded approximately 200 pages of transcribed interview data. Transcriptions by subject number were then individually reviewed for content and coded for the presence or absence of three themes related to the construct model of psychological safety and learning.
**Thematic Coding**

Each subject was coded for evidence of each of the three following themes:

1. Is there evidence that this is a true working team, and does the animal have a specific role as a team member that directly impacts the team’s goal or mission?

2. Is there evidence of some or all of the definition for the construct of psychological safety operative in the team’s working environment? If so, how does speaking up in the workplace operate for HAW teams?

3. Is there evidence of HAW team learning that includes animal as well as human team members for the successful operation of the team and achievement of the team’s mission?

Each subject transcript was then reviewed a second time for confirmation that the themes existed and for sample quotations directly from the subject’s discussion, which were included in an evidence table.

All equine subjects were then reviewed, and the resulting codes and patterns for each theme were investigated for overall findings.

Similarly, each Canine subject transcript was reviewed, coded, and revisited for samples of evidence directly from the subjects when a theme was evidenced.

The resulting findings yield insights into the construct of psychological safety as it applied to previously unstudied working teams that operate outside of the domains of knowledge work and business, educational, and medical teams. The findings also help to shed light on an area of organizational work that has received little attention for the organizational development and organizational change community.
<table>
<thead>
<tr>
<th>2018-2019</th>
<th><strong>Equine HAW Teams</strong></th>
<th><strong>Canine HAW Teams</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>For Profit - Thoroughbred Racing; Stallion Farms; Anheuser-Busch [May-Nov 2018]</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>E1</strong> - J.E. Galloping Out IL Thoroughbred rescue and former trainer Arlington Park</td>
<td><strong>E2</strong> - T - Arlington Park (G3, Claiming races)</td>
<td><strong>E3</strong> - C.B. Head Trainer-Block Racing, Arlington (G1, G2 and all types)</td>
</tr>
<tr>
<td><strong>E8</strong> Winstar Farm Tour Guide</td>
<td><strong>E4</strong> Groom #1, Block Racing, Arlington Park (G2 and non-graded racing)</td>
<td><strong>E9</strong> - D.T. Former horse handler, groom, stallion farm worker, and tour guide at Keeneland Race Track</td>
</tr>
<tr>
<td><strong>E5</strong> - G. M. Manager of Stallions at Godolphin, Lex. KY</td>
<td><strong>E13</strong> - G. Annheuser Busch Clydesdale Handler, St. Louis</td>
<td></td>
</tr>
<tr>
<td><strong>E6</strong> - P. Groom #2 at Godolphin, Lex. KY (G1 KY Derby Winners)</td>
<td><strong>E7</strong> - M. Groom #3 at Ashford Stud - Coolmore at Versailles, KY (American Pharaoh)</td>
<td><strong>E10</strong> - J. M., CFO at WinStar Farm, Versailles, KY</td>
</tr>
</tbody>
</table>

**Table 3.**
<table>
<thead>
<tr>
<th>Subject #</th>
<th>Name</th>
<th>Organization</th>
<th>Location</th>
<th>Team's working mission with animal</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1</td>
<td>J.E., Horse Trainer and Executive Board Member</td>
<td>Galloping Out, Arlington International Race Track</td>
<td>Arlington Park, IL</td>
<td>Training thoroughbred horses; re-homing retired thoroughbred horses</td>
</tr>
<tr>
<td>E2</td>
<td>T.D.; D.P. Thoroughbred Horse Trainers</td>
<td>Trainer G3 and Claiming Races, Arlington International Race Track</td>
<td>Arlington Park, IL</td>
<td>Thoroughbred horse racing</td>
</tr>
<tr>
<td>E3</td>
<td>C. B., Head Trainer and Owner</td>
<td>Chris Block Racing, Arlington International Race Track, Keeneland, and other G1-G3 stakes racing</td>
<td>Arlington Park, IL</td>
<td>Thoroughbred horse racing</td>
</tr>
<tr>
<td>E4</td>
<td>M.M., Assistant Trainer; M.F., Horse Groom</td>
<td>Chris Block Racing, Arlington International Race Track</td>
<td>Arlington Park, IL</td>
<td>Thoroughbred horse racing</td>
</tr>
<tr>
<td>E5</td>
<td>G.M., Manager of Breeding Farm Operations, Darley - Godolphin America</td>
<td>Jonabel Farm, Darley-Godolphin America, Inc.</td>
<td>Lexington, KY</td>
<td>Thoroughbred horse breeding operations</td>
</tr>
<tr>
<td>E6</td>
<td>P.G., Horse Groom, G1 Kentucky Derby Winning Stallions - Breeding Operations</td>
<td>Jonabel Farm, Darley-Godolphin America, Inc.</td>
<td>Lexington, KY</td>
<td>Thoroughbred horse breeding operations</td>
</tr>
<tr>
<td>E7</td>
<td>M.O., Horse Groom for American Pharoah and Justify, 12th and 13th Triple Crown Winners, U.S. Racing</td>
<td>Coolmore America - Ashford Stud</td>
<td>Versailles, KY</td>
<td>Thoroughbred horse breeding operations</td>
</tr>
<tr>
<td>E8</td>
<td>K.T., Thoroughbred Horse Assistant and Guide</td>
<td>WinStar Farm</td>
<td>Versailles, KY</td>
<td>Thoroughbred horse training, racing, and breeding operations</td>
</tr>
<tr>
<td>E9</td>
<td>D. C., Former Horse Handler, Groom, Stallion Farm Worker, Tour Guide</td>
<td>Keeneland Racing Association, Keeneland Race Track</td>
<td>Lexington, KY</td>
<td>US race track operations</td>
</tr>
<tr>
<td></td>
<td>Name</td>
<td>Organization</td>
<td>Location</td>
<td>Description</td>
</tr>
<tr>
<td>---</td>
<td>-----------------------------</td>
<td>---------------------------------------------------</td>
<td>----------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>E10</td>
<td>J.M., Chief Financial Officer, WinStar Farm</td>
<td>WinStar Farm</td>
<td>Versailles, KY</td>
<td>Thoroughbred horse training, racing, and breeding operations</td>
</tr>
<tr>
<td>E11</td>
<td>K.D., Sergeant, Mounted Police Unit</td>
<td>California State Capitol Protection Services</td>
<td>Sacramento, CA</td>
<td>Mounted Police Unit services for state capitol</td>
</tr>
<tr>
<td>E12</td>
<td>A.T., Manager of Clydesdale Operations</td>
<td>Budweiser Clydesdale Operations, Anheuser-Busch Brewing Co.</td>
<td>St. Louis, MO</td>
<td>Train and maintain Budweiser Clydesdales for brand marketing and public appearances</td>
</tr>
<tr>
<td>E13</td>
<td>G.H., Clydesdale Horse Handler</td>
<td>Budweiser Clydesdale Operations, Anheuser-Busch Brewing Co.</td>
<td>St. Louis, MO</td>
<td>Train and maintain Budweiser Clydesdales for brand marketing and public appearances</td>
</tr>
<tr>
<td>E14</td>
<td>S.R., Volunteer Trainer and Manager</td>
<td>Horsefeathers, NFP, Hippotherapy Operations</td>
<td>Riverwoods, IL</td>
<td>Volunteer staff teams and horses for therapy riding operations</td>
</tr>
<tr>
<td>E15</td>
<td>R.S., Corporal, Mounted Police Unit</td>
<td>Delaware State Police Mounted Unit</td>
<td>New Castle, DE</td>
<td>Mounted Police Unit for State of Delaware</td>
</tr>
<tr>
<td>C1</td>
<td>J.B., Author Search and Rescue Mission Publications, Volunteer Canine Handler, Board Member, ILL-WIS Canine Search and Rescue, NFP</td>
<td>ILL-WIS Canine Search and Rescue, NFP</td>
<td>Northern Illinois, Southern Wisconsin</td>
<td>Volunteer canine search and rescue services assisting law enforcement for rescue of missing persons</td>
</tr>
<tr>
<td>C2</td>
<td>C.K., Officer, K-9 Police Unit</td>
<td>Village of Wheeling, IL Police Dept.</td>
<td>Wheeling, IL</td>
<td>Suburban City Police Dept.</td>
</tr>
<tr>
<td>C3</td>
<td>D.P., Sergeant, K-9 Unit</td>
<td>McHenry County Sheriff's Office</td>
<td>McHenry County, IL</td>
<td>County Sheriff's Office</td>
</tr>
<tr>
<td>C4</td>
<td>J.B., Officer, Police K-9 Unit</td>
<td>McHenry County Sheriff's Office</td>
<td>McHenry County, IL</td>
<td>County Sheriff's Office</td>
</tr>
<tr>
<td>C5</td>
<td>P.P., Director of K-9 Training</td>
<td>TOPS, Law Enforcement K-9 Training Facility</td>
<td>Grayslake, IL</td>
<td>Private K-9 training agency</td>
</tr>
<tr>
<td>C6</td>
<td>J.P., Sergeant, Police K-9 Unit Training Facility</td>
<td>City of Chicago, Police Dept. K-9 Unit</td>
<td>Chicago, IL</td>
<td>Metropolitan Police Force</td>
</tr>
<tr>
<td>C7</td>
<td>L.C., Lieutenant, Police K-9 Unit</td>
<td>City of Chicago, Police Dept. K-9 Unit</td>
<td>Chicago, IL</td>
<td>Metropolitan Police Force</td>
</tr>
<tr>
<td>C8</td>
<td>T.C., Officer and K-9 Trainer</td>
<td>City of Chicago, Police Dept. K-9 Unit</td>
<td>Chicago, IL</td>
<td>Metropolitan Police Force</td>
</tr>
<tr>
<td></td>
<td>Name</td>
<td>Title and Role</td>
<td>Organization</td>
<td>Location</td>
</tr>
<tr>
<td>---</td>
<td>------</td>
<td>----------------</td>
<td>--------------</td>
<td>----------</td>
</tr>
<tr>
<td>C10</td>
<td>E.G., Volunteer K-9 Handler; Tracking Judge, American Kennel Club</td>
<td>ILL-WIS Canine Search and Rescue, NFP</td>
<td>Antioch, IL</td>
<td>Volunteer canine search and rescue services assisting law enforcement for rescue of missing persons</td>
</tr>
<tr>
<td>C11</td>
<td>J.P., Volunteer K-9 Handler for 12 years</td>
<td>ILL-WIS Canine Search and Rescue, NFP</td>
<td>McHenry, IL</td>
<td>Volunteer canine search and rescue services assisting law enforcement for rescue of missing persons</td>
</tr>
<tr>
<td>C12</td>
<td>M.K., Director of External and Government Relations, Butler University</td>
<td>Owner and Handler of Blue III, Butler University Canine Mascot</td>
<td>Indianapolis, IN</td>
<td>Private university public relations, National Collegiate Athletic Association member school</td>
</tr>
</tbody>
</table>

Table 4.
Chapter 4: Findings

Before developing the overall findings, it is critical to introduce the reader to the subject of the HAW teaming organizations included in this study as they appeared within the context of their working environments.

To that end, each subject group was reviewed, and responses that provided evidence of themes one through three were compiled from the full text of all transcripts from all 27 interviewees.

Additionally, transcription data were reviewed among the equine HAW organizations and the canine HAW organizations separately in order to identify any possible directional differences in thematic evidence available.

Each subject organization was coded by each interviewee using a numeric identifier. An “evidence table,” Table 6, was created to match each of the subjects with the subject responses while maintaining some measure of confidentiality.

It is notable that the subjects were selected as an opportunity sample. There was no attempt to do statistical sampling of any of the HAW team categories studied. The reason for this is one of practicality: time and funding were not available for a single individual to visit a statistically meaningful sample of all canine law enforcement units or all thoroughbred racing organizations or all search and rescue teams.

Alternatively, some specialized HAW organizations selected, such as the Budweiser
Clydesdales, n = 1. This, of course is included as a limitation of this study; however, the disclaimer needs to be made here before the results are reviewed. The evidence of thematic presence or absence was the only measurement made, hence this created a binary table. The percentage of respondents that affirmatively gave evidence of the theme in the semi-structured interviews was noted, and aggregate percentages were made on the presence or absence of each of the three themes for all equine HAW organizations and all canine HAW organizations included in the study. The composite of the results may be seen in Table 5. Codes were based on the responses within the interview texts that indicated the presence or absence of the theme. The evidence presented in Table 6, included at the end of the Chapter 4, formed the data used to construct the evaluation shown below in Table 5.
<table>
<thead>
<tr>
<th>Subject #</th>
<th>Theme 1 - Evidence of HAW Nature of Teaming: Is there evidence of a true animal working role within the team?</th>
<th>Theme 2 Evidence of Construct of Psychological Safety Operative? Is there evidence of speaking-up with observations, concerns, and questions? Evidence of shared values?</th>
<th>Theme 3 Evidence of team learning in HAW work? Is there evidence of team learning across human and animal team members?</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>E2</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>E3</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>E4</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>E5</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>E6</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>E7</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>E8</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>E9</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>E10</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>E11</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>E12</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>E13</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>E14</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>E15</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
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Table 5.
Because of the contextual variances between these organizations and because, phenomenologically, telling their stories was part of this exploratory study, each subject group is treated separately. First, a backstory is presented. This is a purely subjective description of my experience in observing and meeting with the teams as well as observing them at work where this was feasible. It is, indeed, the “color commentary” for the description of the results by group.

Following the subject descriptions, Table 6 includes actual qualitative responses to support the findings.

**The Equine Subjects**

**Backstory: Thoroughbreds at the Track: Training and Racing Teams**

*The backside of a racing track during racing season is constantly busy. The bucolic dirt paths between barns housing the horses along with trees in their fullness speak “summertime.” As I walk through the barn area the busyness of tending to and training horses becomes more evident. There are water hoses, feed trucks, and a beehive of grooms, walkers, and assistants tending to the animals. It is their job to make sure that food, water, grooming, the wrapping and unwrapping of the horse’s legs, and all other necessary care is given. The human staff is casual and goes about their business in a calm fashion. Horses are coming and going, always on leads, and grooms walk in and out of the stalls at random. The grooms that I meet are tending to upwards of five horses each, and so they move from one to another. Assistant trainers provide direction on which horses will be taken out to the track for short gallops, breezes, and more extensive exercises. Much of this depends upon whether the horses are scheduled for a race.*

*This is an early morning working team. Being at the track at five or six in the morning—sometimes earlier—is the normal routine. At the track, the grandstands are empty, but the track is busy with exercise riders and horses being led in and out for exercise work. These are rarely if ever the jockeys that ride in races. Many are young men, occasionally women, but mostly men, who are comfortable around racehorses, know how to ride, and pay attention to the horses’ moods, muscles, and condition. They are often the first line of observers for any anomalies that might indicate that something unusual is going on—a sprain, a sore leg, a lack of normal energy. It is part of their role to confer with the trainer to note anything amiss. Trainers are ever present, often traveling on golf carts from the backside barns to the track to watch,*
make calls, gauge a horse’s readiness, look for speed. Trainers have “the eye” for every horse’s potential. Trainers sometimes meet and chat, often watching other horses to see how competitive they might be, to see how they “look.”

On just such a hot morning in August, I meet with the first group of racing interviewees at Arlington International Race Track. This has become my home turf over the past couple of years. As a member of the Arlington Racing Club, I “own” a small share of one horse and have season admission. It is a regular stop-off to see who is running, take in the track activities during racing days, and get a little bit of fresh air. As a part owner, I am allowed admission to the paddock area before the races to watch the horses being saddled up and see the jockeys mount and ride into the main track.

I’m immediately impressed with the pristine track, the amount of pruning and grooming and cleaning and preparation that takes place outside of actual racing. It is akin to watching a sports team practice and get set for game-day.

On one such day, I arrive to hear a siren blaring. I’m confused—there is no fire and no sign of distress. There has been a mishap on the track, and all horses and riders are called to move away. In this case, a young man who has been exercising a horse has fallen off and injured his leg. What impressed me most is the immediate attention that track personnel and the trainer that he works for give him. He is helped off the track, allowed to rest, and is helped through the stairs and up into the grandstand. The trainer is with him every step of the way, with genuine concern for the condition of his employee. Later I learn that this is a mild sprain, but he is carefully watched. He is golf-carted back to the barn where he is encouraged to go to the local hospital, just in case there is a fracture or other injury. No one takes any chances when it comes to the health of horse or rider. In fact, during every race, the racing commission mandates that an ambulance follow behind the riders as they make their way around the track, in case of any injury. The ambulances are ever present on the rim of the racing surfaces, the outside of the track. Veterinary ambulances are also at the track, ready to be driven out to the scene of any accident. This is tantamount to having a complete medical staff on the sidelines at a professional football game.

Like many other organizational teams, the trainers are the leaders of their operations and have the role of responsibility for the horse’s performance and wellbeing. Owners pay handsomely and rely on the trainers to advise them on whether a horse is ready to race, which races the horse might be best for entry, and when the horse needs veterinary attention. Owners, and some are savvier than others, will listen to the trainers, as anxious “parents” trying to get as much information as possible about their horse. To some, the horse is property, and investment, a cool hobby. For others, the kind that trainers want to work for, the horse is part of a team effort to perform well. These horses are athletes. Owners, like those who own professional sports teams, come in all flavors and persuasions. The trainers, like athletic coaches—which they, in fact, are—must navigate all the staff, racing officials, track personnel, owners, doctors, feed specialists, and so forth. It takes an immediate team as well as quite an extended team to keep a horse racing operation going.
Like sporting leagues, some teams are on a bigger stage than others. The Arlington Million is this track’s version of the Kentucky Derby, though not quite as prestigious, nor nearly as old. The premier racing day of the season is held in early August. National television covers the event, and top horse entries from Europe, Latin America, and the U.S. do give this day a truly global presence.

For the most part, however, racing days are more casual, relaxed and range from a party atmosphere to a business-as-usual demeanor for the dedicated horse bettors and followers. They are often the regulars, who attend not only the live races but also hang-out at the year-round sports bar which televises all of the ongoing races at other tracks. Like stockbrokers watching the day’s ups and downs, these diehards study the racing forms and plot their next money moves. I’m not in their world.

Though not a gambler, I do “gamble” on the experience of seeing my horse win a race—even if it is a claiming race with little fanfare. It is like watching your child at a soccer game. If the team wins, there is joy all around, even if it is only for a day. If you think that winning money on a $5 bet brings excitement, it is nothing compared to seeing the horse that you own come in as a winner. The adrenaline rush is off the charts. Now I understand why people with more money than God find horse racing their drug of choice.

Thoroughbred Racing

The thoroughbred racing industry is made up of trainers and their teams. Trainers are associated with one or multiple race tracks. Interviews were conducted at Arlington International Race Track with four different trainers, either on the track during morning workouts or interim barns on the “backside” of the track. The backside is the busy place where all of the horses are kept in their stalls. It teems with grooms, exercise riders, barn assistants, trash and water removal tracks, and equipment.

Trainers with the larger bards have offices within the barns and form the hub of the racing team.

Horse trainers and grooms are hands-on with the horses. Trainers hire and manage all of the employees within their operations; work directly with the owners on budgets and horse care; determine when, where, and how a horse should race—which races,
distances, and so forth. Trainers are responsible for actually entering the horse in the race, obtaining the jockey, and preparing the horse for the race, including all of the pre- and post-race conditioning, care, and preparation. Often, they will have one or two dozen horses. Larger training operations have assistant trainers that serve as their right-hands and often are the direct manager of grooms and other personnel on a day-to-day basis.

Trainers are, like captains of ships, ultimately responsible for the success of the horse and gain reputations among owners for their ability to select the right horses for the right races.

Their success is measured by all manner of metrics and statistics—percentage of winner, on what track conditions, in what type of races, for which type of horse (fillies, mares, geldings, stallions, colts), and so forth.

Racing sheets for wagering recount the trainers’ and horses’ performances in great detail. For each horse, the weight, color, gender, age, birthdate, jockey, type of track and performance (e.g., percentage of wins on a muddy track, sloppy track, fast track, etc.), whether the horse ran on turf (grass), dirt, or polytrack (synthetic track made to drain quickly), and so forth. Bookmakers and wagerers can be seen studying these sheets like preachers with a bible before, during, and after races. As noted, wagering on sports, particularly on the “Sport of Kings,” is “the world’s second oldest profession.”

Findings from the trainers, assistant trainer, and groom interviewed indicated that all three themes were exhibited in thoroughbred racing.
The findings from the trainers, assistant trainer, and groom interviewed indicated that all three themes were exhibited in thoroughbred racing.

The nature of teaming is well-rehearsed and has remained very much the same over centuries: grooms, jockeys, trainers, and stable workers are similar across teams and across race tracks.

The teaming is based on the specific horse and his/her needs and training regime. Trainers are different in the way they orchestrate training and in the way that they run their barns; however, the teaming aspect and the specialized role of the horse on the racing team is paramount and evident.

Horses, of course, have a starring role on the teams: everything that is done is about the horse and its ability to win. Winning is not just about speed, however that is the keystone of any athletic contest in the horse racing industry. It is also about the horse’s temperament and genetic inheritance and the fines with which the trainer and the jockey can map out a strategy for a race—when to let up, when to use the whip, when and how to judge the competition.

