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Title
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Permalink
https://escholarship.org/uc/item/5ds627kp

Journal
International Journal of Comparative Psychology, 38(1)

ISSN
0889-3667

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Publication Date
2025-11-17

DOI
10.46867/ijcp.47306

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INTERNATIONAL JOURNAL OF COMPARATIVE PSYCHOLOGY

2025, 38
Charles I. Abramson
Editor
Peer-reviewed

Dog Button Communication: Training Experiences and Educational Implications

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This paper reviews the effectiveness and application of communication buttons as a means of interaction with domestic dogs (*Canis familiaris*), based on the personal experiences of users. The results showed that dogs are capable of communicating through buttons, expressing their needs, and forming multi-word phrases. The highest success rate was observed in medium and large breeds between the ages of 6 months and 5 years. Nearly half of the dogs learned to use their first button within a week, although button spamming behavior was also observed in some individuals. Statistical analysis revealed that dogs preferred specific word categories (particularly activity/place and reward), although differences in the intensity of usage between categories were not statistically significant due to high variability within groups. The ability to combine words into more complex expressions was observed in approximately half of the dogs. The findings also suggest that independent button use can sometimes lead to less purposeful patterns, such as repeatedly pressing buttons ("spamming").

Keywords: button communication, dog training, interspecies interaction, soundboard learning, teaching demonstration

イヌのボタンコミュニケーション：訓練経験と教育的示唆

本論文では、使用者の個人的な経験に基づき、家庭犬（*Canis familiaris*）との相互作用の手段としてのコミュニケーションボタンの有効性と応用についてレビューする。その結イヌには、ボタンを通じてコミュニケーションを取り、自分の要求を表現し、複数の単語からなるフレーズを形成する能力があることが示された。最も高い成功率が観察されたのは、生後 6 ヶ月から 5 歳までの中型犬および大型犬であった。ほぼ半数のイヌが 1 週間以内に最初のボタンの使用を習得したが、一部の個体ではボタンを繰り返し押す行動（スパミング）も見られた。統計分析の結果、イヌは特定の単語カテゴリ（特に活動・場所や報酬）を好むことが明らかになったが、グループ内でのばらつきが大きいため、カテゴリ間の使用頻度の差は統計的に有意ではなかった。約半数のイヌで、単語を組み合わせてより複雑な表現を作る能力が観察された。また、本研究の知見は、自発的なボタンの使用が、目的のないパターン（ボタンを繰り返し押す「スパミング」など）につながる場合があることも示唆している。

キーワード：ボタンコミュニケーション、イヌのトレーニング、異種間相互作用、サウンドボード・ラーニング、訓練デモンストレーション

Comunicación mediante botones en perros: experiencias de entrenamiento e implicaciones educativas

El presente artículo examina la eficacia y la aplicabilidad de los botones de comunicación como medio de interacción entre perros domésticos (Canis familiaris) y seres humanos, a partir del análisis de experiencias reportadas por los usuarios. Los resultados indican que los perros son capaces de utilizar estos dispositivos para comunicarse, expresar necesidades y construir combinaciones léxicas de varias palabras. La mayor tasa de éxito se observó en razas de tamaño mediano y grande, con edades comprendidas entre los 6 meses y los 5 años. Cerca de la mitad de los perros aprendieron a emplear su primer botón en el transcurso de una semana, aunque en algunos casos se registró un comportamiento de pulsación indiscriminada. El análisis estadístico reveló una tendencia hacia la preferencia por determinadas categorías léxicas (en particular, aquellas relacionadas con actividades, lugares y recompensas); no obstante, las diferencias en la frecuencia de uso entre categorías no alcanzaron significación estadística, debido a una elevada variabilidad dentro de los grupos. Se observó que aproximadamente la mitad de los individuos demostraron la capacidad de combinar palabras en expresiones de mayor complejidad. Los hallazgos también sugieren que el uso autónomo de los botones puede, en determinadas circunstancias, dar lugar a patrones de interacción menos intencionales, como la pulsación repetitiva ("*spam*").

Palabra clave: botones de comunicación, adiestramiento canino, interacción entre especies, aprendizaje mediante tablero de sonidos, demostración didáctica

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The behavior of animals and the psychological questions arising from it date back to Charles Darwin, Alfred R. Wallace, and the theory of evolution (Gordillo-García, 2016). Comparative psychology, as a scientific discipline, has its roots in the 19th century, emerging from the work of early evolutionary theorists and naturalists. The historical development and origin of the term have been extensively reviewed by d'Isa and Abramson (2023).

