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Rehoming Animals from Animal Rescue Shelters  
in New Zealand

A thesis presented in partial fulfilment of  
the requirements for the degree of

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# Abstract

A few studies in the UK and USA have investigated the reasons why animals are surrendered to animal rescue shelters and how successful adoptions from such shelters are. There are no data available from New Zealand animal shelters and this research project was undertaken to determine how successful adoptions from three shelters in the North Island were, and why dogs were surrendered to one of these shelters.

In a pilot study 98% of people (n = 45) who had adopted a cat from one SPCA shelter believed that the adoption was successful. 73% of the cats were still with their new owner and none were returned to the shelter. Fewer (78%) people who adopted dogs (n = 28) believed that the adoption was successful and 61% of the dogs were still with their owners while 21% had been returned to the shelter. Failure was primarily due to the dog's behaviour being inappropriate and the problem behaviours were hyperactivity, aggression towards humans and regularly running away.

In a larger study, contact was made with 103 of 354 persons who had adopted a dog from one of three shelters between January 2001 and April 2002. 90% of the persons interviewed stated that the adoption had been a success. There was no difference in success rates between the three shelters despite them having quite different protocols to identify persons suitable to adopt a dog and to match the dog with a potential adopter. Dogs were rejected before they reached 18 months of age. Inappropriate behaviour was closely related to the fate of the adopted dog and aggression and running away were common problems. The reason for adopting a dog influenced its subsequent fate. Dogs were most commonly adopted 'for the children' but dogs were also adopted to act as company and replace an old dog.

The reason why a dog was surrendered to a shelter was determined for 967 dogs surrendered between January 1999 and December 2001. The greatest number (30%) were strays followed by unwanted puppies (26%). A smaller percent were surrendered as unwanted (14%) or, because of behaviour problems (7%) or the owner was moving (9%). The most common behaviour problems were running away (24%) and hyperactivity (19%). More than half the dogs entering a shelter were less than 6 months of age and if the strays are excluded, because they are usually sent to the local authority pound, then about half the surrendered dogs were either euthanased or adopted.

The inability in 2002, to contact more than 70% of the persons who had adopted a dog in the previous 18 months suggests that much of the pre-adoption checking of properties and persons might not be effective in identifying stable households. The majority of these people could not be contacted because they had either given an inappropriate telephone number to the shelter or had moved. The fact that 9% of dogs were surrendered because the owners were moving suggests that the dog adopters who could not be contacted, might not have the adoption success rate seen in those who were contacted.

To Katie, who passed away during the writing  
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## Chapter 1: Literature Review

“The euthanasia of healthy but unwanted pets in animal shelters is believed to be the leading cause of death for dogs in America”

(Olson et al., 1991)



## 1.1. Background

Every year, thousands of unwanted and stray animals are presented to animal shelters throughout New Zealand. Those that are suitable are put up for adoption, but a large number are euthanased.

In 2001, New Zealand branches of the Society for the Prevention of Cruelty to Animals (SPCA) received 9,107 unwanted dogs and puppies, 37% of which were adopted and a further 43% were euthanased. In the same year, 31,660 cats and kittens were processed and 41% of these were adopted and 50% euthanased. In 2000, 10,465 dogs and puppies (34% adopted, 42% euthanased) and 35,170 cats and kittens were received (39% adopted, 46% euthanased) (Peter Blomkamp, personal communication). These figures represent only the animals received by SPCA shelters and do not include animals received by other shelters throughout the country and those euthanased by private veterinary practices.

In the United States of America the 2 million dogs that are euthanased annually in shelters account for approximately a third of all canine deaths (Patronek and Rowan, 1995; Arkow, 1994). In Japan in 1994, more than 243,000 dogs were impounded in government shelters, of which 5.4% were reclaimed by their owners, 4.4% were adopted, and the remaining 90.2% were euthanased or given to laboratories. Out of the 302,175 cats impounded in Japan in 1994, less than 1% were reclaimed, 0.5% were adopted, and the remaining 99.5% were euthanased or given to laboratories (Hart et al., 1998). The low percentages of adoptions from Japanese shelters are due to these shelters traditionally not adopting out animals. However, this is starting to change, with shelters now starting to offer puppies and kittens for adoption (Hart et al., 1998).

The success rates of animal adoptions from shelters are generally considered to be quite high, but there have been few studies to verify this. Many New Zealand animal shelters collect information from the people who adopt animals before the adoption takes place, but no contact is made with these people after the adoption. Therefore, there is little information available regarding what happens to the animals once they leave the shelter. It is unknown what percentage of animals remain in the adopted home for the rest of their lives, and how many are either passed on to another owner or are returned to a shelter. This study will examine the fate of animals adopted from shelters, and why adoptions are not successful.

## 1.2. Why are animals surrendered to shelters?

### 1.2.1 Dogs

The factors that lead to a dog being surrendered to an animal shelter have been identified (Miller et al., 1996; Patronek et al., 1996a; Alexander and Shane, 1994). In America, Miller et al. (1996) found that a large number of dogs surrendered to an animal shelter were originally sourced from private owners (54%) or shelters (23%), the remaining dogs having been obtained from pet stores or as strays. In that study, about a third of the dog owners had not planned to acquire the pet that they eventually surrendered, but had either adopted it as a stray or received it as a gift. The main reason for obtaining a dog in that study was for companionship (Miller et al., 1996). Of the dogs surrendered to an American shelter, 66% had been obtained by the owner from private person, 20% were obtained from shelters and 13% were received as a gift (Patronek et al., 1996a). One third (34%) of owners surrendering pets to a shelter claimed they did not intentionally obtain the pet they were surrendering, and 21% of

pets being surrendered were obtained by minors without parental permission (DiGiacomo et al., 1998).

From February 1995 to April 1996, the National Council on Pet Population Study and Policy (NCPSP) conducted a study of 12 shelters located in New Jersey, New York, Tennessee, Kentucky, Colorado and California (Salman et al., 1998; Scarlett et al., 1999; New et al., 1999; Salman et al., 2000). Of the dogs that were surrendered to these shelters, 31.4% of dogs in the study were obtained originally from friends, 22.8% from a shelter and 10.9% were obtained from a breeder. 46.4% of the surrendered dogs had been owned for up to 12 months (Salman et al., 1998). Moving home was the most common reason for surrendering a dog (7%), followed by the landlord not allowing the pet (6%), the cost of pet maintenance (5%), the owners having no time for the pet (4%), pet illnesses (4%) and too many animals in the household (4%).

Miller et al. (1996) found that 30% of dogs in a shelter were surrendered because they had behaviour problems. The main behaviour problem was hyperactivity, followed by housebreaking problems. A further 21% of dogs in the shelter were surrendered because the owners did not have the time or money to look after the animal, and 19% were surrendered because the owner was moving and unable to take the pet. Another American study found the main reasons for dogs being relinquished to a Humane Society were that the dog was unwanted (39.6%), the owners had problems with the dog (19%) and the owners had a change in lifestyle (17%), the landlord objected to the dog (7.5%), the owner's health (6.7%) and the owner not being able to afford the dog (5.2%) (Posage et al., 1998). Alexander and Shane (1994) studied the characteristics of dogs surrendered to an American shelter and found that large numbers of surrendered animals were from unwanted litters (36.5%), were no longer wanted (39%), were surrendered

because of behavioural problems (8.6%) or were from owners who were moving and could not take the animal with them (8.2%).

A study conducted in Massachusetts, USA, compared the reasons reported to the shelter staff for surrendering a pet, to those discussed during a private interview with the surrendering owner after the pet had been surrendered (DiGiacomo et al., 1998). The background to the surrendering of pets is much more complex than is usually recorded on shelter paperwork and perceived by staff. Behavioural problems were the most commonly mentioned reason for surrendering a pet to the shelter according to shelter records. However, subsequent interviews with the surrendering owners revealed that factors generated specifically by the pet, such as behaviour problems, were less significant factors contributing to the surrender of the animal than previously thought. In contrast to beliefs held by shelter staff, the final decision to surrender a pet to a shelter was made after struggling with the decision for a period of time. It was noted that "as lifestyles became less conducive to pet owning - such as owners returning to work, children growing up, becoming less interested in the pet, or moving away from home - changes developed in the pets themselves, amplifying problems. When pet pressures were involved in the decision to surrender the pet, such as behaviour problems, they were often related to internal pressures such as time and financial restraints and external pressures such as complaints about the dog from the landlord or the public" (DiGiacomo et al., 1998).

Patronek et al. (1996a) found that the degree of planning associated with the acquisition of a dog was not associated with the risk of it being surrendered. More married people than single people surrender dogs. Renting a property compared with owning appeared to have no effect on the surrendering of dogs (Miller et al., 1996).

In contrast to receiving behavioural advice from a veterinarian, receiving advice from a breeder, trainer or groomer was associated with an increased risk of surrender (Patronek et al., 1996a). Around a quarter of households that sought veterinary care reported that veterinarians routinely offered behavioural advice. Lack of veterinary care was associated with a markedly increased risk of surrender (Patronek et al., 1996a). The risk of surrender associated with undesirable behaviour was much greater for dogs that received little veterinary care. Participation in obedience classes also decreased the risk of surrender to a shelter (Patronek et al., 1996a). Confinement in a crate or garage for much of the day, inappropriate care expectations, leaving dogs sexually intact, and acquiring dogs after six months of age all increase the risk of relinquishing the dog to a shelter (Patronek et al., 1996a)

### 1.2.2 Cats

Very few studies have studied cats in animal shelters. The NCPPSP study found that the greatest reasons for surrendering cats to shelters included having too many animals in the household (11%), family members having allergies (8%), the owner moving (8%), the cost of ownership being too great (6%), the landlord not allowing the cat (6%), and not being able to find homes for a litter (6%). About a third (36%) of the cats surrendered had been owned for less than one year. A large number of surrendered cats were originally obtained from a friend (33.2%), or had been adopted as a stray (23.3%) (Salman et al., 1998)

The majority of cats surrendered to an animal shelter in Ohio were originally obtained from a private owner (Miller et al., 1996). Cats obtained at no cost from the previous owner had an increased risk of surrender compared with cats acquired through purchase or adoption (Patronek et al., 1996b). Cats obtained as strays were not found to have a

higher risk of being surrendered to an animal shelter than cats obtained from a shelter or private breeder (Miller et al., 1996; Patronek et al., 1996a). Miller et al. (1996) found that the most common reason for surrendering cats to a shelter was that the owner was moving. Patronek et al. (1996b) found that age was associated with risk of surrender, with cats younger than six months at an increased risk, and Miller et al. (1996) found that the majority of cats surrendered were less than 12 months of age. Factors that increased the chances of a cat being surrendered to an animal shelter included being allowed outside, being sexually intact, behaviour problems in particular inappropriate elimination, being of a mixed breed, having never visited a veterinarian, and being looked after by only one member of the household (Patronek et al., 1996b).

### 1.3. Why are pets adopted from a shelter rejected?

#### 1.3.1 Why are pets adopted from shelters

In order to understand why pet adopted from a shelter are subsequently rejected, it is important to know what types of animals are more likely to be adopted.

In California the likelihood of a dog being adopted from a local shelter decreased with age, intact males were less likely to be adopted than intact females, and spayed females and neutered males were more likely to be adopted than intact females (Lepper et al., 2002). Coat colour influenced the adoption of dogs, with black and brindle coloured dogs less likely to be chosen (Lepper et al., 2002), and black and brown coloured dogs less likely to be adopted compared with white, grey and gold coloured dogs (Posage et al., 1998).

The size of a dog was also correlated with adoption, small dogs being more likely to be adopted than large dogs (Posage et al., 1998). Toy, terrier, hound and non-sporting breeds

were associated with adoption while other breed groups were less likely to be adopted from a shelter. Lapdogs were preferred for adoption over large companion breeds, guarding breeds and fighting breeds, while purebred dogs were more likely to be adopted than mixed breeds (Lepper et al., 2002). Posage et al. (1998) found that dogs with a history of living inside with the previous owner rather than living outside and dogs with no behaviour problems were more likely to be adopted from a shelter.

Cats less than one year of age were more likely to be adopted than cats from all other age groups (Lepper et al., 2002). Desexed cats, both male and female were more likely to be adopted compared with intact male and female cats (Lepper et al., 2002). Brown and black coloured cats were less likely to be adopted than tabby, white, colour point and grey cats (Lepper et al., 2002). Stray cats were more likely to be adopted than cats that entered the shelter for other reasons (Lepper et al., 2002). Injured cats, cats with behaviour problems, and old and sick cats did not have a good chance of being adopted. Some breed preference was found when people were looking at adopting a cat and Persians and rare breeds of cats were more popular compared with domestic long-hair or domestic short-hair cats (Lepper et al., 2002).

### 1.3.2 Why are adopted pets subsequently rejected?

An Irish study examined the prevalence of behaviour problems exhibited by dogs within four weeks of adoption from a rescue shelter. Most of the sheltered dogs exhibited problem behaviours, and an undesirable behaviour increased the animal's chances of being returned to its source of adoption. The chances of a dog developing a problem behaviour was related to its sex, background and age (Wells and Hepper, 2000). Over half the respondents (68.3%) indicated that their dog had exhibited a behaviour that they considered to be undesirable within the first month of acquisition (Wells and Hepper,

2000). Only around one third (31%) of owners surrendering dogs to that animal shelter admitted the dog they were surrendering had behaviour problems. Therefore more dogs are knowingly surrendered to rescue shelters with behaviour problems than is admitted by the relinquishing owners. Wells and Hepper (2000) hypothesised that this could be due to the owner believing that if the shelter is told of the problem it will jeopardise the animal's chance of being re-homed, or that the owner simply does not believe the dog has a behaviour problem. The greater number of adopted dogs having behaviour problems compared with the number of dogs surrendered due to behaviour problems could also be due to the change in owner and therefore the way the animal is handled, as well as the change in environment. Either of these could lead to a change in the animals' behaviour and could cause the animal's behaviour to become a problem.

Kidd et al. (1992a) looked at the human factors that influence the success of animal adoptions from shelters. Out of 343 subjects used in the study, 80% retained and 20% rejected their adopted pet. Men adopted a significantly higher number of dogs than woman, while women were more likely to adopt a cat. More pets were rejected by first-time owners (62%) than by owners that had previously owned a pet (38%). A higher percentage of dogs than cats were rejected. A significantly higher percentage of men compared with women, and parents compared with non-parents rejected the adopted animal. Parents that expected the pet to act as a playmate for their child were more likely to reject the pet compared with parents who did not have this expectation. Parents who expect a pet to keep their children busy and to teach children sensitivity and nurturance were more likely to reject the pet (Kidd et al., 1992a).

An American study analysed records of an animal shelter to determine how many of the dogs adopted from it are subsequently returned. A similar number of cats (14%) and

dogs (12%) were returned to the shelter (Alexander and Shane, 1994). The return of cats and dogs were not found to be associated with gender. Age was a significant factor with the return of dogs, most dogs returned were less than 4 months of age (Alexander and Shane, 1994). The time of year was also significantly related to the return of dogs with most dogs being returned during January, February, March, May and July. Time of year was not a significant factor in the return of cats (Alexander and Shane, 1994)

While Alexander and Shane (1994) were able to identify factors related to animals being returned to the shelter, the study could not identify all unsuccessful adoptions from the shelter as not all these animals were returned to the shelter.

#### 1.4. Behaviour testing

##### 1.4.1 Companion animals

Behaviour testing of dogs has been used in shelters to predict potential behavioural problems after adoption and to ensure a good match between a dog and its owner. It has also been used to test dogs from shelters for work as service dogs (Weiss and Greenberg, 1997).

One study which looked at 90 dogs from five different shelters in the Netherlands, used 39 behavioural tests to test six main behavioural characteristics: aggression, fear, sociability, obedience, separation anxiety and playfulness (Netto et al., 1990). The tests consisted of a series of stimulus presentations and the response of the animal was recorded. Analysis showed that the predictive value of the 'negative' test (guarantee of absence of potential problem behaviour) and the sensitivity (correct prediction of the occurrence of potential problem behaviours) are significantly better when using behavioural tests than when using the opinion of the animal shelter's staff.

Van der Borg et al. (1991) examined 81 shelter dogs using a range of stimuli to measure aggression, fear, separation anxiety, obedience as well as miscellaneous problem-related behaviours. The animal shelter records in this research showed that aggression and separation anxiety were the most frequent reasons for leaving a dog with, or returning a dog to the animal shelter and according to the former owners, most dogs exhibited one or more problem behaviour. Van der Borg et al. (1991) found that if a good match is to be achieved between a dog and its future owner, the staff of an animal shelter had to detect potential problem behaviours. The term 'potential' is used because the occurrence of problem behaviour depends largely on the way in which the new owners handle dogs. In addition, owners will have their own interpretation of what a 'problem' behaviour is (Campbell, 1975). Most of the tests used by van der Borg et al. (1991) simulated situations in which a problem behaviour might arise. Some potential behaviour problems may not be recognised in a dog living in a shelter, such as difficulties with car rides and separation anxiety.

To validate these tests and the opinions of the staff of the animal shelters about these dogs, they were compared with the experiences of the new owners of the animals. This comparison showed that behavioural testing provides a better prediction of problem behaviour than do the opinions of the staff (van der Borg et al., 1991). Therefore, testing might be a useful and valuable instrument to improve the matching between dog and future owner, provided that the adequate information is available about the character and background of the future owner.

A behavioural test has been designed to assess the responses of dogs to novel or threatening conditions. In order to explore the relationship between the measures of behaviour made in the shelter and later behaviour, questionnaires were completed by the

new owner two weeks and six months following the adoption. Factors measured included locomotor activity, flight, sociability, timidity, solicitation and wariness. Measures taken at the shelter predicted problem behaviours in the home at both two weeks and six months (Hennessy et al., 2001). At two weeks, the behaviour problem index primarily reflected difficulties in housebreaking. By six months, the index incorporated all measured aspects of problem behaviour other than response to separation. The authors believe that this preliminary study indicates that behavioural tests may be useful in predicting later behaviour problems in dogs, and could be helpful to shelter staff in screening dogs for adoption (Hennessy et al., 2001).

The relationship between the behaviour of puppies at 7 weeks of age and their social tendencies later in life has been widely studied. In one study by Beaudet et al. (1994), each puppy was tested at seven weeks and then again at 16 weeks, to evaluate social attraction, following, restraint dominance, evaluation dominance and social dominance. For each test the puppy was given a weighted score depending on its behavioural reaction. Each score was then replaced with letters: D=dominant, N=neutral, S=submission. No significant correlations were found between the total value for social tendencies at seven and 16 weeks. Thirty eight percent of puppies maintained the same social tendency, however, 49% shifted from dominant to neutral or neutral to submissive. Only 13% increased from their value for social tendencies. It was also found that a change in activity levels from 7-16 weeks of age was not significant. The study concluded that behavioural testing puppies at seven weeks of age does not reliably predict the social status of that puppy at an older age (Beaudet et al., 1994).

Measuring aggression levels in dogs by means of behaviour tests has also been looked into by Netto and Planta (1997). They developed tests to measure the aggression of

dangerous dogs. A majority of the tests were designed to elicit an aggressive response from the dog. In response to the tests, 97% of dogs showed aggression and 67% of the dogs showed biting/attack behaviours on one or more occasions. While some of the tests involved normal activities, such as being restrained, some involved situations that the dogs would not encounter on a normal daily basis.

#### 1.4.2 Service dogs

Dogs have been trained for search and rescue, substance detection and service which includes guide dogs, police dogs, hearing dogs, dogs for people in wheelchairs and therapy dogs (Allen and Blascovich, 1996), and dogs from shelters are often trained for service work.

The most well-known service dog is the guide dog, used by the visually impaired to help them navigate. Guide dogs need to be large, have a good attention span, be very trainable, not territorial, neither highly submissive nor dominant, and have high endurance. German Shepherds and Retrievers are common breeds used for this purpose (Witchel, 1996). Hearing dogs have a different role from that of a guide dog. Size is not an issue, therefore small breeds are often used, but the dog must be energetic and slightly dominant. Dogs are increasingly being used to assist people in wheelchairs. The tasks such dogs perform include helping to pull the wheelchair, pick up dropped items and operate light switches (Allen and Blascovich, 1996).

The use of behavioural tests to predict the effectiveness of shelter dogs as service dogs has been studied by Weiss and Greenberg (1997). Initially, the behaviour of each dog was tested in different situations using a selection test (Table 1.1). The dogs were then obedience trained and were taught basic commands such as sit, stay and come.

Completion of the obedience training was determined when the dog responded correctly

75% of the time to the first command. The third phase consisted of retrieval training where the dog was trained to retrieve a dumbbell from the ground and give it to the trainer. Phase four consisted of evaluation of the obedience and retrieval training in various situations, both familiar and unfamiliar. The performance of the dogs during the selection test was not consistent with behaviour they later displayed which suggests that the tests might not be sufficiently sensitive (Weiss and Greenberg, 1997). This may reflect on the differences in environment between living in a home and in a shelter or pound.

The amount of stress encountered by dogs in shelters may be quite high. Stressors may include high levels of noise, new food and many people passing by their cages each day. These stressors add to the difficulty of predicting both problem and desirable behaviours because the dogs are less likely to react in a normal fashion to some of the novel stimuli presented during testing. It was noted that several service dog training centres that use shelter dogs, find that these dogs often change their behaviour after being away from the shelter environment for a few weeks (Weiss and Greenberg, 1997). Therefore, although the selection test measures might be effective for dogs tested in a low stress environment, the stress in the shelter might have a strong effect on the tests sensitivity. The study found that although the tests were not a good overall predictor of behaviour, they were successful at predicting fear and submission (Weiss and Greenberg, 1997).

Behavioural tests may not provide an accurate prediction of the future behaviour of a dog, but they are still useful as a general indication of the animal's temperament.

Table 1.1: Tests used to assess the effectiveness of shelter dogs as service dogs

TEST	DESCRIPTION	DESIRED DOG BEHAVIOUR
Sideways approach	Crouch down at the side of the cage so that you are touching the cage, look ahead, not at the dog	The dog should come to you.
Initial contact	Turn and face the dog. Talk softly and give eye contact but don't stare.	The dog should be friendly on the other side of the cage.
Touch	Put your fingers through the cage wire and touch the dog while looking towards the floor	The dog should be receptive to your touch
Approach to touch	Place your fingers through the cage about 1 foot from the dog	The dog should move towards your hand for contact.
Stare	Open your eyes wide and stare at the dog, try not to let the dog break contact	The dog should look towards you and try to make friendly contact.
Quick approach	While looking at the dog make a sudden move forward	The dog may initially startle, but should then try to make friendly contact.
Cage exit	In home cage, place leash on the dog and open the cage door wide. Holding on to the leash, back away from the door and let the dog exit.	The dog should exit without hesitation
On leash behaviour	Take the dog to a hallway away from the kennel area, but not completely secluded. Spend 5min working on a controlled walk correcting the dog for pulling	The dog should walk by the handler most of the time, be friendly and tolerate corrections.
Room test	Take the dog to a quiet room away from other dogs. Sit on a chair and drop the leash. When the dog initially approaches pat it, but most of the time give the dog as little stimulation as possible	The dog should spend 65% of the time by the handler
Umbrella test	Drop the leash and with a closed umbrella stand in front of the dog and open it. Place the open umbrella on the floor	The dog may initially startle, but should then calmly approach the open umbrella
Pinch test	Kneel on the floor in front of the dog. You should be looking but not staring into the dog's eyes. Take the right front paw and pinch between the toes then release.	The dog should be responsive to pain without excessive submission or aggression

(Source: Weiss and Greenberg, 1997)

## 1.5. Temperament and re-homing

Temperament is defined as an individual's set of characteristic behavioural responses to novel or challenging stimuli (Heath-Lange et al., 1999; Manteca and Deag, 1993).

