POLISH JOURNAL OF NATURAL SCIENCES
Abbrev.: Pol. J. Natur. Sc., Vol 30(3): 235–243, Y. 2015

CLICKER TRAINING EFFICIENCY IN SHAPING THE DESIRED BEHAVIOUR IN THE FOLLOWING DOG BREEDS: BOXER, CHOW CHOW AND YORKSHIRE TERRIER

Janusz Strychalski, Andrzej Gugołek, Małgorzata Konstantynowicz

Department of Fur-bearing Animal Breeding and Game Management,
University of Warmia and Mazury in Olsztyn

Key words: clicker training, shaping behavior, Boxer, Chow Chow, Yorkshire Terrier.

Abstract

Works comparing the trainability of dog breeds mainly comprised indirect assessment methods; however, little empirical research has targeted the behavioural characteristics of breeds. The goal of this paper was to study the reaction of Boxer, Chow Chow and Yorkshire Terrier breeds to the shaping method with the use of the clicker in acquiring the desired behaviour. The dogs' task was to pass by the first (proximal) and second (distal) cones counter-clockwise. Initially, Boxers coped worst. However, after achieving the first success, achieving two consecutive successes was relatively easy for them. Chow Chows were relatively successful initially, but to repeat the success twice they required a much higher number of sessions with the clicker than the remaining two breeds. The results achieved by this breed show that, contrary to the opinion of many dog coaches, it is possible to successfully train Chow Chows.

SKUTECZNOŚĆ METODY KLIKEROWEJ W KSZTAŁTOWANIU POŻĄDANEGO ZACHOWANIA U PSÓW RAS: BOKSER, CHOW CHOW I YORKSHIRE TERRIER

Janusz Strychalski, Andrzej Gugołek, Małgorzata Konstantynowicz

Katedra Hodowli Zwierząt Futerkowych i Łowiectwa
Uniwersytet Warmińsko-Mazurski w Olsztynie

Słowa kluczowe: szkolenie klikerowe, kształtowanie zachowań, bokser, chow chow, Yorkshire terier.

Address: Janusz Strychalski, Department of Fur-bearing Animal Breeding and Game Management, University of Warmia and Mazury, Oczapowskiego 5, 10-718 Olsztyn, Poland, tel. +48 89 523-44-42, e-mail: janusz.strychalski@uwm.edu.pl

Abstrakt

Prace porównujące stopień wyszkolenia różnych ras psów opierały się głównie o pośrednie metody oceny, natomiast niewiele przeprowadzono badań empirycznych. Celem pracy było zbadanie reakcji psów ras bokser, chow chow i Yorkshire terrier na metodę kształtowania zachowania z użyciem klikera w uzyskaniu pożądanego zachowania. Zadaniem psów było okrążyć pierwszy (bliższy) i drugi (dalszy) pachołek. Początkowo najgorzej zadanie wykonywały boksery, ale po osiągnięciu pierwszego sukcesu wykonanie następnych zadań stało się dla nich relatywnie proste. Chow chowy szybko osiągnęły pierwszy sukces, ale jego powtórzenie wymagało znacznie większej ilości sesji klikerowych niż u bokserów i Yorkshire terrierów. Wyniki uzyskane przez tę rasę wskazują jednak, że – w przeciwieństwie do opinii wielu treserów – chow chowy można wytrenować.

Introduction

Dog training methods are grounded in the fact that dogs learn through classical conditioning, non-associative learning and through instrumental conditioning. The Koehler method, dominance-based training, negative reinforcement, relationship-based training, and clicker training are the most popular (MEHRKAM and WYNNE 2014).

The clicker is a small plastic box with a metal plate inside, which upon pressure produces a characteristic, invariable sound. This sound may indicate to the animal very precisely that at this moment it approximates the desired behaviour. Immediately after clicking, the dog's coach offers treat or another reward to the dog. The reward becomes an unconditional stimulus, and clicking becomes a conditional stimulus. This process of learning is termed classical conditioning, or Pavlovian conditioning (FUGAZZA and MIKLÓSI 2014). In this process the auditory stimulus (clicking) after a certain number of repetitions becomes a reliable predictor of the unconditioned stimuli, and conditions the dog to recognize the clicking sound as reinforcement itself.