The work of Darwin and Wallace was further developed by evolutionary biologist and physiologist George J. Romanes, whose controversial ideas included the notion of intelligence among members of the animal kingdom, and Edward L. Thorndike, who introduced experimental methods into the study of animal psychology (Thorndike, 1898). In the 20th century, interest in studying animal behavior using new methodologies increased. The influence of Russian physiologist and psychologist Ivan P. Pavlov and other physiologists led many psychologists to attempt redefining psychology (Miller, 2003). In Europe, the focus was on studying complex animal behavior and observing animals in natural settings. A prominent figure of this time was Nikolaas Tinbergen, who played a key role in defining the field of ethology (Shettleworth, 2012).

Comparative psychology has employed diverse behavioral paradigms across species to gain a deeper understanding of cognitive and neural mechanisms. However, it is important to note that the term "cognition" is problematic, as it has been defined in multiple, often inconsistent ways (Abramson, 2013). For example, Lilley et al. (2020) studied visual laterality in dolphins, demonstrating hemispheric specialization in response to different stimuli. Such research complements studies on learning and communication by highlighting the diversity of approaches used to investigate animal behavior.

The 1930s brought attempts to compare the development of humans with that of chimpanzees and sparked the emergence of animal language studies (Smith et al., 2023). The second half of the 20th century saw a decline in behaviorism and a rise in cognitive psychology. The 1970s were pivotal, as in 1973 the Nobel Prize in Physiology or Medicine was awarded for the first time to ethologists: zoologist and ornithologist Konrad Z. Lorenz, zoologist Karl R. von Frisch, and zoologist Nikolaas Tinbergen (Miller, 2003).

During the 1970s, communication studies primarily focused on chimpanzees and other primates, utilizing sign language and mechanical devices such as keyboards, lexigrams (symbols representing words), and magnetic aids (Gardner & Gardner, 1969; Hillix & Rumbaugh, 2004). In addition to primates, research also focused on cetaceans, pinnipeds, and parrots, targeting their abilities to produce and comprehend speech and gestures, taking into account species-specific advantages. More recently, the study of animal language has taken a new form and attracted attention not only from researchers but also from social media and the public. In the United States, the use of buttons and bells has become popular among pet owners as a direct means of communication (Smith et al., 2023).

The dog is one of the most popular domestic animals. It is not born inherently friendly toward humans but rather with predispositions for forming a bond (Savalli & Mariti, 2020). Contact with humans and other animals has the greatest impact on future behavior toward different species, particularly when a puppy is exposed to such stimuli during the critical socialization period between three and eleven weeks of age (Bradshaw, 2012).

Oxytocin is the primary hormone associated with intraspecies and interspecies bonding and prosocial behavior (Menor-Campos et al., 2023). Studies show that dogs' oxytocin levels in the presence of their owners are up to four times higher compared to when they are with other humans, suggesting that the presence of the owner and feelings of affection may trigger the release of this hormone (Akiyama & Ohta, 2021). Similarly, dogs demonstrate different behavior and learning abilities in the presence of their owners versus strangers (Marshall-Pescini et al., 2019; Prato-Previde et al., 2003).

Learning is commonly understood as changes in behavior resulting from experience, though such definitions can be problematic. De Houwer et al. (2013) instead define learning as ontogenetic adaptation, changes in behavior shaped by environmental regularities, arguing that this functional view overcomes prior limitations and benefits cognitive learning research. A simple form of learning is habituation, where repeated exposure to a stimulus results in a diminished response. In contrast, sensitization intensifies the reaction (Çevik, 2014). Social learning, or learning through observation or interaction with others, forms the basis of the "Do as I do" training method, where a dog imitates the actions of a trainer or another dog (Fugazza et al., 2018). In practice, some form of conditioning is the most common form of training. It is a learning process based on forming associations between two or more stimuli. Classical (Pavlovian) conditioning involves the involuntary association of a neutral stimulus with a significant one. Over time, the dog reacts to the formerly neutral stimulus in the same way as to the important one. Operant conditioning, on the other hand, involves forming associations between the dog's voluntary behavior and its consequences. Positive outcomes reinforce the behavior, while negative consequences discourage it (NPSA, 2021).

The principles of learning and conditioning have been studied across a wide range of species using diverse experimental models. For example, Abramson et al. (1988) demonstrated signaled avoidance learning in green crabs, while Abramson and Buckbee (1995) explored pseudoconditioning phenomena in earthworms, supporting non-associative explanations for some classical conditioning effects. These studies illustrate the diversity of approaches in comparative psychology and provide important foundational knowledge for understanding learning processes across species.

There are four types of operant conditioning: positive reinforcement, negative reinforcement, positive punishment, and negative punishment (Blackwell et al., 2008). Today, positive reinforcement, rewarding desired behavior, is the most widely supported method. Aversive methods and punishments have been scientifically proven to be largely ineffective and detrimental to animal welfare (Vieira de Castro et al., 2020).