The imperative for speaking up has to do with the horse. All personnel are expected to speak up about the horse’s fitness, energy level, feeding habits, and health. For many team members this is a hands-on task. They are constantly touching, examining, cleaning, administering supplements and medications, wrapping legs, looking for hot spots and sore spots as well as all manner of signaling from the horse that something may be “off.” When asked if the groom speaks up for whatever is observed, the response from one trainer is “Absolutely!” Many days the trainer
arrives and finds a groom waiting there to ask them to have a look at the horse. As one trainer noted, “They’re our front line. I mean, we look at every horse every day. But these guys are there pulling bandages, feeling their [horses’] legs first thing in the morning while they’re [horses] eating their breakfast, right?”

Grooms who are oblivious to these indicators are given time to learn on the job; however, they do not last long in a barn if they cannot observe and speak up.

When asked about the fundamental of speaking up within the team, the first response from trainers and grooms is that it is all about the animal. At no time did respondents bring up or discuss the subject of personal face saving or threats of appearing foolish: the first response from all interviewees is speaking up for the physical safety of not only the animal but of all team members that are in contact with the horse: jockeys, grooms, and trainers have high incidents of occupational safety hazards. Grooms get kicked and bitten in stalls—some have even been trampled to death. Jockeys face danger not only during the roughly 40-miles-per-hour travel on top of the horse but also in the starting gate, which is a confined space where fractious horses may create additional hazards.

It is telling that the trainers’ and grooms’ first response is for the safety of their employees and secondly for that of the horse.

Watching an accident on the track is always a shock. When a horse and rider go down, the ambulances—both human and equine—that follow each ride along the track make their way to the victims. Plastic shroud-like tents are set up on the track so that the horse can be administered to and carried away in the veterinary van without
the crowd seeing what, exactly, is happening to the horse. There is a foreboding silence of the previously screaming and shouting crowd. If the jockey is injured, assistants will ensure that s/he is attended to by ambulance and emergency medical personnel.²

“Here’s the part that you’ve got to understand, too: there’s so much risk in this business at every stage. You know, just giving your mares in foal and keeping those babies in them and having them born safely and having them grow up without running into a tree or right through a fence … By the time they come to the race track we basically have a finished product: they know how to pick up their feet, they know how to stand for a bath …”

“The exercise boys, the guys breaking these things [horses] are taking all the risk. Our exercise boys getting them up. Jockeys never get on a horse like in the mornings until they’re [horses] ready for the polishing touches, and when it’s time to teach them that finishing technique.”

As the quotes in Table 6 suggest, the dance between trainer and groom and jockey and owner can be complicated; however, the best trainers, and the best owners, keep the welfare of the horse as a priority. There is much in common between horse racing and other professional sports to the extent that the superstars of the game, the horses

² As difficult as it sounds, the retrieval of horses and riders from a track do not stop a race. The race must continue, and only when the other horses and riders have completed the course can help safely step onto the track to attend. In August of 2017 I witnessed just such an accident during the Arlington International “Secretariat Stakes”, a Grade 1, large-purse race, in which the horse Permian broke down while crossing the finish line. Permian was a magnificent horse from the Godolphin Racing Group who had traveled from the U.K., where it had won important races at Ascot. The horse was euthanized on the track at Arlington. The Jockey, William Buick, an acclaimed top rider from Europe, was taken to Northwest Hospital in Arlington Heights with a fractured vertebra.
that will run at the Grade 1 level and in the highest-stakes races, such as those in the
Triple Crown, will be given the top trainers, top medical care and lodging,
transportation on special jets, and so forth; however, the “bread and butter” horses
that comprise most of the racing cards are typically given the best standard of care
that the owners may be able to afford.

In terms of psychological safety, the sharing of values cannot be determined across
humans as well as the animal. There is no way to gauge the horse’s value system.
There are outward behavioral signs, however, if a horse is discontented or ailing or
frightened. In terms of psychological safety, for thoroughbred racing it is a
unidirectional vector from the humans to the animal. There is, however, an immediate
and urgent need to speak up. Every trainer, groom, and assistant indicated that
speaking up on behalf of the horse is expected from all human team members. This
occurs without fear of reprisal. If the groom, for example, notices something amiss—
and this can be with the horse or any of the equipment and so forth—the expectation
among the team is that the individual will immediately speak up to someone at a
higher level in the organization, usually the assistant trainer or trainer.

In the same vein, exercise riders may converse with jockeys if a horse has a particular
habit or tendency—a tendency to move to the rail, a tendency to respond to the whip
on one particular side, and so forth.³

³ A whip, by the way, is used to spur a horse away from what they perceive to be a predator. Horses
are instinctively prey, so the whip is used to activate those reflexes to “run way” or run faster. These
whips are thin rods and do not result in “inhuman” treatment or injury by the jockey.
“Horses may need correction running down the stretch, requiring jockeys to maneuver in and out of
traffic. Some horses may need encouragement within a furlong of the finish to do their best or keep
In terms of team learning and, to some extent, double loop learning, one trainer notes: “there’s not usually one right answer. There might be three right answers.” One trainer indicated that learning with the horses is often a trial-and-error situation to correct the way a horse performs at the track. Horse racing is a very conservative and “old” industry. The racing commissions and other governing bodies tend to preserve the status quo and carefully monitor activities. As with other regulated industries, such as casinos, the wagering aspect of horse racing is scrutinized for misdemeanors and foul-play.

The key takeaway from a theme perspective is that the horse is the centerpiece of the racing team, so there is no question that the animal is an integral part of the team. The horse is, in fact, the entire reason for the team’s work. The primary evidence of psychological safety is in speaking up about the horse’s condition and anything that would impact horse or rider safety. The shared values, as defined by Edmonson, were not evident in the responses obtained. That is not to say that these aspects of the human team may not exist; it is to point out that there is no evidence across the humans and animal of a shared value among team participants. Learning is basically repetitious and does not appear to be mediated by psychological safety in terms of successful outcomes in racing. Double-loop learning may occur within training organizations; however, it is often characterized by trial and error, experience on the job, and adjustments, not the seeking of a root cause for making a change.

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from lugging out in fatigue. A jockey might only need to show a horse the whip or only have to give the horse a slight tap of encouragement on the shoulder or hindquarters. Other horses on an uncontested lead win easily with the jockey never needing a whip” (Jan 01, 2012, DVM360).
Communication, however, encompasses verbal, visual, and kinesthetic feedback. The hallmark of human and animal communication in horse racing is the kinesthetic communication between human and animal, whether it is riding the horse around the track or grooming and caring for the horse. Kinesthetic communication receives much more emphasis than is typically included in research about other organizational work, particularly human teaming.

**Backstory: Thoroughbreds: The Work of Breeding and Owning**

Rarely do we think of animal husbandry in the same vein as human and animal teaming; however, as I was to discover, the work of breeding stallions, season after season, is in fact occupational and organizational teaming. Once I embarked on the study of thoroughbred racing teams as examples of human and animal work within a specific industry, the path to Kentucky horse farms seemed the natural next step. Over the course of 10 months, I made numerous trips to the fabled bluegrass country to understand the context for the horse breeding and racing industry. These are, indeed, some of the most valuable and expensive animals on the planet. Within all of professional sports industries, horse racing and breeding is the sole example of humans and animals integrally reliant upon each other to become organizationally successful.

Lexington, Kentucky is the heart of bluegrass country, the mecca of the United States horse breeding industry, and the home of some of the finest thoroughbreds on Earth. Over the course of 10 months, I made numerous trips to Lexington, during which the picture postcard rolling hills, white fences, and bucolic grandeur of the U.S. heartland provided an exquisite backdrop for meeting and interviewing those within the industry who are, truly, hands-on with animals. The top American stud farms are located within a short driving distance from the center of Lexington, home of the University of Kentucky and the iconic Keeneland Race Track. Beautifully maintained acreage with pristine trees and impressive stables, these farms harken back to centuries of the finest animal care.

Jonabel Farm, a short drive from Bluegrass Airport, is a testament to the Darley America breeding legacy and is now part of the worldwide Godolphin empire owned by his Highness Sheik Mohammad bin Rashid al Maktoum. Stables are immaculately kept, with brick pathways and impressive structures. This peaceful venue houses some of the greatest money earners of all contemporary racing. Medaglia D’Oro, Nyquist, and other former Kentucky Derby winners are supremely cared for while they continue their lineage in annual breeding with carefully selected mares to extend the bloodlines of racing royalty.
Likewise, Coolmore’s Ashford Stud, in nearby Versailles, Kentucky, is a magnificent, stone structure with barns that house not one, but two Triple Crown winners, American Pharoah, the 2015 champion, and Justify, the 2018 crown winner, whom I have had the pleasure of seeing up-close. It is amazing to see the relaxed demeanor of this three-year-old and recognize that he was the same horse that blazed around the tracks at Churchill Downs, Pimlico, and Belmont Park just a few months earlier, in front of tens of thousands of screaming people. He is, as my photographs testify, an incredible athlete who is now entering his second career as a stallion standing at stud.

This is clearly a multi-millionaire’s business. The core and extended staff to maintain this operation are, indeed, all about the horses—and for good reason as the offspring of these horses will sell at auction just down the road at the Keeneland Sales for prices upwards of 1,500,000 to 2,000,000 USD. The owners who “gamble” that a yearling horse will be the next triple crown winner are the real high-rollers of the sport. It is the longest of long-shots: imagine betting on a child in the Pop Warner football league to become a Heisman Trophy winner or, better yet, a Super Bowl MVP. It is almost impossible to tell.

**Thoroughbred Breeding and Owning**
Teaming across thoroughbred breeding operations tends to be remarkably similar.

When describing a teaming effort, stallion managers and grooms and other specialized personnel brought into the barns for the specific purpose of breeding stallions to selected mares, the concern for speaking up and safety again relates to the physical safety of all team members, including the horse. Fractious horses are dangerous, yet they are the reason that the operation exists. Not only the owners of the stallions, but the owners of the mares—quite often equally expensive and always with “papers” indicating their own bloodlines, depending upon the skill and decision-making abilities of the handlers and managers to protect their investments from harm while conducting an intricate and well-monitored “mating dance.”

The teaming role of the horse is less pronounced than for racing teams. Here the horse is more of an object; however, for the substantial amount of time that the horses are
not actually in breeding season, relationships between grooms and horses do develop. As was noted repeatedly, the ability to learn to “read” a horse that is central to your job and livelihood creates a type of teaming, albeit not the teaming that knowledge workers are used to creating. One reason is that much of the communication, as with other human–animal teaming, occurs visually and kinesthetically through demonstrative and tactile gestures, as later accounts in this research will indicate. This theme of visual and tactile sensory input is a keystone of human–animal teaming communication that is, while perhaps not unique to HAW teams, certainly less evident in most of the studies in the literature on psychological safety.

At this juncture, it is worth repeating that the construct of psychological safety was developed with respect to human–human interactions and, for the most part, knowledge work. I was unable to find studies of psychological safety conducted with human teaming populations that rely on physical communication in order to perform as a team. It may be that teams in the construct industry, Cirque du Soleil, and professional team sports where interaction is required (e.g., soccer, rugby, football, and so forth) could indicate similar communication nuances that are versions of “speaking up” that are nonverbal. HAW teaming opens up the question of similarities or gaps in the construct of psychological safety that are yet to be explored.

I will return to the concept of speaking up as nonverbal as well as verbal communication and the concept that psychological safety in the workplace may, indeed, need to incorporate aspects of physical safety.
The responses in Table 6 indicate that team members in thoroughbred breeding and owning operations have a great deal to say about teaming and consider themselves a team organization, if not an organization of multiple teams. The theme of psychological safety as speaking up for physical safety is prominent, again as with thoroughbred racing. Safety incorporates both the safety of the animal as well as the human team members.

In terms of learning, more emphasis is placed on observation and learning the habits and quirks of a specific animal than learning technique. Some evidence of debriefing, typically after the breeding season, is evident; however, this is not the same as the formal debriefing that we shall see in HAW teaming in law enforcement. Hence, the concept of looking for causality in double-loop learning is not often evidenced, or at least was not referenced in the interviews conducted for this study population.

**Backstory: Bluegrass Country**

On a warm autumn day, I find that I am making the rounds in the Lexington vicinity to steep myself in the traditions of rolling pasture and elegantly outfitted farms that look more like country manors than offices for thoroughbred operations. Traveling west on Pisgah Pike in the town of Versailles, I turn off onto one lane roads that lead to some of the most magnificent barns in the country. This is WinStar Farm, where I am joining a tour of the breeding and horse rearing operations. WinStar Farm is truly, as their motto says, “dreaming big.” They are part owners of Justify, along with the China Racing Club, and enjoyed an incredible season of highs riding on his back.

The spacious and elegant leather and wood appointed greeting room for tours, which is adjacent to the barn where some of the most famous stallions in racing are kept as breeding stock, is beautifully decorated with showcase cabinets of racing memorabilia, oil paintings, and actual paraphernalia worn by past Kentucky Derby winners and other important racing wins. The group of about 15 people is quietly excited as we are ushered into a large octagon-shaped lobby where a groom with one of the important stallions awaits us. We are invited to get up close to him and have
pictures taken by friends and relatives. We do not, however, touch the horse. His groom is smiling but does not let go of the lead rope.
The floors of this stable are immaculate. Unlike my local riding stable where the floors are dirt and the smell of horses permeates the straw bedding of the wooden stalls, these accommodations are fit for the kings of sport, if not the sport of kings. Stall floors are immaculate; the cleaning of the stalls is constant. Trap doors in the back of the stall make sure that refuse does not get into the hall ways. Each horse has a beautiful brass nameplate, often with his sire and dam, or, at the least, his foaling year (birth year). The horses themselves are manicured and brushed to reveal their glory. Halters and equipment are fine leather, and the doors to the stalls have U-shaped gates so that the horses can come over to greet guests. Back doors lead outside to green paddocks, again beautifully maintained, where the stallions can run, graze, soak up the sun, breathe the fresh Kentucky air, and generally enjoy themselves. All in all, it is a wonderful setup to keep them healthy and ready for the rush of breeding season where they will earn their keep.

It is a chilly November day, and I am again in Lexington at the historic Keeneland Race Track. Built in the 1930s where an older farm had once stood, the rolling acres are a stone’s throw from the airport—convenient for the many out-of-town racing aficionados to jet in as well as the well-versed and typically well-heeled buyers for the two big sale weeks at Keeneland, the September Yearling Sale and the November sale of mares, many of whom are carrying foals, and weanlings, those horses that are being sold before their first year. This is the November sale week, and I am touring the grounds and Sales Pavilion, which, just a few weeks ago, were busy with the Keeneland Fall Racing Season. The racing season has come to a close for Keeneland, and the buzz of activity has shifted to the over 20 barns onsite where the top names in thoroughbred breeding will come to entice buyers to bid on their offerings.
The Keeneland “book,” the official sales catalogue, has been compiled long ago and entries, denoted by “hip number,” an oval sticker placed on the hips of each entry used to denote horses for auction, are set for the next day’s opening sales session. Racetracks have a very different character on non-racing or “dark” days. The maintenance grounds workers have the space to themselves, without ticket takers, food and beverage vendors, crowds of people, betting windows with lines, and action on the track. Keeneland is imposing, even when it is virtually empty except for an occasional horse being exercised and small groups of tourists. Our three-hour walkabout culminates at the Sales Pavilion, where we are enthralled by a running commentary of how the horses are actually brought in for sale, the mechanics of bidding, the accompaniment of veterinarians, insurers, horse van transport services, and many other necessities, for once the gavel goes down and the horse is yours, it is your job, or liability as the case may be, to get it off the property and on the way to your farm, barn, training facility, or other venue without delay.
As I’ve watched the live feed of the Keeneland September Sales via their Internet site, I’m interested in returning to see the “real thing” during sale days. My curiosity is mainly around seeing who is there. Any famous trainers? Any sightings of famous
owners? Alas, many send others to bid on horses and electronically stay in touch over how high to bid for a particular horse. The trainers have been there for days looking over the horses in those backside barns and, with catalogues in hand, already know which ones they want to take home ... if the price is right. Of course, there are always a few that will bid up because they want a particular horse at any price. Usually those are the offspring of very famous horses, and occasionally, as on this day, two mares who were spectacular winners on the track. Folks are willing to gamble that a “mama horse” will prove to be a good broodmare, as they say, and pass on those special genes to her offspring.

This is a fitting finale to my many trips to the Bluegrass Country in the research of this study. It has taken me from horse cradle to grave (yes, the graves of Seattle Slew and other equine luminaries were seen along the routes taken). All in all, it has been an especially educational pilgrimage for me.

**Thoroughbreds: Other Extended Team Members**

The extended team members in the thoroughbred industry provided a wealth of information about the backdrop of the racing world. From what goes on behind the scenes at a race track to how horses are actually bred—the mechanics of breeding—and the scope of industry employment and business goals, insights about training the unseen personnel and the variety of horses’ individualism, tour guides, marketing and financial operations, stable operation and cadres of other extended team members, all are reliant upon the primary human–animal teams for their livelihoods.

Of the three themes investigated, two stood out: first, the descriptions of horses as individual team members with their own special quirks, temperaments, and talents. Unlike trainers and race track grooms, who may only have a horse for a season or two, the breeding stallions are kept on year after year, until they are no longer capable of mating or, sometimes, just as old friends. Secondly, the value of horses based on how well their progeny do at that race track is a fascinating angle to the business side of thoroughbreds.
Again, the emphasis on training and learning comes across: from the studying done by auctioneers and catalogers of horses for sale to the nuances of horse selection through study of veterinary records, there is very little that is casual about the non-racing organizations. Psychological safety with the animal as part of the team was only mentioned once. Again, it was in conjunction with the safety of both the animal, but now as well, of the spectators and race-goers, not only those who are hands-on teammates. This was an interesting twist: psychological safety now includes the public attendees that are viewers, not only team members. Speaking up, however, was not specifically mentioned.

Of all of the equine team categories, the thoroughbred owners and auxiliary workers had the least evidence of the construct of psychological safety with respect to team operations.

The responses in Table 6 provide fuller examples of the mindset of these team members.

**Backstory: Law Enforcement in the Saddle**

*It is early December when I make my way south on Interstate 95 from Philadelphia toward Wilmington, Delaware. My destination is in New Castle County, outside of the city limits, to a horse farm and recreational area called “Carousel Park.”*  
*Behind the park with its façade and welcome center, now closed for the season, is a house that is the office of the New Castle Country Mounted Police. It is near fields of fenced-in outdoor riding rings and a large driveway with vans and horse trailers. The actual stable is a large building behind the headquarters.*  
*I enjoy a long conversation with the Mounted Officer in charge in a cozy, home-like atmosphere with a large desk and a conference table. The wood-paneled walls contain years of memorabilia, photos, and a row of police badges, one for each of the horses that currently or formerly served within the mounted unit.*  
*The culture of pride and care within the unit is evident from both the surroundings and our conversation, where I learn much about the unit, its work, and its value to the*
community. The Friends of the Mounted Police, a volunteer organization, speaks of the community’s engagement in providing fund-raising events to secure the best in equipment and operations for this team.

Inside the stable, I have the chance to meet and greet some of the Clydesdale horses that are the core of the group. Each stall is labeled with the horse’s name on a special nameplate as well as a laminated card with a description of the horse’s age, weight, and distinguishing features in a “how to tell it’s [horses name]” section for visitors. This is a well-cared-for and well-thought-out operating unit. Perhaps not as glitzy as the thoroughbred breeders, but safe, comfortable, clean, and welcoming, nonetheless. Horses peek out from behind Dutch-door types of stall enclosures to assure ample opportunity for meet-and-greets with visitors and staff as well as to give the horses a full view of what’s going on around them in the barn. I take pictures of the horses and have my picture taken with Elvis, one of the older (20 years old, in fact) horses that is still active.

I’ve brought a couple of pecks of apples in the back of my car as a little thank-you to the horses. The officer, who does not give treats to the horses himself, takes them happily and notes that the feeding crew will make sure that they’re distributed. I tell the officer that I’ll be happy to report that “Elvis is alive and well” and living in Delaware when I see the folks back in Illinois.

Mounted Police

Roughly one hundred years ago, most municipal police forces were on foot patrol or were mounted on horseback. Scores of pictures of early police departments in New York, Philadelphia, Baltimore, and Chicago, as well as other cities, show row after row of mounted officers, some sharing the streets with early automobiles.

Mounted police exist today, although in much smaller numbers and for specific organizational missions. Today’s, mounted police carry computers and printers to look up traffic violators and issue citations. They are trained to patrol public buildings, such as those in the California state capital, as well as suburban streets and city parks. Mounted police teams are used extensively and successfully for crowd control at public events, demonstrations, impromptu gatherings in the street (e.g., your team just won the World Series, and everyone takes to the streets en masse to
celebrate). Because horses are no longer commonplace, particularly in urban areas, police horses have also become ambassadors of goodwill. People come over to pet or look at the horses. Often when they do they chat, and police have found that some residents are more willing to divulge information when they speak to the mounted police, I’m told by one mounted officer.