Developing the desired behaviour in a dog with the use of a clicker may be realised in three basic ways: luring (where apart from clicking, the dog receives additional hints from the coach, e.g. pointing to something with a hand), capturing (where independent behaviour presented by the dog is captured), and shaping (skilful reinforcement with the clicking sound of each small step towards the target behaviour) (ALEXANDER 2003). In shaping, the animal learns to solve problems independently, because the animal is the causal factor here (the dog has to independently associate which behaviour is going to be reinforced by the coach).

Despite the increasing popularity of clicker training (DONALDSON 1996, PRYOR 1999, PARSONS 2005), there are no proofs based on scientific research showing that it is better (faster) for achieving the final desired behaviour in dogs (SMITH and DAVIS 2008). However, it seems that the clicker, as a tool

which in all conditions produces the same sound, devoid of the coach's emotions, may constitute a good tool allowing for discovering differences in predispositions for realising specific tasks in dogs belonging to various user groups and breeds. Works comparing the trainability of dog breeds mainly comprised survey-based studies and other indirect assessment methods; however, relatively little empirical research has targeted the behavioural characteristics of breeds (MEHRKAM and WYNNE 2014). Attention should be paid to the fact that observation of dogs' reactions to specific training methods may have practical implications for further training.

FCI (Federation Cynologique Internationale – World Canine Organisation based in Belgium) recognizes 332 dog breeds from around the world. One of them is Boxer. This German dog can be defined as a working breed with good trainability (SPITZER 2006). Another breed is Yorkshire Terrier which comes from northern England. Yorkshire Terrier seems to be a social breed, dependent on humans (LANE 2001). Another, very characteristic breed, is Chow Chow. This ancient breed came from China. Chow chow was often bred for meat production. In fact, this breed has not historically developed relationship with a man (REED 2014). It can be assumed that the three above breeds will exhibit different reactions on the certain training methods. Therefore, the goal of this paper was to study the reaction of Boxer, Chow Chow and Yorkshire Terrier breeds to the shaping method with the use of the clicker in acquiring the desired behaviour.

Material and methods

Animals and their initial conditioning

Three breeds of dogs: Boxer (B), Chow Chow (CC) and Yorkshire Terrier (YT) participated in the research (Table 1). The dogs, which are taken for a walk every day, and which, during the walks, for at least thirty minutes stay without the leash, were selected. None of the dogs was castrated or sterilized. The research developed following SMITH and DAVIS (2008), that is: 1) none of the dogs had previous contact with a clicker, 2) prior to the beginning of each session the dogs hadn't received any meal for at least 3 hours (all sessions were held in the afternoon), 3) the sessions took place in a room in each dog's home, 4) all the dogs were trained by the same person (it was a man experienced in a clicker training for three years; he did not know the dogs before the experiment started). Air-dried ZiwiPeak Lamb bits (pieces) were provided as treats.

Table 1

Breed, age and sex of dogs

Dog breed	Number of males	Number of females	Total number of dogs	Age of dogs (years)
Boxer (B)	3	4	7	4.27±2.73
Chow chow (CC)	4	3	7	4.10±2.18
Yorkshire terrier (YT)	4	3	7	4.41±2.55

No significant differences

The initial period lasted 4 days. Initially, the dogs were conditioned to the clicker for two consecutive days – after every click a treat was offered. During those two days every dog received 60 treats after clicking. On the third day, the dogs were rewarded for a vertical movement of the head (3 sessions with 10 treats), and on the fourth day the dogs were guided with the treat to take their place next to the coach's left leg (3 sessions with 10 treats).

Tasks

The exact period of research lasted until the realisation of all the tasks described here by a given dog. The first yellow cone, 0.25 m in height, was placed at a distance of 0.8 m in front of a person sitting on a chair, and the second yellow cone was placed at a distance of 1.6 m from the sitting person (Figure 1). This equipment was placed there for the period of the clicker sessions. The dogs' task was to pass by the first cone counter-clockwise (task 1), repeat it twice (task 1a), and next, pass by the second cone (task 2) and repeat it twice (task 2a). If the dog completed the given task, the session was always finished.

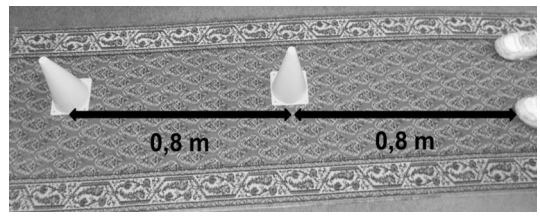

Fig. 1. Equipment used in clicker sessions

During the research, the dogs' reactions and their willingness to cooperate with the person conducting the tests were observed. If the dog started to clearly look to the side or clearly freeze on the spot, looking at the floor (the

reaction was observed in Chow Chows), the session was finished. There were at most 3 sessions a day. If the dog was willing to work, up to 20 treats were allowed per session. The pieces of food offered to the dog, and the number of sessions needed to accomplish tasks were counted. This constituted the basis for calculating the pieces/session ratio.

