HOW CAN WE HELP PEOPLE TO CHOOSE THE RIGHT SHELTER DOG?

Jolanda Pluijmakers, PhD, Dip CAB, CCAB
DAVALON
Herendaal 21, 6228 GV Maastricht
The Netherlands

INTRODUCTION
Key to the successful rehoming and adoption of shelter dogs is for the shelter and the potential adopters to take their responsibility. To adopt the right dog both have to invest maximal effort in contributing to create a match with the highest likelihood to develop a satisfying human-animal relationship in a living environment in which all can have a good quality of life.

The matching process should be based on developing an adequate profile of the dog to home or adopt. Developing an adequate profile of potential adopters and adequate matching of the dogs and adopters based on realistic and rational decision making of both the shelter staff and potential adopters, followed by individually tailored coaching or counselling after adoption.

DEVELOPING A BEHAVIOURAL PROFILE OF AN INDIVIDUAL SHELTER DOG

The characteristics of shelter tests commonly used to assess the suitability for rehoming and identify behavioural traits of dogs that might be favourable or problematic when matching with a potential adopter vary substantially. These tests for example can be developed by the shelter staff themselves or be based on a standardized protocol that has been partly or fully validated, vary in the time necessary to conduct the test and persons and materials needed during the testing.

Substantial shortcomings of shelter tests are described in the scientific literature. To overcome these shortcomings and to increase the feasibility of performing behavioural assessments in shelters, DAVALON developed and validated a new approach to compose a behavioural profile of shelter dogs as part of a welfare assessment which was developed in commission of the Dutch Ministry of Economic Affairs. In this assessment the emotional state and behaviour of the dogs is scored multiple times in multiple situations during the performance of the normal care taking activities by the shelter staff, using easy to score qualitative measures which are registered with the use of an app.

The aim of the assessment is to provide a good quality of life during the stay at the shelter through adapting the care, housing, handling and training based on the behavioural profile of the individual dog and to categorize dogs for adoptability to base matching decisions upon and decisions regarding the coaching, training and behaviour modification program a dog might enrol during the stay at the shelter and after adoption to increase its chances for a lifelong successful adoption.

COMPONENTS OF THE BEHAVIOURAL PROFILE ASSESSMENT

The information necessary to develop the behavioural profile of a dog is collected during regular observation of the dog in 10 situations. (See table 1 for a summary).

<table>
<thead>
<tr>
<th>Description of main observation/test moments (not including the subtests per test)</th>
<th>Frequency of observation and scoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Walk with an unfamiliar person in an unfamiliar environment</td>
<td>Once. At arrival at the shelter</td>
</tr>
<tr>
<td>2. Walk with a familiar person in a familiar environment</td>
<td>Every week</td>
</tr>
<tr>
<td>3. Behaviour during veterinary health check</td>
<td>Once at intake. More frequent if applicable</td>
</tr>
<tr>
<td>4. Behaviour during staff health check</td>
<td>Every week</td>
</tr>
<tr>
<td>5. Behaviour during a play session</td>
<td>Every week</td>
</tr>
<tr>
<td>6. Behaviour when being brushed</td>
<td>Every week</td>
</tr>
<tr>
<td>7. Behaviour when in a room with a familiar person</td>
<td>Once. More often if applicable</td>
</tr>
<tr>
<td>8. Behaviour during a walk in a busy environment</td>
<td>Once. More often if applicable</td>
</tr>
</tbody>
</table>
SCORING OF THE BEHAVIOURAL PROFILE

During all tests the behaviour of the dog is scored using qualitative behavioural assessment (QBA) based on a fixed list of 10 terms describing the emotional state and behaviour of dogs as being: relaxed, happy, fearful, angry, sad, aroused, excited, frustrated, warning/aggression signals and controllability. The terms are scored using a visual analogue scale using the DAVALON Shelter Welfare web app. Quantitative behavioural assessments were scored for specific behaviours such as coping strategy and contact behaviour.

VALIDATION OF THE BEHAVIOURAL PROFILE

Seven shelters in the Netherlands homing either seized dogs only or a combination of seized or relinquished and stray dogs (n=223) were included in the statistical analysis.

VALIDATION: INTER AND INTRA OBSERVER RELIABILITY

To determine the inter- and intra-observer reliability of the scoring system, twenty performances of subtest 2 to 10 were videotaped and scored from video recordings by two testers. To test for intra-observer reliability tester B scored the same videos again two weeks after the first scoring.

The relationship between the scoring of the same test by different observers (inter-observer) and when scored twice by the same observer (intra observer) was large for all tests. Between observers Spearman's correlation coefficients ranged from \( r = 0.57 \) (\( p < 0.0001 \)) to \( r = 0.92 \) (\( p < 0.0001 \)) depending on the test. Test 7.5.0 Behaviour when left alone in a room showed the lowest correlation \( r = 0.57 \) (\( p < 0.0001 \)). Test 9.5 Free play between dogs showed the largest correlation \( r = 0.92 \) (\( p < 0.0001 \)). Within the same observer Spearman's correlation coefficient’s ranged from \( r = 0.78 \) (\( p < 0.0001 \)) (Test 9.3: Behaviour during direct contact and interactions between dog) to \( r = 0.99 \) (\( p < 0.0001 \)) (Test 9.5 Free play both dogs loose).

