

Yes, your dog can understand what you're saying—to a point

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Credit: AI-generated image ([disclaimer](#))

Humans are unique in their ability to develop sophisticated language abilities. Language allows us to communicate with each other and live in complex societies. It is key to our advanced cognitive abilities and technological prowess.

As a developmental psychologist, I have extensively studied the [role of language in children's cognitive development](#), especially their [executive functions](#)—the cognitive skills that allow them to control their behavior, plan for the future, solve difficult problems and resist temptation.

Executive functions

The [development of executive functions](#) occurs slowly over the course of childhood. As they get older, children get better at organizing their thoughts and controlling their behaviors and emotions. In fact, humans are the only known species to develop advanced [executive functions](#), although other species like [birds](#), [primates](#) and [dogs](#) have rudimentary [executive](#) functions similar to young children.

In humans, our ability to develop [executive functions has been linked to our language development](#). Language permits us to form and hold representations of our goals and plans in mind, allowing us to govern our behavior over the long term.

What is not clear is whether [language](#) actually causes the emergence of executive functions, and whether the relation between language and executive functions exists only in humans.

Canine behavior

For humans, studying dogs offers the perfect opportunity to consider these questions. First, [dogs possess rudimentary executive functions](#). These can be measured in a variety of ways, including [asking owners](#) about their dogs' ability to control their behaviors, as well as [behavioral tests](#) designed to assess dogs' control abilities.

Second, not only do we expose dogs regularly to human language, but

research also indicates that dogs can [perceive different words](#) and can learn to respond to [specific words](#). For example, three dogs—two border collies named [Chaser](#) and [Rico](#), and a Yorkshire terrier named [Bailey](#)—learned to respond to over 1,000, 200 and 100 words, respectively.

However, many dog language studies have been limited in scope, either examining the word-based responses of only one or a small sample of dogs, or the responses of multiple dogs but only to select words.

One exception was a study in which [37 dog owners were asked to list words they believed their dogs responded to consistently](#). Owners reported that their dogs responded to an average of 29 words, although this likely is an underestimation. Indeed, research using a similar free-recall approach with parents shows that they are [prone to forget many words when asked to generate lists of words to which their babies respond consistently](#).

Communicating with dogs

Research with human infants does provide a solution for systematically and reliably assessing word-based responding in large samples of dogs. Arguably the best and most widely used measure of early [language abilities](#) of infants is the [MacArthur-Bates Communicative Development Inventories](#), a parent-report checklist of words responded to consistently. Remarkably, the number of words selected on the MacArthur-Bates Communicative Development Inventory predicts children's [language development years later](#).

In 2015, I began a collaboration with psychologist Catherine Reeve, at the time a graduate student working on dogs' scent detection abilities. Our goal was to develop a similar measure of vocabulary for use with dog owners that we could then use to examine links between language and executive functions.

We developed a list of 172 words organized in different categories (for example, toys, food, commands, outdoor places) and gave it to an online sample of 165 owners of family and professional dogs. We asked them to select words that their dogs responded to consistently.

We found that, on average, [service dogs respond to about 120 words, whereas family pets respond to about 80 words, ranging between 15 to 215 words across all dogs](#). We also found that certain breed groups, such as herding dogs like border collies and toy dogs like chihuahuas, respond to more words and phrases than other breed types like terriers, retrievers and mixed breeds.

What we don't yet know is whether dogs who respond to more words also have better executive functions. We recently assessed 100 dogs on a behavioral measure of executive functions and had their owners identify words on our vocabulary checklist. We are now analyzing the results.

I first became interested in studying dogs to see what they might tell us about child development. That said, this research might also provide important practical information about dogs. For example, it is very expensive to train puppies for service work and many do not make the final cut. However, if early word-based responding abilities predict later behavioral and cognitive abilities, our measure could become an early and simple tool to help predict which [dogs](#) are likely to become good service animals.

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