Statistical analysis

Data were presented as arithmetic means and standard deviations. The significance of differences among groups was marked with the Kruskal-Wallis test with the use of the Statistica (StatSoft 2011) software.

Results

Table 2 presents the results acquired by Boxer breed (B), Chow Chow (CC) and Yorkshire Terrier (YT) at the first cone. In order to achieve the first success, B required 22.29±3.77 sessions on average, and YT required only 16.57±3.55 sessions ($p<0.05$). Moreover, in order to achieve the first success, Boxers on average required 8.88 reinforcements per session and YT required 13.57±1.75 ($p<0.01$). CC's results were in between the two other breeds. In order to repeat the success twice (from 1 to 3 successes) Chow Chows required 8.43±1.99 sessions, constituting a significant difference ($p<0.05$) compared to the number of sesions in the case of B (4.43±1.72) and YT (4.71±2.06). To perform the task, B required 7.23±1.46 pieces/session on average, and this was less than in the case of CC (13.91±4.71, $p<0.05$), and YT (14.44±3.21, $p<0.01$).

Table 2

The results obtained by dogs during performing tasks 1 and 1a

Dog breed	Task 1		Task 1a	
	number of sessions	pieces/session ratio	number of sessions	pieces/session ratio
Boxer (B)	22.29 ± 3.77^{a}	$\mathbf{8.88\pm1.69}^{A}$	4.43 ± 1.72^{a}	$\mathbf{7.23\pm1.46}^{Aa}$
Chow chow (CC)	18.14±2.91	11.71±0.91	8.43 ± 1.99^{b}	13.91 ± 4.71^{b}
Yorkshire terrier (YT)	16.57 ± 3.55^{b}	$\mathbf{13.57\pm1.75}^{B}$	4.71 ± 2.06^{a}	$\mathbf{14.44\pm3.21}^{B}$

Means with different letters in columns differ significantly at $p\leq0.05$ and $p\leq0.01$

Table 3 shows the results achieved by dogs at the second cone. B passed by the cone for the first time (first success) after 39.29±18.73 sessions, CC after 51.43±19.52, and YT after 35.00±8.81 sessions. However, the differences

among groups were not statistically significant. Moreover, no differences in the pieces/session ratio, which would be only numerically highest in YT (12.70±2.76), and lowest in CC (11.16±1.86), were observed. Additional passing by the cone, repeated twice, took place during 7.14±2.61 sessions in YT, up to 8.71±5.44 sessions in CC, and the average number of pieces per session amounted to 8.31±4.09 in B, up to 11.98±12.81 in CC. Similarly to achieving the first success at this cone, no statistically significant differences were observed here.

Table 3

The results obtained by dogs during performing tasks 2 and 2a

Dog breed	Task 2		Task 2a	
	number of sessions	pieces/session ratio	number of sessions	pieces/session ratio
Boxer (B)	39.29±18.73	12.59±1.71	7.29±2.50	8.31±4.09
Chow chow (CC)	51.43±19.52	11.16±1.86	8.71±5.44	11.98±3.78
Yorkshire terrier (YT)	35.00±8.81	12.70±2.76	7.14±2.61	9.50±3.51

