Canine behaviour type index in experimental Units trial

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Abstract
We ran the present research in canine behaviour over 18 months, on the premises of Experimental infrastructure of Horia Cernescu Research Unit, under behaviour study project of animal lodging Research contract no. 4833 / September, 4, 2014. The study considered a 360 dogs group, data being extracted from our (March, 31, 2015 to July, 31, 2017) pet databases. The research is structured based on Canine Behaviour Type Index (CTBI) 12 types canine behaviour, considering three psychological interactive factors further itemized into (1) Environmental (either Organized or Spontaneous); (2) Social (Alpha, Beta, or Gamma); (3) Motivation (either Medium or High), i.e. 12 possible outcomes. The breed type (χ^2=818.59, at p < 0.000), age (F=9.31, at p < 0.001) and period of staying (F=3.185, at p ≤ 0.001) appear to be associated with CBTI. The older dogs resulted more like Dreamer (SBM) and Aristocrat (SAM) behaviour types, while younger more like Adventurer (SBH) and Rebel (SAH). Our study results cannot sustain gender association hypothesis based on CBTI profiles (χ^2=17.31, at p = 0.099), suggesting, nevertheless, that CBTI is a useful tool in canine behaviour research, in matters of pets' owners – research financed by private funds, win-win case.
Keywords: canine behaviour, Canine Behaviour Type Index (CTBI)

Introduction

Our Experimental Units for canine and feline species have been operational in Banat University - *Horia Cernescu* Research Unit since 2012, starting March, 10, 2011 under Sanitary Veterinary and Food Safety Directorate's *Authorization no. 0317 - Pet lodging, temporary shelter, feeding and pet maintenance.* Our canine behaviour research project targeted development of a public – private research partnership. Practically, the project illustrates a win to win case of research vs. pet owners: behaviour research needs the animals to come from different environments, owners need animal facilities when they go away from home.

Specific target of present report was establishing correlations and association between *Canine Behaviour Type Indexes® (CBTI)* and a number of genetics and physiological factors [1,2]. One more (side) target was determining whether a pet management system can modify typical behavioural differences between males and females, as noticed in our experimental units.

Materials and methods

Animals and data collection: for each Owner, the Collaboration agreement of 4883 Contract was signed for the animal or animals included in research program; out of 668 cases, 360 dogs were sampled (206 male and 154 female). The animals used as our research samples are 47 breeds, including one crossbreed group. The behaviour pattern adopted is based on Pet Connect team, Australia, which developed CBTI, ranking companion dogs into distinct profiles.

Dagley & Perkins (2005) considered three psychological dimensions, which we based our research on, i.e.:

(1) Environmental Order (either Organized or Spontaneous);

The two variables of Environmental Dimension are Organised type (O) and Spontaneous type (S). The Organised type seeks an orderly controlled environment. It loves to herd things and is team focused. The Spontaneous type is more self-focused and interested in a particular facet of its environment at any time, rather than with the larger picture that the Organised type focuses on.

(2) Social Order (Alpha, Beta, or Gamma);

Such dimension refers to social position and willingness to comply with social rules. Such linear hierarchy manifests three types: Alpha, Beta, and Gamma, in that order. The Alpha (A) type is most dominant, confident and controlling, socially. The Beta type (B) is socially mobile and more challenging of the social order. The Gamma type (G) is a born follower and is highly rule bound, socially.

(3) Motivation (either Medium or High).

Motivation is a general term denoting how active the dog is. Dogs display either high or medium levels of motivation. High levels (H) will amplify other characteristics in the preceding two dimensions. Medium levels (M) will tone down the other behavioural dimensions.

The *Canine Behaviour Type Index* advances 12 type dog behaviour system, based on three dimensions of each interactive factor considered, as indicated in Table 1 which also indicates the number of dogs considered for each behaviour type.

Table 1. Twelve Canine Behaviour Type Index profiles

Behavioural type	No cases	Behavioural type	No cases	Behavioural type	No cases
Commando (OAH)	8	Director (OAM)	11	Defender (OBH)	11
Sentry (OBM)	9	Deputy (OGH)	11	Diplomat (OGM)	44
Rebel (SAH)	36	Aristocrat (SAM)	10	Adventurer (SBH)	89
Dreamer (SBM)	5	Investigator (SGH)	71	Companion (SGM)	55

Classes apud Dagley & Perkins, 2005.

During the entire hosting period, the veterinarian volunteer students registered behaviour aspects by filling in a questionnaire (see *www.petconnectgame.com*) together with owner, after the staying/care period. As per *CBTI*, the most frequent behaviour types were SBH (Adventurer – 89 dogs), SGH (Investigator – 71 dogs) and OGM (Diplomat – 44 dogs).