Temperament is an important characteristic in companion animals, with different breeds often known for a particular temperament. This is important in the selection of dogs for police and guide dog work, but also for dogs to be good companion animals. Within a population, individual dogs can be classified by their behaviour along a shy/boldness gradient (Wilson et al., 1994). Confronted by a challenging situation or facing a novel object, shy individuals will show avoidance, while bold individuals will demonstrate interest (Reale et al., 2000). Temperament is also often classified on a calm/agitated scale. Temperament can thus include various phenotypic traits, each expressed in a particular context.

An important unresolved issue is whether individual differences in temperament are context specific or domain general (Wilson et al., 1994). The concept of domain-general temperaments states that an individual's behaviour in a particular context predicts how that individual will behave in other contexts. Alternatively, the context-specific hypothesis predicts that the same individual could be shy in one context and bold in another (Wilson et al., 1994). Context-specific temperaments may be an adaptive response to different selective pressures but requires that the expressions of temperament in different contexts be free to evolve independently of each other.

Correlations between different temperamental traits or of the same trait at different ages are needed to determine whether temperament is context specific or domain general, a question which very few studies have looked into (Reale et al., 2000). A positive phenotypic correlation has been found between boldness in an anti-predator context and

aggressiveness in a social context in sticklebacks (Tulley and Huntingford, 1988), as well as a correlation between several social temperamental traits and dominance in chimpanzees (Buirski et al., 1978). Contrary to this, context specificity in the temperament of juvenile pumpkinseed sunfish has been shown (Coleman and Wilson, 1998).

Temperament, if consistent, should affect fitness, because temperament affects individual reactions to predators, the way individuals explore novel environments and how they interact with conspecifics (Reale et al., 2000). Context specificity would therefore be advantageous compared with domain generality, and should be favoured by natural selection (Wilson, 1998). Domain generality however, could arise if different temperamental traits depended on common physiological, genetic or neural traits. For example, studies of primates have found that low levels of serotonin metabolites in cerebrospinal fluid are associated with boldness, aggressive behaviour, risk taking, higher mortality and early emigration in young males (Fairbanks et al., 1999).

Studies of animal temperament is made difficult by factors such as low sample sizes, difficulties in defining temperament categories and the difficulty of developing reliable techniques with which to measure temperament (Murphy, 1998). Despite the difficulties involved, canine temperament warrants precise study because dog trainers often regard it as the most important factor affecting a dog (Holmes, 1979).

Temperament has been described as “the relatively stable individual characteristics (of behaviour) that shows some consistency over time and across situations” (Plomin, 1983). Because the behaviour of a dog generally shows some consistency over time and across situations and is likewise observable and quantifiable, it was chosen as an indicator of temperament in a study conducted on potential guide dogs (Murphy, 1998).

The study investigated how trainers interpret temperament categories from canine behaviour observed in 12-month-old potential guide dogs on their final assessment walk. The study concluded that it was more accurate to interpret temperament categories from sets of behavioural characteristics rather than from single elements of behaviour. A single element of behaviour that is observed is only a component of a whole behaviour pattern, which may be a characteristic of more than one category of temperament. For example, 'bases of ears pulled back' was a frequently occurring characteristic of anxiety, low concentration and excitability. If a dog had the bases of its ears pulled back and was panting, however, it would suggest that the dog was anxious because no other temperament category's indicator set included both behavioural traits. Furthermore, genetic effects and individual idiosyncrasies are more likely to affect a single element of behaviour than all the elements belonging to a behavioural temperament set. It was noted that the accuracy of this research would be increased by increasing the number of dogs used, by including different breeds of dogs, separating females from males and by including the behaviour of the dogs in the kennels as well as on their final assessment walk (Murphy, 1998).

Behaviour testing has been used since the 1930's to aid the selection of service dogs for various types of work and for breeding (Mackenzie et al., 1986). A study conducted on Labrador retrievers and German shepherds, comparing the results of behavioural tests with their future capacity as service dogs has been conducted by Wilsson and Sundgren, (1997). The results showed a marked difference in the mentalities of the two breeds, but also between sexes and particularly between the various categories of service dogs. It was concluded that a subjective evaluation of complex behaviour parameters could be used as a tool for selecting dogs suitable as service dogs (Wilsson and Sundgren, 1997).

Behavioural tests have been used to evaluate the effects of weight, litter size and parity of the mother on the behaviour of dogs as puppies and adults (Wilsson and Sundgren, 1998). It was found that of the three factors, the weight of the puppies had the most affect on behaviour, mainly in females. Large females were more active and explorative at eight weeks of age and scored higher for defence drive and for hardness at adult age. The effect of litter size on the puppy test results was low.

Despite the numerous difficulties involved in the study of animal temperament (particularly in applied situations), it is important to attempt to categorise and describe animal temperament in a standard and repeatable way that receives general agreement. Through this, a language can be developed for the discussion of temperament, which minimises the possibility of misunderstanding and anthropomorphism arising (Murphy, 1998).

While it has been shown that temperament is an important aspect of service dogs, it is equally important in companion animals. Dogs not only need to be capable of cohabiting with humans, but they also need to be suited to the particular environment in which they live. Evaluating the temperament of each dog surrendered to a shelter before they are put up for adoption could be a useful tool. Tests would give shelter staff a more accurate indication of each dog's temperament than they would get from either the previous owner or by simply observing the dog in its cage. It would give a greater opportunity for undesirable behaviours, such as aggression, to be noticed before the animal enters a new home. It would also have the added benefit of the staff having a more accurate understanding of each dog's temperament and therefore would be in a better position to ensure the dog goes to a suitable home. Evaluating the temperament of shelter dogs ensures that they have a suitable temperament to be a companion animal,

but also helps ensure an appropriate match between the dog and its new owner.

Therefore temperament-testing dogs in shelters has the possibility to increase the success rates of dog adoptions.

## 1.6. Periods of Socialisation

The periods of socialisation are very important in an animal's development. Spending time in a shelter during these periods of development can mean that an animal misses out on experiences necessary to develop into a well-adjusted pet.

### 1.6.1 Dogs

The concept of 'critical periods' in the neurological and social development of dogs is well documented. Dogs that are denied human contact until they are over twelve weeks rarely make good companions. Somewhere in that time span is a 'critical period' where socialisation, with their own and other species, is required to ensure a well adjusted dog. Socialisation can be defined as the process whereby an animal learns how to recognise and interact with species with which it cohabits. In the wild this is likely to be limited to the animals own species, but for the domestic dog it includes other species such as humans and cats. By learning how to interact with these, the socialised dog develops communication skills that enable it to recognise, amongst other things, whether or not it is being threatened and how to recognise and respond to the intentions of others.

Studies in the 1960's came up with the concept of the 'critical periods' in the development of the dogs 'mind'. These are as follows:

1. Neonatal period		0 to 2 weeks
2. Transitional period		2 to 4 weeks
3. Socialisation period	-to dogs	4 to 6 weeks
	-to humans	4 to 12 weeks
4. Juvenile period		12 weeks to sexual maturity
5. Adult period		Sexual maturity onwards

The precocial mammals, being neurologically mature at birth, are able to interact with their environment and with members of their own species immediately after birth and thus can establish primary social relationships (Scott, 1962). This rapidly developing phenomenon is termed imprinting; because the organism is relatively mature at birth or hatching there may possibly be considerable prenatal organisation of behaviour (Fox, 1971). In contrast, the altricial mammals develop more slowly postnatally, and have a clearly defined neonatal period during which they are totally dependant on the mother for food and shelter. It is only after this period, when sensory and locomotor development had reached a certain point, that primary social relationships can be established. It is this phase that has been termed the 'critical period of socialisation'. Essentially, the two phenomena, imprinting in the precocial animals and socialisation in the altricial animals, are similar in that there is an initial period which allows emotional attachment to any object (usually the mother), after which, strong avoidance behaviour to novel stimuli develops. Such avoidance behaviour acts as a natural survival mechanism for the young animal.

### *1.6.1.1. The Socialisation Period*

The onset and early stages of the socialisation period correlate well with the maturation and myelination of the spinal cord. Therefore, by the time the socialisation period begins, the puppy has developed the necessary sensory and motor abilities to be both aware of its surroundings and able to respond to them. As a result of this, puppies begin to learn about their environment and, importantly, begin to interact with each other, their mother and with humans. Feeding and sleeping no longer dominate their lives, and exploration and social play become important activities (Nott, 1992). It is during this period that the characteristic patterns of adult behaviour appear. The behaviour of puppies during the socialisation period is characterised by a willingness to approach novel objects and in particular moving stimuli, including other dogs and humans.

Social signals such as tail wagging and the raised paw play-eliciting gesture are evident. During bouts of play, puppies learn to control biting and also begin to bark. The early manifestation of adult sexual behaviour can be observed during play, as well as the early emergence of prey-killing behaviour patterns such as pouncing and shaking. Throughout the socialisation period, play becomes more elaborate as the puppies learn what is and what is not acceptable social behaviour from each other and their mother. In addition, dominance and subordination experienced during play may help puppies to accept social rank differences between dogs later in life (Nott, 1992).

The early stages of the socialisation period have been classified as the 'critical period' for the formation of social relationship, during which, a small amount of experience can have long lasting effects on behaviour. Fuller (1964) raised dogs in partially isolated conditions between the ages of 4 and 16 weeks. His dogs developed what he called an 'isolation syndrome' which was characterised by extreme activity but also a reduction in the intensity of social contacts. This seems to reflect a change from approach to

avoidance responses seen in puppies at around eight weeks of age. Consequently, it appears that during the period between 4-8 weeks of age, it is crucial that primary social relationships are formed.

#### *1.6.1.2. The Juvenile Period*

The juvenile stage extends from approximately 12 weeks of age until sexual maturity. During this period the basic behaviour patterns do not change significantly, but there is a gradual improvement of motor skills with increasing practice and muscle development. Dogs of this age gradually learn the relevance of their behaviours and are able to determine which behaviours are appropriate for specific situations. Basic learning capacities appear to be fully developed by the beginning of the juvenile period, but by about four months old the speed at which conditioned reflexes form begin to slow down, primarily because previously learned tasks begin to interfere with new learning. Despite being neurologically mature during the juvenile period, puppies still cannot be trained to do difficult tasks, due simply to their short attention span and their excitability (Nott, 1992). Puppies that are raised outside first begin to move away from the nest area and explore their wider surroundings at around twelve weeks of age. Puppies also seem to make the transition from one environment to another more easily around this age (Pfaffenberger and Scott, 1959).

#### *1.6.1.3. The Adult Period*

Once puberty and sexual maturity have occurred, the dog can be considered an adult, however, the development of behaviour patterns continues. Physiologically, an adult dog is fully developed apart from general growth, which can continue up to two years. However, all dogs continue to gain knowledge about their environment during adulthood and new behavioural patterns will be learnt. In comparison to their ancestors,

domestic dogs reach sexual maturity much earlier. This is thought to be due to selective breeding by man. In addition to selecting for more rapid development, man has also selected for the perpetuation of certain infantile characteristics in the domestic dog (Nott, 1992). This process, known as neoteny has involved both physical (for example small size) and behavioural (less dominant) characteristics.

### 1.6.2 Cats

Stages of development of the cat are less well defined than for the dog, but can still be divided into several phases. The neonatal period lasts from birth into the second week of life and is dominated by eating and sleeping. At this stage the kittens are completely dependant on their mother for survival. The transitional period, as with puppies, occurs as the kittens change from being totally dependant on their mother, to a degree of independence, and lasts from the end of the neonatal period until about 3 weeks of age. The next phase of development, the socialisation period, occurs in kittens but seems to be less important in cats than in more social animals, such as the dog (Robinson, 1992). During the socialisation period an increase in social play can be observed. It also appears that human contact is important at this time to ensure that the animal will accept human contact as an adult pet cat. In cats, it has been suggested that the socialisation period ends at around 9 weeks of age when environmental exploration becomes more obvious and social peaks in social interactions become apparently less obvious. The time between the socialisation period and sexual maturity, the juvenile period, may differ in length depending upon the breed of cat. During this phase of development, behaviour patterns do not necessarily change, but there is a gradual increase in motor skills associated with the increase in muscle development and improvement in neuromuscular coordination. When kittens reach sexual maturity their behaviour can change and they may become increasingly independent as they become adult cats.

### 1.6.3 Significance to Shelter Animals

Puppies are surrendered to shelters as young as 6 weeks of age, and can spend much of their socialisation and juvenile periods there. Due to the nature of shelters, contact with humans, and other dogs and animals, is usually very limited during this time, leaving little opportunity for the puppies to learn social behaviours required for them to develop into well-adjusted pets. The puppies then enter their new home, where they are expected to fit in with the new family. Lacking the necessary social skills to adapt to the new environment, the puppy's behaviour can be mistaken for disobedience by the new owner.

Kittens can also be affected in the same way. Without the regular handling by humans needed at the critical time in the kitten's development, as often happens in shelters, the adult cat may not learn to accept human contact.

The social development of an animal can also be an issue when adopting an adult pet from a shelter. Although the animal may not have grown up in the shelter, there is usually no way of knowing what past experiences the animal has had, and how this has affected the animal's development.

### 1.7. Aims of studies

The aims of this study are:

1. To collect data on the types of animals entering animal shelters in New Zealand and determine why animals are surrendered to these shelters
2. To determine how successful the rehoming of animals from New Zealand animal shelters is and to determine factors that lead to an unsuccessful adoption

## Chapter 2: Pilot Study

“Every boy who has a dog should also have a mother, so the dog can be fed regularly”

(Anonymous)



## 2.1 Introduction

There has been no research into how successful adoptions from New Zealand shelters are. Overseas studies have shown several trends in the rejection of pets adopted from shelters. Kidd et al. (1992a) found that people were more likely to reject dogs than cats, men and parents rejected a significantly higher percentage of pets than women and non-parents, and people were more likely to retain a pet if they had owned a pet previously. It was concluded that owners' ignorance of species-specific behaviours, unrealistic expectations for the roles that pets play in their children's lives and the expense and time required for pet ownership were the main reasons pets adopted from shelters were rejected (Kidd et al., 1992b).

The risk factors associated with the relinquishment of cats and dogs to animal shelters have been identified. Lack of veterinary care seems to be a factor in the relinquishment of dogs. Patronek et al. (1996a) found that "dogs that had not been to a veterinarian at all were about 13 times more likely to be given up than dogs that had been at least twice." Kidd et al. (1992b) noted that veterinarians were able to discuss training methods and reassure owners of normal animal behaviour. In addition to this, participation in obedience classes appears to decrease the risk of rejecting a dog that had been adopted from a shelter. Patronek et al. (1996a) found that "dogs that had not been to obedience classes were about 3.5 times more likely to be relinquished to a shelter."

Other factors, which increase the likelihood of surrendering dogs to a shelter, included keeping dogs in crates and obtaining dogs at an age greater than 6 months. It was found that dogs obtained from a shelter were more likely to be relinquished, than dogs purchased from a breeder or private owner (Patronek et al., 1996a). However, this finding was not supported by Miller et al. (1996), who found that dogs obtained from a private

owner were more likely to be abandoned than dogs obtained from a shelter (54% compared to 23%). Miller et al. (1996) found that the main reason for surrendering a dog to a shelter was due to undesirable behaviour and this was supported by Patronek et al. (1996a).

Wells and Hepper (2000) conducted a study linking the prevalence of behaviour problems and the rate of dog rejection. The results of the study indicated that most shelter dogs exhibited problem behaviours, that undesirable behaviours increased the dog's chances of being returned to its source of purchase, and that the chances of a dog developing a behaviour problem were related to its sex, background and age. Over half the respondents (68.3%) indicated that their dog had exhibited behaviour that they considered to be undesirable within the first month of adoption from a shelter. As stated in chapter 1, Wells and Hepper (2000) found that 31% of dogs surrendered by their owners to the same rescue shelter were surrendered due to behaviour problems. Therefore it would appear that considerably more dogs are knowingly admitted to rescue shelters with behaviour problems than is admitted by the relinquishing owners. In other words, when owners surrender their animals to a shelter they are reluctant to admit their pet has a problem behaviour. Wells and Hepper (2000) hypothesised that this could be due to the owner believing that if the shelter is told of the problem, this will jeopardise the animal's chance of being re-homed, or that the owner simply does not believe the dog has a behaviour problem. The increased number of adopted dogs having behaviour problems compared with the number of dogs surrendered due to behaviour problems could also be due to the change in owner and therefore the handling of the animal, as well as the change in environment. Either of these could lead to a change in the animals' behaviour and could cause the animal to become a problem.

Kidd et al. (1992a) found that role expectations differed between the types of animal adopted. Dogs were expected to be companions, confidantes and sources of emotional support more than cats. Dog and cat adopters expected their pets to play different roles in their children's lives. Fathers rated dogs significantly higher as playmates than cats. However, parents who expected their pets to act as playmates were more likely to reject the pet, compared with parents that did not expect their pets to have this role in their children's lives. It was also noted that parents who expected the pet to keep their children busy so they can work or relax, and also those that expect the pet to teach their children sensitivity and nurturance, had unreasonable expectations and were more likely to reject their pets.

Kidd et al. (1992a) found that cats were less likely to be returned to the shelter than dogs. Patronek et al. (1996b) noted that cats of owners who had specific expectations about the cat's behaviour were about 3.5 times more likely to be surrendered to a shelter. Other risk factors included being allowed outside, being sexually intact, and behavioural problems such as inappropriate elimination. Contrary to what was found for dogs (Partonek et al., 1996a), owners reading information about typical animal behaviour, or taking their cat to a veterinarian did not reduce the cats' chance of being surrendered to a shelter (Patronek et al., 1996b).

No such research has been conducted in New Zealand. The aim of this pilot study was to collect data on the success or failure of dog and cat adoptions from one New Zealand animal shelter.

## 2.2 Method

### 2.2.1 Animal Shelter

The animal shelter used in this study is a small branch of the Royal New Zealand Society of Prevention of Cruelty to Animals (RNZSPCA). It serves a large area including a city and the surrounding rural area. It is a non-profit organisation that relies on donations from the public and assistance from volunteers. The service provided to the public by this shelter includes taking in unwanted animals, and, where possible, finding a suitable home for them. The shelter has a high profile and is involved in animal welfare cases. The principal species that enter the shelter are cats and dogs, but other small animals and birds are often taken in.

Only dogs that have been surrendered by their owner can be rehomed by the shelter. Each dog that enters the shelter is examined for both health and behavioural problems before being put up for adoption. There is no exact procedure for this, and it is done at the workers discretion.

When adopting a dog that has not been desexed, the new owner signs a contract to say that this procedure will be done.

All cats that enter the shelter as strays are held by the shelter for a minimum of seven days. If after this time the cat's owner has not come forward, the cat is put up for adoption.

### 2.2.2 Survey

The contact details of 350 people that had adopted either a cat or dog from the shelter between June 1999 and December 2000 were made available for the study. The study was conducted as a phone survey. Adopters were contacted over the phone and explained

the nature of the survey and asked if they would be willing to participate in the study. If the adopter consented, they were asked about 20 questions about themselves, the animal they adopted and the service the shelter provides (Table 2.1). The participants were informed of their rights and that they were able to stop the interview at any stage or decline to answer any of the questions. No link between the participant and the answers they supplied were retained.

### 2.2.3 Data Analysis

The data was collated and analysed to determine which characteristics were associated with successful adoptions. An adoption was defined in two ways. The first was by asking the owner whether or not they believed the adoption was successful. This was used to separate the adoptions into successful and unsuccessful categories. Secondly, the owner was asked to rank the success of the adoption on a scale of one to five, with one being not successful, and five being highly successful. This same scale was also used in other questions. Correlations were used in order to identify factors that may cause an adoption to be unsuccessful.

- 1 What was the type (cat or dog) and breed of the animal you adopted?
- 2 What sex was the animal?
- 3 How old was the animal at adoption?
- 4 Have you still got the animal? If not why not?
- 5 What were your reasons for adopting an animal?
- 6 What made you choose that specific animal?
- 7 Has the animal been desexed?
- 8 How well, on a scale of one to five, did the animal settle in?
- 9 Has the animal had any major health problems?
- 10 Has the animal had any behavioural problems?
- 11 Does the animal sleep inside?
- 12 How well on a scale of one to five has the animal improved your life?
- 13 How many children/adults live in the house?
- 14 Do you own any other animals?
- 15 Do you live in a suburban or rural area?
- 16 Do you feel the adoption was successful or unsuccessful?
- 17 How successful, on a scale of one to five, do you feel the adoption was?
- 18 How well, on a scale of one to five, do you feel the shelter matched the animal with you?
- 19 Have you adopted from the shelter or other animal shelters before?
- 20 Would you adopt from the shelter again?
- 21 Why did you choose to adopt from this shelter as opposed to another shelter, a breeder or pet shop?

Table 2.1: The questions asked to the participants in the study

## 2.3 Results

A total of 73 people were contacted (28 had adopted a dog and 45 a cat), from the 350 possible contacts, giving a success rate of 21% (Table 2.2). Of the 277 people not contacted, phone numbers of 257 were not in use, 17 people had moved and current contact details were not available and three people were unwilling to participate.

Table 2.2: Success of contacting people who had adopted a cat or dog from the shelter

Success of contact	Cats (%)	Dogs (%)	Total (%)
Contacted	45 (21.4)	28 (20.0)	73 (20.9)
People had moved	12 (5.7)	5 (3.6)	17 (4.9)
Phone number not in use	152 (72.4)	105 (75.0)	257 (73.4)
Refused to participate	1 (0.5)	2 (1.4)	3 (0.9)
Total	210 (100)	140 (100)	350 (100)

Sixty one percent of the dogs were still with their owner at the time of the study, compared with 73% of cats (Table 2.3). Twenty-one percent of dogs had been returned to the shelter. No cats were returned to the shelter, however 20% of the cats had either died or been put down, compared with 11% of dogs (Table 2.3)

Table 2.3: Fate of animals after adoption

	Cats	Dogs
	N (%)	N (%)
Still Owned	33 (73.3)	17 (60.7)
Returned	0 (0.0)	6 (21.4)
Died/put down	9 (20.0)	3 (10.7)
Other	3 (6.7)	2 (7.2)
Total	45 (100)	28 (100)

Ninety-eight percent of cat owners stated that the adoption was successful, with an average success rating of 4.67 out of 5 for all cat adoptions (Table 2.4). Nearly 90% of the adopted cats had been de-sexed and the average age of cats at adoption was 1.1 years. Seventy-eight percent of dog adoptions were successful with an average success rate of 4.21 out of 5 for all dog adoptions. The average age at adoption of successfully adopted dogs was 1.7 years, compared with 0.7 years for unsuccessfully adopted dogs. All dogs associated with an unsuccessful adoption slept outside, compared with 55% of successfully adopted dogs.

