Human and Companion Animal Compatibility:
Stereotypes and Health Consequences

A thesis presented in partial fulfilment of the requirements
for the degree of Doctor of Philosophy in Psychology
at Massey University

Rachel Claire Budge

1996

Abstract

The major theme of this thesis is compatibility of human-companion animal relationships, particularly with respect to cats and dogs. This theme was explored from two perspectives, the first of which focused on how the compatibility of people and their pets is **perceived** by others and involved three studies of stereotypes about human-pet compatibility. The second perspective consisted of one study which focused on some of the health consequences of the **experience** of compatibility between pets and their owners for the latter.

In the first of the stereotype studies, 102 participants matched up ten photographs of people with ten photographs of pets and provided reasons for their selections. Chi-square analyses demonstrated significant matching trends, i.e. stereotypes, for all but one of the ten target persons. Examination of the reasons for selections suggested that participants used similar themes to those traditionally found in person perception studies (gender, age, hair colour etc.) to categorise the target persons, and made pet selections on this basis. The second study provided profiles of nine target persons who varied on a number of dimensions. One hundred and seventy two participants selected a pet for each target person, specifying the species, breed, sex and name of each pet. It was hypothesized that female target persons would receive a greater number of small dogs and cats than larger dogs, and males would be given medium to large sized dogs more frequently than small dogs and cats. It was also hypothesised that target persons would receive more same sex than opposite sex pets. Results of chi-square analyses of the animal species, breed and sex information provided some support for both hypotheses and suggested that there are certain stereotypical perceptions of particular person-pet combinations. The third study involved 542 participants who rated slides depicting a man and a woman, alone or accompanied by a dog or a cat, on 40 psychological attributes. Contrary to predictions, the woman was seen more favourably with the dog than with the cat or alone, and the man was rated more positively with the cat or alone than with the dog.

The final study concentrated on actual relationships between people and their pets and introduced compatibility as a key dimension. A study was conducted to examine the effects of compatibility, attachment and social support on mental health and physical symptoms. One hundred and seventy six pet owners completed a questionnaire incorporating a compatibility measure developed for this study, the Pet Attachment Survey, the Interpersonal Support Evaluation List, the Mental Health Inventory and

a shortened version of Pennebaker's Inventory of Limbic Languidness. Regression analyses showed that compatibility was independently associated with better mental health. Unexpectedly pet attachment was positively associated with physical symptoms and not mental health. Social support was positively related to mental health but not physical symptoms. No interaction or mediating effects were discovered.

The findings of the stereotype studies suggest that there are certain person pet combinations which are perceived to be more compatible than others, which are dependent primarily on age and sex characteristics of the owner. The final study showed that actual compatibility between pet and owner can be quantified and that it is associated with beneficial health effects for the owner.

Acknowledgements

TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDICES

CHAPTER 1

Human-Companion Animal Compatibility

General Overview

Compatibility is an important ingredient of a successful partnership, in both social and more intimate situations. Although the idea of compatibility has been applied primarily to human relationships, it also has potential relevance to those relationships which exist between humans and other species, especially considering the number of Western households that include companion animals. The major theme of this thesis is compatibility of human-companion animal relationships, particularly with respect to cats and dogs. This theme is explored from two quite distinct perspectives. The first perspective (Chapters 1 - 7) focuses on perceptions of other people's compatibility with their pets. Thus the emphasis is on stereotypes about pet-owner compatibility. The second perspective (Chapters 8 - 11) focuses on some of the consequences of incompatibility between pets and their companions for the latter. In this part of the project a new measure of compatibility was developed. This was then used to test a number of hypotheses about the effects of compatibility on owners' attachment to their pet and on their physical and mental health, and how these effects are influenced by social support.

The notion of owner-pet compatibility has no accepted status within the companion animal literature in that there seem to be no formal compatibility definitions or measures, and few references have been made to the compatibility theme in the literature. The concept of pet attachment appears to be conceptually closest. This was adapted from the human to human attachment theory developed by Bowlby in the 1950s, and studied in a variety of pet-owner investigations. This work will be discussed in Chapter 8. The immediate objective is to gain a clearer understanding of the notion of compatibility.

Compatibility

The Penguin English Dictionary (Garmonsway, 1979) defines compatibility as the "state or quality of being compatible ...", and compatible as "capable of existing together; consistent, in agreement with; suitable ..." (p. 152). It is notable that, on this definition, there may be compatibility without attachment or vice-versa. The definition encapsulates compatibility between a person and an animal quite accurately, and is a good working definition from which to operationally define the concept.

It is helpful to conceptualise compatibility, in the person-pet context, as consisting of two parts: what a person or animal wants from the interaction; and what that same individual is prepared and able to offer to the relationship. Furthermore, each of these parts can be split into the physical, behavioural and psychological requirements to be fulfilled by, and contributions made to, a social relationship. Although these three domains are likely to overlap, for example an owner's need for physical contact may also be perceived as a psychological need, there will also be specific examples of each. The basic physical requirements of an animal are those of water, food, shelter and health care, and most companion animals are dependent on an owner to provide these. Conversely, most people do not have similar requirements of an animal, except, for example, visually impaired persons who depend on a guide dog for mobility and support. With respect to behavioural requirements and contributions, dogs require varying degrees of exercise, depending on the breed, and will contribute - and in some cases demand - playful interaction and companionship whenever it is asked for. Cats, on the other hand, tend to exercise themselves, although some will accompany an owner on walks, and will play either alone, with another feline or with an owner. People require certain behaviours of their pets, a degree of obedience and control from a dog and at a different level from a cat also. Physical interaction of an appropriate kind can be viewed as both a contribution and an expectation of a relationship with a pet.

The physical and behavioural requirements of individual owners and the various pet species, and breeds within species, are relatively easily identified. The more elusive component is the psychological aspect. It was the desire to define this component

2

which stimulated my initial interest in the topic. Exploring this issue led to the belief that it is the psychological component that is critical to overall compatibility and its consequences. An example of the psychological component would be the amount of physical affection a person desires from an animal in comparison with the amount the pet is prepared to offer. To illustrate this, some people do, or do not, appreciate having a cat on their knee and some felines are 'lap cats' while others are not. A further example would be the issue of companionship. What constitutes company for one person may be knowing that the animal is somewhere around, sleeping or in the garden perhaps, whereas another person might want the animal in the same room most of the time, or in frequent physical contact. Likewise some animals, particularly dogs, are very demanding of human contact and will misbehave or bark if left alone for any length of time, whereas others are quite happy to amuse themselves and await the owner's return. Issues such as these have import for both parties and although efforts have been made to isolate behavioural characteristics of specific animal breeds, it is equally important to consider owners' needs and contributions for a compatible match to exist.

Chapters in Part One

The following six chapters provide, firstly a review of relevant literature in the psychological and human-pet interaction domains, and secondly an introduction to the three studies in the first part. The areas covered in the literature review all relate to the human-pet compatibility notion in western societies, and present a review of previous research and various authors' views, many of which are based on observations of pets and people from a clinical perspective. Chapter 2 presents a literature review of the areas relevant to Part One of this thesis. It begins by outlining human-pet compatibility in terms of the potential consequences of a good or a poor match, and provides a rationale for the consideration of perceptions about, and the experience of, compatibility. The next section deals with the two major companion animal species, dogs and cats. It outlines the socialisation process of both species, as this influences the nature of future inter-species interactions, and describes similarities and differences between dogs and cats as companion animals. These differences can be quite marked, occurring within species also, and the next section covers information

on pet selection, encompassing a range of authors' views on the aspects of pets and pet ownership which should be considered when choosing a companion animal. However, basing a selection decision only on the characteristics of the animal disregards the characteristics of the owner, which should also be taken into consideration. The next section of Chapter 2 concentrates on the human side of the relationship and outlines research on the demographic and personality differences between owners of various pet species.

Chapter 3 provides an introduction to the three studies in the first part of the thesis by reviewing the psychological literature on person perception, with a particular focus on stereotypes. Sex and age stereotypes form the basis of the introduction as they are primary areas within the perception literature and are central to the first three studies. The idea of human-pet stereotypes is also introduced in Chapter 3, which concludes with an outline of the studies which were designed to investigate their existence and substance. The methodology and results of these studies appears in Chapters 4 to 6, and Part One concludes with a discussion of the findings of all three perception studies in Chapter 7.

Chapters in Part Two

The second part of the thesis is introduced in Chapter 8 by a review of the pet ownership, pet attachment and social support literature as it relates to people's health. Compatibility is then reintroduced as a different aspect of the person-pet relationship to be investigated, and a theoretical model of the relationships between human-pet compatibility, pet attachment, social support and health is presented. The test of this model is reported in Chapters 9 to 11.

Thus, the general theme explored in this thesis is that of compatibility of human-companion animal relationships. The two approaches adopted to investigate compatibility are: firstly, perceptions of other people's compatibility with their pets, and secondly, the health consequences of incompatible relationships for the owner. The thesis finishes with additional thoughts on compatibility and suggestions for further research in Chapter 12. Since these two approaches were intentionally pursued

quite separately in the reported studies, one of the main closing themes in Chapter 12 is how future investigators might bring them closer together.

