

Early Introduction Age and Other Factors: Precursors to Feline/Canine Friendship?

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The two most popular domestic animals are ever more frequently expected to interact amicably, or at least cohabit, with unrelated conspecifics as well as other species during their daily existence. Domestic cats (*Felis catus*) have been living with humans for an estimated 4,000 to 9,500 years, most likely beginning in Cyprus as descendants from the African wild cat (*Felis libyca*) (Bradshaw, Horsfield, Allen, & Robinson, 1999; Cameron-Beaumont, Lower, & Bradshaw, 2002; Vigne, Guilaine, Debue, Haye, & Gerard, 2004). In comparison, domestic dogs emerged between 35,000 and 100,000 years ago (Savolainen, Zhang, Luo, & Leitner, 2002; Vila & Savolainen, 1997) and have been cohabitating with humans for approximately 14,000 years (Nobis, 1979, in Clutton-Brock, 1999).

Both species were most likely primarily self domesticated, at least initially, through lowered flight distances generated in response to human-generated food sources, refuse areas for dogs (Coppinger & Coppinger, 2001) and rodent populations subsisting on cultivated grains for cats (Turner & Bateson, 1988). Dogs subsequently faced selection pressure towards category and job niches opened by human social evolution, such as livestock guarding and herding, hunt assistance, and human protection. Cats, on the other hand, have faced very little active pressure in development to coexist with humans (Izawa & Doi, 1994) and, in fact, it is only recently that cats have been selectively bred in accordance with recognized breed standards.

Although cats and dogs both belong to the order Carnivora, their natural social structures are quite different, particularly in hunting and group living styles (Bradshaw & Brown, 2006;

Fox, 1971). Dogs are generally known for their highly social natures and adept scavenging skills, whereas cats are, often falsely, considered asocial and prefer solitary hunting. The question then arises as to how two such very different species can so easily cohabit in human households. The answer to this question may lie in the fact that there are actually many similarities between the species—for example, both are astute observational learners, and both use visual, olfactory, vocal and tactile methods of communication that are similar to those used by many other mammals.

Additionally, both species are able to decipher not only each other's communications, but also those of the humans they live with. In a study comparing cat and dog responses to visual pointing gestures (Miklosi, 2005), both species performed equally well on a task using the gesture to find hidden food, but there were differences in attention-getting behaviors performed by each in an attempt to get assistance from their naive humans on a second portion of the test. The dogs were much quicker than the cats to engage in attention-getting behaviors such as increased gazing and vocalizations in an attempt to receive help from their human. The cats performed fewer signaling behaviors and worked at getting the food on their own for a longer period of time, indicating a tendency towards independence consistent with a solo hunting preference. However, many cats eventually did signal to their humans for assistance, indicating the ability to adjust species tendencies in order to thrive in domestication.

Individual innate personality differences have also been well defined and recognized in

both cats and dogs. For example, primary categorizations of basic personality types as supported by Feaver, Mendl, and Bateson (1986) include aggressiveness, fearfulness, sociability and curiosity, and are generally considered stable across the individual's lifetime. Some personality types, such as sociable and curious, may be more conducive to interspecies affiliation, whereas others, such as fearful and aggressive, may be less conducive. Similarly, a second study found consistent behavioral styles, defined as Staying Indoors, Boldness, Investigative and Rubbing, in feline individuals at different ages (Lowe, 2001). It is important to note the Lowe (2001) study showed a positive correlation between the handling kittens received during the first 8 weeks of life and boldness characteristics at 4 months of age, indicative of how human actions may impact on a cat's personality and therefore future affiliation with other species in the household. For example, a kitten that has received handling and socialization by humans may adapt well to an interspecies household, while a kitten receiving little or no handling and socializing may have a more difficult time adjusting.

