Do facial colours affect dogs' facial expressions?

Our summary of the study:

Sexton, C. L., Buckley, C., Lieberfarb, J., Subiaul, F., Hecht, E. E., & Bradley, B. J. (2023). What is written on a dog's face? Evaluating the impact of facial phenotypes on communication between humans and canines. *Animals*, *13*(14), 2385. https://www.mdpi.com/2076-2615/13/14/2385.

1. Key highlights:

Dogs with simpler facial markings are make more facial movements and are perceived as more expressive than those with more complex patterns. Possibly the "visual noise" from complex markings can make it harder for humans to recognize subtle facial movements. The study highlights how a dog's appearance can impact our ability to understand their communication.

- **Plainer faces were more expressive**: Dogs with simpler facial markings, like fewer patches or spots, were more expressive than dogs with more complex faces.
- **Owners of plain-faced dogs are better at reading their dog's expressiveness**: Owners of dogs with simpler faces were better in judging how expressive their dogs were compared to owners of dogs with more complex facial markings.
- **Social context affects facial expressions**: Dogs adjusted their facial expressions based on the situation. When their owner spoke to them with familiar word, they showed a broader range of facial movements across their whole face.
- **Training slightly boosts expressiveness**: Dogs with more advanced training were more expressive than those with little to no training.
- **Age matters**: Younger dogs were more expressive than senior dogs, who showed fewer facial movements.

Let's break down the science behind the findings and put it into practice!

Ever noticed how some dogs seem to "speak" with their faces, while others leave you guessing? It turns out that part of the answer might lie in their facial features. The way a dog's face looks—specifically, whether it is plain or has more complex facial markings, colour patterns, or spots—can play a role in how easy we understand what they are "saying". Understanding your dog's facial expressions not only strengthens your bond but also improves training and care. By becoming more attuned to their non-verbal cues, you can better respond to their needs and emotions.

A recent study by Sexton et al. (2023) explored how a dog's facial colour patterns affect how expressive dogs are and how accurately their owners perceive their expressivity. So, if you've ever wondered whether your dog's eyebrow spots or patches make a difference, this study might have the answer!

This article breaks down the findings of that study and explains how your dog's appearance could impact your ability to read their expression. We'll also look into what you can do to improve your communication with your dog.

Why it matters to understand your dog's facial expressions

Have you ever felt like your dog is trying to tell you something with a glance, a raised eyebrow, or a head tilt? Non-verbal cues like these are central to how dogs communicate with us and our connection with dogs relies heavily on how well we understand their expressions. Over thousands of years, dogs have evolved alongside humans, developing unique behavioural and physical traits that help them communicate with us. Their ability to use facial expressions plays a key role in this bond.

But here's the twist: As we know, not all dogs look the same. Indeed, one fascinating thing about dogs is the remarkable variability in their appearance—the presence and types of facial markings, like patches, spots, or eyebrows, can differ greatly from one dog to another. Some have plainer faces, while others have more diverse colour markings. But so far, it is unclear whether these markings affect their facial expressions and make it harder or easier for us to understand them.

That's what this study by Sexton et al. (2023) aimed to find out. They wanted to answer the central question: Do facial markings influence how expressive dogs are and how humans perceive their facial expressiveness?

How they investigated the facial expression patterns of dogs

This study involved 103 family dogs of various breeds, ages, and training levels—from individuals with no formal training to highly skilled working dogs trained for tasks like therapy or service work.

Due to the COVID-19 pandemic, where owners couldn't go to their research lab as usual, this study used a so called "community science" approach: Instead of visiting a research lab, dog owners played an active role in data collection by recording videos of their dogs at home in their natural environments.

Owners were given specific instructions to film their dogs in four distinct situations:

1. **Resting (no interaction)**: The dog was filmed while resting with no making eye contact with the owner or verbal interaction.
2. **Eye contact only**: The dog was filmed while making eye contact with the owner, but no words were spoken.
3. **Eye contact with unfamiliar words**: The owner spoke an unfamiliar phrase (e.g., "Ancient Egyptians built pyramids...") in a neutral tone while maintaining eye contact with the dog.
4. **Eye contact with familiar words**: The owner used familiar phrases, such as the dog's name or favourite words, in an excited tone while keeping eye contact.

First, the researchers created a scale to generate a so-called **Physical Score** to evaluate the complexity of each dog's facial markings. Dogs with plain faces (few or no markings) were assigned lower scores, while those with more complex facial features (like spots, patches, or distinctive "eyebrows") received higher scores according to the matrix.