CHAPTER 2

Literature Review

Compatibility: The Match Between a Person and a Companion Animal

The purpose of this section is to introduce the idea of matching owners with particular companion animal types, based on the premise that pet-owner compatibility is desirable and important. Two approaches to this premise will be discussed. The first concerns practical considerations regarding incompatibility between pet and owner, the second concerns potential benefits for the owner when a good match exists.

Firstly then, a poor match of pet and owner will cause annoyance to the owner, is likely to produce or contribute to behaviour problems (particularly in dogs) and once the owner is no longer willing to keep the animal it either has to be rehoused, abandoned to fend for itself or be euthanased. At any of these latter junctures the animal becomes a problem for people other than the immediate owner(s). Rehousing involves an animal pound of some description because abandoned animals become a menace in the neighbourhood, scrounging for food, adding to the already unmanageable outcast pet population and causing accidents. Euthanasia, if performed humanely, usually involves a veterinarian. Most veterinarians are familiar with the scenario in which they are brought healthy, young animals to dispose of as the owner no longer wants them or did not adequately control a pet's reproduction. Another alternative for unwanted animals is to surrender the animal to an agency such as the Society for the Prevention of Cruelty to Animals (S.P.C.A.) which attempts to rehouse unwanted and abandoned pets. According to Arkow (1985), animals left at such places have a 10-50% chance of survival. Before this stage is reached, however, some owners will approach a veterinarian or dog trainer for help with the animal's behaviour problems. Some of the most common problems, such as aggression, elimination and destructive behaviours, are not necessarily the sole fault of either the owner or the animal but are a consequence of the relationship between the two (Marder & Marder, 1985). Not all problems are solvable but many are, with appropriate changes in

interactions and reward and punishment regimes. There are also individual differences in owners' perceptions of what defines a problem, "a dog which is a problem for one owner may be a pleasure for another, even though it displays the same behaviour in both situations" (Campbell, 1975, p. 1). Thus, the first approach involves animals as problems requiring effort and causing frustration.

The second approach considers the idea that animal companionship is potentially beneficial for owners. These benefits, however, may only occur in situations where people are attached to or bonded with their pets (Friedmann, 1990), a factor which may be influenced by the type of animal a specific person owns. Early studies in the companion animal field assumed that mere ownership of an animal would be sufficient to demonstrate a difference between owners and non-owners, in terms of health and psychological well-being. Research, however, has had varying degrees of success in its attempts to find significant relationships between animal ownership and psychological variables such as self-esteem (Johnson & Rule, 1991; Hyde, Kurdek & Larson, 1983), social sensitivity and interpersonal trust (Hyde et al., 1983), self-perception (Kidd & Feldmann, 1981), affection for other people (Brown, Shaw & Kirkland, 1972) and extraversion, neuroticism, alienation, and divorce incidence (Paden-Levy, 1985). These examples will be discussed further in a later section. Several authors have attempted to explain the lack of consistency in results by proposing that a distinction should be made between companion animal ownership and companion animal bonding (Case, 1987; Poresky, Hendrix, Mosier & Samuelson, 1987; Friedmann, 1990; Poresky & Hendrix, 1990). In other words, simply owning a companion animal may not be enough to improve levels of well-being or self-esteem, rather the influencing factor may be the strength of the relationship or bond between pet and owner, which may be affected both by compatibility and attachment.

A similar idea arose from studies of child-pet relationships. Research pertaining to the effects of pets' presence on children's development has identified only small effects on such characteristics as social sensitivity and interpersonal trust (Hyde et al., 1983) and self-esteem (Covert, Whiren, Keith & Nelson, 1985). Poresky and Hendrix (1990)

suggest that "the lack of support for the effect of the child-pet bond on children's development was due to the assumption that pet ownership was an adequate measure of a child's relationship with a dog or cat" (p. 51). They found significant correlations between children's bonds with their animals and scores on measures of social competence and empathy. These results led the authors to conclude that the relationship children experience with their pets is more important than just the presence of animals in the family home. This view is shared by several researchers and led to the development of scales to measure attachment of owners towards companion animals. These will be discussed in Chapter 8.

Another area currently under investigation is that of the relationship between pet ownership and health. Friedmann (1990) commented that "the effectiveness of various species, breeds or individual animals for health and patient recovery is likely to be dependent on personal differences in attachment to or perceptions of animals as well as on cultural factors. Assigning pets to specific individuals is an area requiring additional research. More research is also needed to quantify the roles of attachment and attitudes towards animals as well as the interrelationship between pet-related variables and other sources of social support in explaining the health benefits of pets for specific individuals" (p. 16-17). A review of the research investigating the health benefits of companion animal ownership and contact will be presented in Chapter 8.

As yet little research has been carried out on what the specific variables are that contribute to compatibility between humans and animals, but Burrows (1990) suggested that there has to be a good match of owner and animal for there to be a successful relationship or bond between them. The variables he noted as being important for a good match are individual expectations of environment, husbandry and responsiveness. An attempt to provide more specific information about animal characteristics has been carried out by Hart (1979, 1980) and Hart and Hart (1985, 1988). These authors provided information on cat and dog breed characteristics which will be discussed later in this chapter. With respect to canines, they assert that there

is a best breed or group of breeds for each family and home depending on the lifestyle and home environment within which a puppy will live.

Another researcher to perform research on canine characteristics was Serpell (1983). Following exploratory interviews with dog owners, a questionnaire was devised which required participants to rate their own dog and their 'ideal' dog on 22 attributes. Each attribute was expressed as a linear scale with each end representing the extreme dimensions of that specific attribute. Highly significant ($p < .001$) differences in ratings of real and ideal dogs were found for five attributes: lack of protectiveness, disobedience at home and on walks, nervousness and possessiveness. Significant differences ($p < .005$) were found for overexcitability, lack of intelligence, separation anxiety and oversensitivity to owners' moods. The remaining attributes did not produce significant differences between owners ratings of their own versus ideal dogs and these included playfulness, attachment to one person, friendliness to other people, territoriality, friendliness to other dogs, attitude to food, sense of humour, expressiveness, enjoyment of walks, loyalty/affection, welcoming behaviour and attentiveness. Serpell suggested that the final five attributes in this list best represent the heart of the relationship between dog and owner because "each of these extremes of canine personality concurs closely with the owner's ideal" (p. 60).

Within a psychiatric setting Corson, Corson and Gwynne (1975) attempted to match dogs with patients who had failed to respond to traditional forms of therapy. They used a selection of 20 dogs of varying breeds and temperaments in order to provide animals with a wide range of behaviours and emotional expressions. The authors concluded that "the availability of a large assortment of well trained dogs of different breeds made it possible to match the personality and the disorder of a given patient with a dog with which the patient could best interact" (p. 35). However, they provide no evidence of how this was achieved and in fact stated that "different patients exhibited definite preferences for a given dog type, but we do not yet have enough data to make a definitive statement about the relationship between the choice of dog and the diagnostic category of the patients" (p. 24).

The factors contributing to the human companion animal bond can be viewed from two angles, that of the animal and that of the owner. The next section will present the animal variables that need to be considered.

Dogs and Cats as Companion Animals

This section considers the two main companion animal species, dogs and cats, and is divided into three parts. The first focuses on the early experiences of these animals, with respect to how they can influence the human-pet relationship. It is important to learn about the early experiences of individual animals as it will help a prospective owner to choose a suitable pet as well as understand particular behaviours which may have arisen from previous experiences. The second part concerns the differences between cats and dogs as companion animals. Certain characteristics are common amongst dogs and others amongst cats and knowledge of these differences will help in species selection. The third part of this section reviews the recent literature on pet selection.

Early canine experiences

If there is to be a good match between a person and a pet, then the two participants in the partnership need to bring certain positive experiences to the relationship. Obviously an animal's behaviour is ruled to a large extent by its species and breed characteristics. The work carried out by Hart and Hart (1988) makes a major contribution to understanding the variables involved, and their work will be discussed later. The other issue that is important, however, is the individual experience of a specific animal irrespective of its breed or type.

Prior to birth the pup is affected by the maternal uterine environment and thus the factors that influence her, such as nutrition, exercise, warmth, drugs and disease, also influence the puppies in utero. Generally the prospective buyer has no knowledge of, or control over, what occurs during this period but acquiring a puppy from a registered breeder with a good reputation for animal husbandry is likely to be the best option. Several authors recommend a purebred dog over a mongrel (Hart & Hart, 1988; Fogle,

1990) as the behaviour of a purebred animal can be more accurately predicted than that of a cross-breed. Additionally, it is better to avoid taking on a "second hand" dog from an animal shelter or pound as, firstly, there is no way of assuring that it was not abandoned due to aggressive or vicious tendencies, and secondly, nothing is usually known about its early life. Many puppies in the pound environment spend their socialisation period behind bars. They are in contact with other dogs but have a minimum of contact with humans (Day, 1983). Most mongrels are the product of a non-intentional mating between domestic pets and the care given to the pregnant bitch, if the owners are even aware of her condition, can vary tremendously.

