MICRON

DOGNITION REPORT - MAY 12, 2025

Dognition®

A SMOOTH OPERATOR, THE CHARMER RELIES ON HIS SECRET WEAPON - YOU.

Micron can work a problem out on his own as well as anybody, but he prefers to rely on his secret weapon - you. As a Charmer, Micron has exceptional social skills, which means he can read your body language like a book. He is not above using this information to get his own way. Micron is no fool when it comes to independent problem solving, and his scores reflect a keen understanding of the physical world. However, Micron's real genius is that he sees you as an ally and partner, and he will usually turn to you for help before trying to figure out a problem on his own.

THE DOGNITION PROFILE

Usually, when you get test results, you see a score that means you either passed or failed. To compare your results to someone else, you see who got the higher score. This is why your dog didn't take a test. Instead, you played a series of games together - and when you play a game there is more than one way to win. Success often comes from playing to your strengths.

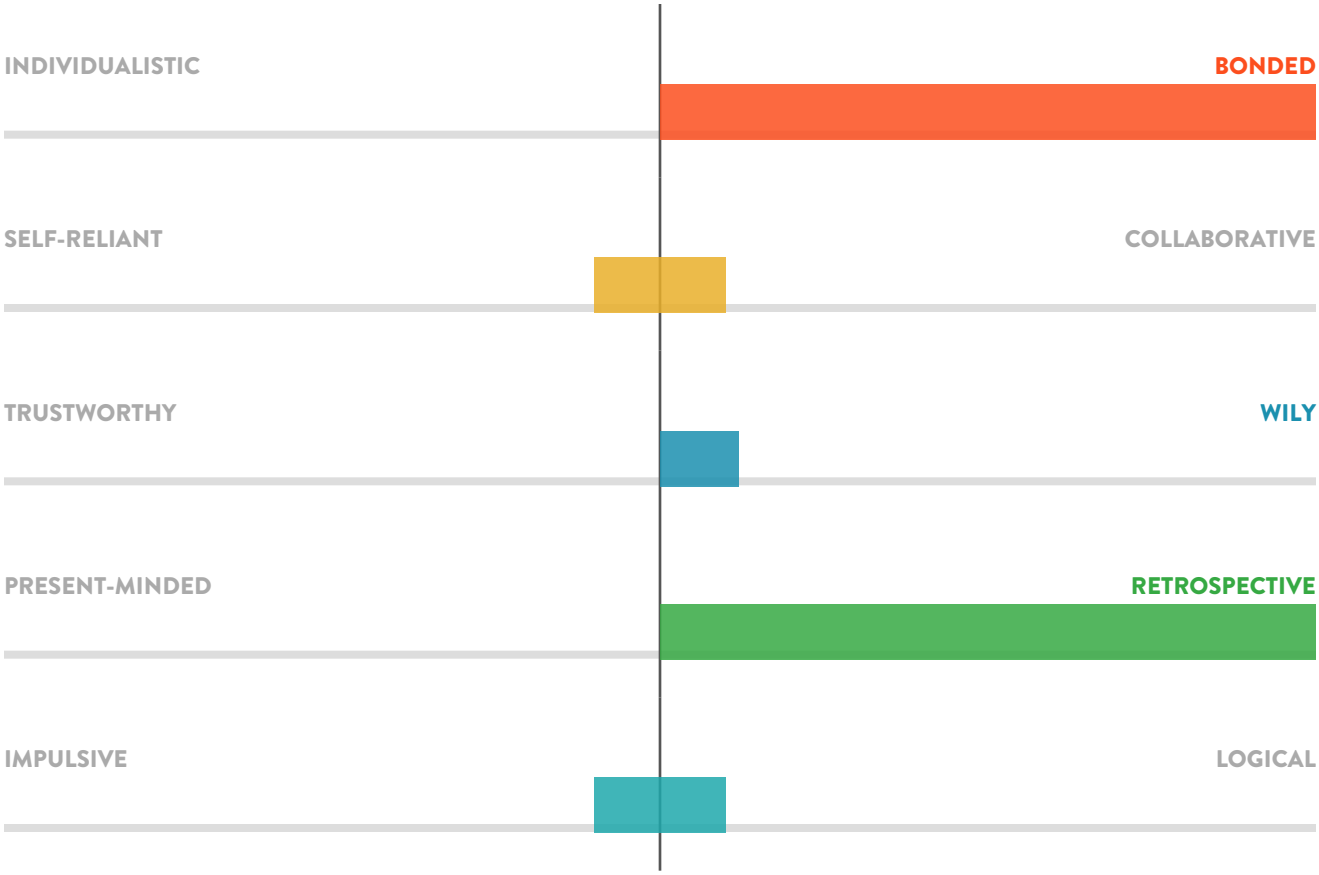
There has recently been a revolution in how we think about intelligence. The Dognition Profile is based on this cutting-edge field called cognitive science. Cognition is the study of how the mind works and draws on many scientific disciplines, from psychology to computer science to neuroscience.