Although most police horses are not involved in “hot chases” of suspected perpetrators, they are able to go into areas where patrol cars cannot and so serve a purpose in working in tandem with mobile and footed patrol teams. Not only can horses go where patrol cars cannot, they provide a view of approximately 10 feet above the heads of crowds, thus providing an excellent vantage point for short-distance reconnaissance and advisory to other police teams. Add the intimidation factor of having 1,200 pounds of horse as your partner, and it is understandable that horses do have a unique role to perform in these law enforcement working teams. It is not surprising, then, that the nature of this work provides evidence of true teamwork, with the horse filling a role that a human cannot exactly duplicate. It is also notable that teaming, in this case, is true teaming: the mounted police are almost never sent out alone, as in one officer, one horse. They team up in pairs of horses and officers. The reasons for this have to do with the nature of equines themselves. They are herd animals and natural prey; therefore, they actually perform more easily in the presence of at least one other horse. Often, mounted police in teams will line up, almost cavalry-style, for crowd control. Again, this is because of the herd factor but also the intimidation factor of a “wall” of horses. There are a few
photos of Chicago police horses wearing full riot gear, face shields and so forth, that are as intimidating as medieval armored knights.

Speaking up, again, was related to physical safety by the subjects interviewed. Speaking up meant a relationship to officer or horse safety as well as the public safety of the community. As with other HAW teams, it is highly questionable that the shared values held by a police horse can be qualified, and so the construct of psychological safety, again, falls out of the Edmonson (1999) definition. That noted, however, a pattern begins to emerge when HAW team subjects are asked about whether they feel comfortable speaking up; the response is not only must they be comfortable speaking up, it is mandatory that they speak up, particularly about the physical but also the emotional safety of their animals. At this junction, we begin to see that equine emotions become more than something to “deal with,” as in thoroughbreds. The emotional aspect of animal teaming comes from the realization, day-in and day-out, that animals are indeed sentient beings, if not legally then through the dynamics of human and animal experience.

The learning theme is very prominent in these working teams. Learning, drilling, repetition, keeping horses and riders sharp is a huge part of the unit’s job in order to be able to operate successfully. One officer noted that the emotions of the officer are telegraphed to the horse just by kinesthesia. The emotional and physical energy of the
officer is somehow transmitted such that the horse responds in kind. This is not anthropomorphizing. This is the flesh and blood power of touch.\(^4\)

Most police horses are larger horses, draft horses in many cases, such as those in New Castle Country Delaware or the California State Capitol Protection Services. Temperament aside, they must learn to not only follow commands but to ignore sirens, gunshot noises, firecrackers, brass bands, shouting crowds, trash, and all manner of other objects being thrown about. This is not for thoroughbreds, who are taught to dash at the opening of a gate.

Within equine law enforcement working teams, evidence of additional aspects of working team learning becomes important: first, there is more formal debriefing and retrospective analysis of working missions, and secondly, the training formally extends beyond the boundaries of the HAW team unit to other working groups. Much of this is due to police culture and the standard practice of writing up activities on a daily basis, keeping records of actions and missions. The act of doing this post-mission review increases the opportunity for general learning and sharing to occur. Boundary-crossing with other teams in order to perform work becomes a new and interesting aspect of law enforcement HAW teaming: mounted police units must work with other, non-mounted police units, often on a daily basis. Non-mounted patrol units must work together with the horses in order to serve and protect their communities. Unlike thoroughbreds, there is constant coordination required across

\(^4\) Human–canine working partners also spoke of the emotions of the handler “traveling down the leash” to the canine working partner.
different units. In New Castle County, Delaware, training at the police academy for all officers includes a component of meeting and learning to work with mounted units. This accomplishes a number of objectives. It introduces the officers to the real level of difficulty that mounted officers face in teaming with the animal, and it also helps to recruit mounted officers. In no case are mounted officers assigned to the unit as rookie police officers. Mounted officers are recruited from the ranks of experienced law enforcement professionals. The extent of specialized training involved in mounted patrol units requires officers to be able to reach out to non-mounted units and, in some cases, educate them as to what the role of the mounted units really is and how they can best work with specialized situations. It is notable that this boundary-crossing of HAW teams and human working teams within an organization is also very evident in canine law enforcement and volunteer canine search and rescue, as will be discussed later in this chapter.

All three themes were found to be evident if we consider that psychological safety and speaking up may be defined as speaking up for physical safety. I will return to this theme and its relation to current models of psychological safety in my conclusions.

The responses from the mounted officers from two very different mounted police units were strikingly similar. These may be reviewed in Table 6.
Backstory: The Budweiser Clydesdales: King-sized Teams for the King of Beers

Before I fly to St. Louis, Missouri, for my meeting with the Clydesdales Operations Management at Anheuser-Busch, I drive to Madison, Wisconsin, where the World Clydesdale Show is being held at Alliant Arena for four days in late October. The show, which is only held once every four years, draws 50-foot air-ride vans outfitted as horse trailers from the U.S. Midwest, U.S. West, and Canada. Luckily, the fourth year occurs during my dissertation research year. I could not afford to miss it. Looking over the crowds, the horses, the equipment, the fancy carriages—throwbacks to or replicas of over century ago, when Clydesdales were the only horsepower there was and the Teamsters actually drove teams. I can understand why the show only happens as often as a presidential election. It is hugely expensive to plan for as well as to train, maintain, equip, and otherwise run a team of horses weighing between 1,800 to upwards of 2,100 pounds each. Their food consumption is gargantuan. Specially fitted collars, harnesses, and horse shoes (some shoes are almost 12 inches across and weigh 5 or 6 pounds each), like everything else about them are big. And showy. And expensive.

Carriages are driven by two people (there must be a driver and an assistant to help line them up), often wearing special uniforms or Victorian-era clothing that match their gleaming hardware. It can take up to four hours to prepare these horses for a show. They are bedecked in ribbons, bells, feathers, braiding, and all manner of notions so that their manes and tails are perfectly coiffed. In the barns I see people on step ladders braiding and combing. These horses are not called “Gentle Giants” for nothing. They do tower over just about everything around them. And they are very even-tempered about all of the primping and preparation.

I used to think that golf and skiing were expensive hobbies. Now I know better. It is owning, training, and driving an eight-horse Clydesdale hitch. Or, of course, you could always fly your own private jet.

Of all the hitches, THE most famous, some would say idolized, are the Budweiser Clydesdales, whom I see for the first time in their splendid regalia with driver, assistant, the famous beer truck, and of course, their faithful Dalmatian. The Dalmatian, as I will later learn, was added to the hitch in the 1950s, as another throwback to the days when Clydesdales really were pulling beer trucks and the dogs actually helped to shoo away things in the way of the big transports.

There are lots of verbal instructions given during a drive of a hitch, when to turn, “closer to the rail” directions, and so forth. Aside from handling a 75-pound set of reins, drivers must make sure that the big guys are paying attention and that the horses are doing their specific jobs. Yes, they do have jobs. There are wheel horses weighing over 2,000 pounds each (the biggest of the big horses, they actually pull 60% of the wagon load); next come the body horses (they are pulling the other 40% of the load); the swing horses that are actually involved in steering the ship, so to speak; and the two lead horses, who are basically there for their looks, personality,
and egos. Oh, and yes, they are all “guys”—geldings, in fact. Sorry, no mares pulling beer wagons.

On a perfect autumn afternoon, I am at Grant’s Farm in St. Louis, Missouri, the home of the initial training of the Budweiser Clydesdales. The horses are bred at another picture-postcard farm west of St. Louis, called Warm Springs Ranch. Once they are weaned, the horses come to Grant’s Farm for their training. Later, those that are chosen for the eight-horse hitches will be sent to Merrimack, New Hampshire, for hitch training.

The red and gold trees of the paddocks and surrounding park complement the red barns, stables, and visitors’ buildings. Like all of the Anheuser-Busch sponsored venues, the farm is immaculately run by a staff of congenial and well-educated personnel—from the ticket sales greeters to the cordial tour guides to the gift shop staffers, everyone is hospitality-minded. I learn much while on the traditional tour of the farm, which provides guests with hands-on contact with the animals and their equipment, including a look inside the famous horse vans. Most informative, however, are the interviewees that agree to meet with me to discuss the nuts-and-bolts behind the teams—and the specialized teamwork with humans that makes these animals so iconic.

Horses in Other For-profit Industry: The Budweiser Clydesdale Teams

“I mean, hands-down this is the greatest story in American marketing. Next April is going to be 86 years that we’ve been doing this, and, virtually, the hitch is unchanged.” —Director of Operations, Anheuser-Busch.

One of the more unique HAW team missions belongs to the Budweiser Clydesdales, not only in terms of public recognition thanks to Super Bowl commercials and charitable as well as for-profit public appearances but also for the visceral appeal that the trained and beautifully maintained horses present to the public. Like synchronized swimmers, the eight-hitch Clydesdale teams are trained to perfection to perform seamlessly, along with the human drivers and assistants who navigate the team through its routines.
Derived from the need to transport heavy loads, the Budweiser Clydesdales date back to the end of Prohibition. Anheuser-Busch has taken great care in tying the Clydesdales’ story with a cavalcade of American history.

These teams no longer carry beer for a living; however, they do maintain a role in promulgating the marketing message for beer.\(^5\)

As working animals, Anheuser-Busch collects data on the impact of the teams as measured by statistics on beer revenue associated with their appearances.\(^6\) This puts the Clydesdale teams in the same for-profit working category as the thoroughbred industry. Actual dollar values can be associated with the team’s working goals, and results can be measured.

“Let’s say the horses are going to Green Bay, Wisconsin. Okay, well, we can pull the data from the sales before the hitch visits and then we can pull the sales after the hitch visits. We can see, literally, the increase in beer sales and Budweiser sales when the hitch comes to town.” —Director of Operations, Anheuser-Busch.

The investment by Anheuser-Busch in the entire operation, from breeding and training to maintaining these formidable icons is immense, however, the appeal and the value to the brand is factual.

Although the Clydesdales started out to be a celebration of the end of Prohibition, the clever side-effect is that the horses are indelibly resident in the memories of underage non-beer drinkers. When a child who’s seen the Clydesdales grows into his or her

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\(^5\) I am told that the beer boxes on top of the Budweiser wagons pulled by the Clydesdale hitches today are usually a façade; however, in some venues where it is legal, a keg of beer on tap is accessible from the wagon for “sampling.”

\(^6\) A team of Budweiser Clydesdales made a trip to China within the past decade at the invitation of the Chinese government to help celebrate the Year of the Horse.
legal drinking age, is it possible that they may reach for a Bud because of a distant memory of beautiful horses associated with refreshment? If so, then the mileage of the Clydesdale teams extends far beyond the number of roads traveled over a 360-day working year.

“A great thing about the Clydesdales ... they appeal to people of all ages. You’ve got young adults out here, you’ve got kids, you’ve got grandparents. And the cool thing is, grandparents will tell grandkids, ‘Well, I remember seeing the horses when I was your age.’ They look the same today as they did back then. But, at the end of the day, we’re here to serve the Budweiser brand. If it wasn’t growing the Budweiser brand, there wouldn’t be Budweiser Clydesdales; and I would also say if it wasn’t for the Budweiser Clydesdales, the Budweiser brand may not be the sustainable brand that it is today.” — Director of Operations, Anheuser-Busch.

Notably, all who are a part of the extended Clydesdale teams are impressed with the understanding that they are ambassadors for the brand. The wholesomeness and Midwestern American roots of the horses are visceral. In an age of plastic advertising and airbrushed commercialization, the horses are very touchable, visually impressive, and real.

As was noted with the mounted police, the further we have come as a society from the daily interaction with horses as working animals, the more fascination, attention, and appeal these working animals hold for the average person. The horse-drawn milk wagon does not stop outside of the house anymore, so the sights and sounds—even smells—of live horses attract humans in different ways.

The evidence of specific roles of the animals within a team now extends beyond human(s) and one animal performing its role within the team. With the Clydesdale hitches, or any hitch for that matter, we now have animals teaming with each other as
well as with humans in order to accomplish a specific task. This is emphasized in the respective roles that the horses are trained for: wheel horse, body horse, swing horse, or lead horse, and also by the fact that, like any athletic team with position players, they are selected for their spot based on a combination of physical as well as personality or behavioral differences. Learning, therefore, must occur for each horse as an individual first, and then for the horses as a team, along with the humans that lead and train and manage them on the road.

Of all of the HAW teams studied in my research, only horse teams must learn teaming with each other, as well as with humans, in order to perform their work. In mounted police units, we find horses that work side by side, but they do this as individual horses and riders that collectively become a unit. In the case of the Budweiser Clydesdales, the humans, of whom there are about a dozen or more with each hitch at any time, all with rotational roles except for the driver, the Clydesdales themselves are “position players” within the working unit. There are, in fact, “spares” that travel with the hitches in the event that any horse needs to be withdrawn from the hitch for some reason. Like baseball utility players, these Clydesdales must fit into the specified role within the hitch and perform their specific job for that performance. Unfortunately, I was not able to include canine teams, such as dog sled teams, that might be a counterpart to the specific role-playing that these horses must fulfill.7

7 I experienced driving a team of sled dogs for a short distance many years ago. I am not, however, familiar with the mechanics of training sled dogs to take specific positions when hitched to a team. Lead dogs, like lead horses, are selected for the specialized traits that these positions must have to successfully perform as a team.
Psychological safety was not addressed in terms of human and animal shared values by the interviewees. Further probing about shared values across the human participants might have revealed that their training at Anheuser-Busch incorporates the Budweiser branding presence. It was noted that, for drivers, and those who travel with the team, the importance of representing the organization to the public is a key element in their overall organizational culture. In terms of speaking up, however, it can only be inferred that speaking up for the horses as valuable property becomes a working team expectation. Additional responses that illustrate team learning and animal roles are included in Table 6.

**Backstory: Volunteer Equine Services: Hippotherapy at Horsefeathers**

*Horsefeathers is located along a dirt road near a park in Mettawa, Illinois, close to Lincolnshire. As one approaches the unadorned building, it is somewhat deceptive: behind the front of the building with a wooden porch and doors leading to a barn-like riding ring, there is a huge building for housing many horses in a high-ceilinged and well-lit stable with wide aisles and spacious stalls for horses. A walk along the stable provides glimpses of the organization: whiteboards with the names of the horses and daily schedules for grooming, feeding, and riding along with the names of volunteers assigned to that day’s duties. Saddle pads and saddles are neatly posted outside of each stall.*

*There is a spare but cheery office with a couple of desks and a table for meals, snacks, and conferences around which people come and go. The casual, low-key atmosphere belies the amount of organization and planning that it takes to coordinate volunteers and keep operations going. Knowing the mission of the equine therapy in helping riders to connect with themselves and others through animal contact is critical to the successful outcomes of this organization. There are reminders everywhere: children’s artwork lines the outside of the ring. Inside the dirt-floored and large riding ring there are murals of horses in green grass and sunshine. On the wall there is a tree made of colored paper with paper hearts: each one lists the needs of the horses and the donation amount—$5 for a bale of hay, $40 for vaccinations for one horse, supplies needed from paper towels to horseshoes. Donations can be made to cover the requests on the red and pink hearts. A case of shelves with cubbyholes for riders’ helmets is set off to one side outside of the rings, along with some stands for viewing.*
There is a gentleness in the atmosphere; the culture here is very different from the all-business stable of the thoroughbreds or the routine preparations for taking police horses out for daily assignments. For hippotherapy, the smooth and uncontentiousness of the work matches the unpretentiousness of the surroundings. No fancy riding gear needed, just loving kindness on the part of human and animals on a mission to help others through what they love: walking with horses.

In the riding ring various balls, ropes, and other game apparatuses hang from the rafters in the ceiling. Large wooden shelves with cubbyholes house riding helmets of all sizes. Two mounting blocks set-off to one end of the ring allow the horses’ young riders to safety approach the horse. The horses themselves are slow walkers, gentle, ready to follow the leader on walks around the ring. Hippotherapy is the horse equivalent of canines that make visits to pediatric hospitals but with a major difference: this is a team activity. It takes three adults to work with every horse and rider for each session.

The rustic and casual feel belies the fact that volunteers must be thoroughly trained before taking on responsibility for a horse or rider. The connection between the young riders and the physical horse is the magical bond that makes equine work for selected children, as well as some adults, with a variety of special needs feel connected and learn to trust.

The volunteer trainer is a veteran horsewoman. Volunteers handle scheduling, calls, donations, and office duties as well as the logistics of keeping the horses. Fourteen horses are for therapeutic riding. Watching the leaders and side walkers with young riders perched on the saddle is a unique experience. It’s all about patience, guidance, and feeling safe and secure.

Volunteers and Working Horses in Hippotherapy

Of all the human and animal teaming that takes place for therapeutic application, hippotherapy or equine riding therapy for special needs riders is one of the few that fits into the criteria if HAW teaming for this study. The horses have specialized roles in that they work almost exclusively indoors and only for appointed riders, and they must have multiple humans working with them in order to conduct therapeutics sessions. Each horse must have a human leader, and two side-walkers, whose roles are to watch the rider and provide nonverbal support and, at times, hold on to the rider as may be needed.
Hippotherapy, as defined by the American Hippotherapy Association (AHA) on their website is for “occupational therapy, physical therapy and speech-language pathology professionals to use evidence-based practice and clinical reasoning in the purposeful manipulation of equine movement as a therapy tool to engage sensory, neuromotor and cognitive systems to promote functional outcomes.”

Hippotherapy is used as part of a patient’s treatment plan as a means of treatment for complex neuromotor systems. This type of therapy is primarily used to facilitate muscle and sensory coordination. Horses are especially well-suited for this therapy. According to the AHA, “just 5 minutes on a walking horse represents 500 neuro motor inputs to the patient. In a typical therapy session, 15 to 25 minutes of equine movement may be incorporated by the treating therapist—which represents 1500 to 2500 neuromotor inputs to the patient.”

Because it takes a team of humans, including those who lead the horse and those who support the rider, along with the professional therapist, this type of therapy is uniquely a team mission. This also fits the definition of teamwork for this study as opposed to the dyadic relationship of canines for individuals with various disabilities. Although these canines are trained by teams, they normally work in dyadic relationships with individuals. In hippotherapy, the mission can only be accomplished by the animal and the patient with human team members continuously working together in specialized roles.
Riders tend to be young, but not exclusively. They may be autistic or have brain damage or need other special therapy: there are speech pathologists and other behavioral professionals engaged in the work, along with volunteers who groom, feed, and tend to the horses as well as to order supplies, man the office, deal with volunteer schedules, manage donations, and provide contact for organizations such as schools for special needs students who regularly bring riders to the facility for therapeutic riding.

The animals themselves are donated by other organizations, such as retired police horses, horses privately owned that no longer jump or hunt, and others who are able to adjust to the easy pace. In terms of findings, the responses indicated that the theme of specialized team roles, including a specialized role for the horse, is clearly part of the working operation of the team. In order to be successful in providing this type of therapy, the horse must be temperamentally suited to the role and may have to endure behavior such as riders’ outbursts or other unfamiliar responses as well as the confinement of indoor work and the proximity of three humans and a rider surrounding them. This is not a role for every horse.

Likewise, there is ample evidence of training for the horse, but especially for the volunteers. This is not a typical horse-riding academy or lesson stable, although lessons are part of the overall picture. Volunteers needs to be trained, certified, and prepared for their respective roles. Training is basically done in-house by volunteer leaders with years of experience. Some training of the horses is mentioned; however,
it appears to be more along the lines of getting used to the environment and the special needs of the riders.

For the theme of psychological safety and speaking up, again the pattern of speaking up for safety holds true. The safety of the rider, the horse, and the individual volunteers is most critical. Psychological safety within the team, as opposed to the psychological needs of the riders, is the question that is most relevant to this study of the working team members. All team members are trained to “speak up” either nonverbally through touch, gestures, and hands-on support (as in the case of the side-walkers) or speaking up about and to the horses and riders during the therapy sessions.

As may be seen in Table 6, the statements of interviewed subjects provide qualitative testimony to the three themes as they are manifest in volunteer equine HAW teams.

**Findings Across All Equine HAW Teams**

What have we learned so far? In reviewing the evidence of the three themes, we begin to see definite patterns with respect to human and animal teaming dynamics. Of the 15 subjects interviewed across all the human–equine teaming organization types, the interviewees spoke of the animals’ distinct role as a team member responsible for some component of the team’s working mission in 11 out of 15 interviews, or roughly 73%. Over 66% of the interviewees brought up physical safety when asked about speaking up in the workplace. None related speaking up to a shared value system or other aspects of psychological safety. For these team members it was all about the safety of the team, whether during working hours (i.e., a race, an event, a patrol) or
during off-duty hours. Training as a team and team learning was asserted by 73.3% of the interviewees, although not the same 73.3% that described the special role of the animal on the team. In the discussion of results by theme, information about the differences noticed across organizations within equine HAW are noted.

**Theme 1: Evidence of the horses’ unique role as a member of the team’s mission**

Training and the importance of training both horse and human to perform or act to enable the mission of the team comes across clearly in these organizations.

The notion of horses as property of an owner or ownership group is front and center behind the mission of all the thoroughbred groups. The horse’s role on the team is very specific: he or she is there to compete using its genetic abilities that have been honed and cultivated through specialized training.