There are counter-arguments to the choice of a pedigree canine, however, which relate to the health and genetic inheritance of purebred dogs. Lemonick (1985) reported that as many as a quarter of the 20 million purebred canines in the United States are afflicted by a significant genetic problem. The examples he provides include German Shepherds with hip dysplasia, Collies with genetic eye problems, deaf Dalmatians, Great Danes with weak hearts, Labrador Retrievers prone to dwarfism and Chinese Shar Peis with skin disorders. The majority of these problems result from selective breeding techniques carried out to accentuate the physical characteristics of a particular breed that are currently esteemed. The two techniques which best achieve this result are inbreeding, the mating of brothers and sisters or fathers and daughters, and line-breeding where a grandparent is mated with a grandchild or cousins with each other. The fact that for many breeds the most desirable show qualities result in health problems and behavioural side effects is apparently not worthy of consideration by breeders. Randomly bred dogs, being the product of a much larger gene pool, are less prone to congenital conditions and consequently have potentially better health. Thus, there are arguments to be made for and against the purebred versus randomly bred decison. A summary has been provided by Fox (1981) who writes: "in terms of all-round temperament, physical vigour, and likelihood of genetic defects, mongrels are generally preferable to purebreds. The advantage of a good purebred is that you know what kind of temperament, special talents (such as guarding and retrieving), and mature body size and coat type you are going to get" (p. 13).

11

In most cases the acquisition of an animal occurs when it has recently left its mother and litter mates. At this point the puppy is in the first critical period of the development of its mind. Research performed by authors such as Scott (1962) suggests that this first critical period can be divided into three sections, the neonatal period which lasts from birth to two weeks, the transitional period from two to four weeks and the socialisation period which begins at four weeks and ends around twelve weeks of age. The socialisation period is further divided into two periods, one defined by the time period during which dogs are able to be socialised to other dogs (four to six weeks), the other during which socialisation to human occurs (four to twelve weeks). As a consequence of the critical developmental period, it appears that pups are best obtained at about seven to eight weeks of age (Fogle, 1990; Campbell, 1975). As well as resulting in a less socially adept adult dog, it is proposed by Fox (1981) that a lack of experiences and handling during the critical 8 to 12 week period will result in a dog of lesser intelligence.

Scott (1962), after consideration of his own and others' research into critical socialisation periods in dogs as well as other mammals and birds, concluded the following:

> It seems likely that the formation of a social attachment through contact and emotional arousal is a process that may take place throughout life, and that although it may take place more slowly outside of certain critical periods, the capacity for such an attachment is never completely lost (p. 953).

In a later contribution Scott (1992) writes:

> If a puppy is raised in a restricted environment, it may develop a very narrow basis of attachment. More desirably from the human point of view, broader experience with a variety of humans, other animals, and places will produce a more widely adaptable dog. Restricting early experiences drastically, as when a puppy is brought up in a kennel and not given outside experience or more than casual human contact, will produce a set of maladaptive symptoms that I have named the kennel dog or separation syndrome (p. 77).

12

As was mentioned previously, Hart and Hart (1985, 1988) carried out an investigation into the differences between dogs of various breeds. They generated breed behaviour profiles regarding 13 traits of interest to people wanting dogs as pets. The study involved 48 obedience judges' and 48 small animal veterinarians' ratings of 56 breeds of dog representing the 55 most frequently registered breeds of the American Kennel Club plus the Australian Shepherd. Of the 56 canine breeds, 24 were classified as working dogs, 16 as hound or sporting dogs and 16 as terrier/miscellaneous. Each expert ranked seven specific breeds chosen randomly so that if they had a personal bias towards or against particular breeds there was little chance of them ranking these breeds. Breed behaviour profiles were thus obtained on thirteen specific behavioural traits which, by way of factor analysis, were related to three main factors which accounted for 81 percent of the variance (Hart & Hart, 1985). The traits and their factor groupings, only three of which were named, were as follows:

Factor 1: Reactivity	Excitability, general activity, snapping at children, excessive barking, affection demand
Factor 2: Aggressiveness	Watchdog barking, aggression to dogs, dominance over owner, territorial defence
Factor 3: Trainability	Obedience training, housebreaking ease
Factor 4:	Playfulness, destructiveness

Adapted from Hart and Hart (1985, p. 1182).

A cluster analysis was then performed to group the 56 breeds into seven clusters based on their rankings in relation to these three main factors. For example cluster one, characterised by traits of high reactivity, low trainability and medium aggression contained 11 breeds: Lhaso Apso, Pomeranian, Maltese, Cocker Spaniel, Boston Terrier, Pekingese, Beagle, Yorkshire Terrier, Weimeraner, Pug and Irish Setter.

Finally, the traits were separated into those on which authorities rated male dogs more highly than females, and those on which female dogs were rated more highly than

male dogs. On only three traits, watchdog barking, excessive barking and excitability, were both males and females rated equally. Male dogs were especially likely to be described as aggressive towards other dogs and dominant over their owners, whereas bitches were more likely to be described as high on obedience training and ease of housetraining (Hart & Hart, 1985). Specific information on the details of each dog breed and its individual ranking for the 13 traits has also been published (Hart & Hart, 1988).

Most of the literature on pet selection focuses on species or breed choices. However, Campbell (1975) devised the Puppy Behaviour Test which was designed to aid in the selection of an individual puppy from a litter. His test was said to "reveal critical behavioural tendencies of puppies subjected to human attraction, leadership and physical and social dominance" (p. 139). Gradings could range from highly dominant through very dominant, dominant and submissive to very submissive. This technique appeared to be valid in that it would select a pup of a particular level of dominance and was used by Young (cited in Fogle, 1990) to test several hundred puppies aged between six and eight weeks of age and again at three years. Over a hundred of these dogs were also tested at 16 weeks, 26 weeks and again at 18 months. She concluded that the tests did not prove reliable over time as tendencies towards dominance or submission that were identified at six to eight weeks of age were not necessarily still present at later testings. The only really useful point to emerge from Campbell's test was that pups who demonstrated overt aggression at the time of first testing continued to develop aggressive traits as they matured. However, some pups who showed no signs of aggression developed aggressive behaviours later.

Having selected a puppy, by whatever means, the onus is then on the new owner to provide the young canine with an appropriate learning environment. During the primary socialisation period, pups should be exposed to other dogs, humans and a range of experiences such as noise, traffic and other animals, so that they become accustomed to different situations. If they do not meet humans during this time, "positive social responses gradually decline and are replaced by fearful behaviour that

effectively prevents the formation of further attachments" (Messent & Serpell, 1981, p. 12). Puppies that are not exposed to other dogs at this time, develop inappropriate ways of interacting, such as aggressive rather than playful or submissive approaches to unknown canines, and can make poor mothers (Fogle, 1990). The advice concerning puppies interacting with other dogs however, contradicts that given by most veterinarians who suggest that puppies should be confined to their own gardens and not allowed to socialise with other dogs until they have completed a course of vaccinations against parvovirus, a potential killer. To reconcile these differing views, Fogle (1990) proposed that in order to provide the best socialisation experiences for a young dog, it should be allowed to interact with other canines but only with those who have themselves undergone a full course of vaccinations.

Early Feline Experiences

Although less research has concentrated on the socialisation of felines, a similar developmental trend is apparent. Early handling of kittens has been shown to accelerate the time of eye opening, time of emergence from the nesting box and EEG development (Meier, 1961, cited in Hafez, 1975). Additionally, less fear of strangers was observed in kittens that had been socialised to a number of different people, between five and nine weeks of age (Collard, 1967, in Hafez, 1975). Kittens that had been exposed to dogs from the age of four weeks would play with puppies at the age of twelve weeks, in contrast to kittens that had not experienced canine contact which would avoid contact and act defensively when approached by a puppy (Fox, 1971, in Hafez, 1975).

Karsh (1983) writes that she is convinced that "the attachment between cats and people can be profoundly altered by experiences early in the cat's life" (p. 22). She reports the absence of published data on the socialisation period in cats, although she notes Fox's (1970) proposal that the feline socialisation period starts at about 17 days old. Fox also noted that there appears to be a critical period for kittens, ranging from four to eight weeks, during which time they are most easily socialised to people. Karsh's (1983) own work involved measuring the behavioural responses of a number

of laboratory cats which had received varying levels of human social contact. It was concluded that "the handled cats are friendlier and better companions to people than are the non-handled cats, even though all the cats have had exposure to people" (p. 28).

Dogs and Cats as Companions

There appears to be a general consensus about the differences between dogs and cats in terms of the interplay between them and their owners. Fox (1975) considers cats to be more independent of their owners than dogs and other authors support this idea. However, in a later communication he advises prospective cat owners not to raise their kittens with the expectation that they are distant and aloof or unfriendly and untrainable as such attitudes can become self-fulfilling prophecies (Fox, 1981). Levinson (1972a) states that a dog is intrusive in that 'he' needs love and wants to be cared for - a characteristic which will not find favour with all owners. A cat, however, he describes as being unintrusive and able to fend for itself (interesting that he uses a personal pronoun for the dog but not the cat). Thus, he suggests that a cat is more desirable to those who wish to preserve their personal separateness of identity. Heiman (1965) describes the relationship between humans and dogs as mutualistic, or potentially beneficial to both parties. The relationship between humans and cats, however, he states is parasitic in that the cat benefits at the expense of its owner. Selby and Rhoades (1981) suggest that while dog and non owners might provide some support for this statement, many cat owners would disagree with such a description. Selby and Rhoades concluded from their research into public attitudes towards pets that owners of a particular animal type tend to favour that type over others and are consequently more positive about their own chosen variety. They go so far as to suggest that people may harbour contempt for a particular pet species.