Dogs generally communicate through visual, olfactory, and acoustic channels (Siniscalchi et al., 2017). These different forms allow them to communicate effectively within their species and interspecifically. Dogs have a unique ability to interpret human communicative signals and consider their referential nature, which indicates the sender's intention. This sensitivity is comparable to that of infants (Téglás et al., 2012).

As a result of their sensitivity to human behavioral patterns and body language, dogs can distinguish which of the many cues are directed at them (Topál et al., 2014). They follow human gaze and use their experience to judge what a human sees (Bräuer et al., 2013). They interpret body and head orientation and the person's attentional state (Virányi et al., 2004); they can discern where a person is focusing their attention and adjust their behavior accordingly (Savalli et al., 2013). Dogs, like humans, recognize individuals based on facial features, especially eyes. Their integration into human society and their ability to interact well with our species continues to drive interest in better understanding and exploring ways of communication (Hunger, 2021).

Devices for Interspecies Communication

Recently, devices and tools have been developed to mediate communication with various animal species. These devices are generally categorized under the methodology of Augmentative Interspecies Communication (AIC). These are predominantly tools inspired by devices from Augmentative and Alternative Communication (AAC), originally developed and used to replace speech production in humans with speech impairments. AIC devices were introduced into animal studies primarily to address the inconsistency of signals and gestures directed at animals, as well as unintentional cues caused by human body language (Wynne & Udell, 2021).

One potential barrier of AIC, and a subject of ongoing discussion, is the ability to label individual elements, arrange them into sentences, understand their order and hierarchy, and grasp sentence semantics (Wynne & Udell, 2021). Primates were among the first model organisms tested for the use of communication devices. Later, these tools were also applied in studies involving pigeons, rodents, cattle, dogs, and cats. The target groups today include not only domesticated animals but also wild animals and zoo animals (Smith et al., 2023).

Currently, the focus of AIC technologies is shifting away from the original goal of analyzing animals' communication abilities toward enhancing animal welfare. A new field called Animal-Computer Interaction (ACI) has emerged (Mancini, 2011). The main difference between AIC and ACI lies in the nature of communication: with ACI, the animal (or its handler) selects from a set of symbols, but two-way communication is not necessarily required (Smith et al., 2023).

Enabling animals to communicate strengthens the bond between them and humans, positively impacting their welfare and improving both their quality of life and life expectancy (Byrne et al., 2017; Hirskyj-Douglas et al., 2021; Ruge et al., 2018). In recent years, there has been a significant rise in the popularity of a particular communication tool known as "talking buttons." The originator of talking buttons for animals is speech-language pathologist Christina Hunger, who developed the system with her dog, Stella, a mix of Catahoula Leopard Dog and Australian Cattle Dog. Inspired by her work with children with speech and pronunciation disorders, Christina created buttons to help dogs better express their needs and desires, similarly to the assistive technologies used for humans (Hunger, 2021).

Several commercially available talking button systems are currently available for training animals to communicate with humans. Table 1 provides an overview of selected manufacturers and their products, including website links and current retail prices, which may be useful for both practitioners and researchers interested in replicating or expanding such work to other species.

Table 1

Examples of Commercially Available Talking Button Systems for Animal Communication

Company	Product	Website	Price (EUR)
Buyvikay	Multi-colored Dog Button with Rubber Mat	odkarla.sk	21.69
Dog Talk	Recordable Training Buzzers	amazon.co.uk	23.79
Hunger for Words	Talking Pet Essential Words	amazon.co.uk	42.23
Buyvikay	Set of 6 Color Dog Buttons	amazon.co.uk	35.69
Tescher	Recordable Training Buttons for Dogs	amazon.co.uk	23.79
FluentPet	Gen 1 Kits	fluent.pet	32.95
Hunger for Words	Talking Pet Starter Set	learningresources.com	31.99

Note. Prices for individual devices may vary depending on the retailer. This table is provided for research purposes only and does not constitute any form of commercial endorsement. Its primary aim is to assist researchers in replicating the study or conducting similar experiments.

The principle behind the buttons aligns with other ACI devices functioning as speech mediators. The foundation is associative learning, specifically classical and operant conditioning. Each button can be recorded with a sound that is played when pressed. Pressing the button is often accompanied by a click sound, which further strengthens the association between the sound, the word, the pressing action, and the represented behavior.

Proper use of ACI devices requires a degree of training or preliminary preparation of the individual animal, depending on its nature and the situation. Communication via ACI should not be isolated from the animal's natural communication methods; therefore, correctly interpreting the animal's behavior remains essential (Smith et al., 2023). Observing the behavior of dogs and their use of communication buttons represents a promising advancement in the field of interspecies interaction.

