

Applying Canine Research To K9 Practices: What do K9 Handlers and Trainers Want To Know?

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Introduction

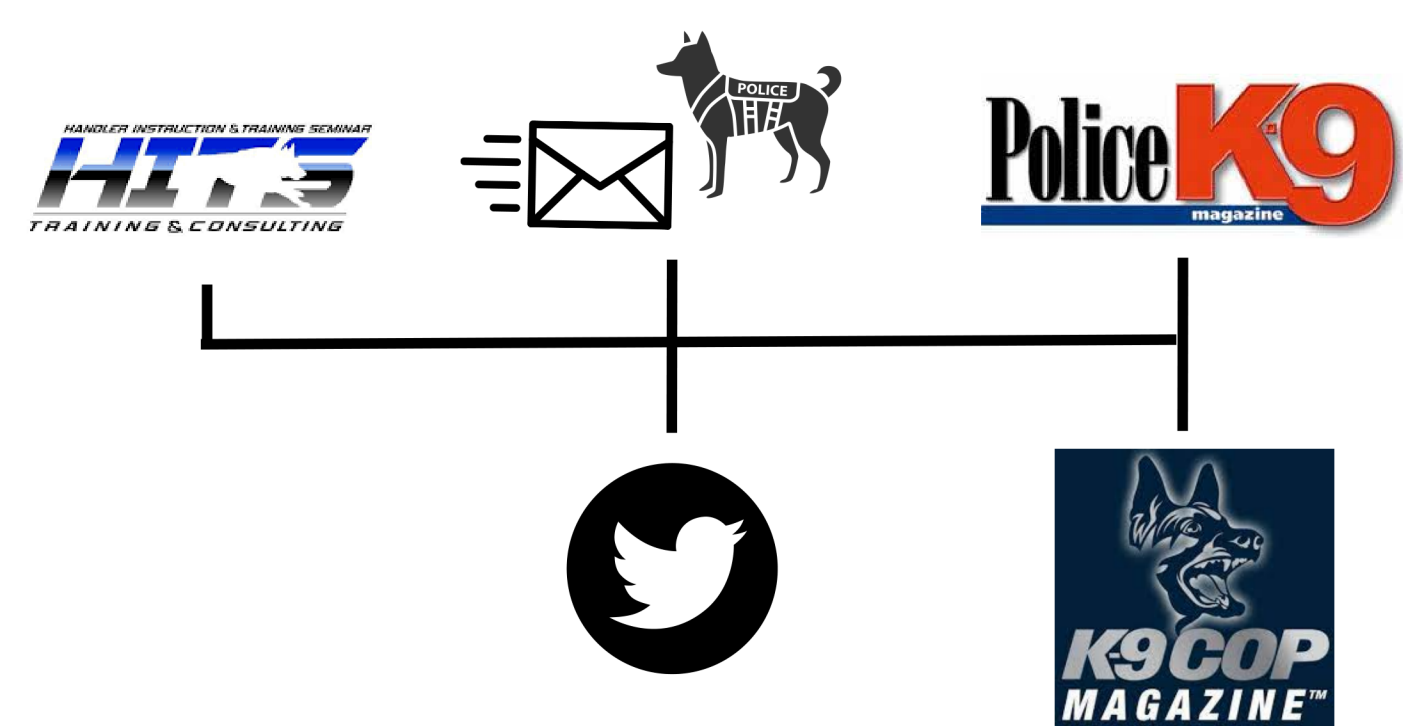
The study of canine cognition offer can offer insights into the selection and training of working dogs.¹⁻³

Yet, **dialogue between canine cognition researchers and working dog professionals is often limited** due to challenges (e.g., confidentiality concerns and operational constraints).

Public scholarship is critical for **enhancing the practical relevance of research findings**. Thus far, as scientists we have improved our efforts in **knowledge translation and mobilization**, but we have **less often engaged in co-creative practices**.

This study aims to foster communication between researchers and working dog professionals for **what research would be most beneficial in the field**.