VALIDATION: CONSTRUCT AND CONTENT VALIDITY

For the statistical analysis conducted for construct and content validity testing variables were selected according to their relationship or the test they were associated with. Principal components analysis with hierarchical clustering analysis (PCA-HCA, Ward’s method) was used to identify groups. Projection to latent structures discriminant analysis (PLS-DA) was used to validate the hierarchical clustering, and to identify systematic differences between groups. A total of approximately 500 variables recorded using the app were included in the analysis. From these 13 general measures of a dog’s behaviour could be identified, and in each measure the dogs could be classified into one of 2 or 3 groups. For each measure dogs being in a positive or negative emotional state or displaying a desirable or undesirable behavioural response could be differentiated.

To categorize dogs to assess their adoptability, for each of the 13 tests a dog was classified as responding positively (e.g. remaining relaxed or controllable), intermediate (e.g. excited or frustrated) or negative (e.g. angry or confrontational). The number of positive, intermediate and negative responses across the set of 13 tests was calculated for each dog. This data was then analysed using two-step clustering to categorise each dog into one of three groups; “easy to home” intermediate to home“ and “hard to home”. Overall 50% of the dogs in the shelters were easy to adopt, 25% being intermediate and 25% hard to adopt.

Table 2. Table showing the 13 measures and the categories for each measure (n=223).

<table>
<thead>
<tr>
<th>Measures</th>
<th>Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controllability</td>
<td>High</td>
</tr>
<tr>
<td>Confrontation</td>
<td>Low</td>
</tr>
<tr>
<td>Avoidance</td>
<td>Low</td>
</tr>
<tr>
<td>Walk test: Reaction to PEOPLE only</td>
<td>Relaxed</td>
</tr>
<tr>
<td>Walk test: Reaction to DOGS only</td>
<td>Relaxed</td>
</tr>
</tbody>
</table>
Walk test: Reaction to TRAFFIC only  |  Relaxed  |  Angry/fearful
Walk test: Reaction to SOUNDS only  |  Relaxed  |  Fearful
Handling: Vet & staff checks & brushing  |  Relaxed  |  Excited  |  Fearful
Play session  |  Playful/controllable  |  Excited/frustrated  |  Fearful
Interaction with person  |  Relaxed  |  Excited/frustrated  |  Fearful
Interaction with chew or food  |  Happy/relaxed  |  Aroused/controllable  |  Guarding/confrontational
Interaction with friendly dog  |  Relaxed/controllable  |  Agitated/uncontrollable  |  Angry/uncontrollable
Kennel behaviour  |  Relaxed  |  Frustrated/distressed  |  Fearful

VALIDATION: TEST – RETEST VALIDITY
A Pearson product-moment correlation coefficient was calculated to assess the relationship between test moment 1 (First week for test: 2-4-5-6-10. After 2 weeks of being in the shelter for test 7) and test moment 2 (Third week for test 2-4-5-6-10. After a minimum of 4 weeks stay at the shelter for test 7). For the computed measures and their related tests the emotional state of the dogs varied between moderately to very consistent for being either in a positive or negative emotional state at T1 and T2. The largest correlation was found for test 10.2 Behaviour when a person passes the kennel and frustration ($r=0.84; p=0.000$). When scored by the same tester at T1 and T2. The weakest correlation was found between test 10.3 Behaviour when a person with a dog passes the kennel. ($r=0.33; p=0.29$) when scored by different testers at T1 and T2.

CONCLUSIONS AND PRACTICAL APPLICATION IN SHELTERS
- The scoring system used in this assessment shows large correlations for inter- and intra-observer reliability making it a reliable and economic scoring system that is feasible to apply during assessments of shelter dogs that can be performed during normal caretaking activities by minimally trained observers.
- The large inter-observer reliability in a practical context indicates that different individuals can be involved in the assessment of the same dog, which will increase feasibility for the implementation of assessments in the work schedules testers.
- The assessment identifies stable emotional states and behavioural tendencies of dogs in specific situations over time.
- The developed protocol for the assessment of the behavioural profile of shelter dogs showed good construct and content validity. The behavioural profile assessment is effective for identifying differences in behaviour and emotional state at a dog's individual level. This makes the assessment a valuable tool for shelters to implement measures to improve the quality of life of the dogs while under their care.
- Dogs can be categorized in three adoptability categories being ‘easy’, ‘intermediate’ and ‘hard’ to home by using the behavioural profile assessment. This makes it a valuable instrument to decide on actions to implement to increase the adoptability of the dog, for the selection of potential adopters and for the type and level of assistance the new owners should be provided with to make the adoption successful.

REFERENCES