By studying animals, cognitive scientists have made three important discoveries:

> Animals use many types of cognition to survive (learning skills from others, remembering the location of food, inferring the solution to a new problem or deceiving others during competition).
>
> Different animals rely on different cognitive strategies. Asking if a crow is more intelligent than a dolphin is like asking whether a hammer is a better tool than a saw. Each animal has strategies to solve a unique set of problems.
>
> Just because an animal tends to use a certain strategy to solve specific problems doesn't mean he or she will always apply that strategy to all types of problems. Animals rely on a toolbox of strategies that depend on a variety of factors. Dognition gives you insight to the most significant tools that your dog will use on a daily basis to interact with you and the world.

Based on these findings, the Dognition Profile looks at five cognitive dimensions. Rather than counting correct and incorrect answers, the Dognition Profile identifies your dog's cognitive style, and the strategies he relies on to solve a variety of problems. Using this revolutionary new science, the Dognition Profile will give you an unprecedented window into the workings of Micron's mind and reveal his particular genius.

COGNITIVE DIMENSION RESULTS



EMPATHY - Reading and responding to the emotions of others

COMMUNICATION - Using information from others to learn about the environment

CUNNING - Using information from others to avoid detection

MEMORY - Storing past experiences to make future choices

REASONING - Inferring the solution to new problems

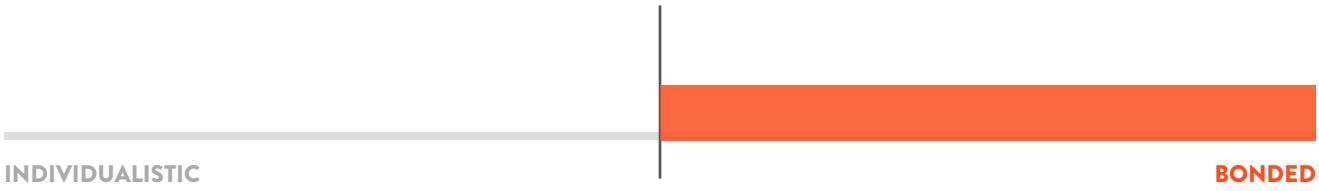
EMPATHY

Micron's empathy scores were off the charts. Empathy is the ability to feel what someone else is feeling. Humans are extremely empathetic; it is one of our best qualities. Empathy is not something we are taught; it is present even in young children, growing and strengthening as we get older.

Researchers have recently suggested that other animals also have empathy, or at least a basic form of empathy. If this is true, dogs are an ideal place to look. Humans and dogs go back thousands of years - enough time for the bond between us to develop into something special.

You may be interested to know: initial results seem to suggest that large dogs like Micron are generally more bonded than small dogs. If most dogs are bonded to their owners, Micron absolutely adores you.

FIG.1



Playing and interacting with your dog like you did in the Dognition games increases your oxytocin, the hormone responsible for feelings of pleasure, bonding, and affection.

YAWN GAME

In this game, you yawned and recorded whether Micron yawned in response. Yawning in dogs can be an indicator of stress, but we were measuring something different - social yawning. The rationale behind this game is that even as young children, we laugh when we see someone laughing, and we cry when we see someone in distress. Our ability to "catch" the emotions of others is called emotional contagion. A common form of emotional contagion is yawning. If you see, hear or even think about someone yawning, you will probably feel an irresistible urge to yawn.

Micron did not yawn in response to your yawn, but this is not surprising. Although dogs are one of the few species besides humans that contagiously yawn, there is variation among dogs. Data from several research groups shows differing results, but our preliminary data shows that only 20% of dogs yawn contagiously.

Recent studies have shown that dogs only catch yawns from humans, not other dogs.

EYE CONTACT GAME

In this game, you timed how long Micron held your eye contact. Before babies can hug or speak, they use eye gaze to bond with their mothers. Research with dogs has shown that a similar phenomenon may happen with owners and dogs. Owners whose dogs stared at them for longer had significant increases in the hormone oxytocin. Oxytocin, also known as the "hug hormone," is related to feelings of bonding, pleasure and affection.

Judging by the extraordinary length of time Micron spent gazing soulfully into your eyes, you probably often find him staring at you for no reason. You might wonder if Micron is trying to tell you something, like he is hungry, needs to go to the bathroom or has an opinion on what to do over the weekend. But Micron may not want or need anything - he may be just hugging you with his eyes.

Dogs can even be better than aspirin. Children in a hospital reported that their pain was four times less when they played with a dog than when they spent the same time relaxing.