Survey Recruitment



The survey was advertised through the Handler Instruction and Training Seminar (HITS) in Washington, DC, USA (2018), X (Twitter), emails to police associations in Canada and the U.S., and emails to subscribers of *Police K-9* and *K-9 Cop* magazines.

Survey Materials

28-question Qualtrics survey with a 5-point scale from 'Not at all Important' to 'Extremely Important'.

Comment boxes were included at the end of each section.

- 1 **Associative Learning**
- 2 **Dog-Handler Bond**
- 3 **Domestication**
- 4 **Early Canine Development**
- 5 **Scent Detection**
- 6 **Social Cognition**
- 7 **Fostering Cross-Talk**

Thematic Analysis

Two independent coders grouped comments into the following categories:

1. **Research Questions:** Suggesting areas for future research
2. **Handler & Trainer Insights:** Opinions and beliefs from professionals based on their experience and understanding of dog training and behaviour
3. **Constraints:** Detailing the limitations and challenges that may affect the feasibility of conducting certain research with the working dogs

Survey Respondents

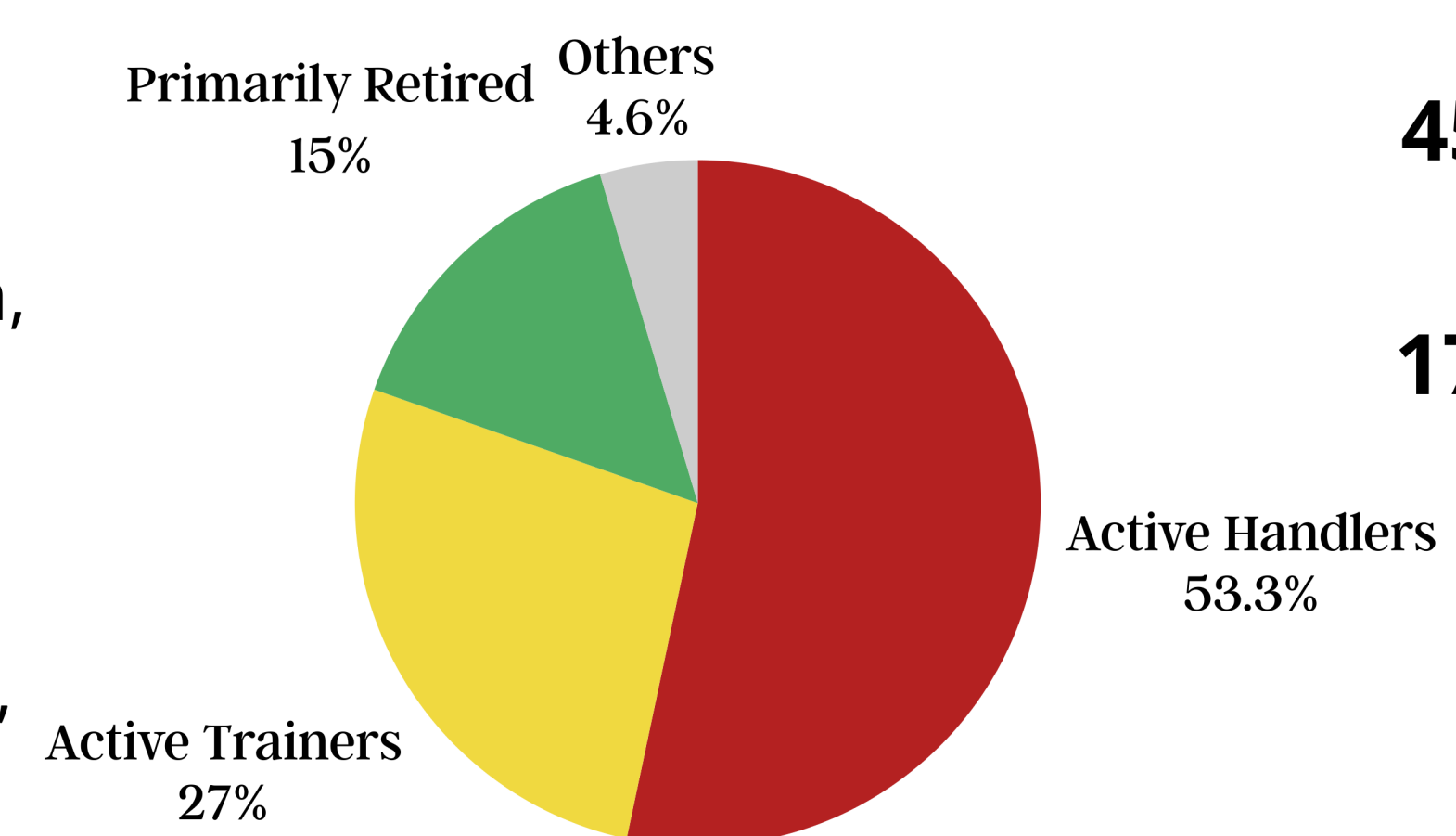
Work Specializations

General Patrol:

Tracking/trailing, Area Search, Apprehension

Chemical Detection:

Narcotics, Explosives, Accelerant, Firearms/Casings, Human remains



459 respondents across **17 countries** with experience ranging from **1-25 years**



Results

Category	Question	% Very and Ext. Important