Cats had a higher average score for settling in to their new home (4.24) compared to dogs (3.75), as well as a higher mean rating for improving their owners life (4.14 compared to 3.79) (Table 2.4). Cat and dog adopters both felt that the animal had been matched relatively well to them and their situation by the shelter staff (Table 2.4)

Table 2.4: Summary of results of cat and dog adoptions obtained from survey questions

	CATS	DOGS
Successful (%)	97.79	78.57
Mean Success rating *	4.67	4.21
De-sexed (%)	88.89	82.14
Mean Settle-in Rating *	4.24	3.75
Mean Improved life of Owner Rating *	4.14	3.79
Mean Rating for Matched with owner *	3.18	3.18
Prevalence of behaviour problems (%)	24.44	53.57
Prevalence of health problems (%)	13.33	14.29
Average age at adoption	1.14	1.51
Would adopt from SPCA again (%)	88.89	67.86
Sleep inside (%)	84.44	35.71

\* Score from 1-5

Undesirable behaviours were the cause for all unsuccessfully adopted dogs being returned to the shelter, with the main problems being hyperactivity (50%) and aggression towards humans (33%) (Table 2.5).

Table 2.5: Behaviour problems reported in adopted dogs

Behaviour Problems	Successful (%)	Unsuccessful (%)	Total (%)
Steals washing	31.25	0.00	22.73
Digs	12.50	0.00	9.09
Barks	12.50	0.00	9.09
Wary of males	12.50	0.00	9.09
Aggressive to cats	6.25	0.00	4.55
Aggressive to dogs	6.25	0.00	4.55
Aggressive to humans	6.25	33.33	13.64
Runs away	6.25	16.67	9.09
Soils inside	6.25	0.00	4.55
Hyperactive	0.00	50.00	13.64

Behaviour problems were reported in less than 25% of cats, with fearfulness being the most common complaint (Table 2.6).

Table 2.6: Behaviour problems reported in adopted cats

Behaviour Problem	%
Fearful	27.27
Aggressive towards dogs	18.18
Sprays urine	18.18
Aggressive towards people	9.09
Aggressive towards cats	9.09
Soils inside	9.09
Territorial	9.09

Various factors were correlated with the success rate of the adoption (Table 2.7).

Significant correlations existed between success rate and the settle in score, the improved life of owner score, and whether the owner would adopt again from the shelter, with both cats and dogs. Correlations between success rating and behaviour problems (cats only) and sleeping inside (dogs only) were also significant.

Table 2.7: Correlations with success rating and average values of various factors

Factor	CATS Correlation	DOGS Correlation
Age (yrs)	0.048	0.098
Sex (female)	0.00	-0.076
Settle in score	0.624**	0.443*
Improved life of owner score	0.403**	0.790**
Matched with owner score	0.070	0.518**
Adopt again	0.402**	0.579**
De-sexed	0.042	0.169
Behaviour problems	-0.309*	-0.326
Sleep inside	0.109	0.381*
Family size	-0.153	-0.007
Pets	-0.182	0.175

\*\* correlation is significant at the 0.01 level

\* correlation is significant at the 0.05 level

n/a – not applicable

<sup>1</sup>Score out of 5

The most commonly reported reason for adopting a dog was for a family pet (Table 2.8).

Cats were more commonly adopted to replace an old pet (36%) or to provide company (29%).

Table 2.8: Reasons for adopting an animal

	Dogs (%)	Cats (%)
Family pet	32.6	15.6
Company	16.4	28.9
Replace old pet	16.4	35.6
Wanted a pet	7.4	6.7
Guard dog	5.6	0.0
Exercise	3.7	0.0
Other	3.7	4.4
To save animal	7.2	8.9
Gift	7.2	0.0

Dogs were more commonly chosen for their breed (29%), and cats are more likely to be chosen by personality traits (36%) (Table 2.9).

Table 2.9: Reasons for selecting a particular animal

	Dogs (%)	Cats (%)
Breed	29.5	0.0
Personality	18.8	36.0
Looks	7.2	16.0
Age	5.4	6.0
On death row	1.8	10.0
Only one there	22.3	10.0
Colour	0.0	14.0
Child chose	8.0	0.0
Other	7.1	8.0

## 2.4 Discussion

The difficulty in contacting people who had adopted dogs or cats from the shelter may reflect a mobile population in the district the shelter is located in, probably due to the high number of students in the city. Students move to the region for around three years to attend one of the many tertiary institutions, often moving house each year. Therefore, the addresses supplied to the shelter by these students were no longer accurate at the time the study was undertaken. This low contact rate made the study very difficult and supplied a very low number of completed surveys to analyse.

This finding has significance for this shelter. Firstly, it suggests that follow-up calls to people who have adopted animals from the branch would need to be made within a few months of the adoption, should it be decided to make this a standard practice. More importantly, the checks made on all properties of potential dog adopters to ensure the property is fenced and of an adequate size may not be of limited value if the dog remains on that property for only a short time.

No cats in the study were returned to the shelter, while 27% had died due to being run over or having health complications. Despite 14% of all cats sleeping outside, and 11% being intact, 73% of cats in the study were still owned by the original adopter. This appears to be a high success rate, considering overseas studies, where factors such as being kept outside, not being de-sexed, and having elimination problems all increased a cats chance of being relinquished to a shelter (Patronek et al., 1996b).

While 61% of dogs were still owned by the adopters, one-fifth of dogs were returned to the shelter after adoption. This compares with one-tenth of dogs returned to the shelter in an overseas study (Posage et al., 1998). The success ratings of 98% of cat adoptions and

79% for dog adoptions were comparable to the study by Posage et al. (1998), where the success rate for dog adoptions was found to be 73%.

Eighty-nine percent of cats in the study, and 82% of dogs, had been de-sexed. These figures should be nearer to 100% due to the shelter's policy on de-sexing all animals that go through their shelter. If this is not possible before the animal is re-homed, the new owner is required to sign a contract stating that they will ensure the animal is de-sexed. However, this figure is high compared with an American study in which 44% of dogs and 44% of cats had been de-sexed (Miller et al., 1996). Mahlow (1999) estimated that 27% of cats and 33% of dogs in animal shelters in Texas, USA are sterilised, but that proportions of animals sterilised were significantly different among subpopulations. These figures suggest that the de-sexing policy of this shelter is reasonably effective.

The average age of cats at adoption was 1 year but this age does not reflect the large number of kittens that enter the shelter. Miller et al. (1996) found that 24% of cats entering a shelter in America were between the ages of 0 and 6 months, and a further 26% were aged between 6 and 12 months.

This study found that adopted dogs that slept outside were more likely to be rejected than dogs that slept inside. Posage et al. (1998) noted that dogs with a history of indoor residence were more likely to be successfully adopted than those dogs that lived outside. Outdoor residence is likely to be related to behaviour problems, however it is not possible to distinguish whether dogs live outside because they have behaviour problems, or they develop the problems due to spending much of the day outside away from human contact.

Behaviour problems were the reason for the new owner returning a dog to the shelter in all the unsuccessful adoptions. The primary behaviour problems were reported as

hyperactivity, aggression towards humans and running away. Miller et al. (1996) found that behaviour problems were responsible for 30% of dogs surrendered to a shelter, with hyperactivity being the most common problem. However, behavioural problems were also reported in the successfully adopted dogs, the most common problem being stealing washing (31%), but there were no reports of hyperactivity. When asked if an animal had a behavioural problem, no categories were presented to the owners, therefore they were able to use their own interpretation of a 'problem'. The aim of the question was not to get an accurate statistic and definition of each problem, but to allow each owner to state whether their pet displayed a behaviour that was a problem to them. Individual owners have different ideas and difference tolerance levels of problem behaviours, and therefore made different judgements as to when certain behaviours became a problem. The occurrence of behaviour problems in cats had little or no effect on the success of the adoptions, but did influence the success rating owners gave for the adoption.

The current study found that the most common reason for adopting a dog was as a family pet (33%). Miller et al. (1996) found that the main reasons for adopting a dog was for companionship (36%), because the dog was a stray (24%) and for a person other than the owner (18%). Cats tended to be adopted to replace an old cat (36%), for companionship (29%), and as a family pet (16%). Kidd et al. (1992a) found that expecting an animal to play a particular role, such as act as a companion, increases the chance of the animal being rejected. It was also found that dogs were more likely than cats to be adopted to act as companions, confidantes and sources of emotional support. The current study found that cats more than dogs were adopted to provide companionship for their owners.

A number of people chose the animal they adopted because it was the only one there. This was more common in dogs (22%) than cats (10%). Cats were more likely to be

chosen for their personality (36%), looks (16%), or colour (14%) than dogs. Dogs were more likely to be chosen because of their breed (30%). People also liked to adopt an animal because it was close to being put down, which is consistent with the idea that many people chose to adopt an animal from a shelter as opposed to from a pet shop or breeder, as they feel that they are helping a worthy cause.

This study has shown that there are risks involved in the adoption of cats and dogs from shelters. However, the high success rate of cat adoptions, and the fact that no cats were returned to the shelter shows that cat adoptions from shelters in New Zealand are more likely to be successful than dog adoptions. Further research in the area of cat adoptions is not likely to be of great benefit to shelters. Therefore, the remainder of this research will concentrate on dogs in animal shelters. First of all, it will look into what types of dogs are surrendered to shelters and why their owners surrender them. Then, a more in depth study into dog adoptions from New Zealand shelters to further define the factors involved in successful and unsuccessful dog adoptions will be carried out.

## Chapter 3: Reasons for Surrendering Dogs to an Animal Shelter

“In 2001, New Zealand branches of the SPCA received over 9,000  
unwanted dogs and puppies”

(Peter Blomkamp)



### 3.1. Introduction

#### 3.1.1 Why dogs are surrendered to shelters

Every year, thousands of dogs are surrendered to animal shelters in New Zealand. No research has been conducted in this country as to why these animals are no longer wanted by their owners. Studies in countries such as the USA and Japan have looked into why dogs are surrendered to shelters and what influences the chances of the dogs being either adopted into a new home or euthanased (Patronek et al., 1995; Miller et al., 1996; Patronek et al., 1996a; DiGiacomo et al., 1998; Hart et al., 1998; Salman et al., 1998; Zawistowski et al., 1998; Balcom and Arluke 2001; Lepper et al., 2002).

Hart et al. (1998) reported that in 1994 over 240,000 dogs in Japan were admitted to an animal shelter and 61% of these were caught as strays. The number of dogs surrendered to shelters in the USA are more difficult to establish, as there are greater numbers of shelters compared with Japan. It has been estimated however, that around 15 million dogs are surrendered to animal shelters in America each year (Moulton et al., 1991). Of these dogs, 44% are either returned to their owners or adopted into new homes, the remainder being euthanased (Balcom and Arluke, 2001). In 2001, New Zealand branches of the Society of the Prevention of Cruelty to Animals (SPCA) received 9,107 unwanted dogs and puppies, of which 37% were adopted and 43% were euthanased (Peter Blomkamp, personal communication).

#### 3.1.2 Aim

The aim of this study is to determine the types of dogs that are surrendered to a shelter, and the reasons why they are surrendered.

## 3.2. Method

Information on dogs entering a shelter between January 1999 and December 2001 was analysed. The amount of information on each dog that entered the shelter was limited to what details were collected by the shelter staff, but generally included the date the animal entered the shelter, the reason for entering the shelter, the dog's age and sex and then the subsequent fate of the animal. For dogs surrendered by their owner the specific reason for surrender was usually available. This shelter also cares for dogs that are uplifted because of mistreatment. These dogs were not included in the study.

### 3.2.1 The Shelter

The shelter is a small branch of the Royal New Zealand Society of Prevention of Cruelty to Animals (RNZSPCA) (see Chapter 2). The shelter only accepts dogs for rehoming if they are surrendered by their owner. In most circumstances, if a dog is brought into the shelter by anyone other than its owner, the dog will either stay at the shelter until the owner collects it, or it will be sent to the local animal pound. However, a dog may not be sent to the pound if it is younger than three months old.

### 3.2.2 Data Analysis

Information on each dog included in the study was entered on to a Microsoft<sup>®</sup> Excel spreadsheet. The data was then analysed by the Pearson  $\chi^2$  test using SPSS version 10.2.

## 3.3. Results

Information was available for 967 dogs that entered the shelter between January 1999 and December 2001.

### 3.3.1 Intake of dogs

The number of dogs entering the shelter varied significantly ( $p < 0.05$ ) over the three years (Table 3.1). There was also a significant difference in the number of dogs surrendered each season with a higher than expected number of dogs surrendered in autumn and winter ( $p < 0.05$ ).

Table 3.1: The number of dogs surrendered to the shelter each season between 1999 and 2001

Year	Season				TOTAL
	Autumn	Spring	Summer	Winter	
1999	104	93	113	94	404
2000	84	49	58	111	302
2001	77	56	65	63	261
TOTAL	265	198	236	268	967

While numbers of dogs surrendered differed over the three year, a monthly trend can still be seen, with an increase in surrender numbers over May, June and July (Figure 3.1).

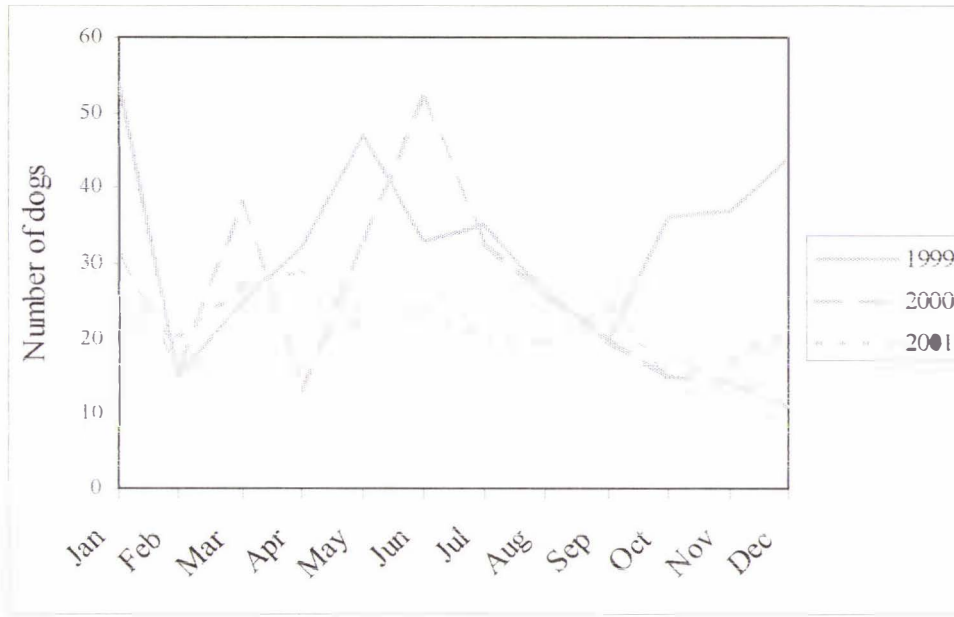


Figure 3.1: The number of dogs surrendered to the shelter each month between 1999 and 2001

### 3.3.2 Reasons for surrender

A significant difference was found between the expected and observed numbers of dogs in each of the seven categories of reason for surrender ( $p < 0.05$ ). Stray dogs were consistently the largest category of dogs entering the shelter with a total of 294 stray dogs being sheltered over the three years (Table 3.2). Puppies either abandoned and subsequently found by a member of the public or surrendered by their owners as part of a litter was the next highest category of dogs being surrendered ( $n=247$ ).

Table 3.2 Numbers of dogs entering the shelter in each category of reason for surrender between 1999 and 2001

	1999 (%)	2000 (%)	2001 (%)	TOTAL (%)	Mean
Behaviour <sup>1</sup>	31 (7.7)	13 (4.3)	19 (7.3)	63 (6.5)	21
Moving <sup>2</sup>	35 (8.7)	26 (8.6)	25 (9.6)	86 (8.9)	28.7
Litter <sup>3</sup>	112 (27.7)	79 (26.2)	56 (21.4)	247 (25.5)	82.3
Unwanted <sup>4</sup>	43 (10.6)	39 (12.9)	52 (19.9)	134 (13.9)	44.7
Time/Space/\$ <sup>5</sup>	31 (7.7)	23 (7.6)	22 (8.4)	76 (7.9)	25.3
Stray	132 (32.7)	95 (31.5)	67 (25.7)	294 (30.4)	98
Other <sup>6</sup>	20 (4.9)	27 (8.9)	20 (7.7)	67 (6.9)	22.3
TOTAL	404 (100)	302 (100)	261 (100)	967 (100)	322.3

1 Dog surrendered to shelter due to exhibiting undesirable behaviour

2 Dog surrendered due to owner moving

3 Puppies surrendered or abandoned as part of a litter

4 Unwanted, abandoned and dogs surrendered without a reason

5 Dog surrendered due to owner not having enough time, space or money to look after the dog

6 Includes reasons such as the owner expecting a baby, the marriage of the owners dissolved, the owner was ill or died and surrender of dog for euthanasia.

A small number of dogs were surrendered for behaviour reasons. The most frequently reported behaviour problem was running away (Table 3.3). Hyperactivity was another common reason for surrendering dogs to the shelter. There was a significant difference between the numbers of dogs surrendered for each behaviour problem ( $p < 0.05$ ).

Table 3.3 Behaviour problems as reasons for surrender of dogs to Shelter A

	n (dogs)	%
Running away	15	23.81
Hyperactive	12	19.05
Not good with stock	9	14.29
Not good with other dogs	8	12.70
Not good with children	8	12.70
Not good with cats	4	6.35
Barking	4	6.35
Other	3	4.76
TOTAL	63	100

### 3.3.2.1. Age of dogs being surrendered

There was a significant difference between the numbers of dogs surrendered in each of the seven age groups ( $p < 0.05$ ). For each of the age groups, the differences between the expected and observed number of dogs in each of the seven surrender categories, was also significant ( $p < 0.05$ ). The greatest number (352) of surrendered dogs were between 0-3 months of age. The majority of dogs in this age group were surrendered as part of a litter (69.3%) (Table 3.4). The second largest group were dogs three years and older, and most of the dogs in this age group were strays (49.4%), followed by dogs surrendered because their owner was moving (14%) (Table 3.4). The greatest numbers of dogs surrendered because of behaviour problems were in the 7-12 month age group (20.8%), followed by the 13-18 month age group (19.1%) (Appendix One).

Table 3.4: Ages of dogs entering shelter by reason for surrender

Surrender Reason	Age Category							Unknown (%)	TOTAL (%)
	0-3m (%)	4-6m (%)	7-12m (%)	13-18m (%)	19-24m (%)	2-3y (%)	3+ y (%)		
Behaviour	1 (0.3)	5 (4.5)	25 (20.8)	9 (19.1)	5 (15.6)	7 (13.2)	11 (6.4)	0 (0.0)	63 (6.5)
Moving	6 (1.7)	9 (8.1)	21 (17.5)	11 (23.5)	5 (15.6)	8 (15.1)	24 (14.0)	2 (2.5)	86 (8.9)
Litter	244 (69.3)	3 (2.7)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	247 (25.5)
Unwanted	30 (8.5)	23 (20.7)	29 (24.2)	7 (14.9)	2 (6.3)	14 (26.4)	19 (11.0)	10 (12.5)	134 (13.9)
Time/space/\$	8 (2.3)	12 (10.8)	19 (15.9)	13 (27.8)	9 (28.1)	2 (3.8)	13 (7.6)	0 (0.0)	76 (7.9)
Stray	55 (15.6)	47 (42.4)	10 (8.3)	3 (6.4)	7 (21.9)	20 (37.7)	85 (49.4)	67 (83.7)	294 (30.4)
Other	8 (2.3)	12 (10.8)	16 (13.3)	4 (8.5)	4 (12.5)	2 (3.8)	20 (11.6)	1 (1.3)	67 (6.9)
TOTAL	352 (100)	111 (100)	120 (100)	47 (100)	32 (100)	53 (100)	172 (100)	80 (100)	967 (100)

### 3.3.2.2. Breeds of dogs surrendered

There was a significant difference between the numbers of dogs in each of the eight breed categories of dogs surrendered, with a higher than expected number of mixed breed dogs. ( $p < 0.05$  (Table 3.5)).

There was a significant difference between the reasons for surrender between the seven breed categories ( $p < 0.05$ ). The gundog, non-sporting and terrier categories had lower than expected numbers of dogs surrendered as part of a litter, while mixed breeds had a higher than expected number of dogs surrendered as part of a litter. Gundogs and terriers had a higher than expected number of strays. While the working dog category

had a higher than expected number of dogs surrendered due to the owner not having enough time, space or money to look after the dog (Appendix One).

Table 3.5 Numbers of dogs in each breed category<sup>1</sup> by reason for surrender

Breed Category <sup>1</sup>	Behaviour (%)	Moving (%)	Litter (%)	Unwanted (%)	T/S/S (%)	Stray (%)	Other (%)	TOTAL (%)
Gundogs	4 (6.3)	3 (3.5)	2 (0.8)	4 (3.0)	5 (6.5)	23 (7.8)	8 (11.9)	49 (5.1)
Hound	0 (0.0)	0 (0.0)	0 (0.0)	2 (1.5)	2 (2.6)	6 (2.0)	1 (1.5)	11 (1.1)
Mixed	51 (81.0)	64 (74.4)	234 (94.8)	102 (76.1)	54 (71.1)	203 (69.0)	44 (65.7)	752 (77.8)
Non-sporting	0 (0.0)	5 (5.8)	0 (0.0)	3 (2.2)	0 (0.0)	4 (1.4)	1 (1.5)	13 (1.3)
Terrier	5 (7.9)	7 (8.1)	0 (0.0)	13 (9.7)	4 (5.3)	34 (11.6)	7 (10.4)	70 (7.2)
Toy	1 (1.6)	1 (1.7)	0 (0.0)	1 (0.7)	0 (0.0)	2 (0.7)	0 (0.0)	5 (0.5)
Utility	0 (0.0)	4 (4.7)	6 (2.4)	4 (3.0)	4 (5.3)	12 (4.1)	1 (1.5)	31 (3.2)
Working	2 (3.2)	2 (2.3)	5 (2.0)	5 (3.7)	7 (9.2)	10 (3.4)	5 (7.5)	36 (3.7)
TOTAL	63 (100)	86 (100)	247 (100)	134 (100)	76 (100)	294 (100)	67 (100)	967 (100)

<sup>1</sup> Breeds assigned to categories following the New Zealand Kennel Club guidelines

### 3.3.2.3. Gender of dogs surrendered

There was no significant difference between the numbers of males and females surrendered to the shelter ( $p > 0.05$ ). There was a difference between the reasons for surrender and gender ( $p < 0.05$ ). A greater than expected number of male dogs were strays (Table 3.6) (Appendix One).

Table 3.6 Reason for surrender of dogs by sex

Reason for surrender	Female (%)	Male (%)	Unknown (%)	TOTAL (%)
Behaviour	31 (8.1)	32 (7.8)	0 (0.0)	63 (6.5)
Moving	41 (10.7)	45 (11.0)	0 (0.0)	86 (8.9)
Litter	59 (15.4)	52 (12.7)	136 (76.8)	247 (25.5)
Unwanted	69 (18.1)	62 (15.1)	3 (1.7)	134 (13.9)
T/S/S	36 (9.4)	40 (9.8)	0 (0.0)	76 (7.9)
Stray	117 (30.6)	140 (34.3)	37 (20.9)	294 (30.4)
Other	29 (7.6)	37 (9.1)	1 (0.6)	67 (6.9)
TOTAL	382 (100)	408 (100)	177 (100)	967 (100)

#### 3.3.2.4. *Fate of dogs surrendered*

Puppies in litters constituted the greatest number of dogs euthanased (52%) (Table 3.7).