The notable exception was with the subjects engaged with stallions at stud farms. This may be due to the specific nature of the work: breeding is not necessarily teaming with the animal: it is working with the animals, and, to some extent, grooms’ and stallion managers’ ability to read the horse and know the horse’s specific tendencies does play a large role in successful operations. In the end it is all about protecting the horses and humans during what is a natural process of mating with another selected horse.
Theme 2: Evidence of the construct of psychological safety as originally defined by Edmonson (1999a)

This is the crux of the exploration of the HAW teams. This is where a distinct and important pattern emerges in HAW teaming dynamics that is continued through the examination of teaming with canines. When asked about safety within the team, every respondent that addressed the question immediately discussed physical, as opposed to emotional, safety as the key objective for speaking up. Likewise, when speaking up was discussed, in all cases, speaking up, about physical safety, was mandatory.

Initially, I presumed that this was an exception; however, the pattern continued across the human interviewees for both equine and canine working teams. Although I included a definition of psychological safety as shared values across team members and speaking up as a definition of the construct, two observations came across clearly:

1. No interviewees specifically mentioned shared values across the multispecies work. This was understandable. As anticipated, none of the human interviewees intimated that the animal actually shared values with the team. Is it aware of the mission? Yes. There is evidence cited that the animals are aware of working and non-working events. Are there shared values across human and animal team members? No one ventured into this discussion, and with good reason. As close as the human team members may have been with their animal team members, they avoided anthropomorphizing the animal with respect to mental constructs and assumptions of value-driven judgments. The resulting evidence confirmed what critics of this study initially noted: we
cannot validate any shared values across human and animal team members; therefore the construct of psychological safety is not evidenced. From my findings, this was supported.

2. In terms of speaking up, however, all the respondents that discussed speaking up explained this in terms of speaking up for physical safety. The theme of speaking up on behalf of the animal and with or even for human team members in terms of their physical safety was almost universal. Speaking up for physical safety of the team members, as opposed to speaking up in knowledge work, or, as has been shown, in operating rooms and in manufacturing teams and other human teaming, is defined in the construct as the ability to voice one’s opinions without fear of embarrassment, reprisal, or personal negative consequences. As I reviewed the models of the psychological construct, particularly those included in Edmondson and Lei (2014), I searched for the motion of speaking up for the physical safety of the team members themselves (as opposed to that of patients or clients) as a feature of the construct. I was unable to find this.

I shall return to this theme of speaking up for physical safety and the construct of psychological safety in my concluding section. At this point in the study, I was willing to be both intrigued and open-minded about how speaking up for physical safety might enter into the human teaming construct.
Theme 3: Evidence of team learning

In the mounted police units, the emphasis on the horses’ specialized team role and the mission of the unit as unique from other police units was emphasized. Additionally, however, in mounted police, the ability to work across boundaries with non-mounted working units of law enforcement was unique among the organizations investigated. In the case of mounted police, there was true boundary-spanning across non-HAW teams in order to successfully accomplish team objectives. The boundary spanning with human law enforcement working teams, and mobile units in particular, was very pronounced. It is imperative that mounted units be trained and operative with non-mounted police force units for the overall objectives of protecting citizens and property as well as for the enforcement of laws with respect to speeding, parking, and general disturbances.

This brings to life the additional training element of the HAW team having to educate, if not train, other units as to how they operate, what they can and cannot do, and how they fit into the overall law enforcement operations. In some cases, there is evidence that the law enforcement operation has specific training in its police academy for non-mounted officers in the dynamics and mechanics of mounted patrol units. This was clearly discussed in one of the mounted units. To say whether this is a universal practice across law enforcement units would require a study across additional populations of mounted police units. It is notable that this boundary-spanning across HAW and non-HAW teams occurs again in canine law enforcement. Among the groups explored, only the law enforcement teams (both equine and
canine) and the canine search and rescue teams appeared to incorporate cross-
teaming with non-HAW teams for the specific accomplishment of their working
goals.

**The Canine Subjects**

**Backstory: Canines in Law Enforcement**

*On a warm day in early autumn, I make my way to TOPS K-9 Training Center in*
*Grayslake, Illinois, to meet with their Director of K-9 Training. He is most gracious
*although I am a stranger. We’ve discussed my appointment, and, as is usual, it’s*
*taken a few phone calls to arrange a convenient time and date for him. This is my first*
*interview with a bona fide canine law enforcement organization after spending*
*months reading about police K-9 training and personal stories and second-person*
*tales (no pun intended) of canine commitment, loyalty, heroics, and indispensability*
*in the safety and protection of everyday citizens. Some stories are worthy of their own*
*feature film: cases of drug busts, finding caches of narcotics, counterfeit money (yes,*
*they can sniff it out), and all manner of explosives and weaponry from warehouses*
*and airports to basements and urban high rises, all in the course of a day’s work with*
*no reward other than praise, a red Kong toy, and extra treats. Other missions are*
*more of the day-to-day variety: patrolling streets, looking for lost children and adults,*
*occasionally pursuing suspected perpetrators fleeing on foot, sniffing out any*
*suspicious behavior, and responding to calls in their specially marked and outfitted*
*K-9 patrol cars, which range from police sedans to large SUVs. All of this takes a*
*huge amount of selection, training, bonding with a handler, and learning in the*
*presence of other canines and humans in groups—something of a canine*
*kindergarten with police handlers. Training, however, is continual. Most police K-9s*
*engage in training multiple times a year and for anywhere from four to six weeks of*
*continuous hands-on training exercises. This is for reinforcement as well as for*
*learning new skills. At TOPS the outside fenced-in area looks like a mini-version of a*
*military training center, with gymnastics-like balance beams, ladders, large sections*
*of pipeline, and a variety of other climbing, jumping, and tracking aids to increase*
*the agility of both canine and handler.*

*Large urban canine forces, such as the City of Chicago and the City of Philadelphia,*
*have specialized training centers for the dozens of specialized police dogs and*
*officers that form their K-9 units. Many smaller countries, villages, towns, and*
*jurisdictions have only one or a few K-9s in their law enforcement units. These*
*canines and their handlers are part of the overall police forces and often start out*
*with qualified and respected law enforcement canine training centers, such as TOPS.*
*There both human and K-9 officers-to-be are schooled in the often-complicated*
*maneuvers that cue on voice, hand signals, and even eye movements for response to*
commands. The canines selected are not merely responding, however. They are often called “smart,” meaning that they have the intelligence to follow not only their instincts but also to sight, point at, and give signals back to their human team members.

At TOPS, the Director, followed everywhere by his black German Shepherd partner, describes fully the process of police K-9 training. He himself is a veteran of decades of police services and knows most of the local law enforcement agencies that have canines on the force (local meaning anywhere in the larger metro Chicago area and into Wisconsin and Indiana). Every police K-9 officer and unit that I met was unique. Each had their own unique environments, communities, and histories to tell. The Chicago Police K-9 Training Center is located in a set of buildings surrounded by a chain-link fence in an industrial area in Des Plaines, not far from O’Hare Airport. The offices are small, but the training area is large and well-suited for its purpose. In Philadelphia, a similar urban environment, the K-9 unit was housed next to the SWAT unit and near a shooting range. At least 10 K-9 patrol cars were parked in the lot, and seven or eight K-9 officers were outside, even in December weather, giving the dogs some fresh air and exercise. The sounds of dogs barking from inside the building are a natural part of the scene, just as the shooting sounds in the distance from the practice range punctuate the air. These are large and active K-9 units for cities that are spread out over large distances with their own set of obstacles—tall buildings, dense urban downtowns, myriad streets and alleys, large bodies of water (the Delaware River in Philadelphia and Lake Michigan in Chicago), and all the specialized activities that make for engaging police shows on television.

In the Village of Wheeling, the setting is much calmer. I meet with the K-9 officer in a conference room, and he introduces me to the Police Chief and his superior officer, who just happens to be walking by. We have a long, relaxed interview, after which he takes me out to the parking lot where his dog is settled into the back of the patrol car and shows me all the special gear that his canine has for every conceivable type of working environment in the Village. No skyscrapers or large bodies of water, though. The German Shepherd is huge and lively. He wants to play with the officer and wastes no time getting out of the patrol car and jumping around, pleased to see his working partner. It is obvious from watching the two of them cavorting around that they are comfortable in the company of each other and well paired together. Being the only K-9 duo in the Village Police Unit, they count the rest of the human officers as their teammates. It is clear from the casual greetings among the officers

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8 I should be more specific here: I reference human officers, as the K-9s themselves are also officers and often have their own badges and so forth. They are officially known as law enforcement officers of whatever unit they are attached to. This is more than just tradition for those humans who have worked with these animals attest to their abilities to work on a daily basis with all of the dangers, threats, and inconveniences that human law enforcement team members are subject to. It is indeed heartbreaking to see fallen K-9s and any other of those who fall in the line of duty. These K-9s are accorded full honors with formal ceremonies when laid to rest.
that each of the team members has respect for the other’s special service assignment. One of the striking statements from the officer regards his ability to recall his dog in any situation. As he notes, canines are the only less than lethal weapon that can be called back. Once a gun is fired, you can’t call the bullet back. A very interesting notion, indeed, particularly in times of anti-police sentiments that seem to be in the news with great frequency.

The County Sheriff’s unit that I visit is similar to that of the Village although there are multiple K-9s and officers/handlers within the unit; there is an ease of being collocated with the rest of the Sheriff’s unit. To some extent, this is helpful since the officers will often be working on a single case together. The officers who are not trained in canine work—and few are since the police training academies do not get into this specialty; it is reserved for seasoned officers who apply for the role—have the added exposure to what police K-9 units do and how the canines themselves function while on the street. As one of the K-9 officers says, “I have the best job in law enforcement.” He means it.

**Law Enforcement: The Police K-9 Units**

“It’s okay to miss narcotics; you don’t want to miss a bomb.” —Chicago Police Department K-9 Sergeant.

This statement speaks volumes for the general working environment of police canines. A mistake or failure to perform mission objectives may have very extensive consequences. Bomb-sniffing dogs can do what humans cannot: use their olfactory senses to distinguish odors from chemical, smoke, and incendiary devices; drug chemicals; currency; cadavers; and other substances and artifacts. Another role, which is often played down due to the liabilities that police departments incur when using aggressive or “high play drive” dogs is the real chance that they will scare or bite a child or Alzheimer’s patient. One Sergeant noted that this may be why many police departments do not do active searches and instead call in rescue teams that are specifically trained for finding people.
Police K-9 units are one of the best known and most visible examples of HAW teamwork. Officer-handlers and their canine officers run the gamut of reaction from the public: from fear of being attacked or bitten to wonderment and fascination during public relations events, demonstrations, and visits to schools and other venues. In some cases, the mere presence of the police canine will act as a deterrent, or at least, as one officer put it, “So much of what we do is public relations … if I walk up to talk to someone they might listen, but if I walk up with Chase (police canine), I have everybody’s undivided attention.”

The role of canines in police work can be extremely specialized or multi-purpose. For the most part, large urban police forces have specialized units for narcotics and searches and other units for explosives detection. The training for chemical smells is different. Even within the realm of chemical odor detection, there are canine “subject matter experts”: some dogs are excellent at cadaver searches, others excel at sniffing smoke and bomb materials, and still others—a very select group—have actually been trained as cyberdogs: they have the ability to sniff out TPPO (triphenylphosphine oxide), the chemical used in all digital memory devices to prevent overheating. These specialized dogs, usually Labrador Retrievers, have discovered evidence that has put child pornographers and other criminals behind bars.9, 10

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9 For the most part, police canines are German Shepherds or Belgian Malinoises, however police K-9s include beagles (mainly for agriculture), bloodhounds (trailing and sniffing), and other breeds.
10 Law enforcement work with canines is moving into white-collar crime. It is not just for the apprehension of perpetrators, drug busts, and bomb detection. There are currently around 17 specialized cyberdogs in the country. They started with specialized training labs in Connecticut law enforcement agencies, where canines were trained to detect TPPO (triphenylphosphine oxide). It was just such a dog that was able to find the digital device (in this case, a hidden flash drive), under a
As noted by one K-9 officer, a smaller police unit may have only one dog; that dog and the handler/officer form a dyad within the entire department as a unit. Other larger K-9 units, such as the Chicago and Philadelphia police departments, have over 60 to 70 dogs and handlers and themselves for specialized units or teams within the police department.

Teaming is not limited to the immediate group, however. Police dogs and officers are often working with outside agencies and other police units (SWAT units, narcotics units, airport security units, etc.) such that there is generally a great deal of boundary-crossing between HAW teams and human working teams.

The results from the interviews across the three themes were quite interesting. For theme one, all but one interviewee described the specialized work of the animal team members as something that no human could do. There is no substitute for the animal’s ability to fill a specialized role.

There was a preponderance of evidence about the rigorous and repetitive, almost constant, training of police officers and canines. All of the interviewees except one (who was engaged solely in training) provided specific evidence of training as a unit as well as training in dyads of humans and canines. Theme 3 was supported through much discussion of training.

Theme 2, the evidence of the construct of psychological safety, however, was specifically described by only one K-9 officer. This result was unexpected, given the search warrant, that provided the evidence to convict child pornographer Jared Fogel, the former public spokesperson for Subway restaurants. Numerous other cases have been assisted through the specialized skillset of these canines trained to detect even the most minute and most difficult odor.
evidence of speaking up for physical safety for equines. That the issue of speaking up for the physical safety of the canine and the officer was not specifically noted does not infer that psychological safety in terms of speaking up does not exist. It does, however, point to the need for additional research on law enforcement canines with regard to speaking up. One officer was very vocal about speaking up, not only for physical safety but on behalf of the canine’s performance. This particular officer discussed at length the freedom that he believes exists within his own department for speaking up about the canine or pointing out specific behaviors. The officer interviewed noted that he welcomes feedback from other officers, including non-K-9 police officers, and indicates that this is not always the case: it depends on the dynamics of the officers within the department. He further notes that this is not likely to happen across different law enforcement units. For example, if he and his canine partner are asked to assist with a search called out by another jurisdiction, they will very often be assigned to support the local police; however, speaking up or offering feedback from non-team members (i.e., those not within the officer’s own department) does not occur. Many non-K-9 officers, however, will ask about the canines.

Across all of the interviewees from law enforcement agencies, however, the theme of psychological safety was not as prominent as was encountered with other HAW team organizations. I did not discover a root cause for this difference, and to develop an answer without further study would be unsupported by these data and likely insufficient. One might expect that speaking up for safety would be considered a
general part of law enforcement training, however one officer did specifically call out the patterns of speaking up in the workplace within his own unit.

Those remarks and other direct dialogue should be reviewed in Table 6 for a fuller picture.

**Backstory: Search and Rescue: Hero Dogs and Their Teammates**

“For years it’s been trust your dog, trust your dog. Don’t think for your dog. Don’t try and think, ‘Well, my dog is going this way, but there’s a walking path that’s going that way.’ Don’t start thinking, ‘Well, my dog should be going that way.’ Trust your dog. Your dog’s got the nose. Just follow him. We have expanded on that: Make sure you can read your dog, too, so you know [that] he hasn’t changed things to get a rabbit.” —Search and rescue volunteer, ILLWIS Search and Rescue

My meetings with canine search and rescue volunteers took place locally in the far northern suburbs of Chicago, about a 20-minute drive from the Wisconsin border. Living with dogs is common here: lots of space for play, backyards, parks and a more casual way of life. I travel to their homes to meet the dogs: bloodhounds and otterhounds, genuinely happy to see me. Lots of jumps and licks and playtime—except when it’s for real and they are awakened in the middle of the night to find a missing person. The search dog vest and other rescue equipment are found nearby the door or in the truck parked outside. Ready. For anything.

I go through photos of training sessions where teams of volunteers meet in different venues to spend the day learning and refreshing on previous training. It is all outdoor work. unlike the police dogs that spend a lot of time in heated and air-conditioned vehicles, inside police stations, and doing building searches, search and rescue is an all-weather necessity.

Like many volunteer organizations, my interviewees spend thousands of hours a year in training and on missions, and cover all of their expenses by themselves. This includes gas for the truck, equipment, and other expenses related to their missions. And yet, one feels that sense of dedication that is the hallmark of volunteers everywhere: we are here to do what we can for the community, for other people. Sometimes this means finding a loved one and getting them safely home. Sometimes it means giving families closure when missing people are located. Often times the trails stop—at a train station, at a place where the missing person got into a car—and there is no way for the scent to be followed. The determination and patience of these
volunteer teams comes across naturally. They are friends, they are neighbors, they are good people.

**Canine Volunteer Search and Rescue**

Canine search and rescue teams have received much public attention, and appreciation, over the past two decades based on their roles in the aftermaths of the Sept 11, 2001 attacks on the World Trade Center, Hurricanes Katrina and Harvey, and other damaging weather activity as well as all kinds of natural conflagrations such as earthquakes, avalanches, fires, and floods. Adding to that, there are missing persons, suspected of being victims of criminal activity, and those who are lost in hiking mishaps, boating accidents, and various other recreational activities.

Although teams assisting emergency operations get the most news coverage, it is the local teams that are the right arm of police agencies, fire departments, and emergency services when an individual goes missing. Each year there are thousands of lost children, Alzheimer’s patients that walk off a property or out of a house, and, unfortunately, cadaver searches that need to take place. These one-off searches do not normally get national attention; however, they are incredibly important for the families of victims and for local authorities to resolve.

Canine rescue teams are, for the most part, staffed by volunteers who are on call 24 hours a day, every day, including holidays. Joining the team of these dedicated individuals, who have spent thousands of hours annually training with their dogs, and re-training, to serve their communities as well as to travel to distant communities where help is needed, takes a big heart and incredible commitment. Many volunteers
are called out for rescue operations at night. For those with full-time jobs, and those with families, the physical and emotional burden can become a heavy load. Yet, these teams, such as the ILLWIS Search and Rescue team in northern Illinois/Wisconsin, have been operative for over 30 years, providing self-training and becoming engaged when called, typically through police by word-of-mouth as well as through state and national search and rescue volunteer databases.

Without question, this is teamwork. And, most notably, the dogs themselves, of all sizes, breeds, temperaments, and skillsets, are the centerpiece of the search and rescue effort. It is in these circumstances their genetic skills become invaluable. The subjects interviewed universally emphasized the need for leveraging the genetic abilities and natural personalities of a variety of dog types that are matched to the circumstances of the search: some excel at older trails, some are better at fresh trails, some perform better at night, others during the day. Weather has its effects, too: rain, snow, heat, and cold all combine to create a puzzle of variables that must be considered when determining which dogs should be the first to be selected for a particular search. They are able to find the exact spot where humans have entered a lake or pond in order to located drowning victims. And they are trained for gentility in locating the elderly and children.

With respect to the first theme, the subjects are more than willing to share about the uniqueness of their dogs, the variety of breeds, and the critical nature of the ability to leverage their natural gifts and predilections for scenting as well as for the length of searches, the timing of searches during the day or night, the ability to work with other
dog and handler dyads, and their roles as central to the entire mission of using whatever biological means possible to help identify and locate living or dead humans. Search and rescue dogs are clearly key members of the team. It is all about what the dogs are able to discern and under what specific conditions.

In the case of search and rescue, unlike law enforcement, two differences in the dogs’ role are evident: first, the dogs are not engaged in what is called “bite work,” or the apprehension and demobilization of human suspects or perpetrators; second, the search and rescue dogs are not looking for “things”—narcotics, food, money, chemicals in and of themselves, unless they are associated with the particular human that this being trailed. The wider spectrum of unique skills permits many dog breeds to perform this kind of work. Breeds other than those typically associated with law enforcement or the military enable search and rescue teams to locate special needs individuals rather than to target potential crime suspects, as described by one handler:

“The reason they [police, fire, emergency teams] call our team out is because they don’t have trailing dogs, or their dog is a bite dog. If you’re out looking for a dementia person or an Alzheimer’s person, you don’t know how they’re going to react to a dog. And if they get screaming and yelling, or they throw something at you, you don’t want a dog that’s going to go for them. I mean, we’re searching to find them, not to eat them. So, one of the issues that our team has: we trust our dogs to get along in a lot of situations with a lot of people.”—Volunteer, canine search and rescue

What is in common with canine law enforcement teams, and indeed with all the canine subject organizations interviewed for this study, is that the canines all live with their handlers or primary owners. The notion that the dogs must be able to understand when to adopt a working role to accomplish a specific mission again comes up. What
indicates that the canines know when it’s time to get to work? Whether it is keying on their handler’s special equipment or being outfitted with special vests, harnesses, and lighting, the canines are all observed to take on a “working” behavior that indicates to the handler who is reading the animal that the canine is very aware that it is now “on” in terms of performing its trailing role.

As the handler of Gabby the bloodhound noted, the dog not only has to learn to read you and work with you, but she also must be cognizant of the other dogs that are around her and be willing or able to work in tandem, or co-work sequentially with them, and not get distracted.

Another interviewee noted, “You want to give the dog the best opportunity to be successful. That goes from the weather, all the way down to the scent article that you present the dog. Ideally, you’d like to have it as pristine as possible, but most of the time you’re not going to get that.”