Associative Learning	Forms of reward and punishment during training	90.16%
	Generalizability of training to real-world situations	95.29%
	Markers (e.g., clickers)	54.49%
	Timing of reward or punishment in real-world situations	89.91%
Dog Handler Bond	Biological mechanisms	54.34%
	Early experience with the handler	73.94%
	Housing environment	72.44%
	Personality and beliefs of the handler	72.67%
Domestication	Behavior and pack structure of wild dogs, coyotes, and wolves	33.26%
	Breed differences in learning and temperament	68.54%
	Domestication history of dogs	29.28%
	Effects of genes and environment on sensitivity to human actions	63.82%
Early Canine Development	Effects of early environment on stress and temperament	83.63%
	Effect of dam and pup interaction on later working ability	39.55%
	Tests to determine good working dogs early in development	86.30%
	Timing and extent of exposure to humans early in development	76.23%
Scent Detection	Breed differences in the detection of olfactory stimuli	72.03%
	Communication between handler and dog during scent work	89.71%
	Detection of human chemosignals	72.81%
	Effects of diet, age, medication, and/or activity on scent detection	77.08%
Social Cognition	Differentiating threatening and nonthreatening humans	82.65%
	Learning by observing human handlers	75.90%
	Learning by observing other working dogs	56.20%
	Solving problems on their own versus referencing the handler	89.42%