Perhaps a more accurate depiction of the different species is provided by Marder and Marder (1985), who maintain that both dogs and cats are sociable creatures but dogs are more so. Within the larger animal context both species have a long primary socialisation period, rely on visual social signals, are playful, and have a small size but

a high degree of intelligence. Dogs are pack animals who, if exposed to humans during the primary socialisation period, will accept them as members of the pack. As such, humans are incorporated into the dominance-subordinance relationships existing between pack members, and unless they establish their right to pack leader status will be constantly challenged, particularly by males of the species. Dominance related aggression thus becomes the most common problem of dogs presented to animal behaviour specialists (Marder & Marder, 1985).

One of the variables on which dogs and cats can be compared is their perceived intellectual abilities. Because of their general lack of trainability cats can be considered inferior to dogs in intelligence. However, Fox (1981) suggests that trainability in both dogs and cats is less to do with intelligence and more related to dependence. There is variability within dog breeds, and he suggests that the trainability of a dependent toy poodle contrasts with the aloof and independent nature of an afghan hound, as well as between species. Cats are more independent than dogs, and are less socially motivated to please. Consequently they lack the attention span necessary for complex training procedures.

Research has highlighted certain behavioural differences between dogs and cats. Miller and Lago (1990a) observed interactions between 46 elderly women and their dogs and cats within individual home settings. Although the number of cats (15) was too small to include in the computation of correlations between observed behaviour and owner attitudes - the main aim of the study - the authors made some general conclusions concerning differences in canine and feline behaviours. During the interviews dogs were observed to be noisier and more interactive than cats. Dogs appeared to "insert themselves more directly into social situations" (p. 53) whereas cats were more aloof, calmer and more dignified. Whether the animal present was a cat or a dog did not affect owners' affectionate behaviour towards the animal except that cats featured more often than dogs in the owners' stories about their pets.

In describing the difference between cats and dogs, Hart and Hart (1984) proposed

that the smaller size of cats makes them more suitable for some environments than dogs. Additionally, the fact that cats can be trained to use litter boxes means that, unlike dogs, they do not necessarily require outside access several times a day for elimination purposes. They describe cats as basically asocial although the selective breeding of domestic cats has probably emphasised sociable behaviours. This less sociable nature makes them ideal pets to have if they need to be left alone as they do not tend to show "behavioural signs of isolation" (p. 182). Being more sociable, dogs can react badly to being left alone, but are also more likely to adjust to a new addition to the household whereas cats do not necessarily appreciate the introduction of another pet and may start spraying to define territory. Urine spraying is considered to be one of the worst behaviour problems of cats, another being fighting with other cats. Castrating of cats prior to puberty is more effective in pre-empting spraying, fighting and roaming, than castration after puberty is at stopping them. However neutered cats, both male and female, may well start spraying even if they have been neutered prepubertally, generally in response to an environmental change such as moving house, the introduction of a new cat into the household or territory, or alteration of the cat's lifestyle such as converting an outdoor cat into an indoor one. Research results suggested that the "incidence of frequent urine spraying by prepubertally castrated cats is very close to 10% and the incidence of frequent spraying by prepubertally spayed females, 5%" (p. 185). Therefore a female is less likely to spray than a male, and if you do have a male it is more likely to spray when living in the same household as a female cat than with another male.

Selecting a Pet

There are a number of issues to consider when choosing a companion animal. Hart and Hart (1984) discuss housing, household constitution and prioritised expectations of an animal in terms of what is desirable as well as what is undesirable. They suggest that there are specific parameters to use when recommending particular pets for particular environments. The first decision is about species, whether to recommend a dog or a cat. Secondly, questions about size, hair length coat colour and whether the animal should be of purebred or mixed origins. Its behaviour is a more important

consideration, however, as this is what will contribute to the relationship a pet has with an owner. Animals can vary within, as well as between, species and this was the main focus of Hart and Hart's (1985) work, to develop behavioural profiles of different breeds of dog.

Some of their work, however, pertains to cat breeds. They suggest that when choosing an appropriate cat, there is value in selecting a purebred as there is a better chance of being able to predict future appearance and behaviour. Because the environment has a stronger influence on behaviour than looks, the former is harder to predict and there is little comparative information available about breed specific behaviour (Hart, 1980). When they sought opinions about specific cat breeds selected informants were approached for information, and consensus comments were reported concerning typical behaviours of Siamese, Persian, Burmese, Abyssinian, Manx, Himalayan, Russian Blue and Rex cats. (Hart & Hart, 1984; Hart, 1979).

It is recommended (Beaver, 1976; Dunbar, 1987) that the first step to take when choosing a pet is to consider the role it is intended to play for the new owner. Once this is defined then a suitable species may be chosen. Beaver (1976) mentions allergies as a potential restricter as people who are allergic to dogs and horses may not be to cats. She also highlights the animal needs which must be considered; adequate housing and food, activity requirements, the social environment in terms of size (of humans and animals) and potential power relationships of the household - as exemplified by the dominance-subordinance relationships between pack members described on p 17. Once a species has been selected, breed characteristics should be considered. Some of the issues here, such as size, activity and housing, are the same as before, but others may be important also. For example, the sex of the animal (neutered pets tend to be more stable and affectionate) and the length of its coat (long-haired animals require regular brushing which may not suit the owner). Beaver (1976) outlines her concern as a veterinarian that the animal's welfare must be considered as well as how well it meets the human's needs. Starting with a healthy pet is important, as is the socialisation process. Consideration should also be given to the type of behaviour

problems that might emerge from a given set of circumstances and efforts made to pre-empt them.

Dunbar (1987) discussed similar issues in considering the selection and training of a pet for an institutional or therapy setting. This requires an animal that is sociable rather than solitary by nature which may limit certain species and breeds. Potential canine or feline visitors to institutions can be temperament tested by exposing them to the types of situations they will be placed in and observing their response. As Dunbar (1987) points out, no realistic conclusions can be drawn regarding a pet's suitability for an afternoon's visiting at a geriatric hospital from ten minutes of gentle patting and handling. Handling exercises can be introduced gradually and the intensity built up to a point that resembles the actual situation the dog or cat is required to behave itself in.

Another author who has profiled pets for therapy situations (Bustad, 1979) stated that his favoured approach to this exercise would be to develop scientifically based qualitative profiles of each animal being considered for a pet-facilitated therapy context. He concluded that such a task could not be achieved, although he did not provide any reasoning for this conclusion. However, he continued to suggest that certain guidelines should be followed which he outlined with respect to dogs. The general principles he presents entail attempting to match the animal with the patient, consideration of the animal's species, breed, sex and individual traits, and discouraging the use of exotic breeds. Bustad (1979) recommended that a list of desirable traits (e.g. gentleness, obedience, health and learning ability) and undesirable traits (e.g. aggressiveness, hyperactivity and excessive vocalisation) should be developed. Such traits could be ranked and used for comparative purposes.

It appears that most of the veterinary literature on pet choice relates more to the choice of a dog than a cat. Perhaps this is influenced by the perception of the outcome of irresponsible or unconsidered dog ownership being more problematic for the wider community than irresponsible cat ownership. Or it could be due to the larger selection

of canine breeds available. Coffey (1982) writes that few people consider a pedigree cat, and those that do are most likely to think of a Siamese or a Persian. Beyond the issue of a pedigree or not, he suggests that while some people may be influenced by a desire to have a cat of a particular colour or sex, it is the decision between a long or short-haired cat which becomes paramount. Unless owners are prepared to give their cat's coat daily attention, Coffey's (1982) advice is to choose a short haired variety. With respect to the sex of a cat, if the animal is to be neutered, there is little to choose between a male or a female. Females will produce regular litters of kittens if unregulated, and males will wander and fight if left entire. Coffey does not recommend that kittens be bought from pet shops, but chosen from the breeder and taken home at the age of eight weeks. This enables the kitten to be weaned naturally from its mother and be socialised to humans and other species within the primary socialisation period. The selection of a particular kitten, assuming they all meet the obvious criteria of normality and good health, Coffey (1982) suggests depends on the appeal of the individual. "If the cat passes your amateur veterinary inspection, appears temperamentally to your liking, and is the right colour and sex you have your kitten" (p. 67).

Holmes (1993) presented a series of questions aimed at prospective dog owners. The questions were accompanied by possible answers and likely attitudes reflected in them as well as counter-responses. He proposed that careful consideration of these questions would enable prospective owners to (a) clarify their motivation for getting a dog, (b) establish their feelings about whether or not now is the right time to accept the responsibility for a dog, (c) have a more objective set of criteria for matching their needs with a dog's capabilities, and (d) increase the chances of getting the best sort of dog for their lifestyle and environment. In a similar vein, Fox (1981) posed a number of questions that the would be dog owner should ask of him/herself. Such questions concern a dog's needs, issues about animals in the community, owner's needs and responsibilities. Fox doesn't provide a similar list of questions for prospective cat owners to ask themselves, although he discusses the pedigree versus mixed breed issue.

