Applied Animal Behaviour Science 176 (2016) 87–95

Contents lists available at ScienceDirect

Applied Animal Behaviour Science

journal homepage: www.elsevier.com/locate/applanim

Preference assessments and structured potential adopter-dog interactions increase adoptions

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ARTICLE INFO

Article history:
Received 6 April 2015
Received in revised form
23 November 2015
Accepted 28 December 2015
Available online 11 January 2016

Keywords:
Adoption
Animal shelter
Dog training
Preference assessment

ABSTRACT

Previous research showed that lying down next to potential adopters and not ignoring their play initiations during interactions outside of the kennel correlate with increased likelihood of adoption in shelter dogs. In the present study, we experimentally assessed whether increasing these behaviors during interactions with potential adopters influenced adoption outcomes. In Experiment 1, we validated a brief play preference assessment in order to find individual preferences for toys in shelter dogs. We found that play with specific toys in the preference assessment predicted play in more naturalistic settings ($\chi^2 = 10.50$, $P < 0.001$, $n = 20$). We then used a modification of this assessment as part of the experimental intervention. In Experiment 2, we randomly assigned dogs to the experimental structured-interaction (Group SI) and control (Group C) groups and evaluated 160 interactions between these dogs and potential adopters. The experimental intervention consisted of conducting a play preference assessment prior to the interaction and structuring the interaction once a potential adopter expressed interest in the dog. The structured interaction involved Phase 1—in which the visitor was encouraged to allow the dog to eliminate, Phase 2—in which the experimenter encouraged play with the dog's preferred toy, and Phase 3—in which the experimenter encouraged the dog to lie down next to a potential adopter by restraining the dog with a short leash and luring into a down position with treats. A mixed-effects logistic regression model revealed that group membership, but not morphology of the dog, was predictive of adoption outcome ($\chi^2 = 3.95$, $P < 0.047$). Dogs in Group SI engaged in less undesirable behavior and were 2.49 times more likely to be adopted than dogs in Group C (23.3% adopted in Group C and 39.2% adopted in Group SI). A questionnaire revealed that potential adopters did not find the structured interaction intrusive. This validated intervention could be used in animal shelters to increase adoption rates in dogs.

1. Introduction

Due to the large volume of surrendered, lost, and abandoned animals in the United States, animal shelters admit approximately 3.9 million dogs each year, with approximately a third ultimately euthanized (ASPCA, 2015). This immense overpopulation depletes shelters of resources and thus often results in only basic animal care with impoverished quality of life. Therefore, recent research has focused on understanding the variables which predict adoption, such as the dogs' morphology and behavior (Brown et al., 2013; Clevenger and Kass, 2003; Lepper et al., 2002; Protopopova et al., 2012, 2014; Protopopova and Wynne, 2014; Siettou et al., 2014; Wells and Hepper, 1992).

Protopopova and Wynne (2014) examined which, if any, behaviors exhibited by a dog during an out-of-kennel interaction with a potential adopter predicted adoption. The correlational data showed that potential adopters were less likely to adopt dogs that ignored their play initiations, whereas dogs that showed interest in potential adopters by actively engaging in play, such as object-play with the potential adopter (e.g., tug with a rope toy, fetch with a tennis ball, etc.), or body-play (e.g., reciprocal play signals involving lunges, physical contact, bowing, hand-clapping, etc., between the potential adopter and dog) were more likely to be adopted. Dogs that lay in proximity to potential adopters also had a better chance of adoption. In addition, a smaller interaction area as opposed to a larger area, in which dogs had more opportunity to engage socially with the potential adopter, was associated with more adoptions.

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http://dx.doi.org/10.1016/j.applanim.2015.12.003
0168-1591/

It remains to be experimentally demonstrated, however, that training behaviors or arranging conditions that produce these desirable interactive behaviors has a positive impact on adoption rates. In the present study, we aimed to develop and experimentally evaluate a program that incorporated the behavioral and contextual variables previously found to increase adoption rates in shelter dogs. We assessed a multi-component program that incorporated each of the components previously identified as correlating with the decision to adopt a dog. This multi- component approach improves the chances that an effect would be seen, which is an ethical imperative when working in shelters where dogs may stay in non-ideal environments or be euthanized if not adopted.

Training shelter dogs to play with potential adopters poses several challenges. Play between a dog and a human is dependent on the temperament of the dog as well as its training history (Tóth et al., 2008), and training such a complex behavior is a challenge in a shelter environment where resources are limited. A training program that requires either an expert dog trainer or a prolonged amount of time will likely not be utilized simply because of the lack of available resources. An alternative to training some predetermined play behavior in shelter dogs is to evaluate the dog's play style preference. Previous research has found that dogs have individual preferences for play and respond to different human play signals differently (Rooney et al., 2001). In fact, previous research has found that shelter-housed dogs had preferences for different types of toys (Wells, 2004). Preference assessments have been used with animals to determine food preference (Fernandez et al., 2004; Gaalema et al., 2011) and, more recently, preference for enrichment items (Mehrkam and Dorey, 2014). Thus, instead of training shelter dogs to play, we developed an assessment of already established individual preferences of play style in dogs so that we could subsequently encourage potential adopters to use the style of play preferred by each dog. In Experiment 1, we developed and validated a brief preference assessment for shelter dogs preferred type of play. A modified version of this assessment was then used to guide potential adopter-dog interactions as part of the experimental intervention in Experiment 2. The aim of Experiment 2 was to evaluate whether using structured potential adopter-dog interactions at the shelter would increase appropriate behavior from the dogs, such as lying down in proximity to and not ignoring play initiations from potential adopters and consequently lead to a higher likelihood of adoption. All procedures in this study were conducted with the approval from the University of Florida Institutional Animal Care and Use Committee and the Institutional Review Board.