COMMUNICATION

Communication is the foundation of many relationships, including our relationship with dogs. It's easy to take for granted that our dogs seem to read us like a book, but this ability is rare in the animal kingdom. Of all the species that have been studied, dogs are the champions at using our communicative gestures. Even chimpanzees, who are one of our closest living relatives, do not rely on human gestures as much as dogs do. Instead, chimpanzees try to figure out these types of problems on their own. Dogs are more like human infants who start using gestures as they begin learning language.

It looks like Micron tended to switch back and forth between collaborative and self-reliant strategies. Sometimes he followed your communicative gestures, but sometimes he chose to ignore them. This could be because Micron either struggles to read your cues, or because there was a treat in both places and Micron didn't feel the need to look to you for help.

FIG.2

ARM POINTING

Although the pointing game may have seemed simple, the skills it requires are quite specialized. Dogs are one of the only animals that rely on human gestures - but even among dogs there is variation. Some dogs are more like infants and rely heavily on our communicative gestures, while other dogs are more like chimpanzees and try to solve problems on their own without our help. Micron seems to use a mixed strategy. Because Micron could see food in both places, he didn't really need your help, but occasionally chose to follow your gestures anyway.

By no means did Micron do badly on this game; in fact, he developed quite a clever strategy. He developed a right or left side bias, meaning when he didn't know which side was correct, he went to one side every time. This is pretty clever, because 50% of the time he was correct.

FOOT POINTING

Just like in the hand pointing game, Micron thought he had better cover all his bases by sometimes choosing the treat you pointed at and sometimes striking out on his own.

Micron probably does not see you point with your foot very often, so this game was a way of seeing how flexibly Micron can read new gestures. Giving animals a new version of a problem they have seen before is a common tactic used to reveal what strategy they are using to solve a problem.

Although Micron did not follow you every time, he may have sensed your communicative intent, and would probably not need much practice to start using a range of new gestures.

Many dogs tend to ignore unintentional cues from humans. The most effective way to communicate is to call the dog's name, make eye contact, then point and look in the direction of the object.

CUNNING

In the Cunning games, you placed a treat in front of Micron and let him know not to take the treat. You then showed Micron three different attentional states -- watching, turning your back, and covering your eyes.

In order to be at either end of this cognitive dimension, trustworthy or wily, Micron must show that he can tell when you are looking, and use this information when deciding when to go for the treat. In this case, Micron's decision did not change no matter which attentional state you presented; he waited roughly the same amount of time in each trial.

This doesn't mean that Micron can't be trusted, it just shows us that there are other internal factors influencing Micron's decision.

FIG.3

When it comes to begging, dogs prefer to be sure you're paying attention. In one study, dogs preferred to beg from a person who was looking at them rather than someone wearing dark sunglasses.

MEMORY

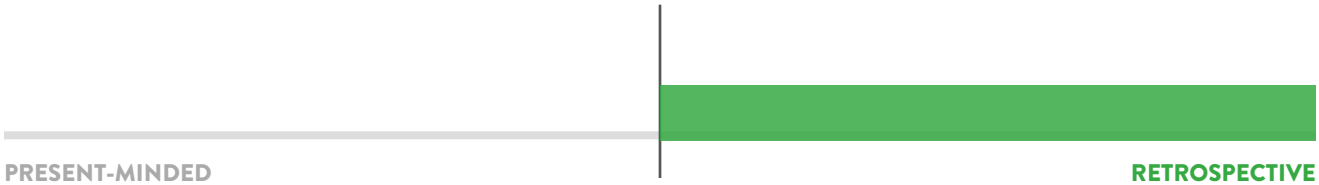
Micron has an amazing working memory, which is a type of memory that allows your dog to keep information in mind for a few minutes and mentally manipulate it. This may sound simple, but working memory is crucial for any kind of problem-solving. In humans, working memory has been found to correlate with skills in learning, math, reading, and language. Researchers have even found some evidence that in children, working memory is more predictive of academic success than IQ.

In these memory games, Micron had to understand that the treat continued to exist, even though it had disappeared from view. In the wild, this ability is essential. Animals have to keep track of mates, predators, and prey that might disappear momentarily behind a bush or a rock.

If Micron is an avid fetch player, you've probably noticed that no stick or ball escapes for long. Micron skillfully searching for an object that has briefly disappeared is a perfect example of him using his working memory to solve a problem.

For Micron, out of sight is definitely not out of mind.

FIG.4



Most dogs can remember their mothers even if they haven't seen them for two years. However, they can't remember their brothers and sisters after a similar separation.

MEMORY VERSUS POINTING

In this game, Micron saw you put the treat under one cup, but point to the other cup. Micron preferred to rely on the information in his working memory rather than what you pointed to. Even though you gave Micron misleading information, he remembered where the treat was and chose to ignore you. This shows an independent thinker; you should be aware that in other situations Micron might not listen to you if he thinks you are wrong.