Fox (1981) also describes a number of situations where dogs have not lived up to their owners' expectations and suggests why. One of the more common canine behaviour problems is aggression, where a dog will behave aggressively towards visitors. Fox suggests that the development of aggressive behaviour can result from an interaction of the personality of the owner and the temperament of the particular breed of dog. In relationships between two people, one partner can possess or acquire traits that complement and support the other's needs, and this can also happen in human-pet partnerships. Thus if a single woman feels insecure and uncertain then her dog may develop strong protective behaviours which emerge as aggression towards unknown, or even known, others. Conversely a self-assured, assertive person may have a dog which sleeps through an intruder's entrance into the house. Therefore when choosing a breed of dog that will complement an individual's personality and meet particular needs, it is important to consider the possible result of the interaction between the human and canine personalities. Additionally, the sex of the pet will warrant consideration.

> "A male dog is often more possessive and protective with a female owner than with a male owner ... Unsure, apprehensive, and socially shy men and women can affect their dogs in many ways. Most predictable is a "transference" to the pet, such that the dog becomes wary and shy of strangers. This will usually occur if the dog is timid by nature. A more assured and self-confident owner would be more likely to bring out the gregarious streak in a naturally timid pet. The former personality type could produce a very defensive and protective dog if its lineage was outgoing and assertive.... A confident extrovert will often have an outgoing pooch - a real match of temperaments - just as the more anxious personality types may have a nervous and unstable dog. But the domineering kind of person can produce another canine personality - an obsequious, servile type" (Fox, 1981, p. 108-109).

Fox continues to say that although there may be certain personality characteristics common to dogs within a particular breed, such predictions cannot be relied on and it is better to consider the individual dog as well as the individual owner when considering the potential combinations of the two temperaments.

Stalnaker (1992) reported the advice given by four dog obedience trainers concerning the selection of a canine for dog obedience. The advice proved to be conflicting on several issues. Firstly, two of the experts considered it important to select a puppy on its current merits and train it from the age of a few weeks whereas the others felt that it was difficult to predict an aptitude for obedience training at an early age and recommended selecting a puppy on its parents' merits or starting with more mature individuals. Secondly, one author thought it best to stick to a favoured breed while another considered the breed less important than the individual. The main point in common to all advisors, however, was that the specific dog chosen should primarily suit the owner's temperament and lifestyle.

The final word on choosing a pet must come from Levinson (1975). In his forecast for the year 2000 he suggests that not only will pets be selectively bred to suit particular human personality needs, but should a suitable animal not be available from existing breeds, new animals will be bred by combining the desirable qualities of two species such as dog and cat. It appears from the favoured position 20 years on, that if this sort of technology does become available, it is unlikely that it will be in the early part of the 21st century.

One of the issues involved in pet ownership is whether or not people should own pets at all, and a number of authors have investigated demographic, personality and health differences between people who own companion animals and those who do not. The following section summarises the demographic and personality differences between pet owners and non-owners; the health correlates of pet ownership will be addressed in Chapter 8.

Differences Between Owners and Non-Owners of Pets

Many of the studies have identified demographic differences between the two groups, such as income level where pet owners tend to be better educated, are more likely to be employed and have concomitantly higher incomes (Endenburg, Hart & de Vries, 1990). Horn and Meer (1984) also found that the pet owners in their survey had a

higher average income level, but lower levels of education than those who did not own pets. A survey of adolescents and their families demonstrated that as levels of income increased, so did animal ownership (Covert et al., 1985). Several studies have found that pet owners tend to live in larger households than non pet owners (Salmon & Salmon, 1983; Paden-Levy, 1985; Endenburg et al., 1990; Goodwin, 1975; Teclaw, Mendlein, Garbe & Mariolis, 1992); one found a negative correlation between pet ownership and the size of the community (Paden-Levy, 1985); and others found that in America, pet owners tend to live in suburbs rather than inner city locations (Salmon & Salmon, 1983; Horn & Meer, 1984). With regard to marital status, it appears that people who own pets are more likely to be married or in stable partnerships than those who do not (Horn & Meer, 1984; Endenburg et al., 1990). Pets also appear more often in families where there are children between the ages of about six and sixteen (Goodwin, 1975: MAFO Institute, 1984, cited in Bergler 1988; Teclaw et al, 1992). Netting, Wilson and Fruge (1988) examined pet ownership and nonownership amongst the elderly in Arizona and found that on the basis of attachment to early pets, housing and health they were able to predict ownership or non-ownership. They concluded that pet owners were more likely than non-owners to have owned a number of pets in previous years, and that non-owners tended to be older, more likely to live in apartments and express lower health status than owners.

More interesting, however, are the personality differences that researchers have attempted to identify between those who have animal companions and those who do not. One idea proposed about pet owners is that they care so much for their animals that they have less time and affection for other people. The earliest study connected with this theme was carried out by Cameron, Conrad, Kirkpatrick and Bateen (1966). These authors found a tendency for pet owners to report less liking for other people than did non owners. Age did not appear to be related to the level of liking expressed, but the authors noted that no assessment of attachment was made - an idea which did not resurface until the 1980s. Cameron and Mattson (1972) extended this research and found that owners claimed that their liking of pets exceeded their liking of people whereas the converse was true of non owners. Pet owners also reported less

felt regard from other people than the non owners in the study. Along the same theme, Brown, Shaw and Kirkland (1972) investigated affection for people as a function of affection for dogs. However, their results indicated that people who express little affection for dogs also manifest little affection for other people. A similar unpublished study carried out in England (Lee, 1976, cited in Serpell, 1986) concluded that owners who spent a lot of time with their pets (interactive owners) expressed a significantly stronger desire for affiliation than that of the non pet owners. The same was not true of those owners who spent only a small amount of time with their pets (passive owners).

Based on the findings of the two studies by Cameron (Cameron et al, 1966; Cameron & Mattson, 1972), Joubert (1987) introduced Adler's (1932, cited in Joubert, 1987) idea of 'social interest' being important for mental health. He suggested that if previous findings were correct in that pet owners liked other people less, they should choose to spend less time with other people than non pet owners. His results demonstrated a sex difference in that women scored higher than men on social interest, but there was no significant difference between those who owned pets and those who did not. However, pet owners reported spending more time per day socialising with others, so his hypothesis remained unsupported.

A survey of attitudes and pet relationships in a large random sample of owners and non-owners in Canada (Kafer, Lago, Wamboldt & Harrington, 1992) found, not surprisingly, favourable attitudes towards pets to be strongly associated with actual pet ownership. For some reason, companion animal owners are expected to be more extroverted than those who do not own animals but this idea is not generally supported by recent research (Paden-Levy, 1985; Johnson & Rule, 1991; Cameron & Mattson, 1972). In Edelson and Lester's (1983) student sample, however, extraversion was found to be related to ownership for males but not females. No differences were found between pet owners and non-owners in self esteem (Hyde, et al., 1983; Johnson & Rule, 1991), social self-esteem (Johnson & Rule, 1991), self acceptance (Martinez & Kidd, 1980) or neuroticism (Johnson & Rule, 1991; Cameron & Mattson, 1972).

Paden-Levy (1985), however, found a significant negative relationship between pet ownership and neuroticism and also alienation. Owners were found to score significantly higher on empathy and personal trust in a study by Hyde et al. (1983), and to be less independent (Guttman, 1981). Ory and Goldberg (1984) discovered a small relationship between pet ownership and perceived happiness in an elderly sample, but happiness levels were also found to be influenced by socioeconomic status. According to Horn and Meer's (1984) survey, owners of companion animals are more satisfied with their past and present lives. In another study owners scored significantly higher than non-owners on an adjective checklist and also on nurturance, while they scored significantly lower on need for succorance and need for abasement (Kidd & Feldmann, 1981). These authors also found a non significant trend for higher self-confidence among pet owners.

As Serpell (1986) comments, it is difficult to draw any meaningful conclusion from the range of research that has attempted to identify the differences between people who do and do not own pets. He introduces the possibility that the psychological variations between different kinds of pet owner may be greater than those between owner and non-owner. The next section reviews the research carried out on that theme.

Differences Between Owners of Various Species

The working party for the Council for Science and Society (1988) discusses the role of pets as companions and suggests that, just as no two relationships between people are identical, neither is any relationship between a human and a pet identical to any other. The relationship will depend on the personality of the owner and his or her expectations of the partnership as well as the individual and species characteristics of the animal. Folklore suggests that the kind of pet one chooses somehow reflects one's personality or identity (Veevers, 1985; Fogle, 1983; Kidd & Kidd, 1987). The first point to consider is whether people who have chosen to keep a dog, for example, are in any way different from those who have selected a cat. This section deals primarily with previous research findings on differences in personality between owners of

various companion animal species. Firstly, however, a few demographic differences will be presented.

Demographic Differences

Harris (1988) found a negative correlation between dog ownership and socio-economic status (as measured by Hollingshead's two-factor index of social position). The reverse was true of cat owners, in that those at higher socio-economic levels were more likely to have a cat, particularly owners with university education. With respect to marital status, divorced or separated persons were more likely to own cats than people in other groups, whereas single and widowed people were more likely to own a dog. Kidd and Kidd (1980) found that the pet preferences stated by their subjects were directly related to the type of pet currently owned, and similarly to other authors (Serpell, 1981; Kidd, Kelley & Kidd, 1983), that there was a strong tendency for people to identify themselves as 'lovers' of the kind of pet they had as children. Kidd and Feldmann (1981) found significant differences in the sex of the owner and the type of pet owned; more females owned dogs and more males owned cats and each expressed preferences for these particular types. The authors suggested that this difference may be due to urban women, more than men, preferring dogs over cats for the protection they provide. They also found that females tended to own larger numbers of animals than males did. Neither Kidd and Kidd (1980) nor Joubert (1987) discovered differences between the sex of the owner and the kind of animal kept.