The aim of this study is to provide survey-based data on how domestic dogs learn to use communication buttons to convey specific needs or requests to humans. We focus on identifying patterns in button use, the contexts in which dogs choose to press specific buttons, and the factors that influence learning speed and accuracy. By collecting and analyzing observational data from multiple dogs over a defined period, this research seeks to provide empirical evidence on the effectiveness of such devices in facilitating interspecies communication.

Method

Characteristics of Respondents and Dogs

We distributed a total of 125 questionnaires (Table 3), with 86% (108 respondents) being women. According to Bartlett et al. (2001), a sample size of 118 respondents is sufficient to detect differences. The most represented age groups among respondents were 25–34 years and 35–44 years, with an equal share for each category (28%, 35 respondents each). The sample of dogs consisted of 54% females (70 individuals) and 46% males (59 individuals). Within the sample, most dogs were between 1–2 years old (40%, 52 individuals) and 3–5 years old (33%, 43 individuals), with an even distribution of males and females across these age categories. The numbers of mixed-breed and purebred dogs were also evenly represented. Mixed-breed dogs accounted for 48% (62 individuals). We included "designer breeds" (breeds not officially recognized by the Fédération Cynologique Internationale (FCI) or its partner organizations) in the mixed-breed category. Across both mixed-breed and purebred groups, the majority of dogs were medium- to large-sized breeds (75%, 97 individuals), with Poodles being the most represented breed overall (23%, 30 individuals). On average, dogs began training at 2 years of age and required between 1 to 2 years to learn to use the communication buttons. For 22 dogs, it was reported that other people, usually members of the same household, also used the communication buttons with the dog (Table 2).

Table 2

Characteristics of Respondents and Dogs

Respondents' gender			**Respondents' age**			
Not specified	Men	Women	< 25	25-34	35-44	> 44
5	12	108	10	35	35	45

Dogs' gender		**Breeds**		**Size**	
Male	Female	Purebred	Mixed-breed	Medium and large	Small
59	70	67	62	97	32

Table 3

Questionnaire Items Used in the Study

What is your age (in years)?	Does your learner combine words to create phrases or express the meaning of a new word?
What is your gender?	What combination of buttons (words or phrases) does your learner use most often?
How many pets do you have in your household?	Which buttons (words) do you as an owner or caretaker use most often, if any?
What type of animal is your learner?	Which buttons (words) are available for use but are not being used at all or only scarcely by your learner?
What type of breed is your learner?	The learner presses the buttons independently.
What sex is your learner?	The learner presses the buttons after I ask or model the pressing.
What is your learner's age?	The learner does not use the buttons, but reacts when I press the buttons.
What was your learner's age when they became a part of your family?	The learner responds to my words/buttons by pressing related buttons.
What was your learner's age when introduced to the first button?	The learner responds to my words/buttons by pressing unrelated buttons.
How many active learners do you have in your household overall?	The learner does not use nor react to the buttons.
How many buttons do you currently have set up?	The learner presses multiple buttons to create a phrase or express a meaning of a word that is not available.
How long did it take your learner to use the first button accurately?	The learner presses multiple buttons without any clear connection.
What was your learner's first word learned?	The learner spams buttons (presses them repeatedly to get a reaction).
How many buttons does your learner use/respond to consistently?	Do you take your buttons with you when travelling or relocating your learner for a certain time?
Presently, how long on average does it take your learner to use a new button accurately?	Have you had children interact with your learner using the buttons?
Which buttons (words) does your learner use most often?	What do you see as the biggest advantage of using talking buttons?

To verify the reliability of the research instrument, the method of internal consistency using Cronbach's alpha coefficient was applied. The results indicated good internal consistency of the questionnaire items ($\alpha = 0.845$). The questionnaire was distributed through online platforms (Reddit, Instagram, Facebook, Discord) across various groups focused on communication buttons or animal training, as well as directly to individual users. In households with multiple animals undergoing training, respondents were informed of the necessity to complete a separate questionnaire for each individual animal. Participation in the survey was voluntary and anonymous. The words used by the owners were categorized based on thematic groups (Table 4). Words were classified according to what they described, and attention was also paid to whether they expressed a request by the dog or a description of a situation. A similar approach was used when analyzing owners' opinions on the advantages and disadvantages of using buttons. Data were statistically processed using STATISTICA software (StatSoft Inc., 2011) and Microsoft Excel 365 (Office 365). To test the assumption of a normal distribution of word usage frequencies, the Shapiro–Wilk test of normality was applied. The result ($W = 0.434$; $p < .0001$) confirmed that the distribution was not normal, and therefore the application of non-parametric testing methods was appropriate.