Except for the 82 cross breed dogs, the most common dog breeds in our experimental units were the 42 Bichon, and the 40 Labrador, probably the most popular in Timisoara area. The Poodles, Beagle and Cockers and are the next of the most common breeds – 15, 14 and 12 lodged animals. No animal from *Group 10: Sighthounds* was hosted in Experimental units during the trial period.

Table 2. Sample-groups of breeds involved

Names apud FCI[1] Standards Commission *[5]*	No. of cases
Group 1: Sheepdogs and Cattledogs	13
Group 2: Pinscher and Schnauzer - Molossoid and Swiss Mountain and Cattledogs	37
Group 3: Terriers	28
Group 4: Dachshunds	7
Group 5: Spitz and primitive types	19
Group 6: Scent hounds and related breeds	20
Group 7: Pointing Dogs	7
Group 8: Retrievers - Flushing Dogs - Water Dogs	61

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[1] *Fédération Cynologique Internationale* (*World Canine Organisation*)

Group 9: Companion and Toy Dogs	85
Cross breed	83
Total	**360**

Housing and feeding. We kept the dogs in eight conventional dog pen rooms and an open air grassed paddock in Pet Experimental Unit. Experimental unit for pets was organized into 4x 6.0 m^2 pens, in 2 rows; pen minimal equipment: feeder, drinker, carpet on floor or on raised platform, and toys. In front of each pen there is a front stainless steel gutter, a corridor and a visual barrier *[3]*.

Fig. 1: Behaviou study grounds. *Horia Cernescu* Research Unit – Pet Sector *[3]*

Each dog was either single, or accompanied by other dogs, in the pen. Three times a day, each animal was walked into the paddock and/or near area of the Experimental Units. Dogs were fed as per individual preference, expressed in the owner's specifications: 1-3 teas or *ad libitum.* All pens and corridors were video monitored during entire lodging period. The owners had the possibility to see their pets in real time on smartphones, in the facilities during lodging, feeding and care activities.

Internal and external temperature and humidity were continuously monitored by multi-functional wireless digital device *Weather Station PCE-FWS 20*.

Statistical Analysis: Analysis of *CBTI* and association of *CBTI* with several factors or variables (age, days of staying) were performed based on *Variance Analysis (ANOVA)*. All data comparing male and female and nominal variables (group, breed, gender and feeding protocol) were analysed based on χ^2 tests.

Results

The Groups established by FCI Standards Commission (Graph no 1) including a number of 82 animals form hybrids group were associated with CBTI (χ^2=182.09, at *p* < 0.000). ***Breed*** appears to be associated with *CBTI* profiles (χ^2=818.59, at *p* < 0.000). Bichon breeds (26/42 animals, 61.90 dogs) were associated with Investigator (SGH) behaviour type, Labrador breed was associated (23/40 animals, 57.5% dogs) with Adventurer (SBH) and Poodle breed (10/15 animals, 66.6% dogs) was associated with Companion (SGM) behaviour type.

Age: CBTI is depending of the age; the Dreamer (SBM) and Aristocrat (SAM) behaviour types appear to be associated with older animals (6.25±1.76 years, respectively 6.20±2.35). The Adventurer (SBH), Commando (OAH), Investigator (SGH) and Rebel (SAH) behaviour types appear to be associated with younger animals (1.90±0.18 years, 2.13±0.82, 2.32±0.26 respectively,

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±0.50). There appears to be significant difference between behaviour types, based on age ($F = 7.121$, at $p < 0.001$).
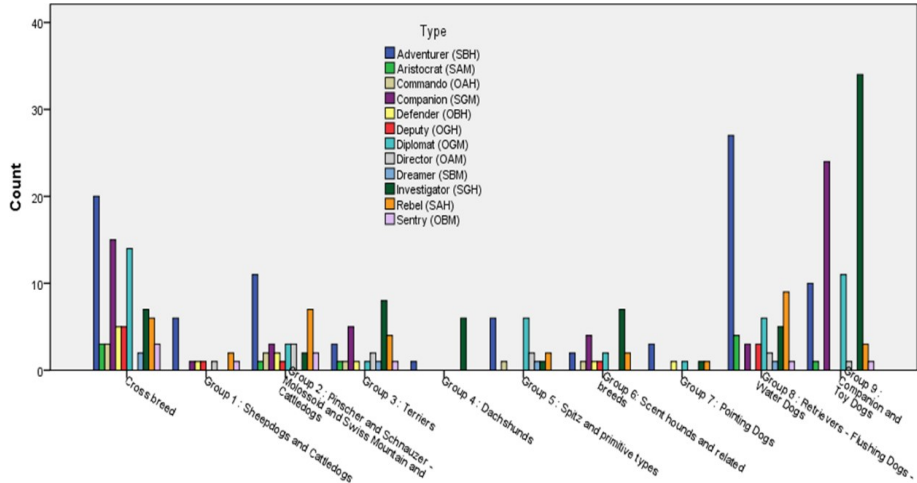
Graph 1. CBTI Histograms, based on FCI groups