Personality Differences

When research relating to personality differences between owners of various animal types is considered, the major contributor is Aline Kidd in combination with various other authors (Kidd & Kidd, 1980; Martinez & Kidd, 1980; Kidd & Feldmann, 1981; Kidd, Kelley & Kidd, 1983). Kidd and Kidd (1980) expressed an interest in identifying the personality traits accompanying ownership of various animal species. The rationale they provided was as follows: "It is clear that there is a growing body of evidence that pets can be important adjuncts to traditional psychotherapy although little attention has been paid to matching characteristics of a specific type of pet with

specific owner personality characteristics. It is reasonable to assume that the beneficial aspects of pet-ownership would increase if such matching could be achieved" (p. 942). In their research these authors hypothesized that they would achieve similar results to those found by Stephenson (1978, cited in Kidd & Kidd, 1980) in her unpublished pilot study. Stephenson identified differences in the scores of owners of different animal types on autonomy, dominance, nurturance and aggression using Edwards Preference Inventory (EPI) scales. No further information about these differences was provided, however. The sample for Kidd and Kidd's (1980) study was not representative as participants were recruited through obedience classes, pet shows and veterinarians, but the authors point out the difficulties inherent in sampling the pet owning public, as has subsequently been discussed (Budge, 1990). Also with the EPI, these authors found that 'cat-lovers' scored higher in autonomy, and low in nurturance, male 'dog-lovers' and 'pet-lovers' were high in dominance and 'dog-lovers' in aggression. 'Pet-lovers' were lower in autonomy and male 'cat-lovers' higher. Kidd and Kidd concluded that there were significant differences in personality traits among people preferring different species and also differences in these traits between the sexes - both of which points should be considered in selecting a pet that will be beneficial. This idea of a link between human personality characteristics, gender, and pet species is investigated in the second study of this thesis.

Edelson and Lester (1983) considered the relationship between pet ownership, pet preference, self-disclosure and extraversion. Contrary to Kidd and Felmann's (1981) findings, they found that females were more likely to own a cat than a dog, fish or bird and showed lower preference for owning a dog. Self-disclosure was generally unrelated to pet choices with the exception that those with higher self-disclosure to fathers showed higher preference for dogs and less for cats and fish. As was mentioned previously more extroverted males expressed a preference for dogs over cats as pets. No such relationship was found for females. Not all studies have identified personality differences between owners of different species. Johnson and Rule (1991) found no differences between dog and cat owners on social desirability, age, neuroticism, extraversion, self-esteem or social behaviour. Also, the work done

by Martinez and Kidd (1980) identified no differences between dog and cat owners on self-acceptance or well being.

Although most of the studies carried out so far relate only to owners of dogs and cats, Kidd, Kelley and Kidd (1983) extended their research to investigate the personality characteristics of horse, turtle, snake and bird owners. They utilized the personality scales of Gough and Heilbrun's (1980) Adjective Check List and arrived at quite detailed and, as Serpell (1986) points out, bizarre personality profiles for the different owners. They concluded that horse owners were:

> ... assertive, introspective, and self-concerned, but limited in co-operativeness, nurturance, novelty-seeking, solicitation of sympathy and affect, and in warm interpersonal relationships . . .In general turtle owners were hard-working, reliable and considerate, tended to see the world as lawful, to believe in rational analysis, and were steadily goal-oriented and upwardly mobile as they are discontented with their present status . . . Snake owners were unconventional, informal, changeable, relaxed, and somewhat unpredictable. Also they were novelty-seeking and unable to tolerate routines . . . Bird owners were contented, courteous, expressive, nurturant and unpretentious. They sought to maintain numerous personal relationships, to sustain harmonious relations between others, and were protective of friends (p. 727-8).

Kidd and Kidd (1987) suggested that the principles of similarity and complementarity provide an explanation of companion animal choice among humans. Just as people tend to select human friends and partners on the basis of similar or complementary characteristics, so are they likely to choose pets for the same reasons. This explains why people tend to have similar personality characteristics to their preferred animal companions.

Levinson (1972b) discussed differences between cat and dog owners in terms of their expectations of the pet, affection and attitudes towards the animal's health and veterinary treatment. He suggests that dog owners, through association with their pets, may become more dependent on the dog's company, less dependent on other people and so more introverted. Levinson's observation is that the dog owner is more

interested in preventative health care than the average cat owner who will wait far longer before taking the cat to a veterinarian. His explanation of this phenomenon is that in the majority of cases cats are available free and thus are not valued in the same way as dogs for which most owners have to pay somebody. He provides no research evidence with which to back up this statement though. Cat owners frequently over-identify with their pets, in Levinson's view, and as a consequence are unable to force strictures such as diets upon their cats as they would not wish to be forced to diet themselves. Dog owners are apparently not subject to the same feelings as he makes no mention of them in reference to dieting. These ideas appear somewhat outmoded and inappropriate at this point in time and are based on personal conjecture.

Fox (1975) also expresses fairly strong views on the differences between those who choose cats and those who choose dogs as animal companions. He suggests that because dogs tend to be dependent, people who own them are also dependent types who need to feel 'other-directed' and achieve emotional satisfaction from the dependence of their dog upon them. Conversely, cats are far more independent beings which allow their owners to retain their own independence and 'inner-direction'. Such people will select a cat more for its aesthetic and less demanding qualities. Fox continues to add that the particular breed of dog a person chooses may be a projection of inner needs, for example a person aspiring to gracefulness and agility may select a greyhound or afghan as a pet. He suggests that this may underlie the apparent similarities between some owners and their animal companions.

Allen et al. (1979) used an attitude survey to examine how people feel about pets with respect to four personality dimensions: mental health, protection, nature of human beings and personal relations. The sample incorporated cat owners, dog owners, owners of a cat and a dog and non-owners. The results demonstrated that the owners of dogs and the owners of both types of pet expressed the most similar attitudes. The author concluded that the results could be interpreted to suggest the existence of a "multiple pet personality"; a person who would own more than one companion animal regardless of the type.

Another researcher to express interest in the types of people who ally themselves with particular animal species is Bergler (1988, 1989), who, after surveying dog and cat owners, arrived at a series of pet owner typologies. With respect to canine owners he carried out a psychological evaluation of ownership that defined groups in several ways. On the basis of their personal values, three different types of dog owners were derived: an independent type, an easy-going type and a responsible, well-adjusted type - which was considered to be the average owner (Bergler, 1988). A similar analysis of cat owners (Bergler, 1989) identified six different groups; a rational type, a type without problems, likeable easy-going ones, optimists, neutral ones (largely male) and emotional ones (predominantly female).

A large scale survey of pet owners and non-owners carried out by the Pet Food Institute (Wilbur, 1976), identified several dog owner types and cat owner types. Based on their responses to a pet and pet ownership attitude measure, the 350 dog owners were categorised into five groups. *Companionship owners* were described as people who relied heavily on their dogs for friendship, companionship and affection. *Enthusiastic owners* enjoyed their dogs, provided them with quality care and thought of their pets as valuable additions to the family to be treated as family members credited with emotional responsiveness. *Worried owners* liked and were committed to keeping their dogs, but felt a lack of control and were aware of the dog as being potentially harmful. They were most likely to describe their pet as unintelligent and spoiled and were embarrassed by the pet's sexuality. They did not perceive the dog as meeting companionship needs. *Valued object owners* were not psychologically or emotionally attached to their dogs and considered them to be valued possessions needing quality care. *Dissatisfied owners* were more troubled than satisfied by their pets. Dogs received little attention from these owners and were perceived as a nuisance. Complaints were made about physical characteristics and behaviour.

The 250 cat owners in the sample were divided, by the same technique, into three categories. *Low involvement owners* tended to have their cats around rather than specifically owning them. They did not spend much time with them and appreciated

their independence and undemanding nature. *Quality/status conscious owners* felt pride in their homes and their cats, and appreciated pedigree animals. They felt that the cats were dependent on them for love, affection and care and spent time grooming and cleaning them. *High involvement owners* supplied lots of love and attention but also relied on the cats for love and affection. The cats were not considered to be status symbols, but were more like children. This group received the most psychological benefit from their pets.

If differences can be observed between the owners of various species, can they also be demonstrated between owners of breeds within species? This question was posed by Reiter and Battiato (1984) who reported the findings of an early study of dog preferences performed by Bucke in 1903. Examination of 2804 stories about pets written by 6 to 17 year olds identified that the majority related to dogs. While St Bernards, Poodles and Pugs were popular amongst girls, Bulldogs and Pointers were popular amongst boys and Collies were equally favoured. The authors also cite Boles (1982, cited in Reiter & Battiato, 1984) who related dog choices to personality types in that "sporting breeds are chosen by conservative and ambitious people, while nonsporting breeds are chosen by intellectual and self-controlled people. Hounds are preferred by people who are daring, impatient and competitive, while working breeds are the pets of practical, realistic and independent people. Furthermore, fun-loving people prefer terriers, sensitive people prefer toy breeds and perfectionistic people prefer foreign show dogs" (p. 26). Reiter and Battiato (1984) themselves used the Guilford-Zimmerman Temperament Survey to test the relationship between personality variables and dog preferences. They found no significant mean differences when scores on the personality test were contrasted with dog types. However, despite this finding and the relatively small sample size (50), they concluded that there was evidence of correlations between dog preferences and certain personality types.