Table 4

Categorization and Ascending Frequency of Commonly Used Training Words

Category	Examples of Words
affection	love you, scratches, brush, cuddle, snuggle
food	food, water, hungry, eat, drink
reward	treat, bone, snack, carrot, cookie
opinion	all done, no, want, yes, later
emotion	happy, mad, angry, sad, yay
members	<name of self>, <name of someone else>, mom, dad
activity/place	outside, play, walk, toy, ball
body parts	belly, paws, tail, neck
observation	come, noise, look, what, stranger
help	help, open, door, ouch
question	hmm?, questionmark

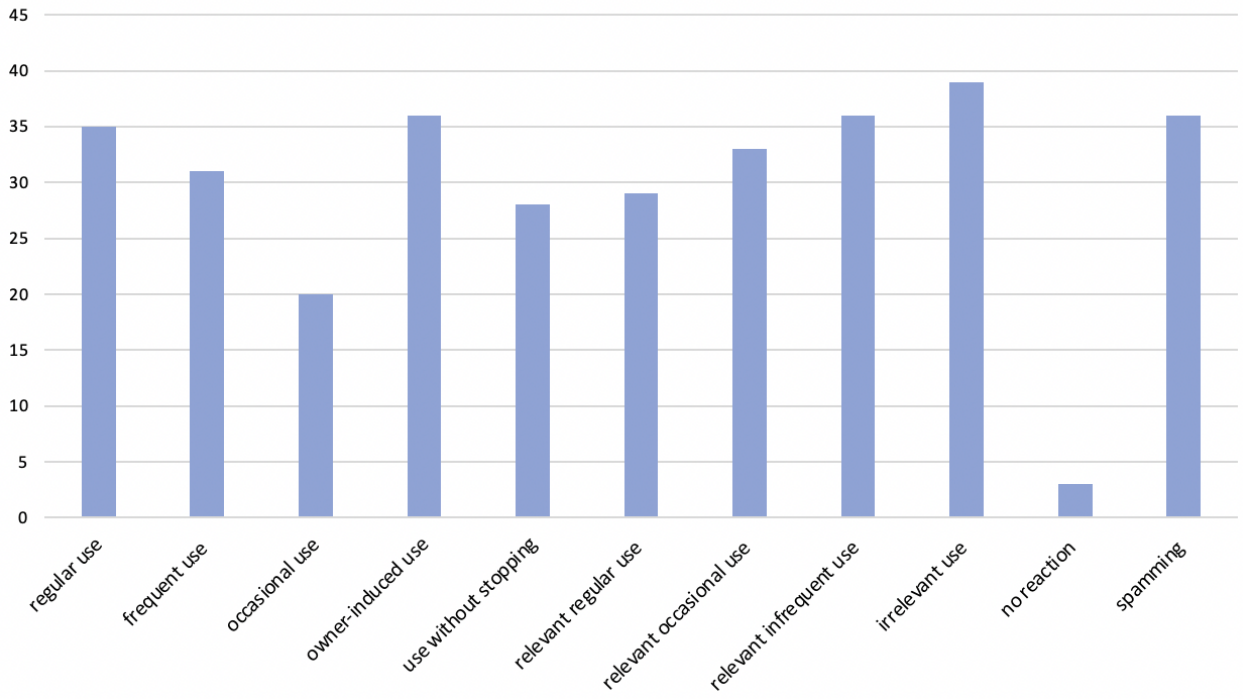
Results

A total of 43% of dogs (56 individuals) learned to use their first button within a few days (a period shorter than one week). The first word most commonly chosen by owners was "outside," which was selected for 43% (56) of the dogs. According to the owners' reports, 35% (45 dogs) always use the buttons independently. Additionally, 31% (40 dogs) use them independently often, and 20% (26 dogs) use them only occasionally. Furthermore, 36% (47 dogs) use the buttons primarily in response to the owner's prompting. In 28% of cases (36 dogs), dogs sometimes reacted to a button cue without actually pressing the button, responding instead with direct actions or body language.

Regarding the meaningfulness of the selected buttons, 29% of the dogs (37 individuals) frequently responded appropriately—either by vocalizing or by pressing the relevant button—and 33% (42 individuals) did so occasionally. The majority of owners reported that irrelevant button pressing in response to a cue was either rare (36%) or did not occur at all (39%). In our sample, every dog achieved at least some level of relevant button use, except for 3% (4 individuals) who did not respond to the buttons at all. Additionally, 36% of dogs occasionally exhibited so-called "button spamming," defined in this study as repeatedly and rapidly pressing the same button without an apparent communicative goal (Figure 1). Using the chi-square goodness-of-fit test, we examined whether the distribution of responses across categories was random or if preferred behavior patterns existed. The results showed a significant deviation from uniform distribution in all analyzed categories ($p < .05$), suggesting that dogs do not behave randomly but show clear preferences in how they use the buttons.