Overall, a similar number of dogs were adopted (n=338) as were euthanased (n=337).

The majority of dogs that entered the Shelter between 1999 and 2001 were stray dogs (Table 3.2). Of the 294 stray dogs 171 were sent to the pound, but a large number were returned to their owners directly from the animal shelter (n=81).

The greatest number of adopted dogs was in the unwanted category for surrender (23.4%) or were originally surrendered as part of a litter (20.6%) (Table 3.7). Fifty two percent of euthanased dogs were surrendered as part of an unwanted litter, 11.3% were unwanted, while 9.5% of dogs euthanased were surrendered because the owner was moving (Table 3.7). The majority of dogs that were returned to their owners were strays, however, 8.9% of unwanted dogs were returned to the owner that surrendered the dog (Table 3.7) (Appendix One).

Table 3.7 Fate of dogs that entered Shelter A between 1999 and 2001 by reason for surrender

Reason for Surrender	Fate					TOTAL (%)
	Died (%)	Pound (%)	Returned (%)	Adopted (%)	Euthanased (%)	
Behaviour	0 (0.0)	0 (0.0)	3 (3.0)	35 (10.4)	25 (7.4)	63 (6.5)
Moving	0 (0.0)	0 (0.0)	2 (2.0)	52 (15.4)	32 (9.5)	86 (8.9)
Litter	0 (0.0)	2 (1.1)	0 (0.0)	70 (20.6)	175 (52.0)	247 (25.5)
Unwanted	2 (18.2)	6 (3.3)	9 (8.9)	79 (23.4)	38 (11.3)	134 (13.9)
T/S/S	0 (0.0)	1 (0.6)	2 (2.0)	45 (13.3)	28 (8.3)	76 (7.9)
Stray	8 (72.7)	171 (95.0)	81 (80.1)	16 (4.7)	18 (5.3)	294 (30.4)
Other	1 (9.1)	0 (0.0)	4 (4.0)	41 (12.1)	21 (6.2)	67 (6.9)
TOTAL	11 (100)	180 (100)	101 (100)	338 (100)	337 (100)	967 (100)

### 3.3.2.5. Individual analysis of reason for surrender

a Chi square test carried out on four reasons for surrender – behaviour, owners moving, owners not having enough time, space or money to own the dog, and unwanted – showed that the month, year and season of surrender were generally not significant factors in these surrender reasons (Table 3.8).

A much larger than expected number of dogs surrendered due to behaviour problems, were aged between 7-12 months, with a large number also surrendered over the age of three years. A greater than expected number of dogs surrendered because of behaviour problems were also of mixed breed. A majority of dogs in this category were adopted, but a high number were also euthanased (Appendix One)

A high proportion of dogs surrendered to the shelter because their owners were moving were greater than three years of age, with a large number of dogs also between 7 and 12

months of age. A higher than expected number of mixed breed dogs, were surrendered because their owner was moving. Most dogs in this category were adopted out (Appendix One).

A very large number of dogs surrendered to the shelter because their owner did not have enough time, space or money to care for them, were between 7-12 months of age. The age categories of 13-18 months and greater than three years also had a higher than the expected number of dogs. A much larger than expected number of dogs in this surrender category were mixed breed dogs. A majority of the dogs were adopted, but a large number were euthanased (Appendix One)

More than the expected number of unwanted dogs were in the 0-3 and 4-6 month age groups with a much lower than expected number of dogs in the 19-24 month age group. A greater than expected number of unwanted dogs were of mixed breed. A large proportion of dogs in this surrender category were adopted (Appendix One)

Table 3.8: Chi<sup>2</sup> results for separate analyses of different reasons for surrender

	Behaviour	Moving	T/S/S	Unwanted
Month of surrender	NS	NS	NS	NS
Year of surrender	*	NS	NS	NS
Season of surrender	NS	NS	NS	NS
Age of dog at surrender	**	**	*	**
Gender of dog	NS	NS	NS	NS
Breed of dog	**	**	**	**
Fate of dog after surrender	**	**	**	**

NS = Not significant

\* = p< 0.05

\*\* = p< 0.01

### 3.3.2.6. *Fate of dogs by breed categories*

The fate of the dogs surrendered to the shelter was found to be associated significantly with the breed of the dogs ( $p < 0.05$ ) (Appendix One).

Mixed breed dogs made up the majority of dogs in each category of fate (Table 3.9).

A higher than expected number of gundogs (45%), non-sporting dogs (62%), toy (60%) and working dogs (58%) were adopted, while a lower than expected number of mixed breed (34%), terrier (26%) and utility dogs (19%) were adopted. A lower than expected number of dogs in the gundog (10%), hound (9%), non-sporting (8%) and toy (0%) breeds were euthanased. More dogs of mixed breed (39%) and utility dogs (39%) were euthanased than expected.

Table 3.9 Fate of dogs by Breed Category

Breed Category	Fate					TOTAL
	Died	Pound	Returned	Adopted	Euthanased	
Gundogs	0 (0.0)	9 (5.0)	13 (12.9)	22 (6.5)	5 (1.5)	49 (5.1)
Hound	0 (0.0)	3 (1.7)	4 (4.0)	3 (0.9)	1 (0.3)	11 (1.1)
Mixed	7 (63.6)	140 (77.8)	55 (54.5)	257 (76.0)	293 (86.9)	752 (77.8)
Non-sporting	0 (0.0)	3 (1.7)	1 (1.0)	8 (2.4)	1 (0.3)	13 (1.3)
Terrier	2 (18.2)	16 (8.9)	13 (12.9)	18 (5.3)	21 (6.2)	70 (7.2)
Toy	0 (0.0)	0 (0.0)	2 (2.0)	3 (0.9)	0 (0.0)	5 (0.5)
Utility	1 (9.1)	5 (2.8)	7 (6.9)	6 (1.8)	12 (3.6)	31 (3.2)
Working	1 (9.1)	4 (2.2)	6 (5.9)	21 (6.2)	4 (1.2)	36 (3.7)
<b>TOTAL</b>	<b>11 (100)</b>	<b>180 (100)</b>	<b>101 (100)</b>	<b>338 (100)</b>	<b>337 (100)</b>	<b>967 (100)</b>

### 3.3.2.7. *Fate of dogs surrendered by age group*

There was a significant difference between the fates of dogs in different age groups ( $p < 0.05$ ) (Appendix One).

The majority of dogs euthanased were in the 0-3 month age group (57%). A further 12.5% of euthanased dogs were greater than three years old (Table 3.10). The age groups with the highest number of adopted dogs are the 0-3 months (34%), 7-12 months (21.6%), >3 years (17.8%) and 4-6 months (13.3%).

Table 3.10 Fate of dogs by age category

Age Category	Fate					TOTAL
	Died	Pound	Returned	Adopted	Euthanased	
0-3m	1 (9.1)	31 (17.2)	12 (11.9)	115 (34.0)	193 (57.3)	352 (36.4)
4-6m	3 (27.3)	30 (16.7)	11 (10.9)	45 (13.3)	22 (6.5)	111 (11.5)
7-12m	0 (0.0)	10 (5.6)	7 (6.9)	73 (21.6)	30 (8.9)	120 (12.4)
13-18m	0 (0.0)	1 (0.6)	3 (3.0)	23 (6.8)	20 (5.9)	47 (4.9)
19-24m	1 (9.1)	5 (2.8)	3 (3.0)	16 (4.7)	7 (2.1)	32 (3.3)
2-3y	3 (27.7)	12 (6.7)	8 (7.9)	15 (4.4)	15 (4.5)	53 (5.5)
>3y	2 (18.2)	42 (23.3)	38 (37.6)	48 (14.2)	42 (12.5)	172 (17.8)
Unknown	1 (9.1)	49 (27.2)	19 (18.8)	3 (0.9)	8 (2.4)	80 (8.3)
TOTAL	11 (100)	180 (100)	101 (100)	338 (100)	337 (100)	967 (100)

### 3.3.2.8. *Fate of dogs by gender*

Sex was a significant factor in the fate of dogs surrendered to the shelter ( $p < 0.05$ ) (Appendix One).

Higher than expected numbers of both male and female dogs were adopted. Forty one percent of females surrendered to the shelter were adopted, compared with 37% of

males (Table 3.11). A higher number of males compared with females were returned to their owners or sent to the pound (14.2% and 20.3% respectively). Whereas, a higher number of females were euthanased compared with males (30.6 and 26.5% respectively) (Table 3.10).

Table 3.11 Fate of dogs by gender

Fate	Sex			TOTAL
	Female	Male	Unknown	
Adopted	156 (40.8)	151 (37.0)	31 (17.5)	338 (35.0)
Died	2 (0.5)	8 (2.0)	1 (0.6)	11 (1.1)
Euthanased	117 (30.6)	108 (26.5)	112 (63.3)	337 (34.9)
Pound	74 (19.4)	83 (20.3)	23 (13.0)	180 (18.6)
Returned	33 (8.6)	58 (14.2)	10 (5.6)	101 (10.4)
TOTAL	382 (100)	408 (100)	177 (100)	967 (100)

### 3.4 Discussion

#### 3.4.1 Success of study

The large number of dogs in this study should give an accurate picture of dogs being surrendered to this shelter. Past records were used in this study, and while it allowed for the large number, it was also a limitation. Past records meant that the information collected on each dog surrendered to the shelter was limited to what was recorded on the surrender sheet. Therefore information was restricted to details of the dog while information on the owner was not available. In many cases some information, such as the gender of the dog, had not been recorded. With most of the dogs, especially the strays, the dog's age was an estimate.

### 3.4.2 Numbers of dogs – seasons

This study found a significant difference in the numbers of dogs surrendered in each season, with more dogs surrendered in autumn and winter (Table 3.1). This could be due to a number of factors. In New Zealand, dog registration is due in July and many owners may find they cannot afford this. Students arrive in the city to study in late summer, and many may decide to adopt a dog. Exams, followed by a study break in winter, may encourage students to give up their dog at this time. Wet and cold conditions during winter may mean that many dogs are exercised less frequently and kept outside away from company. Both these may cause the dog to become bored, which may lead to the development of behaviour problems.

Miller et al. (1996) noted that intakes of dogs in shelters are likely to vary over the seasons, but the research did not continue for a period of time that would show any such trend. Patronek et al. (1995) found that the mean number of dogs received per month by an animal shelter in America was not significantly different. However, numbers of dogs entering an animal shelter in America, both stray and owner surrendered dogs, peaked in late summer and was at its lowest in late winter (Patronek et al., 1995).

### 3.4.3 Reasons for surrender

Thirty percent of all dogs surrendered to the shelter over the three years were stray dogs, most of which are brought to the shelter members of the public. A majority of the stray dogs are transferred to the pound (58%), however 28% were retained in the shelter until the owner collected the dog, and 6% were euthanased by the shelter. The euthanasia of animals and care of stray dogs is an additional cost to the shelter. The enforcement of responsible dog ownership and ensuring owners properly fence their

properties to contain their dogs would mean less of the shelters resources would be required to care for stray dogs.

The second highest numbers of dogs entering the shelter were in unwanted litters. The majority of these dogs (71%) are euthanased either because they are too young or sick to survive, or due to the large numbers in which they are surrendered. Puppies as young as three days old have been surrendered to the shelter without their mother. Very young puppies are very difficult to rear. Often litters of puppies old enough to be away from their mother are surrendered, but the shelter may not have the resources to care for them all, and some will be euthanased and a few kept for rehoming. Another common scenario is that of an owner bringing in the last few puppies from a litter that they cannot find homes for. These owners see the animal shelter as an easy way out of rehoming the dogs themselves or retaining ownership of puppies not found homes for. Twenty nine percent of the puppies surrendered to the shelter were adopted into new homes. Owners' allowing their dog to have puppies without considering the consequences means that shelters are left to assume responsibility for the puppies. Unwanted litters of puppies occur because owners allow their dogs to stray and because many owners do not neuter their dogs.

'Unwanted' dogs was the third largest category of dogs surrendered to the shelter (14%). This category includes dogs whose owners simply stated on the surrender form that the dog was unwanted and dogs whose owners did not state a reason for surrender. DiGiacomo et al. (1998) interviewed owners after they had surrendered a dog to an animal shelter. They found a discrepancy between the reason for surrender as given to the shelter, and the actual reason the owner was surrendering the dog. They also noted that the decision to surrender a dog is more complex than shelters typically believe it to

be, that the decision to surrender a dog to a shelter is never trivial, and, in all cases, the decision had been made over a long period of time (DiGiacomo et al., 1998). Wells and Hepper (2000) noted that some owners might not be entirely truthful on surrender forms as they are reluctant to admit the real reason for surrendering in the dog in case it may jeopardize the animals' chance of being rehomed. A dog is unlikely to be surrendered to a shelter for no reason but some owners may be unwilling to state the real reason for surrender. It also may explain the lower than expected percent of dogs surrendered for behavioural reasons. The pilot study showed that 21% of adopted dogs in that study were returned to the shelter, due to the dog exhibiting undesirable behaviours. Only 7% of dogs in this study were surrendered due to behaviour problems. One explanation for this discrepancy could be due to a behaviour being a problem according to one owner, but not to another. The most commonly reported behaviour problem was the dog running away (24%) followed by the dog being hyperactive (19%). These problems were the highest and third highest reported problem behaviours reported in the pilot study (Chapter 2). An American study found that behaviour problems were the most common reason for relinquishing dogs to their shelter (30%), with the most commonly reported behaviour problem was hyperactivity (Miller et al., 1996).

A dog surrendered due to the owner moving was the fourth greatest reason for surrender in this study. In a few cases the owner was moving overseas, but the majority of owners were moving either within the city or within the country. The shelter in this study is situated in a city with a high student population and subsequently a large number of rented properties. Students are very mobile, and rarely stay at the same property for longer than a year, as well as moving back to their home town for the summer break. Whether or not a tenant is permitted to have animals living at the property is for the landlord to decide, and the numbers of rental properties allowing dogs are limited. IF

the owner of a dog is required to move out of their rented property, it could be difficult to find another place that allows dogs.

#### 3.4.4 Age of dog

The majority of dogs being surrendered were less than 3 months of age (36%), followed by dogs greater than three years and dogs aged 7-12 months. The large number of dogs surrendered at less than 3 months of age relates to the high number of puppies surrendered as litters, while the numbers of dogs greater than three years are mainly due to the high numbers of strays.

This is comparable with overseas studies. Miller et al. (1996) found that more than half of the dogs surrendered to a shelter in America were younger than one year. Patronek et al. (1996a) found that 54.4% of dogs surrendered to another American shelter were between 6 months and three years. A study conducted in several American shelters found that the greatest numbers of dogs surrendered were aged between 5 months and 3 years (Salman et al., 1998).

Forty-six percent of dogs surrendered due to behaviour problems were 7-12 months of age. This is most likely related to the fact the dog has now grown out of the 'cute' puppy stage, it is now larger and stronger, and therefore more difficult to handle. Any bad habits picked up when the puppy was younger and smaller, now can become a problem for the owner. At this age, dogs need a lot of exercise or they risk getting bored, which can lead to destructive behaviour. Much of their behaviour at this stage is usually due to their enthusiastic nature, but can be misinterpreted as behaviour problems. Miller et al. (1996) stated that the high number of dogs surrendered in their study, with behaviour problems indicates that owners are not sufficiently informed about the normal behaviour of puppies. It is noted that juvenile dogs are more energetic

compared with older dogs and play behaviour could possibly be mistaken for hyperactivity, and mouthing in puppies as aggression (Miller et al., 1996).

This study found that dogs surrendered due to the owner not having enough time, space or money to care for the dog, were more likely to be 7-12 months of age. This suggests that owners purchase a puppy without knowing what is involved, and not realising how big the puppy will grow.

Dogs surrendered due to their owner moving were more likely to be greater than three years. This shows that owners, after having a dog for many years, are willing to give up their pet.

Greater than half of all dogs euthanased in the study were 0-3 months of age, due to the large numbers of litters euthanased. However, this age group also had the greatest percentage of adoptions (34%). This shows that puppies are very popular with people wanting to adopt a dog from a shelter.

#### 3.4.5 Breed

Mixed breeds were the most common type of dog entering the shelter (78%). Purebred dogs accounted for only 22% of all dogs entering the shelter, the greatest number of these being stray dogs (42%). In America, dogs purchased for more than \$100 from a breeder or private owner are more likely to be retained in the home. These are usually purebred dogs as they are generally more expensive (Patronek et al., 1996a).

Another study conducted in several states of America found that 68.4% of all surrendered to the participating shelters were of mixed breed (Salman et al., 1998).

The Terrier breed group had a greater than expected number of dogs surrendered to the shelter, and was the second largest breed group surrendered for behavioural reasons.

This could be a reflection on the generally active temperament of this breed group.

The mixed breed and Utility breeds had the highest euthanasia rates (39%). This was followed by the Terrier category with 30% of dogs euthanased. Gundogs and working dogs had the lowest euthanasia rates (10% and 11%), as well as the highest adoption rates, 58% and 45% respectively, compared with 34% of mixed breed dogs and 26% of Terriers adopted. The low adoption and high euthanasia rates of terriers could be linked to certain types of terriers not being able to be adopted such as Pit Bull Terriers.

#### 3.4.6 Gender

A similar number of male and female dogs were surrendered to the shelter (51.6% and 48.4% respectively of all dogs of known gender). Salman et al. (1998) found similar numbers of males and females surrendered (49.6% and 50.4%). Miller et al. (1996) found a slightly larger number of dogs surrendered were females (54.7%) than males (45.3%).

Females had a higher adoption rate (41%) compared with males, which could point to females being more popular. Although male dogs had the lower adoption rate (37%), they also had a lower euthanasia rate than females (26% and 31% respectively). This could be partly due to more male dogs being strays and therefore a larger number either being transferred to the pound or returned to their owner.

Lepper et al. (2002) found that intact male dogs were less likely to be adopted than intact females. Altered dogs of both genders were more likely to be adopted than intact females.

### 3.4.7 Fate of dogs surrendered

Not all dogs that enter the shelter can be rehomed, and the fate of a dog depends on many factors. All dogs surrendered to the shelter are assessed for their suitability before being put to the public for adoption. Any dogs that are exceptionally aggressive or fearful, sick dogs and dogs that are too young or too old as well as dogs of particular breeds such as Pit Bull Terriers, are euthanased. As well as this, if a dog remains in the shelter for a long period or re-enters the shelter several times it may be euthanased. Another reason for euthanasia can be overcrowding. The shelter in this study is relatively small and can practically and financially only care for a maximum of 20 dogs at one time.

During the period of the study, a similar number of animals were euthanased compared with those adopted. This is a much higher adoption rate than the American Society of Prevention of Cruelty to Animals (ASPCA), which had over 50,000 dogs surrendered to their shelters, of which 18.2% were adopted and 74% were euthanased (Zawistowski et al., 1998).

Within the 'litter' category, 71% were euthanased. A majority of these were euthanased due to overcrowding as whole litters enter the shelter, but can also be attributed to the dogs being too young or sick to survive. Surprisingly, more than half the dogs that were surrendered due to behaviour problems were adopted. Dogs surrendered due to, being unwanted, having behaviour problems, the owner moving or the owner having a lack of time, space or money, were more likely to be adopted than euthanased.

Lepper et al. (2002) conducted a study on an animal shelter in America and found that the age, breed and reason for surrender of the dog were major determinants on whether the dog was adopted from the shelter. In their study, of all the dogs offered for

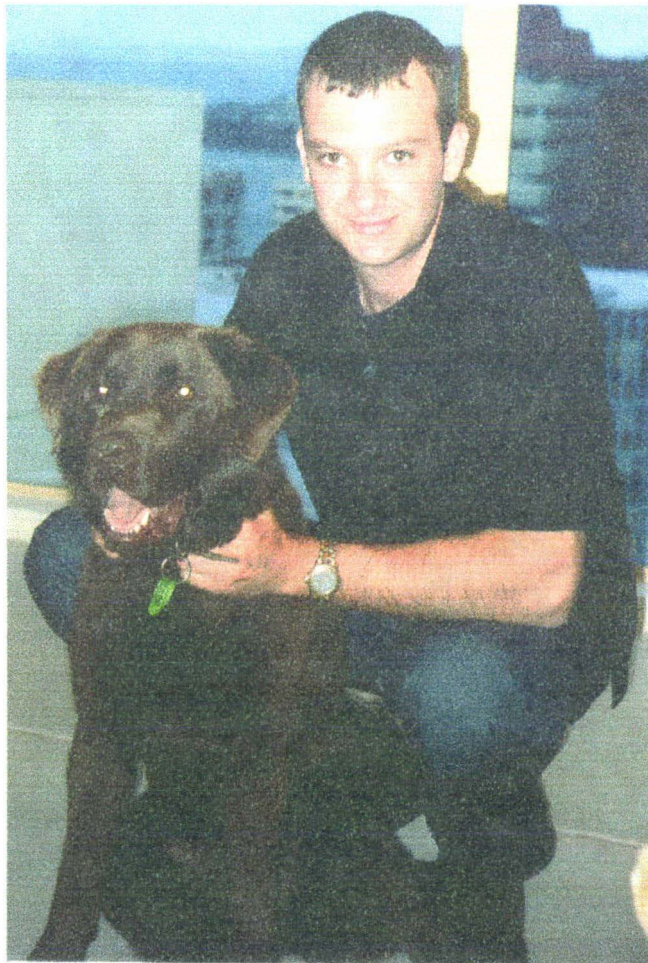
adoption, 26% were adopted. As the dog's age increased, the likelihood of the dog being adopted decreased. Dogs surrendered due to the owner moving, and stray dogs were more likely to be adopted and dogs surrendered because of behaviour problems were less likely to be adopted. Lapdogs and cocker spaniels were more likely to be adopted while fighting and guarding breeds were less likely to be adopted. Purebred dogs were more likely to be adopted than mixed breed dogs (Lepper et al., 2002).

Details on whether or not the dog was put up for adoption before being euthanased, was not available for the current study. Therefore it is not possible to postulate whether the dogs were unsuitable for rehoming, or the public were not interested in these dogs. A study in this area would give more insight into what types of dogs are more appealing to the public. This would help shelters in deciding which animals should be euthanased and which dogs should be kept, reducing the euthanasia and general costs for the shelter.

## Chapter 4: Success of Rehoming Dogs from New Zealand Animal Shelters

“The dog who meets with a good master is the happier of the two”

(Maeterlinck)



## 4.1. Introduction

Very little research has been carried out on how successful the adoption of animals from animal shelters is. There are several studies on why animals enter shelters (see Chapter 3), but few have followed through the adoption process. An American study found 73% of dog adoptions from a private animal shelter were successful (Posage et al., 1998).

The breed, size and colour of the adopted dog and whether the dog had a behaviour problem were all found to influence the success of adoption (Posage et al., 1998).