It appears then that research into the differences between owners of different types of pets or between different types of owners is inconclusive. Animal preference may be related to childhood experiences with particular species, gender and personality. The

typologies different owners fit into, as identified by Bergler (1988, 1989) and Wilbur (1976), are interesting, and demonstrate how some of the researchers in this field have categorised owners of different species. However, they are of limited practical use in identifying characteristics of the human-pet relationship which are beneficial for compatibility to be achieved, hence the need for a different approach to quantifying inter-species relationships. It is possible that the type of owner a person becomes, is influenced not only by the type of animal they own, but also by how compatible they are with a pet. A poor combination may result in an unsatisfactory relationship between pet and owner which in turn may influence the owner's attitude towards pets, at least their own, as well as their expectations of pet ownership.

One of the ways in which compatibility can be investigated is through perceptions of various human-pet combinations. The way in which we perceive others is influenced by the stereotypes we hold. The next chapter provides a review of the literature on stereotype content, formation and application, before introducing the three studies of human-pet stereotypes.

CHAPTER 3

Human-Pet Stereotypes

Introduction

The general theme for the first part of this thesis is the perception, and especially the stereotypes, of other people in association with companion animals. This chapter begins with an introduction to the concepts of person perception and stereotypes. After a general account of theories of stereotypes and stereotyping, attention is paid to two human characteristics that have been found to take priority in the person perception and categorization process, namely sex and age (Brewer & Lui, 1989). The idea of person-pet stereotypes is then introduced and the chapter concludes with an outline of, and hypotheses for, the three subsequent studies on person-pet stereotypes.

Perception is defined by Schneider, Hastorf and Ellsworth (1979) as "a process demanding active participation by the perceiver, who selects, categorizes, interprets and infers to achieve a meaningful world in which action is possible" (p. 15). Every object, person and event we encounter or experience is in itself different from any other and if the diversity of information involved in each one had to be processed in its entirety, we would be unable to cope with the magnitude of the task. Fiske and Taylor (1991) describe human beings as 'cognitive misers' in that we have a limited capacity for information processing and consequently adopt strategies to simplify complex problems and reduce the cognitive load. The active process of perception involves searching for similarities amongst people or objects and the identification of commonalities as a basis for grouping those that share attributes (Hamilton & Trolier, 1986). Two methods of comparison have been identified with reference to person perception. Firstly, others can be categorized in terms of their similarity to one another and secondly, in terms of their differences. This process can be defined as 'in-group',

where another person is grouped with oneself on the basis of perceived similarities, or 'out-group', where another is grouped separately from oneself on the basis of perceived differences (Hamilton & Trolier, 1986). A similar distinction is made by McArthur (1982) who proposed that members of a specific group can be seen as sharing some attribute (assimilation effect) that is not shared by another group (contrast effect). It has been noted, however, that although the grouping process achieves its aim of simplification and organization of information and does, at least to an extent, reflect real differences among those groups, the process also serves to bias our perceptions and judgements of others. Such biases concerning the psychological and physical characteristics of others whom we group together, form the basis of stereotypes.

Stereotypes

In the 18th century the term stereotype was used to describe a printing process involving the use of plates to reproduce printed documents. In the following century 'stereotypy' was used to designate a psychiatric condition characterised by a rigidity of repetitive behaviour and unchanging expression. An American, Walter Lippmann, was responsible for introducing the term into the social sciences in the 1920s, using it to mean a visual representation, a mental map of the world, or to use his own words 'pictures in our heads' (Ashmore & Del Boca, 1981; Leyens, Yzerbyt & Schadron, 1994).

Early work with stereotypes was performed by Katz and Braly (1933) who studied perceptions of people of different ethnic origins. This research found links between racial stereotypes and racial prejudice (Ashmore & Del Boca, 1981) and this, in conjunction with the belief that stereotypes arose from 'snap', or rapid, judgements and were therefore erroneous, meant that stereotypes tended to be viewed as cognitive shortcomings rather than useful devices employed to make sense of a multitude of perceptions. A negative connotation is still present, as is evidenced by an explanation provided by McArthur (1982). This author suggests that stereotypes are overgeneralisations in that they are applied equally to all members of a particular group, tend to be extreme and are more often negative than positive. However, other

authors (Ashmore & Del Boca, 1981; Leyens et al., 1994) contend that negativity should not be associated with the stereotype definition as although the stereotypy process can involve errors in perception, it is also a normal and highly adaptive device for making sense of the world. Stereotypes can be considered as particular instances of cognitive schemata in that they are cognitive structures which contain perceivers' knowledge and beliefs about a particular stimulus domain, or category (Macrae & Hewstone, 1991).

One of the core controversies surrounding stereotypes is whether they are entirely fictitious or are based on reality. Leyens et al. (1994), in agreement with earlier researchers, describe stereotypes as having a 'kernel of truth' which can be used or abused depending on the situation. However, they suggest that research that has attempted to tease out the truth from the fiction have not proved to be helpful or practical. Cook (1979) also talked about the 'grain of truth' notion and concluded that it had been shown to be correct on occasions.

Definitions of stereotypes are numerous (see Brigham, 1971, for a review), but a commonly accepted version is provided by Leyens and colleagues (1994) who define stereotypes as "shared beliefs about person attributes, usually personality traits, but often also behaviours, of a group of people" (p. 11). These authors make the distinction between the stereotype as a product, and the stereotyping process; "the process of stereotyping individuals is the process of applying a stereotypical-judgement such as rendering these individuals interchangeable with other members of the category" (p. 11). Although many of the general definitions of the stereotype emphasise a consensus of opinion, others differentiate between individual and socially shared stereotypes. For example Secord and Backman (1974, cited in Stewart, Powell & Chetwynd, 1979) have suggested that people may have personal stereotypes which characterise a single individual's view that is discordant with the mainstream view. Social stereotypes, however, represent the consensus of the majority. Stewart et al. (1979) also discuss the notion of a multiple stereotype which is represented by two antithetical social stereotypes. Multiple stereotypes can occur where a group of people hold views that are similar to each others but different from those held by another

group. The example they provide comprises disparate perceptions of 'mother', which may be positive - in terms of the traditional virtues of homemaking, or negative - stressing the restricting and unfulfilling demands of homemaking. The authors suggest that the presence of two social stereotypes of the same person/role is indicative of a dislocation or change in the social structure. The theorising on stereotypes therefore suggests that while they can be widely held perceptions, based on an element of truth and consensus of opinion, they are also idiosyncratic in that they incorporate the perceiver's knowledge and beliefs about groups of people or categories.

Stereotypy - The Process

When forming an impression of a person, visual stimuli are advantaged as we tend to look at people before attending to other characteristics. Even when other cues are presented simultaneously, visual stimuli appear to take precedence (Posner, Nissen & Klein, 1976). Therefore, the most basic categories people tend to use when portraying or perceiving others have been identified as the physical, readily observable characteristics of race, gender, age (Fiske, 1993) and facial expression (McArthur, 1982). It has been argued that age and sex characteristics take priority in the person categorization process (Brewer & Lui, 1989). These physical attributes may be used individually but are more likely to be used either in combination with each other, for example an elderly woman, or broken into subcategories which hold particular meaning for the perceiver, such as 'black'. These characteristics are relatively static in that they are relatively slow to change or do not change at all. In contrast, other observable physical characteristics are dynamic and these include facial expressions which, though fleeting, may be captured by a camera. This has repercussions for the assessment of people in photographs. When an expression, which was in reality temporary, is caught on film, perceivers are likely to make attributional judgements of character based on an evanescent cue.

Another category of perceptional cues concerns traits. These are psychological variables that describe a characteristic or dimension of an individual's personality, such as extraversion or agreeableness. Although the trait itself is a general term defining the dimension in question, the language used to describe a person generally

involves an attribute of that trait which gives more insight into the perceiver's impression of the person in relation to the trait. For example the adjectives good natured and irritable (attributes) both relate to agreeableness (trait), but have quite different meanings. A point to note with respect to traits is that although they are supposedly enduring characteristics, some are more transient than others. Generosity, for example, is likely to be a more lasting aspect of an individual's personality than unhappiness. Personality trait checklists are probably the best known measure of stereotypes (Leyens et al., 1994).

Brewer and Lui (1989) argue that whereas implicit personality theory has assumed that trait dimensions are the primary units of person judgement, recent work "challenges the primacy of trait concepts in favour of typological models of person perception in which social knowledge is depicted as person categories represented by category prototypes that are sets of interrelated features rather than individual attributes" (p. 262-3). Brewer's (1988) model of person cognition suggests that perception is hierarchical in that person types are 'nested' within the primary dimensions of person categorization. The number of dimensions an individual can integrate is constrained by the cognitive limits of information processing, and although the dimensions that are primary will vary, both culturally and for the individual, Brewer's (1988) model proposes that sex and age are "universal features of implicit social categorization schemas" (Brewer & Lui, 1989, p. 263). The hierarchical aspect of the model means that other information about people, such as their social roles, is embedded within the primary dimensions. For example many social roles are not unique to one gender but different perceptions of the social role, such as an occupation, are associated with the gender of the person. A 'woman doctor' is a specific type within the woman category with traits and features that may differ from those associated with a 'man doctor'.