Figure 1

Percentage Evaluation of Button Usage by Dogs



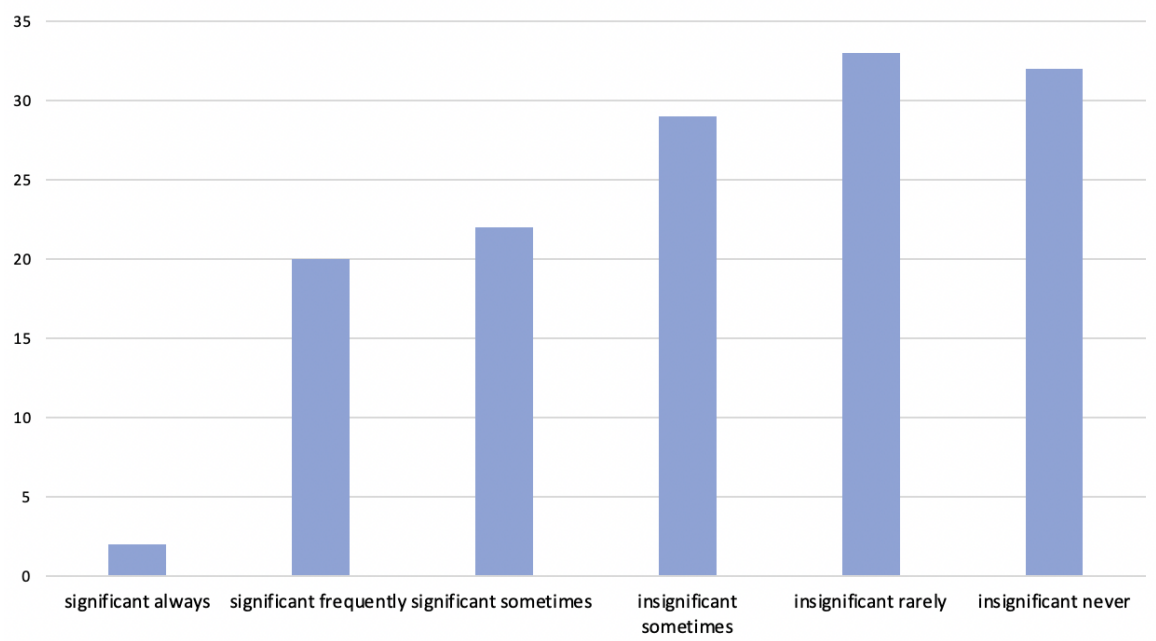
Based on the classification of words into thematic categories (Table 2), the frequency of button usage among dogs was analyzed. The chi-square goodness-of-fit test revealed that button usage across categories was not evenly distributed ($\chi^2 = 6833.67$; $p < .0001$). This result indicates that dogs clearly prefer certain types of words over others. The most frequently used categories were those related to activities and places (e.g., *outside*, *play*, *walk*) and rewards (e.g., *treat*, *snack*).

To verify whether there were statistically significant differences in the intensity of usage between different word categories, the Kruskal-Wallis H test was applied. The results showed that the differences between categories were not statistically significant ($H = 2.23$; $p = .693$). This means that although some categories exhibited higher overall usage counts, the variability between individual words within each category was too high to identify significant differences at the mean level.

The ability to meaningfully combine buttons was observed by owners in approximately half of the dogs (always: 2%, often: 20%, sometimes: 22%). Regarding the frequency of pressing multiple buttons without a specific meaning, responses were relatively evenly distributed across groups (sometimes: 29%, rarely: 33%, never: 32%). In the combinations of words into phrases, the most common combinations included words related to *play* or specific toy names, *outside*, self-references or references to family members, *all done* (which can also be interpreted as *enough* or *stop*), and food-related words (Figure 2).