Gender: There was no statistical difference noted between males and females (Graph 2, *left*); our research cannot sustain the hypothesis of gender being associated with *CBTI* profiles ($\chi^2=17.31$, at $p = 0.099$).
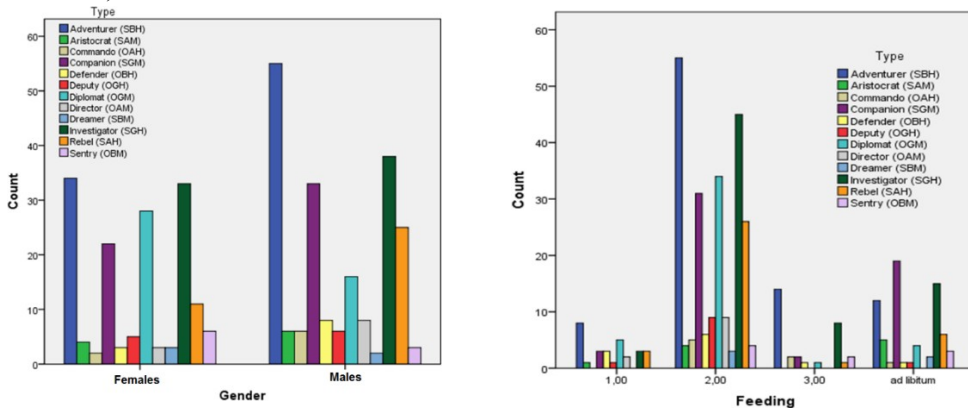
Graph 2. CBTI Histograms, based on gender and feeding protocol

Period of staying in the Experimental Units appear to be associated with *CBTI*; science does not explain how the animals staying longer (13.55±2.81 days) associate with Director (OAM) behaviour type, while the animal staying less (4.12±1.34 days) associate with Commando (OAH) behaviour type ($F = 1.967$, at $p = 0.031$). Care takers say that a longer stay permit the dog to better accommodate, which is expressed by medium activity level, in contrast with the first days' stay, when they can often act more restless, as a reaction to multiple stress factors – new environment, parting with owners, other animals around, and such like.

Feeding protocol in the Experimental Units appear to be associated with *CBTI* (Graph 2, *right*); science does not explain how come that the animals with two intake/day associate with Adventurer (SBH – 55/360 cases), Investigator (SGH – 44/360 cases) and Diplomat (OGM 34/360 cases) behaviour type ($\chi^2=55.44$, at $p = 0.009$).

Discussion

CBTI helped us understand behaviors types displayed by dogs; increased the enjoyment that dogs produced; helped to improve dogs' lifestyles; and provided options for dog problems.

The *CBTI* tool was described as not breed-specific; however, behavior types may cluster around particular profiles. In present study we associated breeds and behavior types (χ^2=729.68, at $p < 0.000$); also, the FCI groups sustain the hypothesis of breed association with *Canine Behavior Type Index*. The authors of *CBTI [1]* suggested some precautions in following cases:

i) Dogs under 3 years old (or 5 in cases of late social maturity) may need to be profiled each 6 months, because their personality is still forming.

ii) Breeds tend to cluster around specific profiles, because they have been selectively bred for specific purposes. People often prefer a particular breed for their character, hence continuing to select the same breed with a similar personality profile.

iii) When a dog becomes depressed, such mood could be emphasized as an increase in irritability and anxious activity, unlike humans who typically become withdrawn and reduce activity levels. However, the neurochemical changes occurring in depressed humans and dogs are thought to be similar. If the dog changes from a Medium activity type to a High activity type, perhaps all is not well, and help from a local Veterinary Behaviorist should be sought.

iv) In cases of abnormal brain function, or a psychiatric condition, the test may need to be retaken at regular intervals, and after treatment.

v) Dogs' personality may change with senescence.

All precautions were taken over research time; however, considering the high number of cases, and the time needed for acceptance of hypothesis, the authors will continue the study for particular precautions, also considering extra variables.

Conclusions and implications

- Privately financed research projects could represent a solution, in context of generally scant research financing; for a win-win case, *Canine Behaviour Type Index* profiles will produce easy and useful results, to both researchers and owners.
- *Canine Behaviour Type Index* and several variables could be proved to associate: breed, age, and lodging time appear to associate with *Canine Behaviour Type Index*.
- Present study couldn`t sustain association of gender and *Canine Behaviour Type Index*.

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