In terms of the second theme, the evidence of psychological safety in the organizational teaming, very little was mentioned about the human teaming other than to say that it was important to be able to “get along” with the rest of the volunteers. In terms of speaking up, however, there was evidence from two of the handlers that in observing the dog’s special characteristics and helping to “read” their body language, it was perfectly acceptable, and often desirable, for human team members to speak up about what they observed across all the team members, including the canines. There was some notion of hesitancy, however, in speaking up to the police or other agencies that were outside of the search and rescue team. One of the interviewees did talk about trying to advise the police on what the dogs can and cannot do, and why they
exhibit certain behaviors in trailing. Speaking up on behalf of the other individuals on the team was not a critical success factor. Additionally, the notion of speaking up for physical safety was not included by two of the interviewees. One interviewee stressed that the major worry was the safety of the dog when trails go across busy roads or other places that may pose a hazard. The safety mechanism is that the police are with the teams and are called upon to provide adequate protection and/or visibility (e.g., stop traffic, have appropriate search warrants for private property, and so forth). There was no mention of human safety, physical or psychological, other than the discussion of speaking up, as noted above.

Far greater emphasis was placed on questions and discussion around the third theme of team training. All interviewees repeatedly discussed training, for humans, for canines, and for the team as a whole. Training is constant and is the singular best way for the volunteers to officially incorporate new members into the team. Long probationary periods and attendance at 7- and 8-hour training days are required not only for new members or prospective members but for all the volunteers. There are strict rules about attending training sessions. It is understandable as this is the primary face-to-face communication and meeting place for all the volunteer team members, many of whom live hours away from each other, spread out across two states. Consistent training, engaging all human and canine team members, is vital to the operation of search and rescue teaming work. Not only is repetitive training essential, new learnings and venues are also added to the training repertoire on a frequent basis. When a new or unusual situation is encountered that has not been included in
previous training, there is a conscious and concerted effort to include these scenarios in future training days. The following example of new training was specifically mentioned:

“A couple of weekends ago, we were able to do training at an assisted living facility. One of our trails was inside; one of our unit member’s father lived at the facility. The scenario was that he [the father] disappeared from breakfast, and nobody knows where he went. So actually, the trail went into an elevator up to the second floor and into his apartment. So, we got to track the dogs through the facility and into an elevator. Just giving [them] that experience is very beneficial for the dog. They keep that back in their memories.” — Volunteer, canine search and rescue

As genetically gifted as canines’ sensory perceptions may be, search and rescue teams are often called upon to do what seem to be impossible searches. As one handler said,

“Our dogs work in an urban environment, basically. We don’t laugh, but we always say, ‘Wouldn’t it be nice if somebody just wandered away in a forest preserve?’ And we could just follow a trail instead of somebody walking out of a nursing home or a hospital, and they call us eight hours later after 100 people have walked back and forth, and we’re supposed to find [them].”

All of the search and rescue interviewees were generous in talking about their teams and canines. Evidence of the thematic content findings for this organization may be found in Table 6.

**Backstory: Blue III, the Life of a Working Celebrity Team Member**

The face of Butler University is plastered across center court at Hinkle Field House, the home of Butler University’s Big East NCAA Men’s Basketball Team. It is the face of a bulldog. A stroll around the Butler campus shows this face almost everywhere: a huge plaster model of him is on the front lawn of a fraternity house; a granite likeness of him stands at the entrance to the student union building; he is all over the bookstore: hats, shirts, socks, drinking glasses, baby bibs, and his own bobble-head doll are among the licensed products with his image. He puts in a full day at the university offices and is on the court at night for home basketball games. He is petted by fans, photographed, and fed rawhide bones, all as a prelude to his role on the court as the face of the team. He jumps around on the hardwood as the team members
and coaches are introduced and bounces across the floor between at least 30 other people, including cheerleaders, pom squad members, a person dressed in a bulldog suit, referees, and various other assistants while the Butler Band blares out the traditional fight song. The noise is deafening. He takes it in stride. He is Blue III. It’s all part of his job.

As canines go, bulldogs seem to occupy a special place in university culture. Most famous, of course is “Uga,” the University of Georgia poster boy. There are plenty of bulldog universities to go around, and many have live mascots (Yale’s “Handsome Dan” and Georgetown’s “Jack” come to mind).

Bulldogs are not the only canines to grace football fields and gymnasiums; there are salukis, huskies, coonhounds, and border collies that serve on the sidelines. These schools are, in fact, luckier than those who are represented by wolverines, golden gophers, assorted wildcats, and the occasional avians. Texas longhorn cattle (“Bevo”), live Buffalo (“Ralphie”), and other assorted mascot bovines, poultry, and exotics are much more of a liability and are restricted in their ability to work inside a field house or other indoor venue, let alone show up in the office on a day-to-day basis, pose for photo ops with alumnae at fundraisers, meet prospective students, and promote bookstore sales.

At Butler University, Blue III, or “Trip”, (for Triple), is the third of a line of live canine mascots and occupies a special place. He is more of a working public relations agent for the university. He shows up from 9 to 5 with his owner, the Director of Butler External Affairs, and has one staff member permanently assigned to him to arrange his appearances, endorsements, licensing deals, campus activities, and assistance with the Office of Admissions. He is a special greeter for early admissions Butler “future Bulldogs” and has been videoed making appearances at the front doors of local high schoolers’ homes to welcome them officially to the Butler Bulldog pack.

In fact, he is a team member, not only for athletics, but also for various departments of the university. He does fund raising for charity, he brings in money with his gear at the University Bookstore, he solicits donations from doting alumnae, and “earns his keep” in terms of revenue.

From endorsements for the car dealer that provides his special tricked-out van with his face on the side (the “Blue Mobile”) to his groomer, trainer, kibble provider, veterinary staff, and other members of his posse, Blue III provides great endorsements. He is featured in commercials for local restaurants and ice cream places. Blue III is well known in the Hoosier State. He has graced the cover of Indianapolis Magazine and has a children’s book out to entertain juvenile bulldoggers-in-training for Butler University.

Most of all, however, he is cuddly and approachable. Unlike the leprechauns and boilermakers of other Hoosier powerhouses, Blue III is cute, furry, living, breathing, and very real. To watch him is to see a dog at work. It may not be the work that police canines or search and rescue dogs do since his scenting capabilities are not a feature
of his work. But he does work. And he does pay his own way, even without a shoe contract.

**Blue III at Butler University**
Commonly known as “Trip,” for “triple,” as he is the third live mascot of the Butler Bulldogs, this canine not only represents the university, he has multiple jobs that may not be able to be filled as well by other public relations vehicles. He is a personality and a revenue-generator. His list of endorsements is long: the credits include his trainer, his veterinarian, his groomer, his food supplier, and the automobile dealership that provides his “Blue Mobile,” a specially outfitted van to ferry him around.

“Blue is basically generating the revenue to cover almost all of his expenses. At this point, his value is understood by the university administration. Our budget doesn’t draw on institutional funds, for the most part. We generate funds through sponsors, alums, appearances, and royalty revenues. There are no stats on the money that he brings into the bookstore, or the admissions headcount that he generates. Net-net, he earns his keep and pays his way.” — Director of External Relations, Butler University

Social media outlets are a primary “voice” for Trip. He has his own Facebook and Twitter outlets as well as his own website, linked to the university’s primary site.

With respect to psychological safety, no one really knows what’s on Trip’s mind or what his shared values are, although the Butler staff and student body might argue that he shares the values of Butler University. In any case, they have not conducted any studies that I am aware of to verify this.

In response to physical safety, my expectation was that I would learn about how students and visitors, as well as complete strangers, are made to feel safe around a roughly sixty-pound bulldog. The response about safety was as follows:
“Regarding safety, we don’t feel too concerned. I’m in control of Blue’s safety. If it’s too hot, etc., we put him in a safe environment. In 2010 we had some hiccups. We were new to the Final Four (National Collegiate Athletic Association’s Men’s Basketball Championship Tournament). People don’t realize how “big” [i.e., “important”] he is. I got stuck in some mob scenes surrounded by fans and people. He needs security, and we know it. Just the sheer volume of people can be scary. Now we make sure that we have coverage: the Butler Police, the Indianapolis Police, the local police if we are traveling, just assigned to the dog.” —Director of External Relations, Butler University

So, in effect, we have come full circle: Instead of canines and humans trained to protect citizens, we now have human police and security assigned to protect the dog from the public. In fact, the role of this particular dog is similar to that of a celebrity—public appearances, “game days” (and nights), road trips, meet-and-greets, endorsements, and so forth.

For those of us old enough to remember the “golden age of television” in the 1950s, Trip and other mascots, such as the fabled Uga, another bulldog “cousin” from the University of Georgia, have taken over from the once-iconic collie named “Lassie” in terms of fans and friends.11

“He’s proven his worth—the investment, the enrollment, marketing and commerce, licensed apparel. He’s worth a lot to the university.” —Director of External Relations, Butler University

11 The University of Georgia’s working mascot is more properly called “Uga X” since he is the 10th in his line of bulldogs to hold the title. Although I did not attempt to contact Uga’s entourage and owners in Savannah, Uga’s public recognition factor is quite high, not only in Georgia, but among sports enthusiasts everywhere. Thanks to covers on Sports Illustrated, decades of television exposure, and a cameo role in Clint Eastwood’s film “Midnight in the Garden of Good and Evil,” Uga’s celebrity status is cemented well-beyond the confines of the NCAA’s SEC (National Collegiate Athletic Association’s Southeastern Conference). There are dozens of live mascots working in colleges and universities across the U.S.
Additional evidence of his unique role as a working animal is included in Table 6. Interviews provide evidence of his role as a working canine and as part of a larger team. The team, however, includes his primary handlers and various athletic teams but also extends far beyond that to the student body. There was no evidence of psychological safety operative given the definition of shared values, nor was there direct reference to team learning with respect to his role as a mascot other than to note that school tradition plays a role in how the athletic teams interact with him. Basic canine obedience training was not included in responses.

**Findings Across All Canine Haw Teams**
The findings across the canine HAW teams studied provided some interesting data with respect to which groups provided evidence of one or more of the themes.

**Theme 1: Evidence of the canines’ unique role as a member of the team’s mission**
All of the canine HAW team subjects except one (91.6%) gave evidence of the unique role that canines hold within their working teams. Because of their biological, physical, and sensory advisability for scenting and the identification of substances, canines perform unique roles. In many cases, such as for teams working in the identification of narcotics or bomb materials, they perform in ways that no human is suited to do.

**Theme 2: Evidence of the construct of psychological safety as originally defined by Edmonson (1999)**
With respect to Theme 2, within the canine law enforcement teams, of the eight subjects interviewed, only one directly spoke about speaking up in the workplace. In
this instance, the subject spoke not only about speaking up for physical safety but also mentioned that he expected and welcomed feedback from other unit officers. This subject also discussed ethical decisions that may impact human and animal safety and willingness to put lives on the line to do their work. In this one case, the subject canine was a multi-purpose dog that did work in both scenting and following a trail as well as active patrol work. It is interesting that the HAW working teams most associated with highly dangerous situations, law enforcement, made little reference to psychological or physical safety. Because their work is engaged with dangerous situations as a part of their mission, the aspect of speaking up for physical safety may be taken as a given. This is yet another area that could be a topic of future discovery and examination. The overall response from the remaining canine working teams was 100%. Thus, only 33.3% of the subtotal of canine HAW team subjects gave evidence of Theme 2.

**Theme 3: Evidence of team learning**

For Theme 3, all but two interviewees indicated that the canine’s performance is integral to the entire team’s learning. One of the two exceptions was the subject interviewed about working with a school mascot. The mascot did not need special training to perform as a mascot with the team members themselves and does not actually train with the student body. The other respondent had an auxiliary role as a full-time trainer who discussed the training of dyads of canines and handlers and groups of dyads from different organizations. This did not fit the definition of training
together as a full working/operating team on a specific mission. The evidence for Theme 3 was positive for 83.3% of the subjects interviewed.

It was also of interest to note that equine and canine HAW law enforcement teams have environmental differences in non-working living situations and in how they work together as teams with other animals. Although canines are pack animals, the canines were all working essentially as the single animal among human teammates when they were in the field. Although some organizations have multiple canines, they work essentially as one dog paired with a handler and other humans (spotters, other officers, other team members, the public, and so forth). Equines, on the other hand, are rarely or never deployed as one horse, one rider. They are essentially herd animals and actually work better when they are paired in teams that include at least one other horse.

**Overall Findings: The Crux of This Study**

This study is intended to be an exploratory examination of contemporary HAW teams across selected human–equine and human–canine teams based upon my definition of working teams with animals. Too often scholarship in organizational studies has focused on traditional and easily accessible organizations from the perspective of education and business management. Sample populations of graduate students and single-organization corporations abound. The reasons for this are numerous, including funded studies, the promise of developing consulting roles including various interventions, the directional drivers within academia, and the notion that HAW is not “serious” enough to warrant study outside of zoological and
experimental psychological traditions. This is, of course, part of the reason why this subject population is so understudied. Lack of information leads these constituencies to be ignored by those outside of the immediate industry. Much has been written about the global horse racing industry with respect to financial and cultural aspects. The “sport of kings” has now become the “sport of everyone” thanks to legalized online gambling. The money that changes hands can be in the tens of millions of dollars. As noted with Anheuser-Busch, the world-renown symbols of the Clydesdales is a continuing revenue-generator for the company, not merely a fond throwback to its post-Prohibition era history.

Overall, the central findings of the evidence from both equine and canine working teams yielded the following insights:

1. The data did not support evidence of the construct of psychological safety as defined by Edmonson (1999). Despite animal behavioral studies that have shed much light on animal emotions, there is no evidence that the animals in the HAW teams studied shared values with their human teammates. Speaking up within the workplace, however, was evidenced and strongly apparent in the responses from human subjects. Speaking up for safety, however, was focused on the physical safety of both the animal and human team members. This could be due to the following:

   a. The nature of the work. HAW teams engage in physical as well as mental and emotional interaction. Physical interaction might have been the first and most critical aspect of speaking up when interviewees were queried.
b. Subjects’ lack of familiarity with the construct of psychological safety and/or lack of clarity in the structure of the research questions. The open-ended questions may not have evoked replies in which the subjects revealed aspects of psychological safety related to the human team members’ interactions with other humans.

2. Regarding team learning, the majority of respondents across both equine and canine organizations emphasized the critical nature of learning with the animal team member as a team. This learning may occur in dyads first and then become incorporated into training as a unit; however, specific responses supported HAW team learning as a theme.

3. Regarding the animal as a working team member with a specific role that was critical to the success of the team’s mission, all teams with the exception of those engaged in thoroughbred breeding activities supported this theme. For breeding operations, although successful horse matings are the mission of the team and the source of revenue, the animal’s physical “work” is basically following nature’s course under the guidance of human team workers. There were no data to support this fact as the reason that the unique role of the animal as part of the working team was not brought up by the interviewees, however.

4. First and foremost, speaking up for HAW teams evoked responses about the physical safety of the team for both animals and humans. In terms of discovery and applicability to future studies in organizational development
and organizational behavior, the notion of speaking up in the workplace about physical safety could be worth further investigation in human teaming organizations. Going back through the literature on psychological safety, I could find no models indicating that the physical safety of the team members while performing work was an antecedent to or a component of psychological safety as the construct has been applied since 1999.

Returning to the original four hypotheses from Edmonson’s 1999 study, as shown in Table 1, a brief recapitulation of the subject organizations’ data may provide a glimpse into what we may safely assert in support of Edmonson’s hypotheses from the initial 1999 model as they may apply to HAW teams. With Respect to H1, that learning behaviors’ positive association with team performance, it is clear that HAW teams are all about learning, re-learning, practicing, and refreshing on a regular basis. For the animal team members, with the possible exceptions of hippotherapy and the university mascot subject work, the subjects interviewed stressed the continual nature of team learning, for the animal as well as for the human team members. Table 6 includes statements that reference the criticality of learning both for successful team outcomes as well as for physical safety of the team members.

In addition, based on HAW team data, there are two major takeaways: first, the temporal aspects of HAW performance are related to learning and, secondly, that learning is universal for both human and animal team members.

In human teaming, much attention is often given to the temporal aspects of learning one’s role, not only as an individual skillset but also as part of a team. Too often, in
human teaming, companies have onboarding processes that condense learning into a pre-set timing, with the expectation that new team members will be able to “get to work” with little variation. In HAW teaming, as noted by one of the canine law enforcement trainers, “we go as fast as it takes for the last one,” in terms of training canines on their roles in law enforcement training sessions. Likewise, for equines, the Anheuser-Busch Operations Manager for the Clydesdales stressed that they spend anywhere from four to six years preparing an individual horse to assume a role on a Clydesdale hitch. First, the individual horses are taught “basic manners”—standing for baths, how to interact with strange humans, and “general horse etiquette”—before they are moved to one of the hitch training centers for specific team training. Like professional baseball players, there is, literally, a farm system for horses to progress to the “big leagues” of a Budweiser hitch. Horses are kept in training throughout the process, and some, very few, do actually wash-out and will not make it to the final hitches. Likewise, most thoroughbreds that race have gone through a succession of training through their weaning and first years in preparation for work as a “juvenile.” In the cases of thoroughbreds, however, they go through their “rookie years” based on their birthdates and may, in fact, not be ready for big races at three years of age, considered to be the entry to “prime time” in their careers.\(^\text{12}\)

In some HAW teams’ performance, speaking up for safety can be visible and may be to some extent testable. For canine search and rescue teams, both animals and humans

\(^{12}\) Thoroughbred race horses all “age” identically: no matter what their actual birthdate is (or to be clear, foaling date), they are considered one year old on the following January 1\(^{st}\) and advance in age one year each subsequent January 1\(^{st}\).
must demonstrably show that they have learning to perform trailing tasks and also to work with each other. As noted by one of the search and rescue volunteers, his young bloodhound may not have the temperament to finally “make it” to search and rescue certification. For human-only teams, there is often the expectation that journeymen knowledge workers will bring with them a set of skills to the workplace. Even in the professions, bar exams and residencies are required for entry-level positions, assuring employers of some basis for beginning as part of the larger unit.

Having the requisite experience and skillset is critical for performance. In the case of HAW teams, it may mean the difference between everyone’s physical safety and possible catastrophic outcomes.

Edmonson noted in later studies (2003a, 2014) that the temporal aspect of psychological safety as a construct is an area for further investigation. Indeed, the temporal aspect of learning is also a factor for learning to team, not only because there is a difference in the elapsed time it may take to become familiar with working team roles but also the time that it takes for teammates becomes familiar enough with each other to establish basic “shared values.”

Learning, notably, is for both humans and animals in HAW teams. In canine search and rescue, the humans working with a dog must also be certified to perform with the unit. No one except a certified handler is permitted to go on a call-out with a certified dog.

Similarly, for law enforcement, training for mounted police and canine police can take anywhere from six to 14 months depending on the location and specialization.
Additionally, only experienced officers are permitted to apply to enter either of these two specialized units and are specifically trained. One mounted police officer noted that his training for mounted police work was every bit as demanding as his training was for the Marine Corps. Additionally, there is an added aspect of training together with the animal(s) as a unit, which must occur after the individual basic training occurs for the animal or human team roles. This learning often takes place after the animal and human primary handler are assigned within the larger working unit.

Team mascot owners and jockeys do not need special credentials although there are jockey schools within the U.S. For the most part, learning occurs through years of experience. Seasoned jockeys with proven experience are often paired with horses for important races. Likewise, seasoned jockeys often provide mentoring to younger jockeys just starting out, albeit in a more casual and informal type of coaching.

In addition to the previous reviews of H1 and H2, it is appropriate to mention where evidence may indicate support for H3 and H4 in HAW teaming.

For H3, the hypothesis that “team learning behavior mediates between team psychological safety and team performance,” no specific conclusions may be drawn from the data because regarding the extent to which psychological safety exists in the HAW teams studied, none of the teams could clearly evidence “shared values” across human and animal teammates. Since the construct of psychological safety, as defined by Edmonson, cannot be said to be evidenced here, it is not possible to say with certainty that the construct mediates between team learning and team performance for the HAW teams that were included.
However, in terms of speaking up in the workplace, it can be said that speaking up for physical safety appears to support team learning and as such may indirectly be associated with team performance; however, no specific support for this can be extracted from the data. As with many other aspects of the construct of psychological safety in the HAW team population, further study of this hypothesis may warrant an in-depth examination, either with the same or similar HAW team subjects.