2. Experiment 1

2.1. Materials and methods

2.1.1. Animals and housing

Twenty adoptable dogs, housed at the Alachua County Animal Services (ACAS) in Gainesville, Florida, were used in this study (Table 1). ACAS is an open-admission county animal shelter functioning as both an animal control and adoption facility. Adoptable dogs consisted of seized and surrendered dogs deemed safe, healthy, and adoptable by the staff based on medical and temperament testing. Dogs were randomly selected for the study.

Dogs were singly housed in 1.0 m × 4.6 m × 2.1 m kennels with two-thirds of the kennel outdoors and one-third indoors. All of the kennels had cement floors with 1.2 m tall cement walls connected to the ceiling with a chain-link fence. The kennels contained a water bowl, food dish, and Kuranda bed (Kuranda USA, Annapolis, MD, USA) in the inside section of the kennel. Staff fed the dogs and cleaned the kennels daily before ACAS opened at 09:30. Volunteers exercised, trained, and played with the dogs approximately one to three times per week in the shelter's outdoor play yards. Two of the play yards were used in the study. One yard was a smaller concrete outdoor fenced area that contained a small portable pool, water dish, and a bench (7.5 m × 4.3 m) and the second was a larger grassy area (10.6 m × 11.0 m) that contained a pool, several benches, toys, trees, bushes, and agility equipment (a ramp, a dog walk, and several jumps). Dogs left the shelter through adoption into a home, placement into a rescue organization, or by humane euthanasia.

2.1.2. Data collection

Each dog was given a brief play preference assessment by the experimenter to determine its preferred play style. The brief assessments were administered while the dogs were on a 1.2 m slip leash in a concrete play yard at ACAS. Each dog was presented with four toys (tennis ball, nylon squeaky toy, cotton plush toy, and a flannel rope toy) in a random order with three presentations of each. One experimenter (AP) held the leash, while a second experimenter (MB) presented each toy to the dog. The latter experimenter showed the toy to the dog by placing it in front of the dog's face and briefly animating it with her hand while vocally calling the dog's attention (e.g., exclaiming "What is this?"). She then threw the toy on the ground within 1 m of the dog. If the dog grabbed the toy with its mouth for at least 2 s, the experimenter offered the dog a food treat (~2 mm in diameter hotdog piece; Classic Jumbo Jumbos Franks, Bar-S, Phoenix, AZ, USA). If the dog released the toy for a treat, the trial was deemed successful. The requirement to release the toy for a treat was included in order to ensure safety of potential adopters when implementing the play in the subsequent experiment. The proportion of times the dogs successfully interacted with the toy out of three presentations were recorded. All interactions were videotaped in order to assess inter-observer reliability.

Following the initial brief preference assessment, those dogs that remained in the shelter for three weeks were administered a validity test twice per week for three weeks. Whereas the main objective of Experiment 1 was to determine whether the brief preference assessment was predictive of the dogs' behavior in a more naturalistic setting, we included a longitudinal component in order to examine the stability of the dog's play behavior. The validity test included a presentation of the same toys in a more naturalistic setting in order to mimic how potential adopters may interact with the dogs in an out-of-kennel interaction. The assessment began with a 2-min opportunity for the dog to explore the area and empty its bowels. Each toy was presented twice for a duration of 1 min each (a total of 8 min of play). The duration of the validity test was chosen based on previous data regarding how long an average out-of-kennel interaction lasts with a potential adopter (Protopopova and Wynne, 2014). The order of the toys was determined through a random number generator. Within the minute presentation of each toy, an experimenter asked the dog to play with it every 15 s (for a total of 4 trials per min). Multiple experimenters were used across different days for each dog to prevent the dogs becoming accustomed to a particular individual. The experimenters who assessed the dog on the brief preference assessment never participated in the validity test. The validity test was conducted off-leash in a small concrete enclosure with no other toys present. If the dog played with and released the toy for a treat, the experimenter recorded a trial as successful. The proportion of times the dogs successfully interacted with the toy out of 8 trials was recorded.

2.1.3. Data analysis

All statistical analyses were conducted using Stata SE 14 (Stata LP, College Station, TX, USA). Descriptive analyses were conducted to assess how much dogs engaged in play in general. A mixed-effects logistic regression model, with dog identity as a cluster variable, was used to assess which toys elicited most play, whether