No significant differences

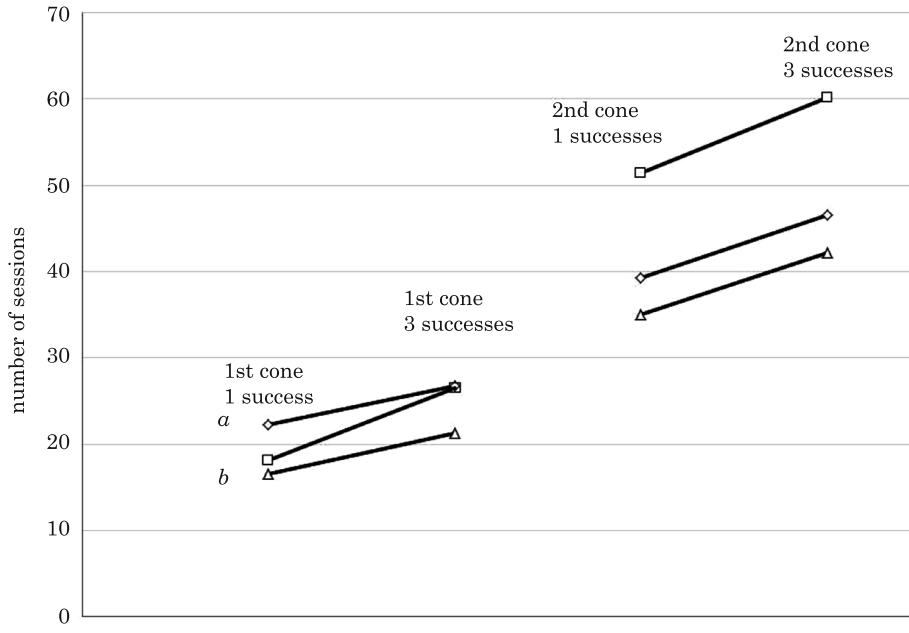

Fig. 2. The results obtained by dogs – on each cone summed ascending
Means with different letters differ significantly at $p \leq 0.05$

Picture 2 presents the number of sessions for the sum of successes at each cone (success = single passing by the cone). Achieving the first success at the first cone was significantly simpler for YT than for B ($p<0.05$). However, no statistically significant differences were observed at consecutive measurements. In order to achieve success at the second cone, CC needed the highest number of sessions, but it was only a tendency ($p<0.1$).

Discussion

In research comparing breeds in privately owned dogs it is difficult to collect comprehensive statistical material. Consequently, it is not a surprise that often only a few animals participate in research comprising various breeds of dogs (WEISS and GREENBERG 1997). It is widely known that previous training can affect the outcome. Therefore, we tried to choose dogs with similar age and trainig experience. Age of the animals varied between 4.10±2.18 in CC and 4.41±2.55 in YT breed. Moreover, all the dogs had the opportunity to stay without the leash during daily walks so it can be assumed that they respected at least the basic commands. The breeds of dogs studied by us from the perspective of their utility have relatively few common features. Boxers are moloses. They are assistance dogs, and are defensive and utility dogs. They work as patrol dogs, rescue dogs, and they assist the disabled. During the First World War they were used as guard, patrol and report dogs. Boxers are known for being disciplined. They were bred for close cooperation with people and for performing orders (PALIKA 2007). In contrast, many dog coaches believe that Chow Chows are a breed in which it is impossible to achieve success in training. This may stem from the fact that Chow Chows do not tolerate training techniques based on violence (REED 2014). They are Asian Spitzes. They are very territorial dogs with a strong hunting instinct. On the other hand, Yorkshire Terriers, miniature terriers, were originally owned by working-class people and were used for vermin control as well as companionship (PALIKA 2007).

Differences among the three breeds under research occurred during passing by the first cone (tasks 1 and 1a). Initially, Boxers coped worst (Table 2). They needed over 22 training sessions to perform the first task. Moreover, training sessions in this breed were significantly ($p<0.01$) shorter than YT sessions, because Boxers quite soon started to look to the side, indicating dropping interest in the training. However, it is characteristic that after achieving the first success, achieving two consecutive successes was relatively easy for them, despite the fact that the training sessions were shorter and comprised around 7.23 pieces of food in each session. During performing tasks

at the second cone, this breed started to show increased willingness to work (around 12.59 pieces/session); however, their willingness to work after achieving the first success (second task) dropped again (8.31 pieces/session).

Chow Chows were relatively successful at the first task, but to repeat the success twice they required a much higher number of sessions with the clicker than the remaining two breeds. After the change from the first to the second cone, Chow Chows required an increased number of sessions needed to achieve the first success (51) compared to B (39) and YT (35). Initially, the change of the cone to a further one was difficult, but after performing the task it was quite easy for them to repeat the success at the second cone. The results achieved by this breed show that, contrary to the opinion of many dog coaches, it is possible to successfully train Chow Chows.

Training results certainly depend on the dogs' willingness to work. Willingness to work cannot be measured directly, but the pieces/session ratio may constitute an indicator. During performing work at the first cone, YT showed the highest willingness to work with the clicker, but at the second cone the results are not as clear. This shows that skilful training may improve dogs' commitment to the performed work. DONALDSON (1996) emphasizes this fact.