Highly relevant in any behavioral research, specifically research that relies on behavioral interpretation by laypeople such as that gathered in owner opinion surveys, is the ability of human observers to correctly interpret the physical actions and vocalizations of a different species. Research literature is not quite clearcut on this aspect of behavioral interpretation, but in general, humans are able to comprehend overall communications from cats and dogs. For instance, it appears that humans are able to classify at least five different feline meow vocalizations according to predetermined context, but only at a moderately significant level (Nicastro & Owren, 2003). Though the results were only moderately significant, people who had more extensive prior experience with cats were markedly more accurate than those who had little or no experience, as was also reported in previous research that included human analyses of photos and videos of both dogs and cats (Bahlig-Pieren & Turner, 1999).

This indicates that humans can become more accurate at understanding and interpreting cat and dog behavioral communications with exposure, an idea that most likely also applies to cats and dogs cohabiting and interacting with their own species or another on a daily basis, particularly if they were introduced while one or both were juvenile. An early study involving Chihuahua pups reared with kittens from 25 days to 16 weeks of age showed these pups to be more social with kittens than pups not reared with kittens, and kittens reared with pups were more social to other dogs than those not reared with pups (Fox, 1969). A more recent study based on observation of cat/dog interactions and survey responses by their owners showed more amicable relations when introductions between the two animals occurred when at least one was juvenile: less than 6 months of age for cats and less than 1 year of age for dogs (Feuerstein & Terkel, in press). One reason may relate to the existence of critical socialization periods lasting from 3 to 12 weeks of age in dogs and approximately 2 to 9 weeks of age in cats (Beaver, 1999, p. 138; Beaver, 2003, p. 128). Primary social bonds within or between species are formed and species identification occurs during this time, facilitating interspecies affiliation if exposure occurs. These affiliations may then be further strengthened during the juvenile period, approximately 9–12 months of age for cats and 6–18 months of age for dogs (Beaver, 1999, p. 165; Beaver, 2003, p. 200).

The Feuerstein and Terkel (in press) study was the only published research literature located by this author on the subject of cat and dog interrelations. In addition to the findings on impact of introduction age on future affiliation, there were results indicating that cats and dogs were able to establish amicable relations and understand body language of the other species particularly well when the cat was in the home first. In particular, dogs were significantly more likely to display amicability towards the cat when the cat was in the home first, but there was no correlation between order of adoption and behavior of the cat towards the dog. It is suggested by the study's authors that this difference may be due in part to a dog's higher sensitivity to a decrease in human attention

when a new cat is brought into a household because of their genetic social tendencies.

The Feuerstein and Terkel (in press) study also utilized owner survey and in-home researcher observation to evaluate impact of gender and neutering on cat/dog interrelations. The questionnaire results revealed that female cats exhibited higher levels of aggression and indifference and lower levels of amicability to the dogs than male cats. The questionnaire suggested no impact of neutering on the dog–cat interactions, but behavioral observations suggested that neutered female cats exhibited a greater number of frightened and submissive behaviors towards dogs than intact females. However, the study results did not include information on timing or age at time of neuter, which possibly plays a role in the overall effects the process may have on the individual’s behavior, including that of interspecies interaction.

It is generally recognized that utilization of an introduction protocol is more conducive to creating the potential for more affiliative relations between household residents than simply placing a new animal in the territory of current resident animals. Some introduction techniques commonly recommended include initial separation, area and scent swapping, use of pheromone diffusers, and slow introduction with desensitizing and counterconditioning techniques. However, this author was unable to

find any published research literature on the effects of introduction protocols on interspecies relations. So although it is conceivable that a more noticeably positive affiliation would occur between animals introduced slowly, and with techniques friendly to their innate social development, than between those that are simply placed together to “work it out” among themselves, there is no known research available to evaluate the different techniques.

Throughout the world, humans frequently choose to share their homes with domestic cats and dogs, effectively creating social structures spanning across species. These three species have not truly coevolved, yet they are often able to peacefully cohabit, form close bonds and effectively initiate and understand communication. With some thought and preplanning involving introduction protocols, acquisition order, gender and individual personalities, cats and dogs can thrive in interspecies households.

Further study on how these successful interrelations support the needs of the individuals involved may lead to overall more cohesive understanding and peaceable interactions between all species expected to live together, while giving behavior professionals more tools to facilitate affiliative interrelations.

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