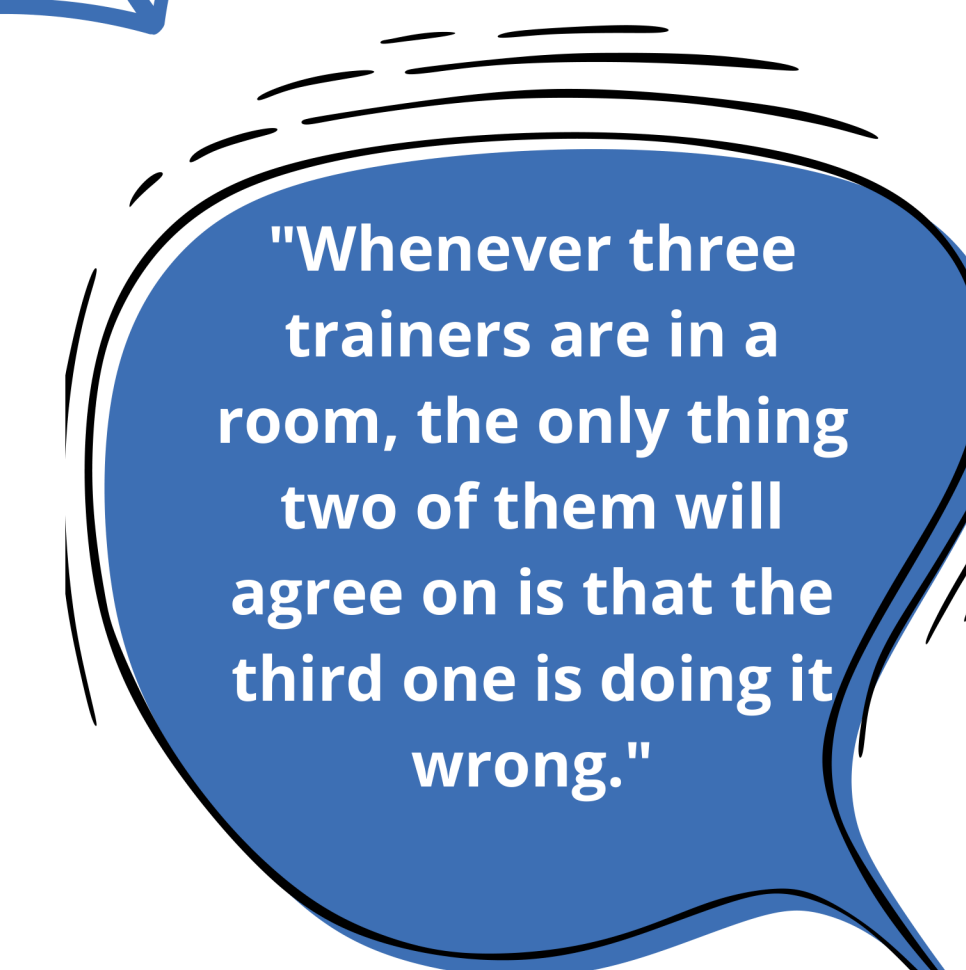
Conclusions

The survey **identified a strong interest from canine handlers and trainers** to inform their practice with relevant scientific research.

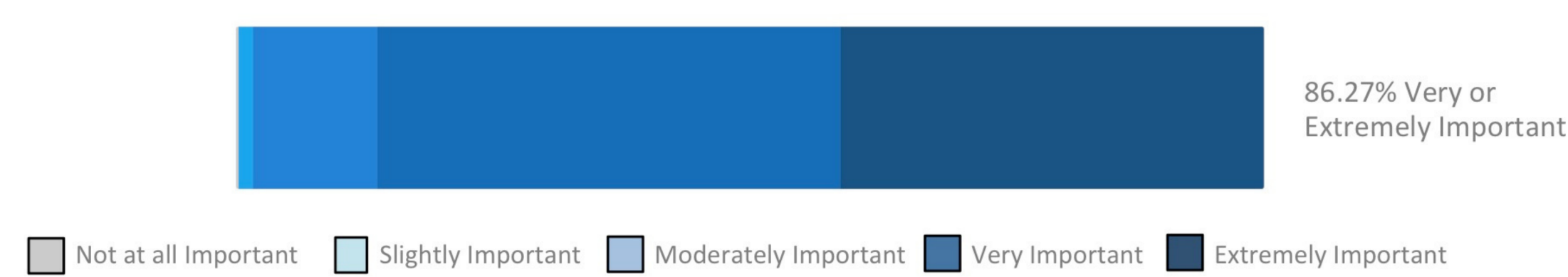
These professionals are **not only willing to engage but have also articulated questions** that our research is well-suited to address.

While enthusiasm among K9 professionals is evident, there will be challenges, **notably the lack of consensus within trainers/handlers on best training practices**.