Figure 2

Percentage Evaluation of Button Combination Usage

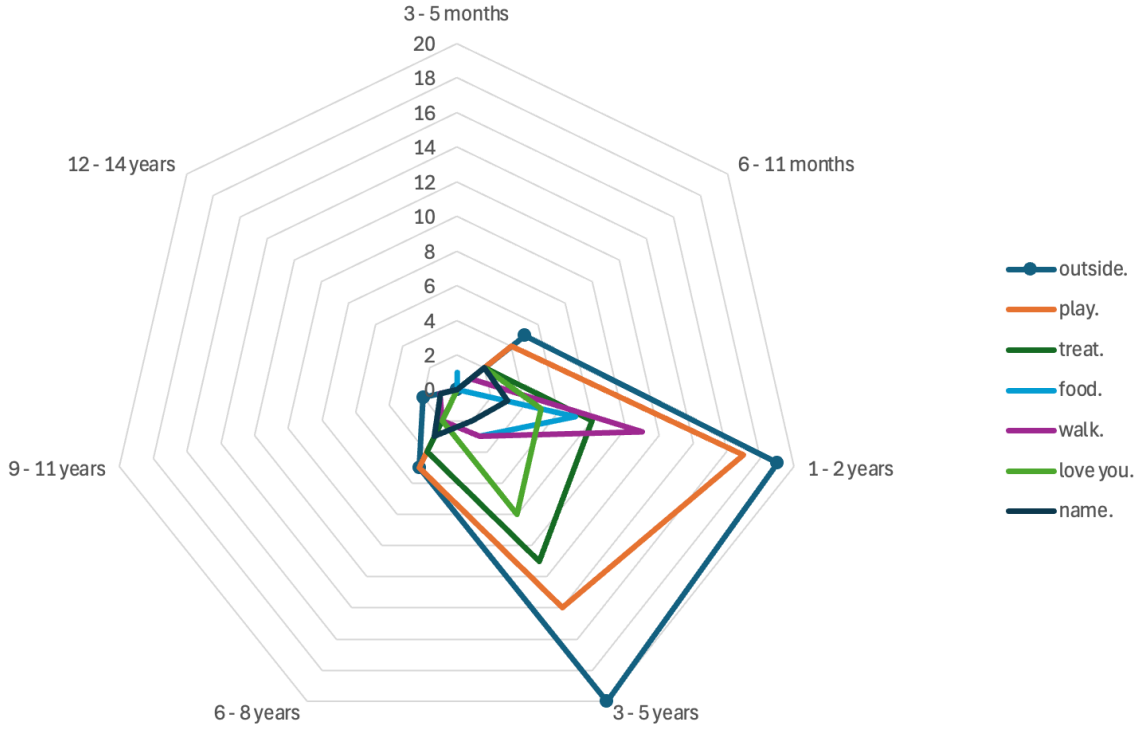


The mutual relationships between different types of behavior were further analyzed using a correlation matrix. Dogs that independently used buttons tended to form meaningful phrases more frequently ($r \approx 0.51$) and also exhibited a higher rate of random button pressing ($r \approx 0.41$). The use of related buttons (in response to human words or button presses) was positively correlated with phrase formation ($r \approx 0.40$). Button spamming, defined as repeatedly and rapidly pressing the same button without an apparent communicative goal, showed a weaker but still positive correlation with independent button usage ($r \approx 0.29$) and button pressing in response to a prompt ($r \approx 0.28$). These results suggest that the ability to independently use buttons may be associated with greater behavioral flexibility in combining button presses into more complex patterns, although it may also lead to less goal-directed activities, such as spamming. The radar chart in Figure 3 illustrates the most frequently used expressions (buttons) pressed by dogs across different age groups. Each curve represents a specific word and its distribution across the age categories. The chart clearly shows that the most frequently used expressions were *outside*, *play*, and *name*, with the highest frequencies recorded in the 1–2 years and 3–5 years age groups.

Dogs in these age ranges demonstrated the most intense use of communication buttons, which may be associated with higher activity levels, greater trainability, or increased interest in human interaction during this life stage. Conversely, button usage was noticeably lower among older dogs — after the age of six years, the frequency of button pressing dropped significantly. This decline may be attributed to overall reduced activity levels or to impaired auditory or motor abilities in older individuals. Interestingly, expressions with emotional or more abstract meanings, such as *love you*, *treat*, or *food*, occurred less frequently and were spread evenly across all age groups without prominent peaks. This may suggest that dogs may not attribute as much practical value to emotional or abstract expressions (e.g., "love you," "treat," "food") compared to activity-related prompts (outside, play). These results highlight the importance of a dog's age in training with buttons and suggest which words hold the greatest functional significance for dogs in their communication with humans.

Figure 3

Most Frequently Used Expressions (Buttons) Pressed by Dogs According to Their Age



Discussion

Based on the data we collected and analyzed, several interesting phenomena were observed. Among the trained dogs, larger and medium-sized breeds predominated. One possible factor contributing to the prevalence of larger breeds could be a lower interest among owners in training smaller breeds, as well as the generally calmer temperament of larger breeds (Arhant et al., 2010). The predominance of respondents aged 25 to 44 years can likely be interpreted as a result of this group generally having sufficient material resources to acquire and care for a pet out of personal interest. It is also reasonable to assume that people in early to middle adulthood have greater means and appropriate conditions for training dogs with communication buttons.

Among respondents, women were significantly overrepresented, which may partly relate to a generally higher level of caregiving behavior among women. On the other hand, previous research has shown that dogs are more sensitive to female speech (Gergely et al., 2023). Our results suggest that domestic dogs trained by their owners can learn to use soundboards in ways that are systematically associated with specific requests or contexts, rather than at random. Similar conclusions were presented by Bastos, Evenson, Wood, et al. (2024), who demonstrated that dogs purposefully use communication buttons to express specific requests. Włodarczyk et al. (2024) found that most dogs exposed to communication buttons acquired the ability to use them to express needs or emotions.