H4 posits that “team efficacy is positively associated with team learning behavior.” For evidence of this in the HAW teams included in this study, a few examples appear to support this hypothesis for the study subjects. One example of creative learning experiences specifically designed to improve team efficacy comes from the New Castle County Delaware Mounted Police Team. A critical mission for the mounted police is crowd control. In some respects, this may be one of the most important tasks in the role of the mounted police force. In the large outdoor training ring at Carousel Park, the mounted police headquarters, it is not unusual to find mounted officers and their horses playing soccer. A huge horse-sized soccer ball is in the middle of the grassy enclosure, and the horses are exercised by the officers to learn to maneuver the ball around the field as a team. However, this is not just a learning exercise for horses and officers. It is a carefully designed learning experience to teach the horses how to “push back” against crowds of people without becoming frightened or overzealous while under the officers’ control. It also teaches the unit to work as a team on crowd control techniques in a safe and recreational way.
Table 6. Evidence of Themes by Team Category: Equine

<table>
<thead>
<tr>
<th>Team Category</th>
<th>Team Mission/Goal</th>
<th>Theme 1 - HAW Nature of Teaming: Evidence of true animal role in teaming?</th>
<th>Theme 2 - Evidence of construct of psychological safety operative? Evidence of speaking up with observations, concerns, and questions?</th>
<th>Theme 3 - Evidence of team learning across humans and animals in HAW work for successful operations/missions?</th>
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<tbody>
<tr>
<td><em>Thoroughbred Racing</em></td>
<td>Preparing and training horses to win races</td>
<td>Trainer: “From my owner to my hot walker, we’re a team and I couldn’t do it without them…you do have to go the extra mile, you do have sacrifices. It’s not a game of rationality, and that’s for sure. I’m truly blessed.” Trainer: “Certain riders can develop a relationship with a horse. I mean, I’ve had horses in the past, I wanted that rider to stick with it because there was a cohesiveness there where the rider and the horse got along really well; they were successful. You don’t want to change.</td>
<td>Trainer: “You have to have patience. It’s very difficult to do that because there’s a lot of pressure to get horses to the races, because there’s a lot of expense involved, but if you try to rush things: one, you don’t learn enough about the horse; two, you cheat the horse in its preparation to get ready both physically and mentally. So in that time period of getting them ready, you know a lot of this is monotonous repetition, but it serves a purpose, right, and in the meantime my eye and my communications with not only the grooms and [my Assistant Trainer], but the exercise riders, is what tells us the little things that we need to</td>
<td>Trainer: “The one thing I’ve learned is that when I change things around here, when I change things around here with a horse, and they’re [the human staff] so used to doing [things] a certain way, they have a very difficult time to change. It’s like you’ve thrown something completely new at them and they’re shocked that you’re doing it, and as I told them, ‘My license reads trainer. Yours reads groom or exercise rider. So, I’m telling you what to do.’ Now I do like a lot of feedback. [If] they think that that is not a good idea, and</td>
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things, in a lot of cases, I would say that the riders on [sic in] the top end in the country could ride...anything."

[The hall of fame jockeys] "Correct. They could ride about anything. They adapt. Let’s put it this way, to a horse. They go back and look at the horse’s style. A lot of riders here do that, and people may be surprised [at] how much some of these guys studied before they ride a horse."

know about the horse.”

If they notice something about the horse, they feel free to open up and tell someone?

Trainer: “yeah, they’d better. We need to communicate. It’s one of the aspects that I think about, each and every year. What I would prefer is more communication. Instead of these guys going out here and doing their job and going back to the barn not saying anything that needs to be said, that irritates me. The more information, the better. Now it doesn’t mean that I’m going to follow-through with everything, but if I think it’s to expound upon, then I will."

“If something is not right, I want to know about it. I like to hear the good things as well as the bad, but communication is one of the things that I find sometimes hard to get into a routine in our barn.”

“I’ve never run across a spot where I’ve had a horse that I didn’t feel they have a good reason for not doing it, I’ll listen to what they say. So, I’m not perfect, and this is an imperfect industry. These are horses. Things change every day.”

“A lot of times, when you change things up with horses, it pushes them in the wrong direction. Some horses like change, but my employees have a hard time with the fact that I’m changing something to try to keep the horse’s mind fresh. So that’s one of the things that I run into is that the communication to me is vital to keeping these horses going in the right direction.”
| **Thoroughbred Breeders/ Owners Subjects E5–E7** | **Owning and breeding racing stallions for profit** | **Groom for Justify at Ashford Stud, Triple Crown Winner 2018:**
“‘We knew his daddy, Scat Daddy. We know [how] he was in the breeding shed, and so we are trying to figure [Justify] out. He’s happy, yeah.”

Stallion Manager, Kentucky Stud Farm: “It’s, a feeling of confidence, energy: they are tuned into it. They flow right on with it. They are not pets. Don’t ever underestimate them. Never get complacent. You have to ear their respect and comfortable running. If I say no, that I say I’m uncomfortable with it, they’ve [owners] always cooperated in the best interest of the horse. Luckily, I’ve never run across this, but my theory would be, ‘Look, if you want to run that horse and I’m not comfortable, then you’ll need to take it to someone else’ [another trainer].”

| | **So, when the horse came into the breeding stud farm did you get to spend time with his trainer? Do they give you notes or anything like that?**

Groom for Justify at Ashford Stud, Triple Crown Winner 2018: “‘No, just say we have 30 minutes, 45 minutes, just the time they drop in.”

Stallion Manager, Kentucky Stud Farm: “It’s a dangerous job to do breeding. They win your trust, He’s not a racehorse anymore. Domineering and in charge—let him think that he is. You have to take ego out of the situation. We demand that people speak up, especially regarding the horse’s welfare but also for any other Safety equals
give it. You don’t have a choice—you’ve got to earn their respect. Respect is number one. It’s the hardest one.”

“They respond to each individual a little differently. Horses size up each individual that approaches them differently, ‘til they get you know [them]. Winning their trust sometimes is the most difficult part, and so you just try to fit in without being overbearing. You do have to have limits. Just patience and try to be understandable. Show them respect. If you can show them respect, they’ll show you respect.”

Groom, Stud Farm:
“That’s the biggest one: you earn that respect. You don’t get respect, you earn it.”

“If you look at their facial features, their ears in
reasons. Safety demands it.”
“In other words, you gotta make the horse want to do the task, not make the horse do the task.”
“A lot of what we do, I guess a lot of horse work is a mental side of things, a psychological side. As an example, the stallions here during the breeding season will cover, say, 150 mares. Now, throughout the 16 weeks [of breeding season], that could be 200 times that he’s coming into the breeding shed. So, instead of making it a mundane job for them, you gotta make them want to do it. So, it’s psychological, yes. You’ve got to give a little to have the understanding that they are a horse, they are a stallion. But at the same time, it has to be a line drawn where it’s done safely. Where you are in control, because it’s a dangerous job.”

“I’ve had staff here that have looked after a horse and after a little while, I’m like, this is not going to work. So, I’ve had to make changes. It’s not a matter of not being experience. You don’t put yourself in a bad situation. Always have control of your horse. Don’t be complacent.”

“People have a fear of change. They’re okay with learning as long as it’s viewed as a positive change. Routine is the essence of a horse’s life. They accept change as long as it is positive. Staying in control of that horse is always based on trust and respect.”

“When a thoroughbred, that testosterone kicks in, he is going to be that domineering, dominant, wants to be in charge. Let [him] think that he is but have the understanding that he’s not and don’t abuse them; they come around and just have a little nick. Every stallion does that. Don’t keep trying to think you’ve got to learn something by trying to be overbearing because when
particular, when they’re getting ready to do something bad, they drop their ears strength back. They generally telegraph it, but at times they don’t. They’re going to let you know right now that they don’t appreciate you being around them at the time.”

“Maybe I have a special relationship with a horse, but we’re all responsible for him: feeding, grooming, you know, the people that you know are mucking the stalls. I mean, whatever.”

“In regard to safety, as our main role that we have here is in that breeding shed, that is the most important thing: safety. This is the second most dangerous job in the industry, second to a jockey. For me personally, one of my main roles is the safety of the staff and of the horses. So, going back to your previous question, as in ‘your team working as a team,’ we’ll have five people working in the breeding shed. That team as in the word[s] safety and trust, all three work together. It has to. I’m relying on the person next to me for my own safety, so I have to make sure he knows what he’s doing.”

**Thoroughbred Horses—Other Subjects E8—E10**

<table>
<thead>
<tr>
<th>Working in the thoroughbred industry: race tracks, farms,</th>
<th>Tour Guide, Breeding Operation: “This is Pioneer of the</th>
<th>Tour Guide, Breeding Operation: [About getting</th>
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executives Nile, he’s our highest standing stallion. He stands at $110,000, and the main reason for that is because of his son American Pharoah, who, as we know, is our 12th Triple Crown winner. The way stallion fees are announced are based on how well their offspring and progeny do; their stud fee will go up and down. So, obviously, his went up. He gets a very elite crop of mares. He’s the only living Triple Crown Sire in 37 years. Justify’s sire, Scat Daddy, actually passed away.” “One of his big traits is his personality. If you meet any of his sons or daughters, they’re usually just the sweetest that you can ever imagine. People say that with American Pharoah, you can lie down in his stall and he’ll rest his head on your lap like a golden Guide, Keeneland Sales: “Most transactions don’t take more than 90 seconds. When they get into the ring, they will read the catalogue page; they will tell you who is a half-brother, full-brother to, …you’re selling your horse, we need to tell you all the great things about that horse.” “The auctioneers and their team have done their homework. They know where to start [the] bidding on that horse, whether it’s four million or forty
retriever.”

“...thousand, they know where to start a minimum bid. The gross sales for the September [2018] sale was [sic] $377 million [dollars].

“Well, it’s close to 250 year-round employees, much of it is maintenance. It takes a lot to keep 1,000 acres. We’ll hire another 1,200 for race meets and that’s in food service, beverage, security, parking. It just goes on and on. The paddock crew itself is huge in getting horses out of that paddock and keeping the public safe because, for some reason, many people that come here are unaware that horses will part your hair for you. Things really happen. We’ve got a great crew of paramedics on site. We’ve got great first-aid.”

Chief Financial Officer, Breeding and
Owning Farm: “The vetting or physical examination is a big part of the selection process. The veterinarians become very important for input. Competition has forced consignors to take x-rays and put them in a repository. They also scope the animals’ throats and breathing mechanisms to determine which ones have the best physical mechanics for racing. A lot of horses never get past the vet.”

“What we sell is potential. Just as with other sports, the horse industry has a farm system: breeders of brood mares sell [foals] to consignors, consignors sell to farms, farms sell to larger farms, owners engage trainers and develop colts, which are then raced to produce high-selling stallions for breeding. It’s all about the bloodlines. The business is in the
Some of the jockeys actually get the touch and feel of a horse by riding them in the mornings. Mike Smith [hall of fame jockey and rider of Triple Crown winner, Justify], did this. The better ones get as much information as they can—from grooms, exercise riders, the trainer, etc. The jockey becomes very familiar with the horse.”

| Law Enforcement: Mounted Police Subjects E11, E15 | Municipal law enforcement, daily patrols, crowd control, public demonstrations, parades, security at public events, public building protection | Mounted Police, Sergeant: [On how long it takes for bonding to perform as a team with the horse] “It depends. If you are feeding them, grooming them, cleaning them, then it happens pretty quick—within a week or two. Especially if they have confidence in you, if you are confident with them.”
“[We have] after action debriefs. We get asked to go to a lot of events. It could be logistics, how to save more time, how to take better care of the animals.”

Mounted Police, Sergeant:

“They [officers] need to build trust with that animal. It makes them a better team.”

“Every person on our team is responsible for every horse. Their [officers] job it to look them [horses] over…they have to say something.”

“I personally feel a lot more safe. I feel like I’ve got a giant extension to my legs; I’ve got 2,000 more pounds on my side. And nobody wants to get stepped on by a horse. Sometimes I feel acquisition and development of bloodstock.”

For us, as a mounted officer, we don’t go out on the street until we’re properly trained. So, our training is very extensive. To become a mounted officer,
ground with someone or if they have a buddy horse with them.”

“Our work horses are athletes. Keeping them healthy and fit is a full-time job.”

Mounted Police Corporal:

“You’re part of a specialized community within the police department, so you not only have the police side, but then you have the special, you know, being a mounted officer, like a K-9 officer, so sure, there’s a bond there.”

“That’s our big thing that you will always hear us say is ‘You will never see a citizen walk up to a police car and try to pet the police car!’”

“I can tell when my horse is having a bad day. I know immediately. I can see it in his face, I can tell with his demeanor.”

more comfortable and at ease on the back of the saddle than I do on my own legs.”

The K-9 officers often say that they feel like they’re the luckiest people in law enforcement…

“No, we are. They are the next, second best!”

Mounted Police Corporal:

“So everything we do through a normal police function is done on top of a horse, so …we would be running radar on top of a horse, stop the car, we can issue a ticket from the top of a horse…we go into our communities on regular patrol.”

“So, with the horse, because you’re still on top of the horse and you’re sitting, they can feel if you’re nervous as an officer and [when] you’re in a situation [and] you get nervous, that just transfers down through your body, through the saddle into the horse, and the horse will become nervous. But if the rider is confident, the horse is going to be

it’s 13 weeks long, so it’s very rigorous. I was in the marine corps, and I compare it to going into the marine corps. Very tough.”

“We definitely debrief. We do that every day. I mean if we go out for a particular, a big, assignment we would always debrief, and that’s just the culture to begin with. All units are going to do that.”

“We have a huge soccer ball. It’s probably eight feet high, and we would actually play soccer with the horses. So, we’re on top and they’re pushing the ball around and it’s doing two things: it’s helping the horse to be competitive, but it’s teaching the horse to have contact with an object, to push things. So, let’s say that we take the soccer ball out of the equation and we have to push the crowd back now. That horse has been in a
“So, we call it ‘earn their badge.’ All of our horses are assigned their own [police] badge, their own officer. They have to go through a lot of training before we even allow them out on the street.”

“Confident.”

“It’s a small unit, we rely on each other so much that I should be able to tell anybody if I see something out of the norm. We have no issues, we’re a small family. You can’t say it’s always going to be a perfect situation, of course people are going to butt heads. You have to work through that. But we work through it and make it right and we keep going.”

situation where it’s safe: it can push something, push an object, so that transfers from a soccer ball to a crowd [of people].”

“We’re proficient on what we’re learning every day. You should be learning something new every day, and then when you get together once a year, twice a year with other mounted units, you learn from them as well. I can tell you that [we are] constantly getting calls from all over the country. I just got a voice mail from the Houston Police Department.”

<table>
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<tr>
<th>For-Profit: Industrial Beverage Industry Marketing Subjects E12, E13</th>
<th>Anheuser-Busch, Budweiser Clydesdale team, public relations, marketing, special events</th>
<th>Horse Assistant and Guide:</th>
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<tr>
<td>“It takes quite a horse to be up there in front. Imagine going down Bourbon Street at Mardi Gras [with] thousands of people throwing beads at you.”</td>
<td>Manager of Operations, Budweiser Clydesdales,</td>
<td>Horse Assistant and Guide:</td>
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<td>“We have horses specific for [each] spot with all these big show hitches.”</td>
<td>“They’ll be here at prep school until they are three [years old]. Coming four, and they go out to finishing school in Merrimack, New Hampshire,”</td>
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Grant’s Farm, St. Louis:

“The lead horse, they are just a head up, and they are really smart. You have to have a strong driver because the lead horses are smart enough to know that they can cheat… and they don’t have to work as hard, but the good drivers will make them stay on the rail and even in the corners.”

“There’s definitely drivers and horses that work better as a pair. There may be a lead horse like Sammy [who’s] a handful for most drivers but there may be one or two drivers that just absolutely love him.”

“I think some of the guys take a little pride in the fact that they can drive this horse, and he’s tough for other people to handle. I look back on my career at Budweiser and when I first

where they’ll spend a year learning how to drive. And that’s where the staff will decide where this horse is going to be and where his best spot is.”

Manager of Operations, Budweiser Clydesdales, Grant’s Farm, St. Louis:

“What we found, being a big company like Anheuser-Busch, it’s not just the driving skills, we also want people who are ambassadors that can get out in front and talk to the public, you know. Those skills don’t necessarily go hand-in-hand, so we found that we needed a driving program internally.”

“Everyone that works on the eight-horse hitch should be able to perform every single job function except driving. Everyone has to be able to drive the semis, clean harnesses, everybody has to watch horses.”
started, we had a supervisor who was a driver and had a very good relationship with the horses…I mean when he walked in the room, he said the horses’ name(s), boy they stood at attention. So, they [the horses] really do know individuals, they definitely do bond with trainers and the handlers.”

“It’s a mind game. I’ve told kids, I don’t care how strong you are, you’re not going to hang onto these guys. We need them to trust you and want to stay with you, to respect you. We treat every single horse the same way, even if we know that they’re not going to make the hitch... because we know that they’re going to be sold one day and they’re going to have the Budweiser name on them. We certainly want them to be a good reflection of our

| “Every year we select two individuals that show a lot of promise, a lot of drive, a lot of ambition, and we’ll send them to Merrimack, which is where we send our young horses for training as well.”
 | “We have some older geldings there that we pair with the younger horses, so human drivers get to experience the challenges of not only driving younger horses that are inexperienced, but also driving older horses that are smarter than they [he drivers] are, you know, trying to get a good balance. They [retired horses] may spend a year or two in New Hampshire teaching human drivers and helping to break the young colts.”
 | “We’re kind of getting into the basic ground manners, teaching them to stand for the farrier, get a haircut, a bath,
Training program.

all of the basic ground manner that they need to learn … one of the things is the loading on and off the trailer, because…our hitchs travel 320 days a year, so they’re going in and out of the trailer constantly. So, we have to practice all of that. [There’s a] Clydesdale report card that we have. So, each horse has a file and we have all of the behaviors that we expect them to do by the time they graduate here and go to Merrimack. So, it is constant learning, but’s it’s [also] consistency, and I need to have my crew, everyone needs to handle the horses kind of the same way. We use the same methods and practices because if I do something different…[it] confuses them [the horses] a little bit. “

| Not-for-Profit Hippotherapy Riding Stables Subject E14 | Guided riding with teams of horses, volunteer leaders and walkers to assist individuals in riding horses for | Director of Volunteers and Certified Trainer: “Some are” | Director of Volunteers and Certified Trainer: “First person to have any contact" | Director of Volunteers and Certified Trainer: So, this is really different from |
| therapeutic benefit | police horses [that] are retired, some are retired from other work, some horses [might] have been a jumper. Maybe they had an injury where they can’t jump but they still could be perfectly sound—walk, track, cantor kind of horse.” “They need to be sound. We’ll have any number of people who want to offer us a horse and say, ‘I would like to find a new home for this horse. He’s a great horse, he’s only a little lame.’ The horse has to be sound because he has to give regular rhythmic input to our riders, because they rely on that.” “They work hard.” “There’s a few things that they [horses] have to be willing to put up with, paraphernalia that we’ve got in the arena, stuff hanging from the ceiling [like] bean bags, games that the with the horse in a day is the person grooming the horse. The person that’s basically had hands-on every part of their body. And so, anything that seems amiss, a sore part, a scab, a bite, anything, they would ask one of the instructors or staff about it. I take very seriously my role in handling the horse and speaking for the horse. Anybody involved in the ride, if they see something amiss, would be obliged to speak. Because if the horse is not comfortable, the ride is not safe.” |
| --- | --- | --- | --- |
| other human–animal work where you have one rider and one horse and they’re communicating with each other. In this case, you have a team of people, some of whom are really responsible for the human rider, pretty much keeping their eye on the rider, whereas, you’ve got some else that is looking after the horse… | “You hit it exactly. Like [this is] where the lines blur. We’ve got therapeutic riding, which is adaptive riding instruction accommodating the ability or disability of the rider. Now, it might still need a leader and two side walkers. Let’s say when it gets to where the rider is learning the rudiments of how to control the horse or direct the horse, we probably still have a leader, but then we would not have the reins on a bit; we would put our reins as clip on |
riders would need to do on board [the horse], that type of thing. But some horses cannot endure that fact that most of our riders have someone leading the horse and someone walking alongside the horse ‘this close’, with my hand on the side of the front of the saddle pad, my forearm over the rider’s legs and a person on each side. For some horses, that’s way over the top, too much.”

“And then the other thing: they have to be willing to live inside [the stable]. If they were used to 18 hours of turn-out a day and only coming in when they’re working or something; well, that doesn’t work here, because they are indoor horses.”

“For some horses who came from a farm and … are turned-out for to the halter.”

“Yes, we train them [volunteers] how to side walk, what to do and not to do. We’ll have new volunteers a lot of times. Side walking is one of the first things to learn, because it’s not rocket science. Can you hold and show direction, and remain silent? After they’ve been working with the horses for a while, and I have a sense that they can move safely around horses, I will work with them on how to lead. Initially, maybe I will have them lead the horse into the arena. So, one thing, the mounting—we always mount from the mounting block—it [is] a huge safety component.”

“Every trainer has to be able to work with every horse.”
much of the day… that has been a deal-breaker. Maybe they could get used to it for a matter of months, but then after that they start to get burnt-out easily.”

“It’s the close contact of the side walkers, and the unexpected outbursts of our riders that we can’t predict or control necessarily, and the fact that he [the horse] has to stand there and be a saint. Not everybody can do that.”