Statistics from the Royal New Zealand Society for the Prevention of Cruelty to Animals (SPCA) show that in 2001 over 9,000 dogs and 31,000 cats were received by SPCA shelters, of which nearly 4,000 dogs (44%) and 13,000 cats (42%) were placed in new homes. However, no research has been conducted in New Zealand to examine how many of these adoptions from animal shelters are successful and why adoptions are unsuccessful.

A pilot study (Chapter 2) showed that cat adoptions are generally successful (98%), and despite behaviour problems and other problems the adopting owners may have with their adopted cats, the animals tend to stay in the home and are consequently categorised as having been adopted successfully. In the pilot study, the success rate of dog adoptions appears to be influenced by the dog having behaviour problems and dogs are often returned to the shelter for this reason (Chapter 2). The pilot study suggests that a more in-depth study into the adoption of dogs from shelters is necessary in order to gain a better understanding of what influences the success rate of dog adoptions. The pilot study found great difficulties in contacting owners that had adopted animals from the one shelter used in the study therefore, it was decided to increase the number of

shelters used in this study to three. The questions asked were changed slightly in order to better gain information into what would cause an adoption to be unsuccessful.

#### 4.1.1 Aim

The aim of this study is to determine the success rate of dog adoptions from three New Zealand animal shelters and to identify risk factors leading to unsuccessful adoptions.

### 4.2. Method

#### 4.2.1 Introduction

In this study dog owners who had adopted a dog from one of the three participating shelters were contacted. The owners were asked to answer a series of questions regarding the dog they adopted and whether or not they still owned the dog (Appendix Two). These results were then analysed to obtain information on what factors influence the chance of the adoption being successful.

#### 4.2.2. Survey

An information sheet was sent out by the three shelters to people that had adopted dogs from them between January 2001 and April 2002. A total of 354 information sheets were sent out. The information sheet explained the nature of the study and the rights of the participants (Appendix Three). Within four weeks of receiving the letter, each of these dog owners were contacted by telephone, and if they agreed, were asked a series of questions that took between 5-10 minutes to complete (Appendix Two). If contact with the owner was not made with the first telephone call, up to four subsequent telephone calls were made. If an owner refused to participate in the study, no further questions were asked and the phone call was terminated. The questions were either

asked as an open ended question and the answers subsequently categorised, or required answers on a numerical scale from 1-10.

### 4.2.3 Shelters

#### 4.2.3.1. *Shelter A*

Shelter A belongs to a small branch of the SPCA, servicing a city and its surrounding rural areas. The shelter has 14 cages, and can house up to 20 dogs at one time, due to a larger 'family' kennel being able to house a bitch with her litter. Younger pups are often housed together, but adult dogs are always housed separately. As dogs associated with a welfare investigation take precedence, room must be made in the kennels for such dogs.

All owners surrendering a dog to the shelter fill out a form detailing the age, breed and any good or bad habits the dog may have. A contract is then signed making the dog the property of the shelter. The shelter is only able to rehome dogs surrendered by their owners. The shelter works together with the local animal pound, owned by the city council, and all stray dogs entering the shelter are transferred directly to the pound. If after eight days at the pound the owners have not claimed the dog, the pound has the right to rehome the dog. The shelter does not rehome these dogs on behalf of the pound due to legal reasons, but if a dog owner signs over a dog to the pound, the SPCA shelter will attempt to rehome the dog if asked to do so.

Each dog that enters the shelter is examined before being put up for adoption. There is no exact examination procedure for this, and it is done at the workers discretion.

However, for all dogs, the local city council is contacted to determine if any complaints have been made against it.

A dog in the shelter can be 'held' for some time for a potential adopter if that person owns their own property, or if they are renting, have obtained permission to keep a dog from the landlord. An inspector from the shelter then conducts a property check to ensure that the property is adequate and appropriate for the dog and that it is fully fenced and has shelter and a water supply for the dog. If other dogs live at the property, they are checked to make sure they are registered. If the adopted dog is to be the third dog on the property, permission must be obtained from all surrounding neighbours, as required by the regional by-law. If the property passes the inspection, the dog must be paid for and collected from the shelter by the end of the next day.

The cost of adopting a desexed dog is \$80, and \$100 for a dog not already desexed. When adopting a dog that has not been desexed, the new owner signs a contract to say that this procedure will be done. A voucher entitles the new owner to a 75% discount on the price of the operation, with 25% being paid each by the shelter, the council, the veterinary surgeon and the owner. For dogs going out of the shelter's district the voucher entitles the owner to a 50% discount. The vouchers have an expiry date and puppies must be desexed before they are 6 months old and older dogs within one month of adoption. The veterinarian sends a section of the voucher back to the shelter as a method of monitoring the system. If the dog is not already registered, the new owner must cover this cost, which is not included in the adoption fee. All dogs must be registered before they leave the shelter. Shelter A's main sources of funds are donations from individuals, legacies public grants and fees for contract work for the local council.

#### *4.2.3.2. Shelter B*

Shelter B is a privately run animal shelter in a small rural town, which rehomes cats and dogs as well as other animals. The shelter can hold up to 15 dogs and 15 puppies at any

one time. Most dogs are at the shelter following being surrendered by their owners, but dogs from the local district council pound are also rehomed from the shelter. Owners surrendering dogs to the shelter are required to legally sign the dog over to the shelter. Any stray dogs that enter the shelter are taken to the local dog pound for the required eight days, and if at the end of that time the dog has not been collected it goes back to the shelter for rehoming. Dogs abandoned at the shelter are treated as strays for the required length of time. Dogs are assessed for their suitability for adoption by the owners of the shelter based on temperament and behaviour. Potential adopters are screened by the shelter owners by asking general questions such as whether they have owned dogs before and what type of dog they are looking for. Potential owners must have a fully fenced property and must be able to convince the shelter owners that they are responsible dog owners. An adoption contract is signed which specifies several conditions. These include, the dog must be provided with food, shelter, water and regular veterinary care, as well as stating that if for any reason the dog cannot be kept, it must be returned to the shelter. The cost of a dog is \$200 for males and \$250 for females and includes the cost of desexing, vaccination, registration, ear tattooing, defleaing, worming and a puppy food pack. All dogs are desexed before leaving the shelter. The shelter is funded by public donations and fundraisers.

#### *4.2.3.3. Shelter C*

Shelter C is a large branch of the SPCA, in one of New Zealand's main cities. It has a veterinary clinic on site. The shelter has 14 puppy and 14 dog cages, but aims to have no more than 10 of each at any one time. This is a manageable number of animals and allows room for any incoming dogs.

Stray dogs that enter the shelter are sent to the dog control pound in the area where the dog was found. However, the shelter will hold the dog if it is sick or injured so it can be treated by a veterinarian. Each of the local dog control pounds has their own adoption scheme, but the shelter may receive an occasional dog from these agencies to adopt out. If a dog is abandoned at the shelter it is treated as a stray for 24 hours after which it is assumed the owner has abandoned it and it is assessed for adoption.

All owners surrendering a dog to the shelter are required to fill out an information sheet. This gives details of the dog including the dog's breed, age, why it is being surrendered, how long the dog has been with the owner, where the dog was acquired from, information on the dog's behaviour in different situations, where the dog slept at night, what training the dog has received and which veterinary clinic the dog has attended. All dogs are given a health check by one of the shelter's veterinarians, and if it is in good health, a behaviour assessment is carried out. The dog's history, if available, is considered, although this is not always thought to be a reliable source of information. A behaviour test, devised by combining two techniques, tests for aggression by watching the dog in different situations and noting how it reacts when its food bowl is removed and when it meets strangers and other dogs. If the dog reacts appropriately, basic training is started.

Prospective adopters are required to be 18 years of age or older. A consultation is held with every person interested in adopting a dog from the shelter. This is done by talking to the prospective adopter and filling out a form indicating the type of dog the person is looking for and how they plan to care for the dog. The consultation aims to place healthy, temperamentally sound animals in homes where they will receive good and stable life-long care and to help prospective pet owners make a satisfactory choice and

select an animal that is compatible with their lifestyle. It also enhances the shelter's educational efforts by assisting people with animal care, behaviour problems and training. A booklet sets out the aims of this process, and helps the staff ask the right questions. If a person 'passes' the consultation process, they may ask that an animal they are interested in be held for them. If the prospective owner is renting they have three days to obtain written permission to keep a dog from the landlord. A property check is done on all homes, checking for adequate fencing, space and shelter for the dog. If there is a problem with the property, the prospective dog owners have three days to correct this before the hold on the animal becomes void.

If the application is approved the dog is desexed and can be collected the day after the operation. All animals are desexed by the shelter's veterinarians prior to adoption. The cost of adopting a dog is \$75, which includes the price of desexing, vaccination, worm and flea treatment. The cost of registering a dog is additional and the registration tag must be brought in to the shelter before the dog can be taken away.

The only form of funding Shelter C receives is through public donations.

#### 4.2.4 Analysis of data

The answers were recorded on a survey sheet, and then entered on to a Microsoft<sup>®</sup> Excel Spreadsheet. The results were then analysed using SPSS version 10.2. The Pearson  $\chi^2$  test was used to test for differences in the distribution of answers between successfully and non-successfully adopted dogs. The Mann-Whitney test was used to analyse answers given on a scale. A value of  $P < 0.05$  was considered significant. Results were analysed to compare the three shelters, and then combined to get an overall result.

#### 4.2.5 Ethics approval

This project has been reviewed and approved by the Massey University Human Ethics Committee, PN Protocol 02/30. Three New Zealand animal shelters agreed to participate in the study.

### 4.3. Results

#### 4.3.1 Success of contacting owners

Contact was made with 103 out of 354 named owners supplied by the shelters and of these, 99 (28%) questionnaires were completed (Table 4.1). Four owners (1.1%) refused to answer the questionnaire, all of these were from Shelter C. It was not possible to contact 176 owners and the telephone number for 75 owners were incorrect (Table 4.1).

Table 4.1 Number of contacts supplied from each shelter, and success of contact

	Shelter A (%)	Shelter B (%)	Shelter C (%)	TOTAL (%)
Completed surveys	14 (22.2)	35 (38.9)	50(24.9)	99 (28.0)
Not a telephone number /incorrect telephone number	12 (19.0)	17(18.9)	46(22.9)	75 (21.2)
Unable to reach household	37 (58.8)	38(42.2)	101(50.2)	176 (49.7)
Refusals	0 (0)	0(0)	4(2.0)	4 (1.1)
TOTAL	63 (100)	90 (100)	201 (100)	354 (100)

#### 4.3.2 Questionnaire results and success rates

Of the 99 completed questionnaires, 89 (89.9%) adoptions were successful and 10 (10.1%) were unsuccessful (Table 4.2). Unsuccessful rates were similar across the three shelters ( $p>0.05$ ) (Table 4.11).

Table 4.2: The success and failure rates of dog adoptions from each shelter

	Successful (%)	Unsuccessful (%)	TOTAL (%)
Shelter A	13 (14.6)	1 (10.0)	14 (14.1)
Shelter B	31 (34.8)	4 (40.0)	35 (35.4)
Shelter C	45 (50.6)	5 (50.0)	50 (50.5)
TOTAL	89 (100)	10 (100)	99 (100)

#### 4.3.3 Reasons for unsuccessful adoptions

All the unsuccessfully adopted dogs were owned by their adopting owners for between 0.5 and 8 months with an average length of ownership of 2.8 months. Successfully adopted dogs had been owned for an average of 11.3 months at the time of the study.

Ten percent of all dogs in the study were adopted unsuccessfully. Eighty percent of these dogs were returned to the shelter they were originally adopted from, with the remaining 20% being given away. Nearly all dogs unsuccessfully adopted in this study were rejected due to behaviour problems (90%) (Table 4.3). One dog was rejected because of health problems and was returned to the shelter for euthanasia. The development of health problems in adopted dogs was not related to rejection rates ( $P>0.05$ ) (Table 4.10).

Table 4.3: Reasons given by owners for rejecting the adopted dog and the subsequent fate of rejected dogs

Reason for rejecting	Fate		TOTAL
	Returned to shelter	Given away to new owner	
Behaviour problems	7	2	9
Health problems	1	0	1
TOTAL	8	2	10

#### 4.3.4 Gender

All dogs in the study had been de-sexed, either by the shelter before the dog was adopted out or by the previous owner.

About the same number of neutered male (12%) and female (10%) dogs were adopted unsuccessfully (Table 4.3). However, a greater number of females than males were adopted. There was no significant difference in the number of male and female dogs that were adopted unsuccessfully ( $p=0.709$ ).

Table 4.4: Numbers of successfully and unsuccessfully adopted dogs by gender

	Successful (%)	Unsuccessful (%)	TOTAL (%)
Female	50 (56.2)	5 (50)	55 (55.6)
Male	39 (43.8)	5 (50)	44 (44.4)
TOTAL	89 (100)	10 (100)	99 (100)

#### 4.3.5 Breed

The majority of dogs were of mixed breed, and they had the highest rejection count (Table 4.5). When analysing breeds using the six breed categories of the New Zealand Kennel Club (Table 4.5) the breed of the dog was a significant factor in whether the dog was successfully or unsuccessfully adopted, over all shelters ( $P<0.05$ ), but not within individual shelters. Mixed breed dogs had a higher than expected rejection rate, whereas dogs in the terrier, utility and working categories had higher than expected success rates (Appendix Four).

When comparing success rates between purebred and mixed breed dogs, breed was not a significant factor ( $p>0.05$ ) in the success of the adoption. Only two purebred dogs (one gundog and one hound) were rejected compared with 8 mixed breed dogs.

Table 4.5: Numbers of dogs in each breed category in the study

Breed category	Successful (%)	Unsuccessful (%)	TOTAL (%)
Gundog	9 (10.1)	1 (10.0)	10 (10.1)
Hound	0 (0.0)	1 (10.0)	1 (1.0)
Terrier	10 (11.2)	0 (0.0)	10 (10.1)
Utility	3 (3.4)	0 (0.0)	3 (3.0)
Working	7 (7.9)	0 (0.0)	7 (7.1)
Mixed	60 (67.4)	8 (80.0)	68 (68.7)
TOTAL	89 (100)	10 (100)	99 (100)

#### 4.3.6 Age of dogs at adoption

All the dogs that were unsuccessfully adopted had been rejected by the time they reached 18 months of age (Figure 4.1). The age of the dog at adoption was not a significant factor in whether the adoption was successful or not ( $p>0.05$ ) (Table 4.11).

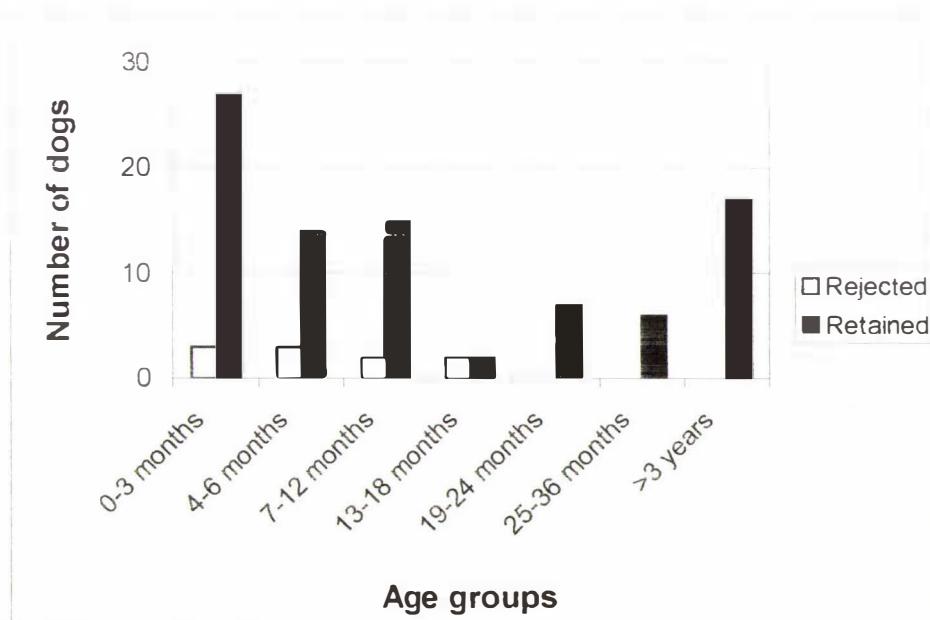


Figure 4.1: The age of dogs in the study and their fate

#### 4.3.7 Behaviour Problems

The incidence of behaviour problems was significantly related to the fate of the adopted dog ( $p < 0.05$  (Table 4.11)). The most commonly reported behaviour problem in both the rejected and retained categories was aggression although the type of aggression was not defined, followed by the dog regularly running away (Table 4.6). Excessive activity was not a problem in the rejected category, but was a more common problem with the successfully adopted dogs. Overall, 50 dogs in the study were reported to have at least one behaviour problem, with the number of problems for each dog ranging between none and three (Table 4.7). Fifteen behaviour problems were reported from the 10 dogs that were unsuccessfully adopted giving an average of 1.5 problems for each dog, compared with 0.6 problems per dog in the successfully adopted category.

While behaviour problems were found are significantly related to the fate of the adopted dog, attending any classes such as obedience or puppy preschool with the adopted dog, or getting advice from an animal behaviourist appeared to have no significant effect on the presence of behaviour problems ( $p > 0.05$ ), or on the fate of the dog ( $p > 0.05$  (Table 4.11)).

Table 4.6: Number of behaviour problems reported by adopters

Behaviour	Successful (%)	Unsuccessful (%)	TOTAL (%)
Aggression	10 (18.9)	5 (33.3)	15 (22.0)
Runs away	9 (17.0)	4 (26.6)	13 (19.1)
Excessive activity	5 (9.4)	1 (6.7)	6 (8.7)
Jumps on people	3 (5.7)	2 (13.3)	5 (7.4)
Chews	4 (7.5)	1 (6.7)	5 (7.4)
Digs	5 (9.4)	0 (0)	5 (7.4)
Fearful	3 (5.7)	1 (6.7)	4 (5.9)
Barks	4 (7.5)	0 (0)	4 (5.9)
Steals items	2 (3.9)	1 (6.7)	3 (4.4)
Separation anxiety	4 (7.5)	0 (0)	4 (5.9)
Other	4 (7.5)	0 (0)	4 (5.9)
TOTAL	53 (100)	15 (100)	68 (100)

Table 4.7: Number of behaviour problems reported for each dog

Number of behaviour problems	Successful (%)	Unsuccessful (%)	TOTAL (%)
Zero	48 (53.9)	1 (10.0)	49 (49.5)
One	30 (33.8)	4 (40.0)	34 (34.4)
Two	10 (11.2)	4 (40.0)	14 (14.1)
Three	1 (1.1)	1 (10.0)	2 (2.0)
TOTAL	89 (100)	10 (100)	99 (100)

#### 4.3.8 Reasons for adopting a dog

The stated reason for adopting a dog was related to the success of the adoption ( $p=0.012$  (Table 4.11)). The most common reason for adopting a dog both overall (44.4%) and with the successfully adopted dogs (46%) was to replace an old dog. This was followed by companionship (17.1% overall and 19.1% in successful category) (Table 4.8).

Buying a dog for children was the most common reason for adopting a dog within the unsuccessfully adopted dogs (40%), followed by to replace an old dog (30%). The adoption of a dog for security reasons was common for security around the house as

well as for female owners while out walking and was greater in the unsuccessfully adopted dogs (20%) compared with the successfully adopted dogs (3.4%). Stating the reason for purchasing a dog as simply 'I wanted a dog' was also more common in the unsuccessfully adopted dogs (10%) than the successfully adopted dogs (4.5%). No dogs adopted to act as a companion, or because the owners situation had now changed which allowed for dog ownership (i.e. moved to a larger section or now owner their own house) were rejected.

Table 4.8: The reasons stated by owners for adopting a dog

	Successful (%)	Unsuccessful (%)	TOTAL (%)
Replace old dog	41 (46.0)	3 (30.0)	44 (44.4)
Companionship	17 (19.1)	0 (0.0)	17 (17.1)
For children	11 (12.4)	4 (40.0)	15 (15.1)
Change of circumstances	5 (5.6)	0 (0.0)	5 (5.1)
Security	3 (3.4)	2 (20.0)	5 (5.1)
Wanted a dog	4 (4.5)	1 (10.0)	5 (5.1)
Working dog	3 (3.4)	0 (0.0)	3 (3.0)
Other	5 (5.6)	0 (0.0)	5 (5.1)
TOTAL	89 (100)	10 (100)	99 (100)

#### 4.3.9 Reasons for adopting a dog from a shelter

Wanting to help the shelter was the most commonly reported reason for adopting a dog from a shelter for all three shelters (Table 4.9). Being a convenient place to look at dogs was also a commonly reported reason for adopting a dog from shelter A (28.6%). Advertising the dogs available in a local paper was the second greatest reported reason for adopting a dog from shelter B (22.8%). Shelter C's good reputation (14%) and having the type of dog the potential adopters wanted (14%) were common reasons for dogs being adopted from them (Table 4.9).

Table 4.9: Reasons stated by adopters for choosing to adopt a dog from a shelter

Reason	Shelter			TOTAL (%)
	A (%)	B (%)	C (%)	
Advertising	1 (7.1)	8 (22.8)	0 (0.0)	9 (9.1)
Convenient	4 (28.6)	1 (2.9)	1 (2.0)	6 (6.1)
Had what wanted	1 (7.1)	7 (20.0)	7 (14.0)	15 (15.1)
Want to help	4 (28.6)	11 (31.4)	22 (44.0)	37 (37.4)
Impulse	1 (7.1)	0 (0.0)	3 (6.0)	4 (4.0)
Knew staff/work there	0 (0.0)	3 (8.6)	1 (2.0)	4 (4.0)
Reputation	0 (0.0)	4 (11.4)	7 (14.0)	11 (11.1)
Price	1 (7.1)	0 (0.0)	5 (10.0)	6 (6.1)
Don't know	2 (14.4)	1 (2.9)	4 (8.0)	7 (7.1)
TOTAL	14 (100)	35 (100)	50 (100)	99 (100)

#### 4.3.10 Reasons for choosing a particular dog

The reasons why an adopter chose a particular dog had a significant affect overall, on whether the adoption was successful or unsuccessful ( $P < 0.05$  (Table 4.10)).

Choosing dog for emotional reasons such as feeling sorry for the dog resulted in a higher than expected rejection rate, whereas choosing a dog for physical reasons such as age or size and for the breed of the dog resulted in lower than expected rejection rates (Appendix Four). Adopting a dog because the dog had a desirable temperament was not a frequently reported reason. (Table 4.10).

Table 4.10: Reasons given by owner for choosing to adopt a particular dog

	Successful (%)	Unsuccessful (%)	TOTAL (%)
Breed	25 (28.1)	2 (20.0)	27 (27.3)
Emotional	21 (23.6)	7 (70.0)	28 (28.3)
Physical	34 (38.2)	0 (0.0)	34 (34.3)
Temperament	9 (10.1)	1 (10)	10 (10.1)
TOTAL	89 (100)	10 (100)	99 (100)

#### 4.3.11 Other factors

Whether or not the adopting owners seemed to have taken the dog to a veterinarian within the last year was related to whether the adoption was successful or unsuccessful ( $p < 0.05$  (Table 4.11)). Having not taken the adopted dog to a veterinarian within the last year increased the chance of the dog being rejected (Appendix Four).