A comparison of the results achieved by us with Coren's list, describing the differences in intelligence between dog breeds (COREN 1994), is very interesting. Coren created a ranking focusing on the working and obedience intelligence (it may consequently be described as trainability) of dogs, based on the opinions of American Kennel Club and Canadian Kennel Club obedience trial judges. According to this ranking, Yorkshire Terriers are „above average working dogs", which means that understanding new command takes 15–25 repetitions, and that they obey the first command ≥70% of the time. Boxers have „average working/obedience intelligence" – they understand a new command after 25–40 repetitions, and obey the first command ≥50% of the time. Chow Chows belong to the last group, with „the lowest degree of working/obedience intelligence" (they need more than 80 repetitions, and obey the first command less than 30% of the time). In fact, Chow Chows take the 4th place from the end of the list comprising 131 classified breeds. Despite restrictions concerning interpretation of Coren's research results (COPPINGER and COPPINGER 2001), many authors agree with the ranking of dog breeds (DAVIS and CHEEKE 1998, MIKLÓSI 2009). Although in our research the results for the first cone were different from those achieved by Coren, the order of breeds at the second cone was compliant to Coren's list: YT was the first, B was the second, and CC was the last one. Despite this, we showed that Chow Chows are much more trainable than Coren asserted.

As stated by COPPINGER and COPPINGER (2001), the results achieved by dogs cannot be interpreted in the manner that one breed is more intelligent

than another. The differences observed in present research do not stem from the fact that some breeds are more intelligent than others according to rankings developed by people, but they result from differences in specific behavioural conformation among breeds. YT achieved the best results in our tests which was natural since they were bred as companion dogs for years. In addition, in their history, they had to be independent when the situation demanded (they often hunted for rodents) (LANE 2001). B achieved not such as good results as YT, but, except task 1, their results were not statistically worse. B are known for their honesty and loyalty. In training sessions, they react well to humans (SPITZER 2006). In general, it can be concluded that the comparatively worst results were obtained by CC. It was not surprising if their history into account will be taken – this breed was not dedicated to work with humans (REED 2014). In other words, the breeds studied by us are dedicated to completely different goals, and they succeed in their roles. Moreover, not only the type of task, but also the manner of training (here: positive reinforcing – shaping with the clicker) certainly influenced the results achieved by dogs.

Translated by KARINA SZAFRAN

Accepted for print 09.07.2015

References

ALEXANDER M. C. 2003. *Click for joy: questions and answers from clicker trainers and their dogs*. Sunshine Books, Thomastown.

COPPINGER R., COPPINGER L. 2001. *Dogs: a new understanding of canine origin, behavior and evolution*. The University of Chicago Press.

COREN S. 1994. *The intelligence of dogs*. Headline Book Publishing, London.

DAVIS S. L., CHEEKE P.R. 1998. *Do domestic animals have minds and the ability to think? A provisional sample of opinions on the question*. Journal of Animal Science, 76 (8): 2072–2079.

DONALDSON J. 1996. *The culture clash*. James and Kenneth Publishers, Berkeley.

FUGAZZA C., MIKLÓSI Á. 2014. *Should old dog trainers learn new tricks? The efficiency of Do as I do method and shaping/clicker training method to train dogs*. Applied Animal Behavior Science, 153: 53–61.

LANE M. 2001. *The Yorkshire Terrier: An Owner's Guide to a Happy Healthy Pet*. Wiley Publishing, New Jersey.

MEHRKAM L. R., WYNNE C. D. L. 2014. *Behavioral differences among breeds of domestic dogs (Canis lupus familiaris): Current status of the science*. Applied Animal Behaviour Science, 155: 12–27.

MIKLÓSI Á. 2009. *Dog Behaviour, Evolution, and Cognition*. Oxford University Press, Oxford.

PALIKA L. 2007. *Howell book of dogs*. Wiley Publishing, New Jersey.

PARSONS E. 2005. *Click to calm: healing the aggressive dog*. Sunshine Books Inc., Waltham.

PRYOR K. 1999. *Don't shoot the dog! The new art of teaching and training (2nd* ed.). Bantam Book, New York.

REED D. 2014. *Everything About Chow Chow*. Barb Gates, Chicago.

SPITZER K. 2006. *The Everything Boxer Book*. F+W Publications, Inc., Avon, MA.

StatSoft, Inc. 2011. STATISTICA (data analysis software system), version 10.0.

WEISS E., GREENBERG G. 1997. *Service dog selection tests: Effectiveness for dogs from animal shelters*. Applied Animal Behavior Science, 53: 297–308.