Table 6. Evidence of Themes by Team Category: Canine

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<tr>
<th>Team Category</th>
<th>Team Mission/Goal</th>
<th>Theme 1 - HAW Nature of Teaming: Evidence of true animal role in teaming?</th>
<th>Theme 2 - Evidence of construct of psychological safety operative? Evidence of speaking up with observations, concerns, and questions? Evidence of shared values?</th>
<th>Theme 3 - Evidence of team learning in HAW work? Evidence of double loop learning?</th>
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| K-9 Law Enforcement Subjects C2–C9 | Municipal, suburban, and county law enforcement, airport security, narcotics detection, cybercrime detection, and other chemical and odor detection; criminal suspect apprehension | Urban K-9 Unit Sgt.: “We don’t use K-9s for crowd control. Mainly narcotics and searches. Bomb dogs are single-purpose only.” | Urban K-9 Unit Lt.: “We [K-9 unit] get much more training than for the majority of units.” |
| | | “Our trainer will go to our [dog] vendor in Indiana, and they’ll do 30 or 40 dogs—they’ll go ahead and perform basic testing; they’ll pick out 3 or 4 or 5 dogs. We train our own dogs here [City of Chicago P.D.]. They check their [dogs’] health; they’ll take their top picks and bring those dogs back.” | Urban K-9 Trainer: “We transition everything—we have a lesson plan that we generally follow; we generally go as fast as the slowest dog. So, if the dog doesn’t catch up, we take a couple of extra days in reinforcing it.” |
| | K-9 Officer Suburban Sheriff’s Dept.: “So, I like having that same group of guys every day with me. So for them he is just, you know, part of the team. So if he’s [the dog] not around, someone is like, ‘We’re missing something,’ you know what I’m saying? So, yes, he’s part of the team, he’s part of the unit. He’s just as much an essential part as anybody else here.” | “Speaking up about canine work] “It all depends on who you’re working with, you know. If I’m working with my own guys and my own agency then yeah, they feel comfortable enough with me that they can come to me and tell me. Even during the situation, if, you know, if they see something that, you know, maybe I didn’t notice because I’m doing a million other things, they’ll say something because they know that I don’t get offended, I don’t get upset. If I miss something, we’re all human beings, you know, we’re going to miss something just like a dog might miss something.” | “Generally, we don’t deploy two dogs at a time. We might assign multiple dogs, but let’s say I would go out and work my dog until he got tired, and then we would send the next dog to pick up where we left off. We’ll do that sometimes [multiple dogs] in a building search. If we are searching a building that has many levels. We would deploy multiple dogs on different floors, just in the interest of time.” |
| | Sgt., Sheriff’s Dept.: “Yeah they’re very valuable tools for us here. Being able to | “[One hundred percent believe in our methods of training, but if I were to come across a better option… we would consider it.” | “I one hundred percent believe in our methods of training, but if I were to come across a better option… we would consider it.” |
| | | “Here’s the deal: a | “It’s not an official debriefing. But, |
add [the bloodhound] to the program here as a passive dog has really added a lot to the public relations aspect. To be able to bring him into schools and the kids can pet and play with them that they couldn’t do with previous dogs. He kind of somewhat continued to be the face of the department. They had him on Christmas cards. His performance, he’s been very unique for me. I had a German Shepherd for my first dog. I’ve kind of had both aspects between a shepherd and a bloodhound.”

“The department relies heavily on the dogs and their performance...as they perform and they find things [it] develops that trust higher and higher.”

K-9 Officer Suburban Village Police:

question that has been posted a couple of times in my career is, ‘Are you willing to sacrifice the dog for the greater good of everybody here?’ Again, a loaded question. A dumb handler is going to say, ‘Oh, yeah, I’m going to do that,’ not even thinking about the type of circumstances. Am I willing to sacrifice him for the greater good of the community and officers that are working? I am, that’s part of life. But there’s also a second part of that: Why am I going to send him on a suicide mission? It’s a case-by-case basis, and I don’t really agree... why are we going to send a dog into a gunfight? How long is that going to last?”

K-9 Officer Suburban Sheriff’s Dept.:

“It also depends on your agency. What is your top boss’s theory on using a dog? Right now, in my agency, I am extremely lucky with the people that I have in charge of me. So, they’ve seen what they’re [the dogs] capable of doing and they’re always, they’re really good about when one has to go out and see them. They just want to see the dogs being used and be successful.”

“Like I said, I’m learning, I’m learning, I’m learning. I haven’t
really stopped and thought about myself very much at that point. It’s more thinking about how I can perform better with the dog to be successful. “

| Not-for-Profit: Canine Volunteer Search and Rescue Subjects C1, C10, C11 | Support law enforcement units for trailing and tracking missing persons | Volunteer SAR Leader and Trainer: “My current dog is a full trailer. It means that if it’s [the search] under four hours, he’s useless. If it’s [the trail] three days old, he’s the dog we want to take. Other dogs are better at cold trails, at new trails, other ones are good at forensics where you’re looking for a drop of blood…shepherds will do that all day long. Pointers and bloodhounds will do it once. So, we want all types of dogs, all breeds and all personalities, so that for any given search we know at least one or two of them are perfect for it.” “Our objective is for the handlers and the dogs to work to their capability.” | Volunteer SAR Leader and Trainer: “All we do is search and rescue finds, and our dogs are trained to be friendly; so, we only do friendly finds, no bite at the end. So, there’s never a risk [to other people].” [On developing trust with other team members] “You’ve worked with them, or at least you find out enough about them to see that their dog is trained appropriately. They have to do certifications on trainings. We follow behind each other, so we know exactly how their dog is doing. We try and be brutally honest. Like, certain dogs are good at certain |

| Volunteer SAR Leader and Trainer: “You’re responsible for your own [dog(s)]: you pick them, you train them. We train dogs from the ground down. We train on different specialties: we do trailing, which is to find the scent of a particular person. We do human remains. We do water recovery, which is recognizing human remains [from] where it leaves the water surface. We don’t do hot pursuit because we’re not police officers.” “So, we train to a very high standard. We only respond to police, fire, and emergency management. Stuff like that.” “Basically, you’re a strike force of, say 10 active handler |
SAR Volunteer (bloodhound):

“She’s a fantastic trailer, but she’s afraid of a lot of things, and right now that’s our biggest thing to overcome. If I can’t get her to overcome this, to be able to run the trails unimpeded, she’s not going to make it here. I’ve got to be prepared for that. She needs to build up a lot of confidence. Everybody’s going to do their job. I have to trust her.”

“We have almost a two-year process to become a full member. We’ll interview you for two hours. You have to come and observe for numerous trainings. Then you’re given a go-ahead to, say, come to six trainings in a row, you know, hell or high water, during which time they will be seriously evaluated If it’s [agreement] mutual, then they’re given a year’s probation while all they’re doing is following our dogs and learning. So, by that time, we have a pretty good idea of the person.”

“We get briefed, we get to find out who’s missing. You know, an Alzheimer’s search is different, has different characteristics than a child. Their search patterns, where they might go, things they might do, are different. One person becomes the incident commander and determines what is going to [happen], how we’re going to deploy the dogs. They’re deployed based on their capabilities at any given time.”

“I do the incident reports, which is what we deliver to the police. So, in doing that, I have to screen every handler and find out what they did if I wasn’t behind them. Get their GPS... for analysis. If we find the person, it’s easy. But, if we don’t find them, you know, we have to give them [police] their analysis of what we think the dogs did.”

“We get called out. We get information on the search, we analyze it, we figure out the best way to deploy. We’re experts in our little fiefdom.”

SAR Volunteer (otterhound):

“My dogs are otterhound; they have bloodhound in them. So. They’re pretty close to a bloodhound. People always said that Finnegan tracked things and we use all different breeds.”

“See our biggest problem most of the time when we’re looking for people that wander away from their home is that you’ve got thousands of trails leading to the house. It’s the dog’s responsibility to pick up the freshest. The last trail out of a thousand.”

“We have almost a two-year process to become a full member. We’ll interview you for two hours. You have to come and observe for numerous trainings. Then you’re given a go-ahead to, say, come to six trainings in a row, you know, hell or high water, during which time they will be seriously evaluated If it’s [agreement] mutual, then they’re given a year’s probation while all they’re doing is following our dogs and learning. So, by that time, we have a pretty good idea of the person.”

“It takes longer to train the handler than the dog. All you’re doing with the dogs is teaching them what scent they’re going to get a reward for. They know how to hunt.”

“The handler runs their dog, and I wouldn’t presume to tell them how to run their dog. However, if I noticed the dog do something because...
like a bloodhound. Our dogs trail first. The first thing that you have to do is get a dog certified in trailing, then you can go into cadaver work. Some dogs are better cold nose trailers, some are better [with a] warmer, fresher set. So, a lot of that plays into which dog goes where and which dog goes first. “Our dogs wear trailing harnesses. When they put that on, they go to work. So, when my dogs [put] on a trailing harness, they know what they’re doing. So, they learn. I’m sure they sense this. Dogs are much more intuitive than we are.”

“We know that our dogs are successful [even if] they didn’t find her, but they did what they were supposed to do.”

I followed that dog in training. I may say, ‘Oh, did you see that weird behavior?’ So, we point them out... we’re working on the cusp of what’s possible sometimes. [Speaking up]: It’s expected.”

“The training is fun [but] the searches are incredibly stressful. You have to get along with everybody. They don’t have to be your best friends, outside of a search, but you have to be able to get along.”

SAR Volunteer (bloodhound):

“I don’t know if you can consider it as a trust between [you and your dog]. I think it’s more that they [dog] know you, you know them, and they [dog] know what you want.”

“It’s more ‘read your dog.’ Know when your dog is on trail or when he’s not on trail. If you can do that, you’re way ahead of the game. If you’re nervous, or if you’re out of the search. Based on what the first dog did, we’re going to deploy the second dog or the third dog. Then afterwards, once we do our incident report, if we made a mistake, we better make sure we train, [and] every training addresses that mistake.”

“Yeah, we know we need to do more formal debriefing, but it is hard when you figure that your training is seven, eight hours, and we all have full-time jobs, and, you know, a lot of people have families.”

SAR Volunteer (bloodhound):

“We certify as a team. With police we’ll debrief with them to go over what each dog team did. We’ll give them our recommendations of, if we haven’t found the person, sometimes a possible scenario.”

“A lot of our training will come from our missions, our live searches. We had this one and …our dogs did this. Let’s recreate it to see what our dogs really do in this kind of situation.”
sorts, that goes right down the lead, and the dog picks up on that. It’s kind of like riding a horse…it all goes down the reins.”

“We usually try to have at least one other teammate with us, beside the police, when we’re working. The police to protect us if we need to go into people’s backyards or things like that. The other member of the unit who can help read the dog and knows how to look for traffic. We call them back-ups. They’re responsible for radios, keeping track of where you are, where you’ve been, where you’re going. Even as the liaison to the police officers or fire fighters or whoever we’re working with.”

[What would make you scared]: “A busy road. Four lanes or four to six lanes in a road. Just dealing with the cars. They don’t know what you’re out there for. You’re trying to let yourself up as good as possible, but that..."

SAR Volunteer (ottterhound):

“The wealth of knowledge on the team is just really fascinating. I’ve learned so much. I think the essence of finding a good team is that, I think that Jen said this, “You never want to be the most experienced person on a team because then you don’t learn.”

“Oftentimes we’ll brief them [police] if they don’t know us … on how our dogs work, especially if we’re doing a cadaver search. So, they understand what their [the dog’s] alert is. Sometimes people will look at us and say, ‘Well, where are they? We’re looking for a body. Why are they going into that bush?’ Well, if the person has been dead for a while, we’re going to have wildlife grabbing bones.”
doesn’t mean much to a person coming down the road at about 50 miles an hour. That’s the reason why we like to have police backup, too.”

“So, we try to wear reflective clothing. You get everybody you know in flashlights and then just make yourself as lit-up as possible.”

[On speaking up about doing things differently next time]: “Most of the time we won’t. We won’t tell people what to do. What we try and do before we start off is say, ‘This is what we’re going to be doing. If you can hang back about 20 feet, let the dog work, try not to encroach upon them’… We try and do it as polite as possible.”

SAR Volunteer (otterhound):

“The dog is the most important. The dog is the one with the nose, not us. So, somebody is [always] there to watch out for, and cares about, what’s going to happen to the dog.”
Having somebody experienced who says, ‘Did you see that head bob right there?’ And, it’s like, oh yeah. Or, ‘Notice where the tail is.’ And all of these things are..., I mean you learn so much.”

Director of External Relations and Primary Handler/Owner:

“He easily works a 40-hour week. He comes into the office from 9 to 5. He may just be hanging out, but he’s in the office in case anyone stops by to visit. He has a full plate of games, events, public appearances. It’s all year round.”

“He’s mobile, generally speaking; he’s warm and inviting; he’s flexible. [He] can do everything but talk, and with social media he has a ‘voice.’ He is well-adjusted and well-received: kid-friendly, people-friendly. He’s almost revered on campus.”

“It’s part of who we are and our family. He’s part of who we are.”

Director of External Relations and Primary Handler/Owner:

[On feeling safe about speaking up]

“Regarding safety, we don’t feel too concerned. I’m in control of Blue’s safety. If it’s too hot, etc., we put him in a safe environment. In 2010 we had some hiccups. We were new to the Final Four [National Collegiate Athletic Association’s Men’s Basketball Championship Tournament]. People don’t realize how ‘big’ [i.e., important] he is. I got stuck in some mob scenes surrounded by fans and people. He needs security, and we know it.”

“[The kids] understand. They understand that he’s part of the team. With the previous bulldog, Blue II, the players would come out and pet him on the court. [There was no training for this.] It was understood, ‘If you’re starting, you pet that dog.’ We don’t do that anymore because Blue III has a different personality—he gets excited and just wants to play.”

“They treat the dog like he’s one of them, part of the team. He is part of the team.”
Chapter 5: Analysis of Findings

This study was undertaken as the result of over 35 years of having worked with teams in a variety of corporate settings, including the last 20 years in program management for new technologies, medical products, and pharmaceuticals.

My intent was to investigate organizational development and behavioral concepts and constructs in a new population base within contemporary organizations, those that are engaged in HAW teaming.

The rationale for looking at HAW teams includes the notion that we may be able to learn something based upon the responses of subject humans engaged in this kind of work.

One of the values of doing exploratory research is the intent to approach with an open mind what results may present themselves. The finding that animals and humans in working teams may not share values is not a stretch. Based on the definition of the construct of psychological safety, it is not surprising that shared values cannot be verified. What is unusual is the immediate association of speaking up with physical versus professional and personal safety. This thread may be worth unraveling in further research.

The intriguing question for human teaming, including the types of organizations studied by Edmonson and colleagues, as well as other scholarly researchers, is whether physical safety should be included in the model going forward. In the past 20 years, incidents of unprovoked or unanticipated violence in classrooms, hospitals, and
other workplaces, including offices and manufacturing companies, have become widely reported within the United States. The frequency and tragic results suffered by innocent persons who were in the vicinity of these outbursts has elevated the awareness of physical safety in the minds of many contemporary team members. Whether these acts are increasing or just more widely reported is not the subject of this proposal. However, whether these incidents may impact the psychological safety of working teams may be worth investigating.

The evidence that speaking up for physical safety, first and foremost, in the responses of humans in HAW teams was evidenced by the direct responses to questions regarding speaking up in general. Can students and team members of contemporary working organizations separate psychological safety from first feeling physically invulnerable? How does current research on violence in the workplace relate to or impact the construct of psychological safety?

The most notable finding from this exploration was the immediate response that when human subjects engaged in HAW teams were asked about speaking up at work, their responses were about the physical safety of humans and animals. Much of this may have to do with the nature of the work; however, even in cases of HAW teams, there are humans that face the same issues as those of conventional human teaming in business and management organizations: fear of looking foolish, fear of ostracism, the impact of speaking up on promotional opportunities, and group or management acceptance. None of the subjects discussed speaking up in terms of fear of speaking
up for themselves. The concept of speaking up in the workplace meant physical safety.

The basic heuristic of what constitutes the construct of psychological safety and how it serves to mediate team learning and effective team performance may need to be expanded to include the element of physical safety as a precursor to the freedom to speak up and feel “safe” in the workplace. Whether physical safety from accidental injury, intentional violent acts, or external threat of violence in the working team’s daily task accomplishment, focusing on new learning and task outcomes may be negatively influenced. It is difficult for working team members to feel safe if they are preoccupied with the threat or fear of physical harm—whether this be from a criminal act, the normal course of exercising one’s duties in the workplace, or from an unknown and unplanned external force.

This opens the question of whether one can be psychologically safe without first being physically safe in the workplace. Recent publications about workplace violence and classroom violence point to the need to consider where physical safety fits in the current workplace.

In an article reviewing safety in working organizational environments, Beus et al. (2016) note that the workplace safety literature has only recently begun to be theoretically integrated with organizational theory and research. Beus et al. (2016) clearly suggest a relationship of workplace safety for human working teams with the Edmonson (1999) construct of psychological safety: “Although the concept of personal safety likewise applies to the likelihood of psychological harm (e.g.,
psychological safety; Edmonson, 1999) and intentional physical harm (e.g., violence, sabotage) when considered more broadly, we limit our consideration of safety here to the likelihood of unintended physical harm to persons.”

There is another aspect to workplace safety, however, which is intentional physical harm created by internal or external (to the organization) persons. This type of physical safety is also likely to apply to psychological safety.

A review of some of the literature of the last two decades, particularly since the World Trade Center attack on September 11, 2001, includes evidence that workplace violence has become a much-studied element of the organizational sciences. Much of the literature is engaged in taking positions on gun and firearms in the workplace, and classroom, as well as within the general public.

The aspect of workplace violence that is related to speaking up in the workplace for physical safety can be best illustrated in some of the populations that were subjects of the early studies in psychological safety in the workplace: the medical profession and education. A number of published journal articles in the U.S. and globally discuss the impact of violence and aggression against nurses, physicians, physicians’ assistants, and other medical professionals, particularly in the emergency departments of hospitals, both urban and suburban (Kowalenko et al., 2005; Finn-Samnick, 2016; Wax, Pinette, & Cartin, 2016; Phillips, 2016; Manton, 2018; Ashton, Morris, & Smith, 2018).

In a study conducted by three medical doctors and a PhD from the Department of Emergency Medicine at the University of Michigan Medical Center (Kowlenko et al., 193
2005), verbal threats constituted 74.9% of the violence experienced by emergency physicians who responded, 28.1% indicated that they had been physically assaulted, 11.7% responded that confrontations of violence occurred outside of the emergency department, and 3.5% reported a stalking event. The authors concluded that violence experienced by workers in emergency departments is not an anomaly and that some physicians were responding to their fears by taking personal protective measures. In terms of the ramifications on psychological safety, the experience of a lack of physical safety included some of the following steps: 16% of emergency physicians considered leaving the profession (not just the hospital in which they were located), 1% actually left for another hospital location, 19% considered leaving emergency medicine as a practice, 3% engaged in obtaining legal advice, 1% sought support from psychological professionals, and 16% attended a specialized course on dealing with violent patients as a result of experiencing workplace violence. These figures are despite the security measures that hospitals have been taking to protect medical workers in the hospital setting. As the authors note, these were the results of a small sampling and are dated figures. In the last decade and a half, not much has changed. Phillips (2016), a physician writing in the New England Journal of Medicine, noted that the healthcare workplace is “statistically among the industries most subject to violence in the United States, aside from law enforcement.” Phillips described a 2015 incident at the venerable Brigham and Women’s Hospital in Boston, when a surgeon was fatally shot by the son of a deceased patient.\(^\text{13}\)

\(^{13}\) Although the murder of healthcare workers is not frequent, the media coverage suggests that this is a
Among the types of abuse suffered by medical providers, Phillips includes assault, battery, stalking, sexual harassment, and verbal attacks. Phillips goes on to say that “Health care workplace violence is an underreported, ubiquitous, and persistent problem that has been tolerated and largely ignored.”

In personal conversations with two of my relatives, one who is a psychiatric nurse at Emerson Community Hospital in Concord, Massachusetts, a suburb of Boston, and another who is a psychiatric department administrator at Bryn Mawr Hospital, part of Main Line Health Care near Philadelphia, both indicated that active shooter drills were part of their hospitals’ regular training protocol for personnel. In addition, the psychiatric nurse noted that she did worry extensively about physical safety much of the time that she was on the floor of the hospital. She noted that elevators from the lobby provided direct access to the floor. Many of the patients were violent, and many were returning patients. Although there were measures to protect against firearms when entering the main hospital, no cypher locks or other barriers were in use to prevent direct entrance to the psychiatric ward.

Ashton et al. (2018), in a recently published meta-synthesis of emergency department experience of violence and aggression, provide evidence that these episodes were significant problems in the U.K., with 70,555 reported assaults on National Health Service emergency department medical staff over the previous 12 months. Their growing concern. In November 2018 a doctor, another healthcare worker, and a Chicago police officer were shot to death by an intruder in the emergency department of a Chicago hospital. The shooter had been personally known by one of the victims.
study also cites that a large number, roughly 70%, of nurses in Australian emergency
departments reported similar experiences within a five-month period.

Given these data, it may be probable to posit that speaking up for physical safety in
the workplace must relate to speaking up for psychological safety in these situations.

My informal discussions with medical personnel indicate that stress over physical
safety often overrules considerations of shared values and personal or professional
perceptions of negativity when on the job. Concerns about physical safety, and the
need to feel free to speak up about them to administrators and colleagues, may also
pre-empt the day-to-day concerns that the construct of psychological safety is
intended to address.