Whether the adopted dog slept inside or outside at night had a significant effect on whether the adoption was successful or unsuccessful ( $p < 0.05$  (Table 4.11)). Dogs sleeping inside were less likely to be rejected compared with dogs that slept outside (Appendix Four). It was also found that where the dog slept was related to the presence of behaviour problems ( $p < 0.05$  (Table 4.11)); dogs with behaviour problems are more likely to sleep outside (Appendix Four).

Overall, the amount of time spent outside over a 24 hour period was significantly related to whether or not the adoption was successful ( $p < 0.05$  (Table 4.11)), but was only related to the presence of behaviour problems in Shelter A ( $p < 0.05$  (Table 4.11)). If a dog spent less than 12 hours of one day outside, it was less likely to be rejected (Appendix Four).

Neither the number of adults, or the number of children living in the household had an effect on whether the adoption was successful or not ( $p > 0.05$  (Table 4.11)). The number of children in the house did not relate to the presence of behaviour problems ( $p > 0.05$  (Table 4.11)).

Whether or not the adopter had owned a dog previously to adopting the dog had no influence on the success of the adoption (Table 4.11).

Whether the dog lived in a rural or suburban area after the adoption had no effect on the success of the adoption ( $p>0.05$  (Table 4.11)), whether it slept inside or outside ( $p>0.05$  (Table 4.11)), or on the incidence of behaviour problems ( $p>0.05$  (Table 4.11)).

However, dogs living in rural areas were more likely to spend more than 12 hours a day outside (Appendix Four).

Owners were more likely to contact the shelter where they adoption was unsuccessful and also if the dog had behavioural problems.

Getting on well with children appeared to influence the fate of the dog, a dog that did get on well with children being more likely to be retained (Table 4.11).

The season in which the dog was adopted was related to whether the dog was rejected or retained ( $p<0.05$  (Table 4.11)), with dogs adopted in summer more likely to be rejected (Appendix Four).

The scores given for how successful the owner believed the adoption was, how well the dog settled in and how well the dog was matched to the owner by the shelter were all significantly related to whether the dog was retained or rejected ( $p<0.05$  (Table 4.11)).

Table 4.11 Summary of Chi<sup>2</sup> and Mann-Whitney U Test Results Calculated from Survey Data

X <sup>2</sup> Tests	P Value			
	Shelter A	Shelter B	Shelter C	All Shelters
Shelter * Fate <sup>1</sup>	-	-	-	0.903
Age * Fate	0.557	0.295	0.694	0.529
Breed * Fate	0.139	0.094	0.781	<b>0.045</b>
Purebred/mixed breed * Fate	0.231	0.593	0.185	0.416
Gender * Fate	0.369	0.759	0.924	0.709
Health <sup>2</sup> * Fate	0.773	0.445	0.825	0.526
Reason for choosing * Fate	0.267	0.077	0.161	<b>0.012</b>
Vet visits <sup>3</sup> * Fate	0.672	0.170	0.077	<b>0.044</b>
Behaviour <sup>4</sup> * Fate	0.439	<b>0.021</b>	0.157	<b>0.008</b>
Number of Behaviour problems * Fate	0.488	<b>0.030</b>	<b>0.005</b>	<b>0.006</b>
Classes <sup>5</sup> * Fate	0.164	0.914	0.675	0.838
Classes * Behaviour	0.360	0.595	0.208	0.286
Class category <sup>6</sup> * Fate	0.139	0.861	0.809	0.598
Class category * Behaviour	0.492	0.804	0.134	0.286
Sleep <sup>7</sup> * Fate	0.299	<b>0.051</b>	0.196	<b>0.014</b>
Sleep * Behaviour	0.577	<b>0.024</b>	<b>0.037</b>	<b>0.003</b>
Time spent outside * Fate	0.369	0.179	0.196	<b>0.049</b>
Time spent outside * Behaviour	<b>0.036</b>	0.668	0.370	0.132
No. adults in household * Fate	0.848	<b>0.032</b>	0.625	0.435
No. children in household * Fate	0.379	0.740	0.227	0.1717
No. children * Behaviour	0.326	0.477	0.190	0.621
Previously owned <sup>8</sup> * Fate	0.164	0.212	0.377	0.100
Previously owned * Behaviour	0.360	0.446	0.508	0.147
Live <sup>9</sup> * Fate	-	0.261	0.432	0.296
Live * Sleep	-	0.229	<b>0.022</b>	0.334
Live * Behaviour	-	0.404	0.637	0.442
Live * Time spent outside	-	0.915	0.196	<b>0.037</b>
Previously adopted <sup>10</sup> * Fate	0.588	0.678	0.765	0.868
Contact <sup>11</sup> * Fate	<b>0.011</b>	0.066	0.131	<b>0.004</b>
Contact * Behaviour	0.255	0.203	0.089	<b>0.054</b>
Good with other dogs * Fate	<b>0.047</b>	0.334	0.562	0.652
Good with cats * Fate	0.231	0.593	0.777	0.813
Good with children * Fate	<b>0.011</b>	<b>0.030</b>	0.077	<b>0.001</b>
Season adopted * Fate	0.585	<b>0.054</b>	0.249	<b>0.039</b>

#### Mann-Whitney U Tests

Success <sup>12</sup> * Fate	-	-	-	<b>0.001</b>
Match <sup>13</sup> * Fate	-	-	-	<b>0.004</b>
Settle in <sup>14</sup> * Fate	-	-	-	<b>0.005</b>

1 Whether the adopted dog had been retained or rejected by the adopter at the time of the survey

2 Whether the dog has had any major health problems since the adoption

3 Been to a Veterinarian within the last year

4 Whether the dog has/had any behaviour problems

5 Whether the dog has attended puppy preschool/obedience classes/private training

6 Which type of classes the dog attended

7 Whether the dog sleeps inside or outside

8 Whether the owner has previously owned a dog

9 Whether the owners live in a suburban or rural area

10 Whether the owners have previously adopted from an animal shelter

11 Whether the owners contacted the shelter after the adoption

12 The success rating given by the owners on a scale of 1-10

13 How well the owners thought the dog were match with them by the shelter on scale of 1-10

14 How well the dog settled into the new home on scale of 1-10

#### 4.4. Discussion

The low contact rate with adopters (28%) is a major limitation to the success of this study. However, very few of the people contacted refused to participate in the study. An unsuccessful adoption may have caused some of the people to be less willing to participate, but the low number of people in this category means it will not have a large effect on the results. Of concern is the high number of people that had moved and for whom the telephone number was incorrect. These categories make up 71% of the total names originally given for the study. The exclusion of these people in the study may have increased the success rate, as Chapter 3 shows that people moving house tend to

surrender dogs to shelters. However, once a person moved it was not possible to trace them. If a household could not be contacted, there was only a certain number of times contact could be attempted. The percent of adopters that is was not possible to contact is higher than an American study where 12% of original participants could not be contacted six months after adopting a dog from an animal shelter (Kidd et al., 1992a).

No significant difference was found between the success rates of adoptions from the three shelters involved in the study. This finding suggests that the different methods each shelter uses for choosing dogs for re-homing and selecting people to adopt the dogs may not have a great impact on the chance of the adoption succeeding. That overall, 90% of adopters retained their dogs, is very high compared with 78% found in the pilot study (Chapter 2), and in a study which found that 80% of owners that adopted a pet from San Francisco retained the pet (Kidd et al., 1992a), but similar to the 13% of dogs adopted from a shelter that were returned to the shelter only two months after the adoption (Posage et al., 1998). Fifty percent of dogs adopted from the Dutch Society for the Prevention of Cruelty of Animals are returned, due to a mis-match between the animal and the new owner (van der Borg et al., 1991).

This study found no association between the age of the dog and the success of the adoption, which is in contrast to an American study in which success was significantly associated with age, with 82% of returned dogs being younger than four months of age (Alexander and Shane, 1994).

Breeds were categorised into six groups according to the New Zealand Kennel Club guidelines; hound, gundog, mixed, terrier, utility and working. Breed appeared to be associated with the success of the adoption. Hounds, Terriers, Utility and Working dog breeds were more likely to be retained whereas mixed breed dogs were more likely to

be rejected. These findings are similar a study conducted in a Humane Society shelter in America, where dogs from the toy, terrier, hound or non-sporting groups were associated with successful adoptions (Posage et al., 1998). However, the grouping of dogs into breed groups and the breed groups used were slightly different in the two studies, with the latter study using American Kennel Club classifications.

Dogs were more likely to be rejected if they had not been to a veterinary surgeon within the previous year. This reflects the findings of Patronek et al. (1996a) who found that lack of veterinary care was associated with an increased risk of relinquishment. One theory is that regular visits to a veterinarian allows owners to get information on pet care, as well as gaining realistic expectations about normal pet behaviours and modification training (Kidd et al., 1992b). However, the willingness to take a dog to a veterinarian may simply reflect the effort the owner is prepared to put in to having a healthy pet as well as a willingness to spend money on the dog.

In an American study, dogs that did not participate in dog obedience training after acquisition were more likely to be rejected as shown by Patronek et al. (1996a).

However, in this study there was no relationship between the fate of dogs and whether they attended any category of training, which included obedience training, puppy preschool and private behaviour consultants. There was also no relationship found between dogs having behaviour problems and attendance of training. This may mean that owners are not training their dogs or obtaining help from dog trainers to eliminating undesirable dog behaviours, or that they believe they can resolve behaviour problems on their own.

The majority of owners in this study (44%) adopted a dog to replace an old dog that had died. Dogs were also commonly adopted as company. Dogs adopted unsuccessfully

were commonly adopted for the children. Previous research shows that the expectations of dog adopters were important factors in the success or failure of the adoption process (Kidd et al., 1992a). People replacing an old pet may have specific expectations about how the new dog will behave, and parents may have unrealistic expectations for the dog to occupy and teach their children. A study looking into the strength of the human-animal bond found that increasing the child's involvement in the process of obtaining a dog could help in the formation of a bond between the child and the animal and therefore giving the adoption a greater chance of succeeding (Kogan and Vincy, 1998).

Dogs that were chosen for emotional reasons, such as the adopter feeling sorry for the dog, were more likely to be rejected, than dogs that were adopted because of the breed, the temperament or for physical aspects such as size.

The presence of behaviour problems increased the risk of rejection, with 90% of dogs being rejected due to behaviour problems. Fifty one percent of all owners said their dog exhibited at least one behaviour that was considered a problem. In a similar study, Wells and Hepper (2000) found that 68% of respondents reported that their dog exhibited a behaviour problem, and 90% of owners rejected their dog because of behaviour problems. A study on dog owners found that 28% had problems with their pets' behaviour (Endenburg and Knol, 1994). The current study found that aggression accounted for 22% of all undesirable behaviours, running away 19% and excessive activity 9%. A study by Beaver (1994) reported that 18.6% of behaviour problems in dogs were aggression, 5.8% were running away and 3% was excessive activity. In dogs adopted from shelters the most frequent behaviour problems included aggression, fear, separation anxiety and disobedience (van der Borg et al., 1991). The type of behaviour problem reported by owners that adopted dogs from shelters are similar to those

reported by dog owners in general, however, the incidence of these problems seem higher in shelter dogs.

Nearly all the dogs were rejected (90%) because they exhibited behavioural problems considered undesirable to the owners. Of these dogs, 78% were returned to the shelter, the remainder were given away. Posage et al. (1998) found that behaviour problems as reported by the surrendering owner, did not affect the success of the dog's adoption into a new home. They looked at why dogs were surrendered to the shelter and then whether or not they were successfully adopted, and included only the dogs that were put to the public for adoption. A successful adoption was defined as a dog that was not returned to the shelter by the end of the study, which was two months after the last adoption, and the low number of dogs in the study that had behavioural problems was believed to be a result of the shelter successfully screening out dogs with behaviour problems (Posage et al., 1998).

Behaviour testing dogs that enter animal shelters before they are put up for adoption can attempt to predict and reduce future problem behaviours. Van der Borg et al. (1991) showed that behaviour testing dogs in the shelter provides a more accurate prediction of problem behaviour than the opinion of shelter staff alone and behaviour tests allow shelter staff to determine the main behavioural traits of each dog e.g. playfulness, thus allowing a better match between dog and owner (van der Borg et al., 1991). The current study however did not show that behaviour testing helps reduce the number of dogs with behaviour problems adopted into new homes. While behaviour testing was not looked at directly, Shelter C, which tests all dogs for behaviour problems before they are adopted out, was not found to have a higher success rate than Shelters A and B.

In this study sleeping outside and spending more than 12 hours a day outside increases the risk of rejection as shown by Posage et al. (1998). However, dogs that either slept outside and/or spent more than 12 hours a day outside were also more likely to have behaviour problems. It is not possible to determine whether the behaviour problems are the cause or a consequence of the dog sleeping or spending most of its day outside or whether it is just a case of human attitude.

In this study, if the new owners contacted the shelter for advice, they are more likely to reject the dog, and that contact with the shelter is also related to behaviour problems. This may be that people contact the shelter for behavioural advice, and are either not receiving helpful advice, or are contacting the shelter when the situation has become too great a problem. Needing advice about behaviour has been found to be associated with an increased risk of relinquishment in dogs obtained from a variety of sources (Patronek et al., 1996a). Therefore maintaining contact with owners for the first few months after the adoption, so any issues can be sorted out before they become a major problem, may help reduce the incidence of behaviour problems and therefore the number of dogs rejected due to these problems.

How well the owner felt the shelter matched the adopted dog with them and their lifestyle was associated with the success of the adoption. Owners that had an unsuccessful adoption experience believed that the match between themselves and the dog was poor. If the adoption was successful then the owners are more likely to have a positive view of the shelter and the whole adoption process. Similarly, how well the dog settled into its new home in the first three months after the adoption was also associated with the fate of the dog.

The majority of people in the study stated they adopted from one of the shelters because they wanted to help out. The shelter's reputation, and the fact that they had what the adopter wanted were also common reasons. Shelters A and B regularly advertise in local papers, and this was shown to be a reason why people went to the shelter (Table 4.6).

The main limitation of this study is the low contact rate. The people that were contacted and completed a survey represent only a small amount of the total contacts. It could possibly be that the owners that could not be contacted represent a different group of people that could have significantly changed the results if included in the study.

Owners may not have been completely honest during the interview, which must also be taken into consideration. Explaining to the owner that this was an independent study put most people at ease, but, especially in the rejected category, misrepresentation of facts may occur.

Overall, the success of adoption from the three shelters was high, however, the study shows that working on certain aspects could increase this success rate. Ensuring that both dogs and potential owners are screened for suitability for adoption will ensure dogs are matched with appropriate owners. Home inspections are common procedure at most shelters to ensure that the dogs are going to a suitable home. The large number of adopters found in this study to have moved homes might mean that this practise of property inspections has a more limited benefit than was previously thought. Looking at the current property ensures that the dog is going to an adequate home and will also help educate the owner as to the needs of the dog. However, as well as looking at the owner's current residence, the research indicates that looking into the adopters lifestyle and how settled verses transient they are, may also be important.

Mandatory follow-up calls to adopters a month after the adoption may give the owner a chance to seek advice from the shelter about any problems that may have arisen and therefore has the potential to resolve problems before they get unmanageable. On going support for the adopters by the shelter, or at least giving the adopter guidance on where to receive support for problems, especially behavioural problems, will help keep the low rejection rate of dogs.

## Chapter 5: General Discussion

“A good dog deserves a good home”

(Proverb)



This is the first study that has investigated the success of animal shelters in New Zealand. Internationally, only a few studies have investigated the surrendering of pets to animal shelters and the adoption of pets from animal shelters. While the information found overseas can be useful, it may not be entirely relevant to New Zealand. This study focussed on two main areas of interest to animal shelters: the reasons for surrendering animals to shelters and the success of adoption of animals from shelters.

The adoption of cats from New Zealand animal shelters is generally successful (Chapter 2). Of the participants in the pilot study that adopted a cat, 98% believed the adoption was successful. However, 24% of cats were reported to have at least one behaviour problem suggests that behaviour problems in cats are not a big issue to their owners. Despite 2% of cat owners believing the adoption was not successful, no cats were returned to the shelter. The same pilot study showed that 79% of dog adoptions were successful, with 21% of dogs being returned to the shelter, all due to behaviour problems. Comparing these results indicates that behaviour problems are a larger issue with dog owners than with cat owners. This could be due to the types of behaviour problems reported in cats not being as severe as the types of behaviour problems reported in dogs. The results also indicate that if a dog adoption is not successful then the owner is more likely to return the dog to the shelter than an owner that unsuccessfully adopted a cat. Based on this information, it was decided that it would be beneficial to New Zealand animal shelters to further investigate the area of dog adoptions.

In order to better understand dog adoptions from shelters, it is important to look at the types of dogs surrendered to shelters and the reasons for their surrender. A study of 967 dogs surrendered to an animal shelter over three years was conducted. A large

number of the dogs were surrendered to the shelter during autumn and winter (Chapter 3). The greatest numbers of dogs surrendered were stray dogs (31%). Many puppies were surrendered as part of a litter (26%). Both these categories of surrendered dogs create costs for the shelter, either in the care of these animals until they are returned or transferred to the local council pound, or in the euthanasia or rehoming of the dog. Education is important in minimising the number of stray dogs and also in reducing the number of unwanted litters. If owners neuter their dogs and keep them on their property, the numbers of stray dogs and unwanted puppies will be reduced. Fewer than expected dogs were surrendered due to behaviour problems (6.5%). The low number of dogs in this category seems to contradict the fact that all unsuccessfully adopted dogs in the pilot study were returned to the shelter due to behaviour problems. There are several explanations for this. Either the surrendering owners are unwilling to admit the dog has behaviour problems in case it will jeopardise the dog's chances of being rehomed, or they simply do not believe the dog has a problem. The change in environment could affect the adopted dog's behaviour in the new home, or owners may feel that if the dog has a behaviour problem it makes it a more acceptable reason for returning the dog to the shelter.

Most animal shelters obtain information from owners regarding why they are surrendering the dog, however very few use this information once it is gathered. By analysing this information, the shelter can gain a more accurate understanding of where their resources are needed. Thus, their planning for the future can be more precise and valuable resources are less likely to be wasted.

The success rate of adopted dogs (90%) was high compared with overseas studies (Chapter 4). Behaviour problems were the reason for the dog being returned in 90% of unsuccessful cases, a figure consistent with the pilot study (Chapter 2).

A significant point to note in this study however was the very low success rate of contacting owners. Questionnaires were completed for only 28% of all the names of owners supplied by the participating shelters. It was not possible to contact 50% of the owners and the telephone numbers for 21% were incorrect. In future, a possible way of getting around this problem is for the shelters to ask for contact details for a next of kin. This would ensure that even if the adopting owner moved, there would be a way to contact them.

Results from the questionnaire showed that the majority of owners appeared to contact the shelter just before they returned the dog. Therefore it appears that either these owners are not receiving the advice from the shelter about the specific problems they are having with their adopted dog, or they are contacting the shelter after they have already made the decision to return the dog. Adopting owners do not appear to see the shelter as a source of information, and they need to realise that they can ask the shelter for advice. On the other hand, the shelter staff also need to be proactive in handing out helpful advice or if they cannot help, be able to inform the owners of where they can get the necessary information from. By the shelters taking the responsibility to ensure that the adopting owners receive the advice necessary to resolve any issues before they become a major problem, the shelter can help to keep the numbers of dogs returned to their shelter to a minimum. Future research could look into this area by investigating the specific problems owners are having with their adopted dog, at which stage they ask

for advice, if they do at all, and what type of help they are getting, or whether the shelters simply say bring the dog back to us.

This research has provided basic information relating to animal shelters in New Zealand. It shows that shelters would benefit from further in depth studies, looking into particular areas. Chapter four showed that a large percentage of people that had adopted a dog moved to a new address and therefore could not be contacted, while chapter three showed that a large proportion of people surrendered their dog because they were moving. Based on this information, had these people been included in the study, the adoption success rates could have been a lot lower. Therefore, by finding a way of including these people in future research would benefit the shelters.

A study looking more thoroughly at the reasons why people surrender dogs to shelters would also be beneficial. Research suggests that people are not always entirely honest when stating the reason for surrender. A study involving interviews with each owner as they surrender their dog to a shelter would give a greater insight into the reasons for surrender, and also into whether people view a shelter as an 'easy way' to get rid of an unwanted dog.

A further area of study that would be helpful to shelters would be what types of dogs are desirable to the public when they are looking to adopt a dog. By knowing what people want could help the shelters when they decide which animals to put up for adoption. Following a dog through from when it is surrendered to a shelter, to whether or not it is adopted would be a useful way of assessing what attributes of dogs are popular with the public. As well as this, following the dog through into its new home would provide an opportunity to compare behaviour problems and other reported issues, between the surrendering owner and the adopting owner.

As previously mentioned, this research found a relatively high success rate for the adoption of animals from three New Zealand animal shelters. While the study showed that these shelters appear to be doing a good job of placing dogs into new homes, it also hopefully highlights areas that can be improved on. In addition, the research provides a platform for future studies in the area of animal shelters in New Zealand to be based on.