Despite being genetically similar, dogs and wolves make opposite choices in this game. This difference may be behind why we love dogs so much.

MEMORY VERSUS SMELL

Since dogs have such a keen sense of smell, you may have been surprised that after you switched the cups, Micron used his memory over his sense of smell. He went to where he remembered seeing the treat hidden, rather than sniffing out where the treat was.

Because a dog's nose can sniff everything from narcotics to cancer, whenever we run a study where we hide a treat under one of two cups, the first question people always ask is, "Can't my dog just smell the food under the cup?" It was certainly our first question, but extensive research by half a dozen independent research groups has concluded that dogs do not rely on their sense of smell to find the food in these games.

If dogs were using smell, they would go directly to the cup with the hidden food. In fact, these studies found that dogs only choose the correct cup around half the time - which means they are guessing. Dogs do have an excellent sense of smell and can probably detect food if allowed to sniff both cups before choosing. But when you study their first choice, they cannot localize the food to a specific cup from a distance of six feet away.

One study found that to successfully track a person's direction of travel, tracking dogs need at least five sequential footsteps.

DELAYED CUP GAME

This game was a perfect demonstration of Micron's excellent working memory. After you hid the treat Micron had to retain the information for up to two and a half minutes before making a choice.

This skill comes in handy in the wild. Feral dogs tend to be endurance hunters, slowly wearing down their prey. During the chase, the prey may not always be in direct sight, and feral dogs have to remember where their prey was last seen and predict where they might reappear.

In these kinds of memory games, most cats quickly start to forget where an object is after only 10 seconds, while most dogs are still able to show success for up to 4 minutes.

REASONING

Micron is the kind of dog that likes to see all the pieces before he solves the puzzle. Reasoning is the ability to solve a problem when you can't see the answer and have to imagine the solution.

Micron scored more towards the impulsive end, which means he doesn't get caught up in the details - especially details that aren't right in front of him. There is no shame in this. The reasoning games are the most difficult in the Assessment and most dogs find them extremely challenging.

From Micron's performance in the Communication dimension, he relies on you for help when making decisions. He obviously sees you as his best bet when solving a problem.

FIG.5

Some studies show dogs are better at solving complex puzzles when humans are not around. When humans are around, dogs look to us for help rather than solving it themselves.

INFERENTIAL REASONING GAME

This was probably the most difficult game, and Micron's performance was excellent. In this game, we presented Micron with a problem and you provided some, but not all, of the information needed to solve it. When you showed Micron the empty cup, you were providing indirect information on where the treat was - he had to make an inference that because that cup was empty, the treat must be in the other cup.

Just because Micron did not choose the cup with the reward, it doesn't mean that he failed. In fact, this shows a strongly cooperative nature. By lifting up the empty cup, you were actually drawing attention to it, and Micron preferred to choose this cup over the other. Micron views you as a cooperative partner and assumed that you were trying to help him by showing him the correct cup.

Ravens and crows have been shown to have incredible reasoning abilities that surpass dogs, and even rival some human children. But when it comes to being our best friends, dogs still take the cup.

PHYSICAL REASONING GAME

In this game, Micron demonstrated an excellent understanding of a fundamental property of the physical world - that one solid object cannot pass through another solid object.

Micron had to infer that a piece of paper on an angle meant that a treat was hidden behind it. This talent would come in handy in the wild, since animals often have to keep track of objects that become hidden. To find these objects, animals have to maintain a representation of the object and predict where it might appear.

Humans intuitively understand basic physical phenomena like the solidity principle - it looks like Micron does too.

Even though many dogs may struggle with physical properties like gravity, this doesn't stop them from thoroughly enjoying a game of fetch.

NEXT STEPS

We hope you've enjoyed reading Micron's Dognition Profile and gaining fresh perspective on how he sees the world!

You can fill your friends in on what you've discovered about Micron very easily. Download and email or print Micron's profile report any time from your portal.

Of course, these five cognitive dimensions are only part of the picture; the magic of your relationship with Micron is how you spend your time together. To that end, a Dognition membership gives you on-going games and tips that will help provide even more insight into what makes Micron tick and how to act on that information.

As a member, each month you'll receive:

- A new game that will shed light on another aspect of how Micron thinks and sees the world.

- Tips and activities prepared for Micron from canine training experts based on how Micron sees the world.

- Exclusive offers from Dognition partners, including brands such as Kong and Purina ONE.

- New findings about how all dogs think and how Micron's strategies compare.

At the same time, by contributing to Dognition you and Micron are helping to build the world's knowledge about all dogs. This allows us to tackle fresh questions -- how do certain breeds think compared to others? To what extent do memory skills decline by age? Are female dogs any more empathic than male dogs? And many more!

What questions would you like answered? We'd love any feedback on that or anything else related to Dognition. Contact us any time at hello@dognition.com.

Woof!

The Dognition Team

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