Another venue for violence that has received intense media attention has been
violence in educational institutions at all levels: elementary, secondary, and
university. It is not necessary here to review the stories of shootings at Columbine
High School, Sandy Hook Elementary School, Virginia Tech University, Northern
Illinois University, and the Marjory Stoneman Douglas High School in Parkland,
Florida. Coverage of these events has been global.

Many of the publications reviewed are public policy-based papers on controlling guns
and firearms within academic venues and school polices on reporting risks,
procedures for identification, and general vigilance (Bennett & Bates, 2016; Morse et
al., 2016; Virginia Polytechnic Institute and State University Campus and Workplace
Violence Prevention Policy, 2018). In those papers on school policy, the
encouragement of students, faculty, and employees to speak up about physical threat
and violence, as well as the institutional mechanisms for making concerns known, are prevalent.

Aside from the many published studies on gun violence; gun control; and weapons in the workplace, classroom, and hospital, as of this writing, no published data have connected speaking up for physical safety with the construct of psychological safety or as a factor that impacts psychological safety. The connection between speaking up for physical safety and fear in the workplace and anxiety about physical as well as professional safety and quality of work may be the next episode in the development of the construct of psychological safety.

Returning to Amy Edmonson, the premier scholar on psychological safety, in her very recently published book *The Fearless Organization* (2019), her development of a quadrant of dimensions examining psychological safety with performance standards indicates that her primary concern is with what she calls “The Anxiety Zone.” It is in this quadrant where high standards of performance are associated with low levels of psychological safety. She notes, “[When] employees are anxious about speaking up, both work quality and workplace safety suffer.” However, workplace safety in this construct has, to this point, not specifically included the anxiety associated with high performance standards and concerns for physical safety as a precursor to the psychological “space” needed to fully realize the benefits of psychological safety.

In HAW teams we have learned that performance anxiety may actually involve a fear of not speaking up about physical safety as part of work performance expectations.
Chapter 6: Conclusions

Part of the rationale for conducting this study was not only to learn what makes HAW teams similar to or different from human teaming with respect to psychological safety and learning but to investigate any evidence of what we, as human team members, managers, and leaders, may glean from an exploration of multispecies teaming. What is different and perhaps worthy of deeper investigation through the development of specific hypotheses or propositions for scholarly testing? What, if anything, may prove valuable for further consideration in organizational teaming or organizational behavior? Are there any findings from this body of work that could shed light on the future development of organizational change management and or interventions as we move into the decade of the 2020s?

If we take a second look at the construct of psychological safety, the following questions arise: Can we engage in psychological safety in the workplace without the consideration of physical safety as well? Is it possible that, in order to feel comfortable in speaking up in the workplace we need to consider physical safety as a precursor to or moderator of psychological safety in order to clear the mental space for learning and focusing on the overall mission or goal?

For many, the concept of physical safety in the workplace connotes the Occupational Health and Safety Administration (OSHA) and its attendant laws, regulations, and warnings. What about unintended violence in the workplace? Or in the classroom? Or
in the emergency room? If nurses and physicians are concerned about their own physical safety while performing their role(s), can this impact their ability to not only speak up on behalf of teamwork and patient health but impinge on their own basic survival behaviors?

In educational institutions where lockdown drills are now commonplace, does the ability to survive and acts of unwarranted harm to one’s physical self now become a part of feeling psychologically safe? I would posit that this thread is worth further investigation. Even further, I would assert that the construct of psychological safety, now 20 years after Edmonson’s landmark work, may warrant another look, not to test or defend the original hypotheses but to question whether we might want to add to it a dimension of feeling physically safe in the workplace, or in fact, within the team, in order to maintain the psychic space to be psychologically safe in the workplace.

Speaking up in the workplace is often based upon fear. To some extent, this fear has become an organizational phenomenon. Kish-Gephart et al. (2009) describe this fear as “fear of negative and personal consequences.” From an organizational behavior perspective, speaking up as an aspect of psychological safety in the workplace and its relationship to effective teamwork has been firmly established (Edmonson, 1990, 2003; Edmonson & Lei, 2014). In the existing literature, speaking up about physical safety as a part of psychological safety for working teams has not been thoroughly tied together.

The absence of speaking up as a result of fear has been noted by scholars such as Detert (2003) and Kish-Gephart et al. (2009). Detert’s (2003) study of 40,000
technology employees yielded approximately 50% of respondents indicating a lack of psychological safety as evidenced by fear of speaking up. Speaking up for physical safety may become foundational in current organizational life.

For HAW teaming organizations, returning to the original four hypotheses from Edmonson (1999) included as a basis for questions developed for this study, there is some evidence that H1 and H4 regarding the impact of team learning on team performance may prove valuable for future research with some segments of HAW teams.

However, the responses that were received from the human subjects for this study did not indicate that the construct of psychological safety as defined by Edmonson (1999) was operative, with the exception of speaking up for the physical safety of the animals and the humans engaged in HAW teams. This exception, however, could have interesting implications for the expansion of the psychological safety construct.

As Edmonson notes in her 2019 publication, there is an “epidemic of silence” in human workplaces. She explains, “We learn, first and foremost, that people often hold back even when they believe that what they have to say could be important for the organization, for the customer, for themselves.”

This was not consistent with the findings from the HAW team interviews: for those teams directly engaged with animal team members, speaking up is often mandatory when it comes to the physical safety of the animal, the human team members, the organization, and—at times—for the public or the community. But only for physical safety.
Edmonson adds that “another common reason [for not speaking up is] …” not wanting to embarrass or upset someone.” However, if workers’ physical safety is at risk, could this override the psychological fear of upsetting someone or eliciting negative responses? Just as with HAW teams, the presence of physical violence in the human workplace, it could be argued, mandates speaking up.

In Edmonson’s most recent studies (2019), she indicates that, even after two decades of examination of the importance of the construct of psychological safety and speaking up, employees may still not be speaking up due to “fear of damaging a relationship, lack of confidence, self-protection.” In HAW teams, the mechanism of self-protection is reversed: self-protection is the cause of speaking up in the workplace. Coming back to the original construct, Edmonson states that psychological safety today is still an enabler for performance. Is it possible that physical safety may be an enabler of psychological safety?

News events in the past two months are indicative of the current workplace culture of violence:

February 15, 2019, Bev Horne, Daily Herald:

“Police say Gary Martin killed five people and wounded five cops in a shooting at an Aurora [Illinois] factory. The fifteen-year employee … was being fired. Martin had killed five people at the Henry Pratt Company, a 118-year old company that makes water valves. The warehouse employs about 200 people, but it wasn’t clear how many were inside at the time. The horrific ordeal lasted about an hour and 35 minutes from the time numerous people called 911 to report a shooter.”

March 22, 2019, Jessica Schladebeck, New York Daily News:
“Before a gunman opened fire inside the halls of Marjory Stoneman Douglas High School, Sydney Aiello spent her days cheerleading and doing yoga while she dreamed of entering the medical field and dedicating her life to helping others. But in the year since she lost 17 classmates and teachers in the devastating Parkland mass shooting, the MSD graduate struggled with survivor’s guilt. Her mother, Cara Aiello told CBS Miami that grief and trauma weighed heavily on the teen’s mind until it consumed her. Over the weekend, Sydney took her own life at the age of 19. Cara Aiello said her daughter was recently diagnosed with post-traumatic stress disorder. The shooting left her terrified to be inside a classroom, which made it difficult for her to attend college classes.”

These incidents are not merely recounted here to advocate for gun legislation but to note that after incidents in the workplace and the classroom, working team members may find it very difficult to “get back to business.” These kinds of responses have been the tragedies of military and law enforcement teams for centuries. The issue today for knowledge workers and other teams that were traditionally immune to such encounters is the ability to bounce-back and to regain psychological safety after such experiences.

As a student coming back to the classroom, the priority may no longer be one’s personality factor among peers or grade point average. Such psychological pressure still exists but may be overcome by other, more basic needs, such as physical safety. Similarly, after exposure to violence from a former team member, is one’s promotional opportunity or fear of being foolish for speaking up now top-of-mind? These, of course, are rhetorical questions in the context of this particular study. No data included in this study will provide those answers. It is, however, germane to the construct of psychological safety to inquire as to where in the hierarchy of basic needs the construct of psychological safety in the workplace resides. Over a half
century ago, Abraham Maslow first engaged the theoretical components of the hierarchy of basic human needs. This foundational theory of modern psychology has been referenced, quoted, and further investigated by academic scholars for decades and needs no introduction or academic citation here. The question of interest may be to understand exactly where in the basic needs structure the construct of psychological safety resides. It may go without saying here that food, water, and shelter are precursors to the performance of any kind of teaming. Should we take another look at physical safety and security needs that may be foundational for permitting the construct of psychological safety to fully engage us in the workplace? Again, this is a rhetorical question without supporting data within this study of HAW teams. The answers from the interviewees, who are clearly connected to animal teammates in specific roles requiring mutual reliance and trust in order to successfully perform in the workplace, would suggest that it may be important to spell this out within the construct given the current direction in the workplace, the hospital, and the classroom.

To that end, I propose a modification to the most recent model of the psychological safety construct: one that adds physical safety as an antecedent or perhaps a moderator of psychological safety and the team’s ability to successfully perform its work and achieve its mission.

Admittedly, this is a stretch of the model and certainly an idea that requires rigorous and scholarly study in order to further define, validate, and describe any potential consequences. I will offer, however, that learnings from HAW teaming might present
some new avenues for circling back to human teaming as it may be impacted by events taking place in our society today in 2019, especially events that may need to be accommodated in future constructs about the office workplace, the hospital, and the classroom.

The model for the construct of psychological safety has evolved since Edmonson first developed the construct in 1999. From the meta-analytical study conducted by Edmonson and Lei in 2014, the model now includes many modifiers, antecedents, and influencers based upon additional studies in the evolving literature. Figure 2 shows the model as developed by Edmonson and Lei (2014) for psychological safety at the group or team level. It is important to note that this model is specific to the group level. Other models have been developed and published at the individual and organizational levels. However, none of these models includes physical safety as a precursor to the construct of psychological safety. This may be because physical safety might be assumed to operate in the workplace as a separate operating variable. That may be a valid assumption and may have worked well in previous studies of the working environment.

My question as a result of the HAW teaming studies and recent literature on violence and safety in the workplace would be: Should we now consider physical safety within the construct of psychological safety as a factor allowing work teams to truly engage in psychological safety?
Looking at the latest model, constructed by Edmonson and Lei (2014), scholarly research over the past 20 years has teased-out some of the modifiers to psychological safety that further elaborate on the nature of the construct.

Team leadership was recognized by Edmonson in 1999 as a critical factor in the development of psychological safety within working groups. Added to leadership are differentiators in team characteristics (e.g., team size, location and geographic spread) as well as the organizational context (this might include organizational cultural factors as described by Edgar and Peter Schein in recent publications such as “Humble Consulting” and “Humble Leadership”).

These factors are also affected by the amount of uncertainty in the task (e.g., “Have we ever seen this before? Is there the ability to benchmark previous work?”) as well as the availability of sufficient resources both within and outside of the immediate team. For those of us that have worked on project teams in the midst of downsizing, for example, lack of resources to actually perform the work can be a critical component in psychological safety for task success and personal evaluation.
As an exploratory study, it is not unusual that questions lead to more questions. My concluding question for future scholarship in the human teaming endeavors is whether we need to add to the model an element of physical safety, actually call it out in the model, in order to fully realize the benefits that psychological safety provides in the workplace with respect to personal safety as well as the ability to be innovative, creative, and effective?

To that end, I would propose an addition to the Edmonson and Lei model, as shown in Figure 3. It is critical to note here that I am not proposing a new model for that is yet to be tested and validated in empirical study with human subjects. What I do propose is that this may be a valid addition to the current construct and, therefore, worth further investigation.
Shifting priorities in the overall social culture do have a trickle-down effect on organizational cultures and the teamwork that is engaged in the work that keeps society’s gears in motion. The top issues that futurists discuss—climate change, environmental safety, the safety of food supplies, asylum for political refugees, asylum for economic refugees, the unequal distribution of wealth and worsening conditions for many within the U.S. as well as in other global venues—are listed as the top issues that the millennials and their children will have to solve or contend with or suffer from, depending upon how they engage in solutions.

The notion that physical safety is a priority, even within established organizations, deserves a closer look. Last week in a manufacturing warehousing operation in
suburban Chicago five team members of the organization were shot to death by an employee who was being terminated. The shooting took place within the confines of a conference room on a Friday afternoon. The conference room could have been in a manufacturing facility anywhere. The November killing of a doctor, another medical worker, and a Chicago police officer in a hospital emergency facility by an intruder could have happened in any hospital. Children and young adults are already tuned into the violence in classrooms, not just in the urban areas but in the surrounding towns, suburbs, and villages.

On the anniversary of the Marjory Stoneman Douglas school shooting in Parkland, Florida, a news clipping from the *Daily Herald*, a suburban Chicago newspaper, included interviews with current high school seniors in the suburban Chicago area. One student plainly indicated the extent to which students now consider personal safety to be foremost in their minds by saying that she now looks first for an escape route or hiding space in every classroom that she enters.

Today in 2019, is it a possibility that, before students or hospital workers or team members engage in the construct of *psychological safety* in terms of speaking up for workplace issues that may have personal negative consequences, feeling *physically safe* from acts of unexpected, unplanned violence may operate in the background, taking up psychic space from other concerns such as personal acceptance and approval by team members? If the team members do not feel safe from physical harm, then safety from ostracism, missed promotional opportunities or negative feedback pales in comparison.
Chapter 7: Limitations of the Study

From the outset, this study was intended to be a qualitative exploratory broad-brush investigation into contemporary HAW teaming. There was no intent to develop data for statistically significant findings.

The limitations of my study are many and varied. First, I need to acknowledge that the sampling process that I used did not provide depth, but merely breadth, across a variety of human and animal working teams. There are myriad human and animal working configurations and organizations that need investigation to flesh-out what has been an understudied area of scholarly research (Hannah & Robertson, 2017). Due to the admittedly opportunistic sampling of different types of organizations engaged in equine and canine working teams, there was no in-depth analysis of a random sampling of any of the organization types within the definition of HAW teams. In other studies about animals in society, emphasis is placed upon data for humans and one other species, not multiple species. In this study, sample size and number of subjects within team types was limited to those organizations that were willing and able to participate. Numerous other organizations were contacted and either did not respond or did not choose to participate. This was not an impediment to collecting qualitative exploratory data; however, it is not sufficient to test hypotheses or develop and defend new theoretical models.

My opportunistic sampling was based upon the interviewees’ ability and willingness to participate as a matter of goodwill in my academic pursuits. Further, time-bound
and financial considerations precluded travel to multiple other states and regions for a fuller view. Having intended this study to show a landscape through a panoramic aperture, some important elements of scholarly research are not included. Due to the volume of transcribed data (over 200 pages), and to the lack of readily available colleagues familiar with the construct of psychological safety willing and able to plow through my data to verify that I have correctly identified themes, there is no multi-rater validation.

There is no attempt to develop any fully fleshed-out hypothesis(es) regarding psychical safety as a component of or precursor to psychological safety. The logical steps of drawing a sample of significance within different streams of human–animal work and comparing and concluding new hypotheses based on multi-rater coding and further qualitative and quantitative methodologies are not included in this exploration. Moreover, I am not convinced that I would be the ideal candidate for conducting such research. A great deal of time was spent in learning about human and animal work, particularly in learning the rudiments of thoroughbred racing, law enforcement, all types of canine work, and other areas for which I had absolutely no experience prior to engaging in this study. Those who have worked on these teams, investigators with many years of experience, could offer some very different perspectives on the conclusions of this study. I would certainly invite this.

An additional limitation was the lack of pre-testing the open-ended semi-structured questions prior to the initial Institutional Review Board submission. The original 18 questions were later reduced to nine questions as interviewees were confused about
the scholarly constructs and definitions in the original questions. I offer this as a
warning to others engaging in future study: interview questions need to be developed
for the interviewee’s level of understanding. If they are not scholars or academics and
are not familiar with organizational behavior or organizational development concepts,
their ability to provide full answers may be limited. If the questions had been tested in
advance with a sample of potential subjects, this might have been avoided earlier.
It is also notable that there was no triangulation of the coded themes by other
researchers. The practicality of having another scholar review over 200 pages of
transcriptions for the three themes identified was beyond what I could reasonably ask
others to do without reimbursement. Suffice it to say that I made the conscious
decision to rely on my own coding of themes as the transcripts needed to be reviewed
against many hours of recorded responses in order to fully understand the contextual
variations in responses. It is doubtful that any volunteers would have stepped up to
this formidable task.

The exclusion of canine therapy in not-for-profit organizations that are engaged to
provide physical and/or emotional support for adults and children with special needs
has been questioned by interested persons. This genre of animal work did not
necessarily fit my definition of organizational working teams. The animals may
partner with humans and work with them to support daily needs but not within an
overall organizational setting.
The construct of psychological safety and its relationship to team learning was the specific focus of this investigation. There are many other organizational behavior and organizational development aspects that were not included in the questions for HAW teams. Topics such as organizational change and interventions with HAW teams, the role of leadership in HAW teams, and the position of HAW teams within a broader spectrum of industrial work were not included; however, they could certainly be investigated as stand-alone questions for future scholarship.

Exploration was limited to the United States, and, therefore, cultural differences across global equine and canine working teams remain open for investigation and/or comparison. The thoroughbred industry as well as the use of animal working teams in law enforcement are worthy of comparison with similar teams in Europe and Asia. In fact, much of the HAW teaming organizations in the United States were preceded by similar work in other cultures.

Economic, historical, geographical, governmental regulation, and legal factors are but a few of the external conditions in which HAW team organizations function. These areas are wide-open for HAW teaming organizational research. Many questions, comparisons, and opportunities for new learnings are yet to be uncovered. When multispecies working organizations are considered for research across the many areas in which human-only teams have been studied, numerous opportunities for discussion may present themselves.

In terms of claims for theoretical constructs, I make none based upon these data. I have compared the responses against four of the original Edmonson (1999)
hypotheses that I deemed applicable to the themes; however, this study was not meant to support or refute the Edmonson hypotheses or any other studies of psychological safety because the subject population did not fit the original definition of psychologically safety teams (e.g., no “shared values” could be posited for animal team members). The use of the four Edmonson hypotheses to develop the three themes studied was prompted by academic curiosity.

Finally, my suggestion that human team models for psychological safety might be expanded to incorporate an element of physical safety is not directly supported by these data but is suggested based upon responses received. The suggestion is extrapolated from what resulted in these interviews and my reflection upon current events in human work teaming organizations.

I believe that a question of interest for the construct of psychological safety in the future may be whether an element of physical safety should be incorporated in the overall model, not only with respect to the value of speaking up in the workplace but also across the concept of shared values.
Chapter 8: Suggestions for Further Research

As with all scholarly research, this study may lead to further studies and poses yet additional questions for future investigators to consider. Coming back to my initial queries, I suggest that researchers in the fields of animal studies and society, as well as those in human organizational behavior and organizational change, be open-minded about what we may be able to learn from each other, what new windows of opportunity may warrant viewing, what common ground for new dialogue may exist, and what new doors may open across the spectrum of scholarly research.

Within the subject of HAW in general, the broader categories of equine and canine work, particularly in thoroughbred racing and law enforcement, truly deserve global comparisons. These studies might follow a number of avenues of research to broaden the understanding of how this subject population operates with respect to organizational topics.

An area that is totally open for organizational development is the discovery of HAW teams as opportunities for consulting work and the tailoring of organizational interventions for HAW organizations, whether at the individual, organizational, or team level. The organizational development field has an open door to look at previously unexplored organizational types. This may be of particular interest for organizations engaged in thoroughbred racing that have the ways and means to engage organizational consultants. The size of some organizations, their global reach,
and the legal and political environment in which this industry works have a
tremendous number of facets and opportunities for engaging in the application of
organizational development principles.

Even more broadly, the organizational management academic community might find
it engaging to reach out to other fields of study. The past 30 years have seen more
emphasis on “management of…” as well as “management and…” medicine and
healthcare, digital technology, environmental studies, climate change, and other fields
that classically were not associated with the organizations of business and
management. Perhaps the newer fields of animal studies and animals in society might
hold opportunities for creative discovery within academic circles.

I would offer to scholars of this millennium that the consideration of physical safety
as a component of the construct of psychological safety—as a mediator or
moderator—may be an interesting area for further investigation.

This study is intended to be exploratory. The findings are subject to further testing
and investigation and additional rigor. The opportunity to expand upon existing
theoretical work in psychological safety and its relationship to current changes in the
workplace for human teaming may be an endeavor that could interest streams of
scholarship across sociology as well as organizational behavior. The potential
development of organizational interventions for human teams addressing physical
safety in the workplace calls for creativity on the part of scholars and practitioners.
Finally, in the spirit of appreciative inquiry, I would invite those who are bold enough to reach out to other populations that are understudied in organizational development. The result may be to extend the ability of practitioners to make a true difference in the lives of organizations as well as to increase the influence of organizational development as an area of scholarship.
Benediction

“The greatness of a nation and its moral progress can be judged by the way its animals are treated.”

— Mahatma Gandhi
References

“Outside of a dog, a book is man’s best friend. Inside of a dog, it’s too dark to read.”
Groucho Marx


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