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## Appendix One: Chi<sup>2</sup> Tables for Chapter 3

## Reason for surrender \* Year of surrender

Reason for Surrender		Year			TOTAL
		1999	2000	2001	
Behaviour	Count	31	13	19	63
	Expected count	26.3	19.7	17	63
Litter	Count	112	79	56	247
	Expected count	103.2	77.1	66.7	247
Moving	Count	35	26	25	86
	Expected count	35.9	26.9	23.2	86
Other	Count	20	27	20	67
	Expected count	28	20.9	18.1	67
Stray	Count	132	95	67	294
	Expected count	122.8	91.8	79.4	294
T/S/S	Count	31	23	22	76
	Expected count	31.8	23.7	20.5	76
Unwanted	Count	43	39	52	134
	Expected count	56.0	41.8	36.2	134
TOTAL	Count	404	302	261	967
	Expected count	404	302	261	967

## Age \* Reason for surrender

Age		Reason for Surrender							TOTAL
		Behaviour	Litter	Moving	Stray	Other	T/S/S	Unwanted	
0-3m	Count	1	244	6	55	8	8	30	352
	Expected count	27.8	109	38	107	29.6	33.5	59.1	352
4-6m	Count	5	3	9	47	12	12	23	111
	Expected count	6	23.5	8.2	33.7	6.4	7.2	12.7	111
7-12m	Count	25	0	21	10	16	19	29	120
	Expected count	10.3	40.4	14.1	36.5	11.0	12.4	21.9	120
13-18m	Count	9	0	11	3	4	13	7	47
	Expected count	4.1	16.1	5.6	14.3	4.4	5	8.8	47
19-24m	Count	5	0	5	7	4	9	2	32
	Expected count	2.3	9.2	3.2	9.7	2.5	2.8	5	32
2-3y	Count	7	0	8	20	2	2	14	53
	Expected count	3.1	12.1	4.2	16.1	3.3	3.7	6.6	53
+3y	Count	11	0	24	85	20	13	19	172
	Expected count	8.1	31.9	11.1	52.3	8.7	9.8	17.3	172
Unknown	Count	0	0	2	67	1	0	10	80
	Expected count	1.2	4.8	1.7	24.3	1.3	1.5	2.6	80
TOTAL	Count	63	247	86	294	67	76	134	967
	Expected count	63	247	86	294	67	76	134	967

Breed \* Reason for surrender

Breed		Reason for Surrender							TOTAL
		Behaviour	Litter	Moving	Stray	Other	T/S/\$	Unwanted	
Gundog	Count	4	2	3	23	8	5	4	49
	Expected count	32	12.5	4.4	14.9	3.4	3.9	6.8	49
Hound	Count	0	0	0	6	1	2	2	11
	Expected count	0.7	2.8	1	3.3	0.8	0.9	1.5	11
Mixed	Count	51	234	64	203	44	54	102	752
	Expected count	49	192.1	66.9	228.6	52.1	59.1	104.2	752
Non-sporting	Count	0	0	5	4	1	0	3	13
	Expected count	0.8	3.3	1.2	4	0.9	1.0	1.8	13
Terrier	Count	5	0	7	34	7	4	13	70
	Expected count	4.6	17.9	6.2	21.3	4.9	5.5	9.7	70
Toy	Count	1	0	1	2	0	0	1	5
	Expected count	0.3	1.3	0.4	1.5	0.3	0.4	0.7	5
Utility	Count	0	6	4	12	1	4	4	31
	Expected count	2.0	7.9	2.8	9.4	2.1	2.4	4.3	31
Working	Count	2	5	2	10	5	7	5	36
	Expected count	2.3	9.2	3.2	10.9	2.5	2.8	5.0	36
TOTAL	Count	63	247	86	294	67	76	134	967
	Expected count	63	247	86	294	67	76.0	134	967

Gender \* Reason for surrender

Gender		Reason for Surrender							TOTAL
		Behaviour	Litter	Moving	Stray	Other	T/S/\$	Unwanted	
Unknown	Count	0	136	0	37	1	0	3	177
	Expected count	11.5	45.2	15.7	53.8	12.3	13.9	24.5	177
Female	Count	31	59	41	117	29	36	69	382
	Expected count	24.9	97.6	34	116.1	26.5	30	52.9	382
Male	Count	32	52	45	140	37	40	62	408
	Expected count	26.6	104.2	36.3	124	28.3	32.1	56.5	408
TOTAL	Count	63	247	86	294	67	76	134	967
	Expected count	63	247	86	294	67	76	134	967

Fate \* Reason for surrender

Fate		Reason for Surrender							TOTAL
		Behaviour	Litter	Moving	Other	Stray	T/S/\$	Unwanted	
Adopted	Count	35	70	52	41	16	45	79	338
	Expected count	22	86.3	30.1	23.4	102.8	26.6	46.8	338
Died	Count	0	0	0	1	8	0	2	11
	Expected count	0.7	2.8	1	0.8	3.3	0.9	1.5	11
Euthanased	Count	25	175	32	21	18	28	38	337
	Expected count	22	86.1	30	23.3	102.5	26.5	46.7	337
Pound	Count	0	2	0	0	171	1	6	180
	Expected count	11.7	46	16	12.5	54.7	14.1	24.9	180
Returned	Count	3	0	2	4	81	2	9	101
	Expected count	6.6	25.8	9.0	7	30.7	7.9	14	101
TOTAL	Count	63	247	86	67	294	76	134	967
	Expected count	63	247	86	67	294	76	134	967

Individual analyses of reasons for surrender \* Month surrendered

Month		Reason for Surrender			
		Behaviour	Moving	T/S/\$	Unwanted
January	Count	3	8	6	9
	Expected count	5.3	7.2	6.3	11.2
February	Count	2	5	4	6
	Expected count	5.3	7.2	6.3	11.2
March	Count	7	9	3	11
	Expected count	5.3	7.2	6.3	11.2
April	Count	9	5	4	12
	Expected count	5.3	7.2	6.3	11.2
May	Count	3	9	11	18
	Expected count	5.3	7.2	6.3	11.2
June	Count	1	8	11	10
	Expected count	5.3	7.2	6.3	11.2
July	Count	8	8	8	13
	Expected count	5.3	7.2	6.3	11.2
August	Count	5	9	8	7
	Expected count	5.3	7.2	6.3	11.2
September	Count	6	7	8	13
	Expected count	5.3	7.2	6.3	11.2
October	Count	8	6	6	7
	Expected count	5.3	7.2	6.3	11.2
November	Count	6	7	6	13
	Expected count	5.3	7.2	6.3	11.2
December	Count	5	5	1	15
	Expected count	5.3	7.2	6.3	11.2
TOTAL	Count	63	86	76	134
	Expected count	63	86	76	134

Individual analyses of reasons for surrender \* Year surrendered

		Reason for Surrender			
		Behaviour	Moving	T/S/\$	Unwanted
1999	Count	31	35	31	43
	Expected count	21	28.7	25.3	44.7
2000	Count	13	26	23	39
	Expected count	21	28.7	25.3	44.7
2001	Count	19	25	22	52
	Expected count	21	28.7	25.3	44.7
TOTAL	Count	63	86	76	134
	Expected count	63	86	76	134

Individual analyses of reasons for surrender \* Season

		Reason for Surrender			
		Behaviour	Moving	T/S/\$	Unwanted
Autumn	Count	19	23	18	41
	Expected count	15.8	21.5	19	33.5
Spring	Count	20	20	20	33
	Expected count	15.8	21.5	19	33.5
Summer	Count	10	18	11	30
	Expected count	15.8	21.5	19	33.5
Winter	Count	14	25	27	30
	Expected count	15.8	21.5	19	33.5
TOTAL	Count	63	86	76	134
	Expected count	63	86	76	134

Individual analyses of reasons for surrender \* Age at surrender

Age		Reason for Surrender			
		Behaviour	Moving	T/S/\$	Unwanted
0-3m	Count	1	6	8	30
	Expected count	9	12	10.9	17.7
4-6m	Count	5	9	12	23
	Expected count	9	12	10.9	17.7
7-12m	Count	25	21	19	19
	Expected count	9	12	10.9	17.7
13-18m	Count	9	11	13	7
	Expected count	9	12	10.9	17.7
19-24m	Count	5	5	9	2
	Expected count	9	12	10.9	17.7
2-3y	Count	7	8	2	14
	Expected count	9	12	10.9	17.7
+3y	Count	11	24	12	19
	Expected count	9	12	10.9	17.7
Total	Count	63	84	76	124
	Expected count	63	84	76	124

Individual analyses of reasons for surrender \* Gender

Gender		Reason for Surrender			
		Behaviour	Moving	T/S/\$	Unwanted
Female	Count	31	41	36	69
	Expected count	31.5	43	38	65.5
Male	Count	32	45	40	62
	Expected count	31.5	43	38	65.5
TOTAL	Count	63	86	76	131
	Expected count	63	86	76	131

Individual analyses of reasons for surrender \* Breed category

Breed		Reason for Surrender			
		Behaviour	Moving	T/S/\$	Unwanted
Gundog	Count	4	3	5	4
	Expected count	12.6	12.3	12.7	16.8
Hound	Count	0	0	2	2
	Expected count	0	0	12.7	16.8
Mixed	Count	51	64	54	102
	Expected count	12.6	12.3	12.7	16.8
Non-sporting	Count	0	5	0	3
	Expected count	0	12.3	0	16.8
Terrier	Count	5	7	4	13
	Expected count	12.6	12.3	12.7	16.8
Toy	Count	1	1	0	1
	Expected count	12.6	12.3	0	16.8
Utility	Count	0	4	4	4
	Expected count	0	12.3	12.7	16.8
Working	Count	2	2	7	5
	Expected count	12.6	12.3	12.7	16.8
TOTAL	Count	63	84	76	134
	Expected count	63	84	76	134

Individual analyses of reasons for surrender \* Breed category

Fate		Reason for Surrender			
		Behaviour	Moving	T/S/\$	Unwanted
Died	Count	0	0	0	2
	Expected count	0	0	0	26.8
Pound	Count	0	0	1	6
	Expected count	0	0	19	26.8
Returned	Count	3	2	2	9
	Expected count	21	28.7	19	26.8
Adopted	Count	35	52	45	79
	Expected count	21	28.7	19	26.8
Euthanased	Count	25	32	28	38
	Expected count	21	28.7	19	26.8
TOTAL	Count	63	86	76	134
	Expected count	63	86	76	134

Fate \* Breed

		Fate					TOTAL
		Adopted	Died	Euthanased	Pound	Returned	
Gundog	Count	22	0	5	9	13	49
	Expected count	17.1	0.6	17.1	9.1	5.1	49
Hound	Count	3	0	1	3	4	11
	Expected count	3.8	0.1	3.8	2	1.1	11
Mixed	Count	257	7	293	140	55	752
	Expected count	262.9	8.6	262.1	140	78.5	752
Non-sporting	Count	8	0	1	3	1	13
	Expected count	4.5	0.1	4.5	2.4	1.4	13
Terrier	Count	18	2	21	16	13	70
	Expected count	24.5	0.8	24.4	13	7.3	70
Toy	Count	3	0	0	0	2	5
	Expected count	1.7	0.1	1.7	0.9	0.5	5
Utility	Count	6	1	12	5	7	31
	Expected count	10.8	0.4	10.8	5.8	3.2	31
Working	Count	21	1	4	4	6	36
	Expected count	12.6	0.4	12.5	6.7	3.8	36
TOTAL	Count	338	11	337	180	101	967
	Expected count	338	11	337	180	101	967

Fate \* Age at surrender

		Fate					TOTAL
		Adopted	Died	Euthanased	Pound	Returned	
0-3m	Count	115	1	193	31	12	352
	Expected count	123	4	122.7	65.5	36.8	352
4-6m	Count	45	3	22	30	11	111
	Expected count	38.8	1.3	38.7	20.7	11.6	111
7-12m	Count	73	0	30	10	7	120
	Expected count	41.9	1.4	41.8	22.3	12.5	120
13-18m	Count	23	0	20	1	3	47
	Expected count	16.4	0.5	16.4	8.7	4.9	47
19-24m	Count	16	1	7	5	3	32
	Expected count	11.2	0.4	11.2	6	3.3	32
2-3y	Count	15	3	15	12	8	53
	Expected count	18.5	0.6	18.5	9.9	5.5	53
+3y	Count	48	2	42	42	38	172
	Expected count	60.1	2	59.9	32	18	172
Unknown	Count	3	1	8	49	19	80
	Expected count	28	0.9	27.9	14.9	8.4	80
TOTAL	Count	338	11	337	180	101	967
	Expected count	338	11	337	180	101	967

Fate \* Gender

		Fate					TOTAL
		Adopted	Died	Euthanased	Pound	Returned	
Unknown	Count	31	1	112	23	10	177
	Expected count	61.9	2	61.7	32.9	18.5	177
Female	Count	156	2	117	74	33	382
	Expected count	133.5	4.3	133.1	71.1	39.9	382
Male	Count	151	8	108	83	58	408
	Expected count	142.6	4.6	142.2	75.9	42.6	408
TOTAL	Count	338	11	337	180	101	967
	Expected count	338	11	337	180	101	967

## Appendix Two: Questionnaire for Chapter 4

1. How old was the dog when you adopted it?
2. What breed is the dog?
3. What gender is the dog?
4. When did you adopt the dog?
5. Has the animal been desexed?
6. Have you still got the dog? If not, why? And how long did you own it?
7. What were your reasons for adopting a dog?
8. Why did you choose that particular dog?
9. How well did the dog settle in, on a scale of 1-10?
10. Has the dog had any major health problems, what?
11. Has the dog been to a veterinarian within the last year?
12. Has the animal had any behavioural problems? If so what?
13. Have you been to obedience classes/puppy pre-school with the dog?
14. Does the dog sleep inside or outside?
15. How much time does the animal spend outside over a 24 hour period?
16. How many adults children live in the house?
17. Have you previously owned a dog?
18. Does the dog get on well with:
  - a) Other dogs?
  - b) Cats?
  - c) Children?
20. Do you live in a suburban rural area?
21. On a scale of 1-10 how successful would you rate the adoption?
22. How well do you feel the shelter matched the dog with you on scale of 1-10?
23. Had you adopted previously from an animal shelter?
24. Have you been in contact with the shelter since the adoption? Were they helpful?

## Appendix Three: Participant Letter

A New Zealand animal shelter is sending this letter to you on my behalf. They have given me permission to contact you by telephone in order to undertake a survey to determine how successful the adoption of your pet from the shelter has been.

I will contact you during the next month and invite you to answer a series of questions regarding how successful the adoption has been. The questions will take about three minutes.

When I contact you by telephone you have the right to refuse to take part in the survey and if that is what you want please inform me of that at the beginning of the interview.

This survey is being conducted by myself, Nicola Phipps. I am a Massey University masterate student, and I am being supervised by Associate Professor Kevin Stafford. If you need to contact me, the best method is via e-mail at [N.M.Phipps@massey.ac.nz](mailto:N.M.Phipps@massey.ac.nz). Alternatively, you can contact my supervisor at [K.J.Stafford@massey.ac.nz](mailto:K.J.Stafford@massey.ac.nz).

The aim of the research is to gather information on the success rate of adoptions from New Zealand animal shelters. This information is not currently available. In addition, it is hoped to identify risk factors involved in unsuccessful adoptions.

You are being contacted because you have adopted an animal from a New Zealand shelter within the past two years. As a participant, you will be asked a series of questions in a phone survey, which will take no longer than three minutes. The questions will focus on the animal you adopted, your demographic details and how you judged the shelter.

The information collected will be used to determine the rate of successful adoptions from New Zealand shelters.

The results from each survey will be entered into a database on a personal computer. There will be no connection between you and the answers you supplied. Your name will not be entered onto any data set. The survey data will be stored in a locked filing cabinet, and destroyed five years after the completion of the project.

Confidentiality and anonymity will be guaranteed for you as a participating owner. I am the only person who will see the results of each survey, and no information connecting the survey to you, the participant, will be retained.

As a participant, you have a number of rights. These include:

- The right to decline to participate in the study
- The right to decline to answer any particular question within the survey
- The right to pull out of the study at any time during the phone call

During the telephone call you may ask questions about the study and ask for a summary of the results at the conclusion of the study. At the end of the telephone call, you may comment on the study or the shelter.

Please note that any information you contribute to this study will not be able to be associated with you in any way.

This project has been reviewed and approved by the Massey University Human Ethics Committee, PN Protocol 02/30. If you have any concerns about the conduct of this research, please contact Professor Sylvia V Rumball, Chair, Massey University Regional Human Ethics Committee: Palmerston North, telephone 06 350 5249, email [S.V.Rumball@Massey.ac.nz](mailto:S.V.Rumball@Massey.ac.nz)

Thank you for your assistance,

Nicola Phipps

## Appendix Four: Chi<sup>2</sup> Tables for Chapter 4

Shelter \* Fate

		Fate		Total
		Unsuccessful	Successful	
Total	Count	10	89	99
	Expected count	10.0	89.0	99.0
Shelter A	Count	1	13	14
	Expected	1.4	12.6	14.0
Shelter B	Count	4	31	35
	Expected	3.5	31.5	35.0
Shelter C	Count	5	45	50
	Expected	5.1	44.9	50.0

Age \* Fate

	Age		Fate		Total
			Unsuccessful	Successful	
Total	0-3 m	Count	3	25	28
		Expected count	2.8	25.2	28.0
	4-6 m	Count	3	16	19
		Expected count	1.9	17.1	19.0
	7-12 m	Count	2	15	17
		Expected count	1.7	15.3	17.0
	13-18 m	Count	1	2	3
		Expected count	0.3	2.7	3.0
	19-24 m	Count	1	8	9
		Expected count	0.9	8.1	9.0
	2-3 y	Count	0	7	7
		Expected count	0.7	6.3	7.0
	+3 y	Count	0	16	16
		Expected count	1.6	14.4	16.0
Shelter A	0-3 m	Count	0	3	3
		Expected count	0.2	2.8	3.0
	4-6 m	Count	1	2	3
		Expected count	0.2	2.8	3.0
	7-12 m	Count	0	2	2
		Expected count	0.1	1.9	2.0
	19-24 m	Count	0	1	1
		Expected count	0.1	0.9	1.0
	2-3 y	Count	0	1	1
		Expected count	0.1	0.9	1.0
	+3 y	Count	0	4	4
		Expected count	0.3	3.7	4.0

Shelter B	0-3 m	Count	0	9	9
		Expected count	1.0	8.0	9.0
	4-6 m	Count	0	2	2
		Expected count	0.2	1.8	2.0
	7-12 m	Count	2	7	9
		Expected count	1.0	8.0	9.0
	13-18 m	Count	1	1	2
Expected count		0.2	1.8	2.0	
19-24 m	Count	1	3	4	
	Expected count	0.5	3.5	4.0	
2-3 y	Count	0	2	2	
	Expected count	0.2	1.8	2.0	
+3 y	Count	0	7	7	
	Expected count	0.8	6.2	7.0	
Shelter C	0-3 m	Count	3	13	16
		Expected count	1.6	14.4	16.0
	4-6 m	Count	2	12	14
		Expected count	1.4	12.6	14.0
	7-12 m	Count	0	6	6
		Expected count	0.6	5.4	6.0
	13-18 m	Count	0	1	1
Expected count		0.1	0.9	1.0	
19-24 m	Count	0	4	4	
	Expected count	0.4	3.6	4.0	
2-3 y	Count	0	4	4	
	Expected count	0.4	3.6	4.0	
+3 y	Count	0	5	5	
	Expected count	0.5	4.5	5.0	

Breed \* Fate

			Fate		Total
			Unsuccessful	Successful	
Total	Gundog	Count	1	9	10
		Expected count	1.0	9.0	10.0
	Hound	Count	1	0	1
		Expected count	0.1	0.9	1.0
	Mixed	Count	8	60	68
		Expected count	6.8	61.1	68.0
	Terrier	Count	0	10	10
		Expected count	1.0	9.0	10.0
	Utility	Count	0	3	3
		Expected count	0.3	2.7	3.0
	Working	Count	0	7	7
		Expected count	0.7	6.3	7.0
Shelter A	Gundog	Count	1	2	3
		Expected count	0.2	2.8	3.0
	Mixed	Count	0	8	8
		Expected count	0.6	7.4	8.0
	Terrier	Count	0	3	3
		Expected count	0.2	2.8	3.0
Shelter B	Gundog	Count	0	3	3
		Expected count	0.3	2.7	3.0
	Hound	Count	1	0	1
		Expected count	0.1	0.9	1.0
	Mixed	Count	3	19	22
		Expected count	2.5	19.5	22.0
	Terrier	Count	0	3	3
		Expected count	0.3	2.7	3.0
	Utility	Count	0	2	2
		Expected count	0.2	1.8	2.0
	Working	Count	0	4	4
		Expected count	0.5	3.5	4.0
Shelter C	Gundog	Count	0	4	4
		Expected count	0.4	3.6	4.0
	Mixed	Count	5	33	38
		Expected count	2.8	34.2	38.0
	Terrier	Count	0	4	4
		Expected count	0.4	3.6	4.0
	Utility	Count	0	1	1
		Expected count	0.1	0.9	1.0
	Working	Count	0	3	3
		Expected count	0.3	2.7	3.0

Purebred/mixed breed \* Fate

			Fate		Total
			Unsuccessful	Successful	
Total	Mixed breed	Count	8	60	68
		Expected count	6.8	61.1	68.0
	Purebred	Count	2	29	31
		Expected count	3.1	27.9	31.0
Shelter A	Mixed breed	Count	0	8	8
		Expected count	0.6	7.4	8.0
	Purebred	Count	1	5	6
		Expected count	0.4	5.6	6.0
Shelter B	Mixed breed	Count	3	19	22
		Expected count	2.5	19.5	22.0
	Purebred	Count	1	12	13
		Expected count	1.5	11.5	13.0
Shelter C	Mixed breed	Count	5	33	38
		Expected count	3.8	34.2	38.0
	Purebred	Count	0	12	12
		Expected count	1.2	10.8	12.0

Gender \* Fate

			Fate		Total
			Unsuccessful	Successful	
Total	Female	Count	5	50	55
		Expected count	5.6	49.4	55.0
	Male	Count	5	39	44
		Expected count	4.4	39.6	44.0
Shelter A	Female	Count	0	6	6
		Expected count	0.4	5.6	6.0
	Male	Count	1	7	8
		Expected count	0.6	7.4	8.0
Shelter B	Female	Count	2	18	20
		Expected count	1.7	13.3	15.0
	Male	Count	2	13	15
		Expected count	1.7	13.3	15.0
Shelter C	Female	Count	3	26	29
		Expected count	2.9	26.1	29.0
	Male	Count	2	19	21
		Expected count	2.1	18.9	21.0

### Health problems \* Fate

	Health problems		Fate		Total
			Unsuccessful	Successful	
Total	Yes	Count	1	16	17
		Expected count	1.7	15.3	17.0
	No	Count	9	73	82
		Expected count	8.3	73.7	82.0
Shelter A	Yes	Count	0	1	1
		Expected count	0.1	0.9	1.0
	No	Count	1	12	13
		Expected count	0.9	12.1	13.0
Shelter B	Yes	Count	0	4	4
		Expected count	1.5	3.5	4.0
	No	Count	4	27	31
		Expected count	3.5	27.5	31.0
Shelter C	Yes	Count	1	11	12
		Expected count	1.2	10.8	12.0
	No	Count	4	34	38
		Expected count	3.8	34.2	38.0

## Reason for choosing a dog \* Fate

	Reason for choosing		Fate		Total
			Rejected	Retained	
Total	Breed	Count	2	25	27
		Expected count	2.7	24.3	27.0
	Emotional	Count	7	21	28
		Expected count	2.8	25.2	28.0
	Physical	Count	0	34	34
		Expected count	3.4	30.6	34.0
	Temperament	Count	1	9	10
		Expected count	1.0	9.0	10.0
Shelter A	Breed	Count	0	3	3
		Expected count	0.2	2.8	3.0
	Emotional	Count	1	2	3
		Expected count	0.2	2.8	3.0
	Physical	Count	0	6	6
		Expected count	0.4	5.6	6.0
	Temperament	Count	0	2	2
		Expected count	0.1	1.9	2.0
Shelter B	Breed	Count	0	13	13
		Expected count	1.5	11.5	13.0
	Emotional	Count	3	7	10
		Expected count	1.1	8.9	10.0
	Physical	Count	0	8	8
		Expected count	0.9	7.1	8.0
	Temperament	Count	1	3	4
		Expected count	0.5	3.5	4.0
Shelter C	Breed	Count	2	9	11
		Expected count	1.1	9.9	11.0
	Emotional	Count	3	12	15
		Expected count	1.5	13.5	15.0
	Physical	Count	0	20	20
		Expected count	2	18	20.0
	Temperament	Count	0	4	4
		Expected count	0.4	3.6	4.0

Visited a veterinarian within last 12 months \* Fate

	Visited Veterinarian		Fate		Total
			Unsuccessful	Successful	
Total	No	Count	4	13	17
		Expected count	1.7	15.3	17.0
	Yes	Count	6	76	82
		Expected count	8.3	73.7	82.0
Shelter A	No	Count	0	2	2
		Expected count	0.1	1.9	2.0
	Yes	Count	1	11	12
		Expected count	0.9	11.1	12.0
Shelter B	No	Count	2	6	8
		Expected count	0.9	7.1	8.0
	Yes	Count	2	25	27
		Expected count	3.1	23.9	27.0
Shelter C	No	Count	2	5	7
		Expected count	0.7	6.3	7.0
	Yes	Count	3	40	43
		Expected count	4.3	38.7	43.0