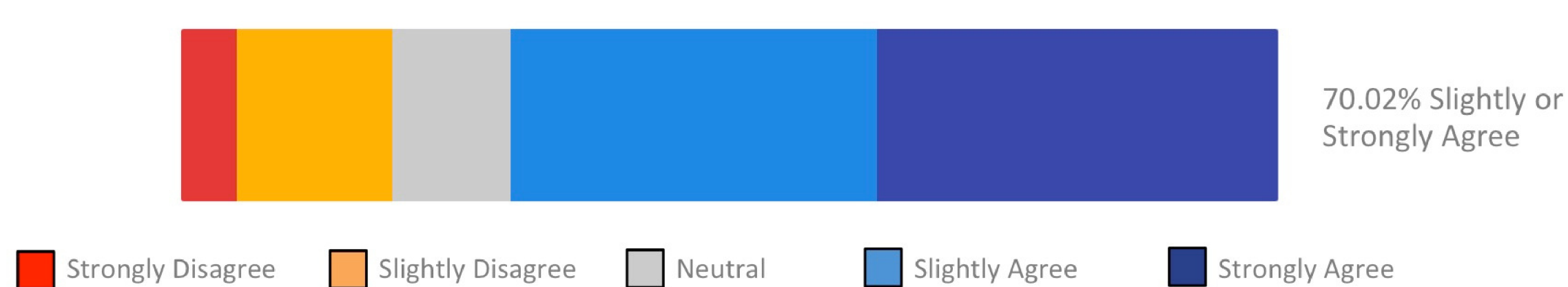
We **must value the practical experience of K9 professionals** during co-creation of future research projects.



How important do you think it would be to have more discussion between police K9 handlers/trainers and researchers?



In general, I feel that K9 training practices are open to new ideas.



Emerging Themes

Associative Learning

1. "I think we need studies to find out if the use of a conditioned secondary reinforcement (marker) in detection affects the power of a reinforcer."
2. "Reality training is the best gauge to understand how the dog will react in real-world deployments."
3. "A problem in the K-9 world is that people are coming up with methods for training that they find useful but then they want to market it for the sole purpose of money... most [police] departments cannot afford this."

Dog Handler Bond

1. "I think it would be extremely important to ascertain why the dog will do what we ask it to do i.e., tracking, indication work, protection work."
2. "Handler and dog will always have a 'bond'; no need to waste money studying it."
3. "Most police dogs go through multiple handlers/trainers through their life... forming less of a bond more of a subordinate working relationship."

Domestication

1. "Can you re-train temperament? Is it permanent?"
2. "After handling, working and training service dogs for over 30 years I have found...the genetics are the foundation of the breeding, health, and mental stability needed today in the world of working dogs."

Early Canine Development

1. "Research to improve the testing for 'workability' in puppies."
2. "Staying with the litter for 8 weeks is important. Being handled by humans early and interaction is critical."
3. "We usually do not receive police K9 until 18-24 months old."

Scent Detection

1. "I would really love to know about diet and medication's (a lot of dogs get put on Prednisone/Metacam for arthritis) effects on scent discrimination."
2. "Dogs possess the olfactory capabilities to do detection work. Drive is a crucial component which deteriorates with age, diet, meds, etc."
3. "The biggest problem I have encountered is that that scientific studies are either done in laboratory or controlled environment which does not easily translate to real world experiences. Secondly, many of the scientific studies have too small of a sample size to be statistically valid."

Social Cognition

1. "Understanding the behaviours that shape the K9 are of great importance and how these different factors affect their ability to learn and grow."
2. "We as humans learn more from the dogs than they do us. Young dogs tend to mimic behaviours seen in older working dogs."
3. "A lot of the K9's don't get along or are so excited I can't see them focusing on observation to learn."

Further Information

References

1. Brady, K., et al. (2018). Factors associated with long-term success in working police dogs. *Applied Animal Behaviour Science*, 207, 67-72.
2. Bray, E. E., et al. (2020). Cognitive characteristics of 8- to 10-week-old assistance dog puppies. *Animal Behaviour*, 166, 193-206.
3. Lazarowski, L., et al. (2020). Comparing pet and detection dogs (Canis familiaris) on two aspects of social cognition. *Learning & Behavior*, 48(4), 432-443.
4. Eder, M., et al. (2023). Editorial: Examining community-engaged and participatory research programs and projects. *Frontiers in Public Health*, 11.

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Queen's University is situated on traditional Anishinaabe and Haudenosaunee territory. We are grateful to be able to live, learn and play on these lands.



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