We also recorded meaningful button combinations in approximately half of the dogs in our study. The most common combinations included words related to activities (*play*, *outside*) and names of the dogs themselves or family members. Research from the University of California, San Diego, analyzing over 260,000 button presses from 152 dogs, found similar findings: dogs frequently formed two-button combinations such as *outside* + *potty* or *food* + *water*, which occurred more often than would be expected by chance (Bastos, Evenson, Wood, et al., 2024; Bastos & Rossano, 2023). We further found that dogs preferred certain word categories.The most frequently used words were related to activities, places, and rewards, confirming the findings of Bastos and Rossano (2023).

The highest frequency of button usage was recorded in dogs aged 1–2 years and 3–5 years, while usage significantly decreased in dogs older than six years. Dogs that more frequently used buttons independently also tended to produce more combinations of multiple button presses, some of which represented consistent word groupings, while others involved button spamming, defined as repeatedly and rapidly pressing the same button without an apparent communicative goal. These results suggest that the ability to independently use buttons may be associated with greater behavioral flexibility in producing varied button combinations, although it may also lead to less goal-directed activity, such as spamming (Bastos, Houghton, Naranjo, et al., 2024).

Our survey findings align with recent experimental results by Bastos, Evenson, Wood, et al. (2024), showing that dogs respond to specific button words even when pressed by non-owners—underscoring the non-random usage of soundboards. Some studies have also observed that dogs' use of communication devices can be influenced by the presence of familiar humans and the specific training context (Rossi & Ades, 2008). Similarly, Savalli, Resende, and Ades (2013) reported that dogs' responses to communication devices vary depending on the presence and attentional focus of their human companions, indicating that social context may play a role in their behavior.

Teaching Implications

The findings of this study may provide useful guidance for individuals training dogs with communication buttons. Younger dogs (1–5 years of age) appear to have higher learning success and use buttons more frequently, suggesting that training may be most effective when started early. Trainers should be aware that some dogs may engage in button spamming, defined as repeatedly and rapidly pressing the same button without an apparent communicative goal, especially as they experiment with the available options. Limiting the initial number of buttons and gradually introducing new words may help maintain focus and reduce unstructured button use. The selection of words also appears important, as activity-related and reward-related words were most frequently used. Furthermore, training in familiar social contexts, with consistent human interaction, may enhance learning and more appropriate button use. Our study extends the tradition of laboratory-based teaching exercises in comparative psychology (Abramson et al., 2020) by providing field-based data on dog-owner training with communication devices. This real-world context offers complementary insights for teaching learning principles using actual interspecies communication scenarios.

Conclusion, Limits and Recommendations

The results of this study demonstrated that domestic dogs can learn to use communication buttons in ways that are systematically associated with specific requests or contexts, rather than at random. In many cases, combinations of two to three words were observed, most commonly involving expressions related to activities (*outside*, *play*), specific household members, or food (*treat*, *snack*). Dogs that used buttons independently also tended to form meaningful phrases more frequently, but they showed an increased rate of button spamming, as defined earlier in this study.These behaviors may reflect varying levels of behavioral flexibility and motivation. It was shown that younger dogs (1–5 years old) used the buttons most intensively, while activity was significantly lower in older individuals.

Based on these findings, we recommend that future research focus on comparing the effectiveness of training across different breeds, age groups, and training environments. It would also be beneficial to analyze specific word combinations in terms of syntax, meaning, and frequency of occurrence. This study relied on questionnaire data provided by dog owners, which may introduce subjective bias. The success or failure of training was based on self-assessment rather than objectively measured dog performance. Additionally, the variable training environments (home settings, different trainers, various stimuli) reduce the ability to standardize results. Anthropomorphization by owners in interpreting dog behavior also cannot be ruled out. Despite these limitations, our results provide valuable insight into the potential of dogs to use communication devices. In the future, button training could be employed not only to enrich human-dog interaction but also to explore more complex patterns of learning and communication in animals. Although further research is necessary to better understand the complexity of button combinations and their potential structure, our study confirms the usefulness of training dogs to use communication buttons, with potential applications for enhancing human-animal interaction.

Author Contributions

Conceptualization Ivan Iľko, Viera Peterková and Valentína Bachratá; methodology Alfréd Trnka; formal analysis Ivan Iľko; sources Ivan Iľko; writing - preparation of the initial draft Ivan Iľko, Viera Peterková and Valentína Bachratá; visualization Ivan Iľko. All authors have read and agree with the published version of the manuscript.

Acknowledgements

Many thanks go to Prof. Alfréd Trnka, PhD, for providing the information and data necessary for the completion of this work.

Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author.

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Financial conflict of interest: No stated conflicts.
Conflict of interest: No stated conflicts.

Submitted: *April 25th, 2025*
Resubmitted: *August 19th, 2025*
Accepted: *September 8th, 2025*