Behaviour problems \* Fate

	Behaviour Problems		Fate		Total
			Unsuccessful	Successful	
Total	No	Count	1	48	49
		Expected count	4.9	44.1	49.0
	Yes	Count	9	41	50
		Expected count	5.1	44.9	50.0
Shelter A	No	Count	0	5	5
		Expected count	0.4	4.6	5.0
	Yes	Count	1	8	9
		Expected count	0.6	8.4	9.0
Shelter B	No	Count	0	19	19
		Expected count	2.2	16.8	19.0
	Yes	Count	4	12	16
		Expected count	1.8	14.2	16.0
Shelter C	No	Count	1	24	25
		Expected count	2.5	22.5	25.0
	Yes	Count	4	21	25
		Expected count	2.5	22.5	25.0

Number of behaviour problems \* Fate

	Number of Behaviour problems		Fate		Total
			Unsuccessful	Successful	
Total	0	Count	1	48	49
		Expected count	4.9	44.1	49.0
	1	Count	4	30	34
		Expected count	3.4	30.6	34.0
	2	Count	4	10	14
		Expected count	1.4	12.6	14.0
	3	Count	1	1	2
		Expected count	0.2	1.8	2.0
Shelter A	0	Count	0	5	5
		Expected count	0.4	4.6	5.0
	1	Count	1	5	6
		Expected count	0.4	5.6	6.0
	2	Count	0	3	3
		Expected count	0.2	2.8	3.0
Shelter B	0	Count	0	19	19
		Expected count	2.2	16.8	19.0
	1	Count	2	9	11
		Expected count	1.3	9.7	11.0
	2	Count	2	2	4
		Expected count	0.5	3.5	4.0
	3	Count	0	1	1
		Expected count	0.1	0.9	1.0
Shelter C	0	Count	1	24	25
		Expected count	2.5	22.5	25.0
	1	Count	1	16	17
		Expected count	1.7	15.3	17.0
	2	Count	2	5	7
		Expected count	0.7	6.3	7.0
	3	Count	1	0	1
		Expected count	0.1	0.9	1.0

Attendance of obedience classes \* Fate

	Attended Classes		Fate		Total
			Unsuccessful	Successful	
Total	No	Count	7	65	72
		Expected count	7.3	64.7	72.0
	Yes	Count	3	24	27
		Expected count	2.7	24.3	27.0
Shelter A	No	Count	0	9	9
		Expected count	0.6	8.4	9.0
	Yes	Count	1	4	5
		Expected count	0.4	4.6	5.0
Shelter B	No	Count	3	24	27
		Expected count	3.1	23.9	27.0
	Yes	Count	1	7	8
		Expected count	0.9	7.1	8.0
Shelter C	No	Count	4	32	36
		Expected count	3.6	32.4	36.0
	Yes	Count	1	13	14
		Expected count	1.4	12.6	14.0

Attendance of obedience class \* Behaviour problems

	Attended Classes		Behaviour Problems		Total
			No	Yes	
Total	No	Count	38	34	72
		Expected Count	35.6	36.4	72.0
	Yes	Count	11	16	27
		Expected Count	13.4	13.6	27.0
Shelter A	No	Count	4	5	9
		Expected Count	3.2	5.8	9.0
	Yes	Count	1	4	5
		Expected Count	1.8	3.2	5.0
Shelter B	No	Count	14	13	27
		Expected Count	14.7	12.3	27.0
	Yes	Count	5	3	8
		Expected Count	4.3	3.7	8.0
Shelter C	No	Count	20	16	36
		Expected Count	18.0	18.0	36.0
	Yes	Count	5	9	14
		Expected Count	7.0	7.0	14.0

Type of class attended \* Fate

	Type of Class		Fate		Total
			Unsuccessful	Successful	
Total	No classes	Count	7	65	72
		Expected count	7.3	64.7	72.0
	Consultant	Count	0	7	7
		Expected count	0.7	6.3	7.0
	Obedience	Count	2	8	10
		Expected count	1.0	9.0	10.0
	Puppy preschool	Count	1	9	10
		Expected count	1.0	9.0	10.0
Shelter A	No classes	Count	0	9	9
		Expected count	0.6	8.4	9.0
	Obedience	Count	1	2	3
		Expected count	0.2	2.8	3.0
	Puppy preschool	Count	0	2	2
		Expected count	0.1	1.9	2.0
Shelter B	No classes	Count	3	24	27
		Expected count	3.1	23.9	27.0
	Consultant	Count	0	2	2
		Expected count	0.2	1.8	2.0
	Obedience	Count	1	4	5
		Expected count	0.6	4.4	5.0
	Puppy preschool	Count	0	1	1
		Expected count	0.1	0.9	1.0
Shelter C	No classes	Count	4	32	36
		Expected count	3.6	32.4	36.0
	Consultant	Count	0	5	5
		Expected count	0.5	4.5	5.0
	Obedience	Count	0	2	2
		Expected count	0.2	1.8	2.0
	Puppy preschool	Count	1	6	7
		Expected count	0.7	6.3	7.0

Type of class attended \* Behaviour problems

			Behaviour problems		Total
			No	Yes	
Total	No classes	Count	38	34	72
		Expected count	35.6	36.4	72.0
	Consultant	Count	1	6	7
		Expected count	3.5	3.5	7.0
	Obedience	Count	5	5	10
		Expected count	4.9	5.1	10.0
	Puppy preschool	Count	5	5	10
		Expected count	4.9	5.1	10.0
Shelter A	No classes	Count	4	5	9
		Expected count	3.2	5.8	9.0
	Obedience	Count	1	2	3
		Expected count	1.1	1.9	3.0
	Puppy preschool	Count	0	2	2
		Expected count	0.7	1.3	2.0
Shelter B	No classes	Count	14	13	27
		Expected count	14.7	12.3	27.0
	Consultant	Count	1	1	2
		Expected count	1.1	0.9	2.0
	Obedience	Count	3	2	5
		Expected count	2.7	2.3	5.0
	Puppy preschool	Count	1	0	1
		Expected count	0.5	0.5	1.0
Shelter C	No classes	Count	20	16	36
		Expected count	18.0	18.0	36.0
	Consultant	Count	0	5	5
		Expected count	2.5	5.2	5.0
	Obedience	Count	1	1	2
		Expected count	1.0	1.0	2.0
	Puppy preschool	Count	4	3	7
		Expected count	3.5	3.5	7.0

Where the dog sleeps \* Fate

	Sleep		Fate		Total
			Unsuccessful	Successful	
Total	Inside	Count	2	54	56
		Expected count	5.7	50.3	56.0
	Outside	Count	8	35	43
		Expected count	4.3	38.7	43.0
Shelter A	Inside	Count	0	7	7
		Expected count	0.5	6.5	7.0
	Outside	Count	1	6	7
		Expected count	0.5	6.5	7.0
Shelter B	Inside	Count	0	16	16
		Expected count	1.8	14.2	16.0
	Outside	Count	4	15	19
		Expected count	2.2	16.8	19.0
Shelter C	Inside	Count	2	31	33
		Expected count	3.3	29.7	33.0
	Outside	Count	3	14	17
		Expected count	1.7	15.3	17.0

Where the dog sleeps \* Behaviour problems

	Sleeps		Behaviour Problems		Total
			No	Yes	
Total	Inside	Count	35	21	56
		Expected count	27.7	28.3	56.0
	Outside	Count	14	29	43
		Expected count	21.3	21.7	43.0
Shelter A	Inside	Count	3	4	7
		Expected count	2.5	4.5	7.0
	Outside	Count	2	5	7
		Expected count	2.5	4.5	7.0
Shelter B	Inside	Count	12	14	16
		Expected count	8.7	7.3	16.0
	Outside	Count	7	12	19
		Expected count	10.3	8.7	19.0
Shelter C	Inside	Count	20	13	33
		Expected count	16.5	16.5	33.0
	Outside	Count	5	12	17
		Expected count	8.5	8.5	17.0

Time spent outside over 24 hours\* Fate

	Time spent Outside		Fate		Total
			Unsuccessful	Successful	
Total	<12 hours	Count	2	47	49
		Expected count	4.9	44.1	49.0
	>12 hours	Count	8	42	50
		Expected count	5.1	44.9	50.0
Shelter A	<12 hours	Count	0	6	6
		Expected count	0.4	5.6	6.0
	>12 hours	Count	1	7	8
		Expected count	0.6	7.4	8.0
Shelter B	<12 hours	Count	0	10	10
		Expected count	1.1	8.9	10.0
	>12 hours	Count	4	21	25
		Expected count	2.9	22.1	25.0
Shelter C	<12 hours	Count	2	31	33
		Expected count	3.3	29.7	33.0
	>12 hours	Count	3	14	17
		Expected count	1.7	15.3	17.0

Time spent outside over 24 hours \* Behaviour

	Time spent Outside		Behaviour Problems		Total
			No	Yes	
Total	<12 hours	Count	28	21	49
		Expected count	24.3	24.7	49.0
	>12 hours	Count	21	29	50
		Expected count	24.7	25.3	50.0
Shelter A	<12 hours	Count	4	2	6
		Expected count	2.1	3.9	6.0
	>12 hours	Count	1	7	8
		Expected count	2.9	5.1	8.0
Shelter B	<12 hours	Count	6	4	10
		Expected count	5.4	4.6	10.0
	>12 hours	Count	13	12	25
		Expected count	13.6	11.4	25.0
Shelter C	<12 hours	Count	18	15	33
		Expected count	16.5	16.5	33.0
	>12 hours	Count	7	10	17
		Expected count	8.5	8.5	17.0

Number of adults in household \* Fate

	Number Of adults		Fate		Total
			Unsuccessful	Successful	
Total	1	Count	0	12	12
		Expected count	1.2	10.8	12.0
	2	Count	8	60	68
		Expected count	6.9	61.1	68.0
	3	Count	1	14	15
		Expected count	1.5	13.5	15.0
	4	Count	1	3	4
		Expected count	0.4	3.6	4.0
Shelter A	1	Count	0	2	2
		Expected count	0.1	1.9	2.0
	2	Count	1	7	8
		Expected count	0.6	7.4	8.0
	3	Count	0	2	2
		Expected count	0.1	1.9	2.0
	4	Count	0	2	2
		Expected count	0.1	1.9	2.0
Shelter B	1	Count	0	6	6
		Expected count	0.7	5.3	6.0
	2	Count	2	20	22
		Expected count	2.5	19.5	22.0
	3	Count	1	5	6
		Expected count	0.7	5.3	6.0
	4	Count	1	0	1
		Expected count	0.1	0.9	1.0
Shelter C	1	Count	0	4	4
		Expected count	0.4	3.6	4.0
	2	Count	5	33	38
		Expected count	3.8	34.2	38
	3	Count	0	7	7
		Expected count	0.7	6.3	7.0
	4	Count	0	1	1
		Expected count	0.1	0.9	1.0

Number of children in household \* Fate

	Number Of children		Fate		Total
			Unsuccessful	Successful	
Total	0	Count	2	41	43
		Expected count	4.3	38.7	43.0
	1	Count	1	13	14
		Expected count	1.4	12.6	14.0
	2 or more	Count	7	35	42
		Expected count	4.2	37.8	42.0
Shelter A	0	Count	0	8	8
		Expected count	0.6	7.4	8.0
	1	Count	0	1	1
		Expected count	0.1	0.9	1.0
	2 or more	Count	1	4	5
		Expected count	0.4	4.6	5.0
Shelter B	0	Count	2	17	19
		Expected count	2.2	16.8	19.0
	1	Count	0	3	3
		Expected count	0.3	2.7	3.0
	2 or more	Count	2	11	13
		Expected count	1.5	11.5	13.0
Shelter C	0	Count	0	16	16
		Expected count	1.6	14.4	16.0
	1	Count	1	9	10
		Expected count	1.0	9.0	10.0
	2 or more	Count	4	20	24
		Expected count	2.4	21.6	24.0

Number of children in household \* Behaviour problems

	Number Of children		Behaviour Problems		Total
			No	Yes	
Total	0	Count	19	24	43
		Expected count	21.3	21.7	43.0
	1	Count	7	7	14
		Expected count	6.9	7.1	14.0
	2 or more	Count	23	19	42
		Expected count	20.8	21.2	42.0
Shelter A	0	Count	2	6	8
		Expected count	2.9	5.1	8.0
	1	Count	0	1	1
		Expected count	0.4	0.6	1.0
	2 or more	Count	3	2	5
		Expected count	1.8	3.2	5.0
Shelter B	0	Count	12	7	19
		Expected count	10.3	8.7	19.0
	1	Count	1	2	3
		Expected count	1.6	1.4	3.0
	2 or more	Count	6	7	13
		Expected count	7.1	5.9	13.0
Shelter C	0	Count	5	11	16
		Expected count	8.0	8.0	16.0
	1	Count	6	4	10
		Expected count	5.0	5.0	10.0
	2 or more	Count	14	10	24
		Expected count	12.0	12.0	24.0

Previously owned a dog \* Fate

	Adopter previously Owned a dog		Fate		Total
			Unsuccessful	Successful	
Total	No	Count	4	16	20
		Expected count	2.0	18.0	20.0
	Yes	Count	6	73	79
		Expected count	8.0	71.0	79.0
Shelter A	No	Count	1	4	5
		Expected count	0.4	4.6	5.0
	Yes	Count	0	9	9
		Expected count	0.6	8.4	9.0
Shelter B	No	Count	1	2	3
		Expected count	0.3	2.7	3.0
	Yes	Count	3	29	32
		Expected count	3.7	28.3	32.0
Shelter C	No	Count	2	10	12
		Expected count	1.2	10.8	12.0
	Yes	Count	3	35	38
		Expected count	3.8	34.2	38.0

Previously owned a dog \* Behaviour problems

	Previously Owned a dog		Behaviour problems		Total
			No	Yes	
Total	No	Count	7	13	20
		Expected count	9.9	10.1	20.0
	Yes	Count	42	37	79
		Expected count	39.1	39.9	79.0
Shelter A	No	Count	1	4	5
		Expected count	1.8	3.2	5.0
	Yes	Count	4	5	9
		Expected count	3.2	5.8	9.0
Shelter B	No	Count	1	2	3
		Expected count	1.6	1.4	3.0
	Yes	Count	18	14	32
		Expected count	17.4	14.6	32
Shelter C	No	Count	5	7	12
		Expected count	6.0	6.0	12.0
	Yes	Count	20	18	38
		Expected count	19.0	19.0	38.0

Place of residence \* Fate

	Place of Residence		Fate		Total
			Successful	Unsuccessful	
Total	Rural	Count	1	22	23
		Expected count	2.3	20.7	23.0
	Suburban	Count	9	67	76
		Expected count	7.7	68.3	76.0
Shelter A	Suburban	Count	1	13	14
		Expected count	1.0	13.0	14.0
Shelter B	Rural	Count	1	17	18
		Expected count	2.1	15.9	18.0
	Suburban	Count	3	14	17
		Expected count	1.9	15.1	17.0
Shelter C	Rural	Count	0	5	5
		Expected count	0.5	4.5	5.0
	Suburban	Count	5	40	45
		Expected count	4.5	40.5	45.0

Place of residence \* Where the dog sleeps

	Place of Residence		Sleep		Total
			Inside	Outside	
Total	Rural	Count	11	12	23
		Expected count	13.0	10.0	23.0
	Suburban	Count	45	31	76
		Expected count	43.0	33.0	76.0
Shelter A	Suburban	Count	7	7	14
		Expected count	7.0	7.0	14.0
Shelter B	Rural	Count	10	8	18
		Expected count	8.2	9.8	18.0
	Suburban	Count	6	11	17
		Expected count	7.8	9.2	17.0
Shelter C	Rural	Count	1	4	5
		Expected count	3.3	1.7	5.0
	Suburban	Count	32	13	45
		Expected count	29.7	15.3	45.0

Place of residence \* Behaviour problems

	Place of Residence		Behaviour Problems		Total
			No	Yes	
Total	Rural	Count	13	10	23
		Expected count	11.4	11.6	23.0
	Suburban	Count	36	40	76
		Expected count	37.6	38.4	76.0
Shelter A	Suburban	Count	1	13	14
		Expected count	1.0	13.0	14.0
Shelter B	Rural	Count	1	17	18
		Expected count	2.1	15.9	18.0
	Suburban	Count	3	14	17
		Expected count	1.9	15.1	17.0
Shelter C	Rural	Count	0	5	5
		Expected count	0.5	4.5	5.0
	Suburban	Count	5	40	45
		Expected count	4.5	40.5	45.0

Place of residence \* Time spent outside

	Place of Residence		Time spent outside		Total
			<12 hours	>12 hours	
Total	Rural	Count	7	16	23
		Expected count	11.4	11.6	23.0
	Suburban	Count	42	34	76
		Expected count	37.6	38.4	76.0
Shelter A	Suburban	Count	6	8	14
		Expected count	6.0	8.0	14.0
Shelter B	Rural	Count	5	13	18
		Expected count	5.1	12.9	18.0
	Suburban	Count	5	12	17
		Expected count	4.9	12.1	17.0
Shelter C	Rural	Count	2	3	5
		Expected count	3.3	1.7	5.0
	Suburban	Count	31	14	45
		Expected count	29.7	15.3	45.0

Previously adopted a dog from a shelter \* Fate

	Previously Adopted		Fate		Total
			Unsuccessful	Successful	
Total	No	Count	7	60	67
		Expected count	6.8	60.2	67.0
	Yes	Count	3	29	32
		Expected count	3.2	28.8	32.0
Shelter A	No	Count	1	10	11
		Expected count	0.8	10.2	11.0
	Yes	Count	0	3	3
		Expected count	0.2	2.8	3.0
Shelter B	No	Count	3	20	23
		Expected count	2.6	20.4	23.0
	Yes	Count	1	11	12
		Expected count	1.4	10.6	12.0
Shelter C	No	Count	3	30	33
		Expected count	3.3	29.7	33.0
	Yes	Count	2	15	17
		Expected count	1.7	15.3	17.0

Contact made with shelter after adoption \* Fate

	Contact		Fate		Total
			Unsuccessful	Successful	
Total	No	Count	1	52	53
		Expected count	5.4	47.6	53.0
	Yes	Count	9	37	46
		Expected count	4.6	41.4	46.0
Shelter A	No	Count	0	12	12
		Expected count	0.9	11.1	12.0
	Yes	Count	1	1	2
		Expected count	0.1	1.9	2.0
Shelter B	No	Count	0	15	15
		Expected count	1.7	13.3	15.0
	Yes	Count	4	16	20
		Expected count	2.3	17.7	20.0
Shelter C	No	Count	1	25	26
		Expected count	2.6	23.4	26.0
	Yes	Count	4	20	24
		Expected count	2.4	21.6	24.0

Contact made with shelter after adoption \* Behaviour problems

	Contact		Behaviour problems		Total
			No	Yes	
Total	No	Count	31	22	53
		Expected count	26.2	26.8	53.0
	Yes	Count	18	28	46
		Expected count	22.8	23.2	46.0
Shelter A	No	Count	5	7	12
		Expected count	4.3	7.7	12.0
	Yes	Count	0	2	2
		Expected count	0.7	1.3	2.0
Shelter B	No	Count	10	5	15
		Expected count	8.1	6.9	15.0
	Yes	Count	9	11	20
		Expected count	10.9	9.1	20.0
Shelter C	No	Count	16	10	26
		Expected count	13.0	13.0	26.0
	Yes	Count	9	15	24
		Expected count	12.0	12.0	24.0

Adopted dog good with other dogs \* Fate

	Good with Other dogs		Fate		Total
			Unsuccessful	Successful	
Total	No	Count	2	13	15
		Expected count	1.5	13.5	15.0
	Yes	Count	8	76	84
		Expected count	8.5	75.5	84.0
Shelter A	No	Count	1	2	3
		Expected count	0.2	2.8	3.0
	Yes	Count	0	11	11
		Expected count	0.8	10.2	11.0
Shelter B	No	Count	0	6	6
		Expected count	0.7	5.3	6.0
	Yes	Count	4	25	29
		Expected count	3.3	25.7	29.0
Shelter C	No	Count	1	5	6
		Expected count	0.6	5.4	6.0
	Yes	Count	4	40	44
		Expected count	4.4	39.6	44.0

Adopted dog good with cats \* Fate

	Good with cats		Fate		Total
			Unsuccessful	Successful	
Total	No	Count	5	41	46
		Expected count	4.6	41.4	46.0
	Yes	Count	5	48	53
		Expected count	5.4	47.6	53.0
Shelter A	No	Count	1	5	6
		Expected count	0.4	5.6	6.0
	Yes	Count	0	8	8
		Expected count	0.6	7.4	8.0
Shelter B	No	Count	1	12	13
		Expected count	1.5	11.5	13.0
	Yes	Count	3	19	22
		Expected count	2.5	19.5	22.0
Shelter C	No	Count	3	24	27
		Expected count	2.7	24.3	27.0
	Yes	Count	2	21	23
		Expected count	2.3	20.7	23.0

Adopted dog good with children \* Fate

	Good with Children		Fate		Total
			Unsuccessful	Successful	
Total	No	Count	5	9	14
		Expected count	1.4	12.6	14.0
	Yes	Count	5	80	85
		Expected count	8.6	76.4	85.0
Shelter A	No	Count	1	1	2
		Expected count	0.1	1.9	2.0
	Yes	Count	0	12	12
		Expected count	0.9	11.1	12.0
Shelter B	No	Count	2	3	5
		Expected count	0.6	4.4	5.0
	Yes	Count	2	28	30
		Expected count	3.4	26.6	30.0
Shelter C	No	Count	2	5	7
		Expected count	0.7	6.3	7.0
	Yes	Count	3	40	43
		Expected count	4.3	38.7	43.0

Season adopted \* Fate

	Season Adopted		Fate		Total	
			Unsuccessful	Successful		
Total	Autumn	Count	2	28	30	
		Expected count	3.0	27.0	30.0	
	Spring	Count	2	14	16	
		Expected count	1.6	14.4	16.0	
	Summer	Count	6	20	26	
		Expected count	2.6	23.4	26.0	
	Winter	Count	0	27	27	
		Expected count	2.7	24.3	27.0	
	Shelter A	Autumn	Count	1	4	5
			Expected count	0.4	4.6	5.0
		Spring	Count	0	2	2
			Expected count	0.1	1.9	2.0
Summer		Count	0	2	2	
		Expected count	0.1	1.9	2.0	
Winter		Count	0	5	5	
		Expected count	0.4	4.6	5.0	
Shelter B	Autumn	Count	0	9	9	
		Expected count	1.0	8.0	9.0	
	Spring	Count	0	5	5	
		Expected count	0.6	4.4	5.0	
	Summer	Count	4	9	13	
		Expected count	1.5	11.5	13.0	
	Winter	Count	0	8	8	
		Expected count	0.9	7.1	8.0	
Shelter C	Autumn	Count	1	15	16	
		Expected count	1.6	14.4	16.0	
	Spring	Count	2	7	9	
		Expected count	0.9	8.1	9.0	
	Summer	Count	2	9	11	
		Expected count	1.1	9.9	11.0	
	Winter	Count	0	14	14	
		Expected count	1.1	12.6	14.0	