Second, they **objectively measured** the dogs' facial expressions across the four tested situations. Thereby, a greater number of facial movements indicated greater expressiveness. To analyse this, the researchers used **DogFACS** (Dog Facial Action Coding System, www.animalfacs.com), a tool that allows to objectively record detailed facial movements.

Finally, the researchers asked the dog owners to rate how generally expressive they thought their dog was on a scale from 1 to 10. These **subjective ratings** were then compared with the objective DogFACS measurements to evaluate how accurate owners were in judging their dog's expressiveness.

What the researchers learned about canine facial communication

Dogs with plain faces were more expressive and their owners were better at judging their expressiveness

Dogs with simpler facial colour patterns showed more facial movements. Although this relationship between a dog's facial markings and expressiveness was statistically significant, it relatively small. Moreover, owners of plain-faced dogs tended to be more accurate in judging their pet's expressiveness. About 48.5% of all owners' ratings closely matched the objective DogFACS measurements. Yet, those owners with dogs that had less complex facial patterns were overall better at judging how expressive their dogs actually were.

So plain-faced dogs not only *seem* more expressive to humans but also potentially *objectively produce* more facial movements. This makes them probably easier for humans to "read". With fewer facial markings, it is probably simpler to notice subtle movements, such as a slight eyebrow raise or ear movement. However, the researchers also noted that facial markings don't reduce a dog's actual ability to make facial expressions—dogs with more complex markings can still make the same facial movements as plain-faced dogs. However, these markings might make it harder for humans to notice subtle expressions, meaning that while a spotted or masked dog might be just as expressive, you may need to pay closer attention to notice their facial signals.

The evolutionary perspective

These findings reflect broader evolutionary patterns seen in some other species, such as certain social primates, where plain faces are associated with enhanced communication.

For dogs, this research also ties into a bigger question: How have domestication and selective breeding influenced the way dogs communicate with us? In dogs, facial features have been shaped primarily through selective breeding rather than natural evolution. Unlike their wild relatives, wolves, dogs have been bred for specific roles—such as herding, hunting, and companionship. Could the physical features that make some breeds more suitable for certain tasks also influence their expressiveness? The study provided insights into these questions which could help strengthen the human-dog bond. It suggests how human-driven selection has influenced not only the appearance of dogs but also their capacity for communication. The results highlight an instance of convergent evolution, where similar traits develop independently in different species to meet comparable communication needs.

Context, age, and training influence dogs' facial expressions

But the researchers didn't stop there and explored how other factors influence a dog's facial expressions. They found that **context** affected expression**.** Dogs didn't show facial movements equally in all tested situations. They were more expressive when owners used familiar words compared to when spoken to using neutral or unfamiliar words. This suggests that dogs adjust their facial expressions to the type of interaction they're having with their owner.

Also **training had an effect on expressiveness**. Trained dogs, especially those with advanced skills, were slightly more expressive in their faces than untrained dogs, though the difference was relatively small. Nonetheless, this suggests that training may play a role in encouraging dogs to use facial expressions, possibly because trained dogs are more accustomed to interacting with humans.

Apart from training, also **age influenced the dogs' facial expressiveness**. Adult dogs were generally more expressive than senior dogs. This could be due to age-related factors, reduced physical mobility or changes in communication styles as they age.

By better understanding these elements, dog owners, professionals, and veterinarians can improve their interpretation of canine communication. This knowledge is crucial for enhancing everyday interactions, improving training outcomes, and ensuring the overall well-being of our dogs.

Practical takeaways for your communication with your dog
1. **If your dog has a plain face**: Dogs with simpler facial markings tend to be easier to "read." However, if your dog has more complex facial features, don't worry—they're likely just as expressive. You might need to pay closer attention to more subtle facial and body language cues to fully understand what they're communicating.
2. **Use familiar words to engage your dog's expressions**: Dogs seem to be more expressive when they heard familiar words they recognize. If you want to see more expressive reactions, use words and phrases they know and enjoy—like their name or a favourite verbal cues to elicit richer responses.
3. **Training can improve communication**: If you want to enhance your dog's expressiveness and communication, consistent training may help improve how they communicate and respond to you.
4. **Adjust expectations with age**: Older dogs may still be communicating, even though it's not that obvious. Be mindful of subtler signals and take their age into account when interpreting their behaviour.

This study highlights that dogs communicate with us in remarkable ways. Even something as simple as facial markings can affect how well we understand their expressions. Whether your dog has a plain face or a more complex pattern, their facial expressions are a key part of how they connect with you. By paying close attention to these cues—and maybe incorporating training—you can strengthen your bond and better understand what your dog is trying to tell you.

So, the next time your dog looks up at you with those big, expressive eyes, remember: there's a lot more going on behind that look than you might realize!