A combination of trait attributes may result in the description of a character type which not only encompasses the idea of stereotyped groupings, but also social roles. Part of the reason for perceiving others in a comparative way is to be able to predict future behaviour. Although the use of traits suggests that if somebody is perceived as being grumpy in one situation they are likely to be predicted to be grumpy in another,

the social role more obviously lends itself to extension in the form of actions and behaviours.

How and When Stereotypes are Used

So far then it has been established that, owing to the variety of objects, experiences and people we are exposed to on a daily basis, categorisation of information is an adaptive process undertaken in order to make sense of our surroundings. Also it seems that there are certain trends in how people perceive and categorize others. How then does this process take place? Schneider, Hastorf and Ellsworth (1979) suggested that six psychological processes underlie the perception of others, though not all may be employed and neither will they necessarily be employed in sequence. The processes are:

1. Attention - the process of attending to static characteristics such as appearance, behaviours of the person and the context in which s/he is perceived. This leads to selection of characteristics, and categorization of the person.

2. Snap judgement - also called stereotypical judgement, which refers to the immediate inferences drawn from static, non-behavioural cues and requires little or no cognitive effort.

3. Attribution - which can be reactive when an attempt is made to understand the observed behaviour within its context, and purposive when a trait, attitude or ability is attributed to the perceived person.

4. Trait implications - the supposition that the presence of one trait indicates the presence of certain others.

5. Impression formation - the attribution of the observer's perceptions to the actor in order to make judgements.

6. The prediction of future behaviour - when the cues about the actor are combined with the perceiver's judgements and predictions are made about how the actor will behave in certain future situations..

Similar processes were identified by Branscombe and Smith (1990) who investigated the impact of racial and gender stereotypes on impression formation and social

decision-making processes. They proposed that the first steps in the decision making process involve the retrieval of stereotype information from memory, cued by the target person's physical appearance, and the integration of other available information with the retrieved stereotype into an overall impression of the target person's personality.

A stereotype can be likened to a representative heuristic which, according to Aronson (1992) is used to form impressions and make judgements about other people. He agrees with Brewer and Lui (1989) and Fiske (1993) that the first information we are likely to take account of includes age, gender and race, and adds physical attractiveness and social status. Aronson suggests that the use of an heuristic, which is defined as "a simple, but often only approximate, rule or strategy for solving a problem" (p. 132), requires very little thought. Therefore certain circumstances facilitate the application of a heuristic i.e. insufficient time, information overload, when unimportant issues are at stake, when insufficient knowledge or information is available and when a given heuristic (stereotype) comes to mind quickly when a problem or task is presented. If, however, a stereotype is unavailable or inappropriate, then perceivers may search for alternative explanations. An heuristic model of stereotyping (Bodenhausen & Wyer, 1985) proposed that people will favour stereotype-base interpretations if they are available, especially under the previously mentioned conditions. Evidence for this was provided by Bodenhausen (1990, cited in Macrae & Hewstone, 1991) in an investigation of the influence of circadian rhythms on the application of stereotypes. Based on the notion that people are more likely to rely on stereotypical judgements when they are somehow depleted in cognitive reserves, Bodenhausen suggested that they would also tend to apply them when not at their optimum in terms of circadian rhythms. Bodenhausen tested people who were at different levels of circadian arousal and found that people's judgements were most stereotypic when they were not at their peak.

Gender Stereotypes

In the history of stereotype research, the main focus from the 1930s through to the 1960s concerned the study of ethnic group stereotypes, particularly with respect to

prejudice and discrimination. The 1970s witnessed a change in focus and an increase in stereotype research, mainly due to a rise in interest in differences in perceptions of men and women (Ashmore & Del Boca, 1981). This increase in research, however, was not accompanied by a similar growth in understanding of the perception of men and women, according to Ashmore (1981). He attributes this, at least in part, to a lack of conceptual analysis. He suggests that sex stereotype research is predominantly 'instrument driven' with the purpose of obtaining lists of male and female traits. Although this technique contributes to our knowledge of sex stereotypes it does not really aid our understanding of how men and women are actually perceived, or the stereotyping process.

Sex stereotypes, like any other, constitute sets of beliefs about characteristics of social groups. But, according to Ashmore and Del Boca (1981) they are limited, firstly, to widely shared beliefs about men and women, and secondly, to attributes that are considered to differentiate between men and women. An appraisal of sex role stereotypes in the 1970s (Broverman et al., 1972) found strong agreement about the existence of differing characteristics for men and women across participant groups differing in terms of sex, age, religion, marital status and educational level. Broverman and her colleagues (1972) developed a sex-role questionnaire and initial testing resulted in two sets of attributes, male-valued and female-valued. They concluded that, relative to men, women were perceived as less competent, independent, objective and logical. Men were perceived as less warm, sensitive and expressive than women, and stereotypically masculine characteristics were perceived more favourably than female characteristics. These results were reported to be representative of many comparable studies (Stewart et al., 1979). Another study (Ashmore, 1981) concluded that males were given the same average value on characteristics attributed to males, as females were given on characteristics associated with females, but males were ascribed more positively valued attributes than females. Ashmore's findings demonstrated that traits were used consistently to describe males and females and that overall perceptions of other people were influenced by their gender. A cluster analysis performed on attribute ratings led the author to conclude that the measurement of qualities of females was more problematic than those of males, or other non sex-related properties. An

41

explanation for his finding was that it is hard to define what is typical of 'female' which may reflect change in societal views of social desirability and the diversity of female images portrayed in the media.

One of the most influential forces in media presentation is advertising. A study of sex-role stereotypes in 170 British advertisements (Manstead & McCulloch, 1981), found that males and females were portrayed significantly differently, consistent with traditional sex-roles.

> Males were typically shown as having expertise and authority, as being objective and knowledgeable about reasons for buying particular products, as occupying autonomous roles and as being concerned with the practical consequences of product purchase. By contrast, females were typically shown as consumers of products, unknowledgeable about the reasons for buying particular products, occupying dependent social roles and concerned with the social consequences of product purchase (p. 214).

Therefore it could be argued that one of the ways in which sex-stereotypes can be challenged is through the media presentation of males and females in non-traditional social roles. Societal change can also impact on perceptions of the sexes and their social roles as was demonstrated by Smith (1975, cited in Pettigrew, 1981). Results of longitudinal opinion polls concerning willingness to vote for a 'qualified woman' as President of the United States showed a change from about 33% in 1936 to approximately 80% in 1974. Over this period there was a sharp increase during the years of World War II when women were occupying male social roles in the work force. An even more dramatic increase occurred from the late 1960s, coinciding with the Feminist Movement.

Eagly and Steffen (1984) are of the opinion that sex stereotypes arise from the different social roles ascribed to men and women. Thus, perceptions of men and women differ not on actual sex differences per se, but because of the social roles they are predominantly connected with and the attributions linked with those roles. They tested the idea by presenting profiles of 'an average man' and 'an average woman'

both of whom were described as a homemaker, an employee or without any occupational information. When no occupational information was provided, males were judged to be more likely to be working than females, but male and female homemakers were evaluated similarly to the female stereotype (communal and not agentic) whereas employed male and female evaluation corresponded to the male stereotype (not communal and agentic). Thus, it seems that the social role of the targets had a greater impact on participants' perceptions than sex of the targets. Another variable that has been found to influence stereotypical thinking, over and above the sex of the target person, is whether the perceivers hold traditional or nontraditional perceptions of ideal people. A recent study (Lindner, Ryckman, Gold & Stone, 1995) indicated that traditional men and women perceived the ideal male to possess more instrumental than expressive traits and the ideal female to possess predominantly expressive traits. However, nontraditional men and women viewed ideal persons of both sexes as having both instrumental and expressive traits, and hence being androgynous.

Another approach to the understanding of what the male and female stereotypes are perceived to entail is through the investigation of what is meant by masculinity and femininity. Although they were originally considered to be at opposite ends of the same continuum (Helgeson, 1994), in the 1970s they were conceptualised as independent dimensions. Bem's Sex-Role Inventory (Bem, 1974) incorporates 20 items which were considered to be more desirable in males than females, 20 which were viewed as more desirable in females than males and 20 neutral items. Thus it was a measure of the social desirability of particular attributes. Another measure to appear during the same year was Spence, Helmreich and Stapp's (1974) Personal Attributes Questionnaire (PAQ). While masculinity and femininity were again presented as being two separate dimensions, the masculine items were those which were equally socially desirable in both males and females but more representative of males, and the femininity items were those which were equally desirable in both sexes but more representative of females. An additional scale reflected bipolar aspects of masculinity and femininity. Helgeson's own research (1994) generated new conceptions of masculinity and femininity. She asked university students and their parents to describe

one of six stimulus persons: a masculine man, a masculine woman, a masculine person, a feminine man, a feminine woman and a feminine person. The most frequent responses suggested that masculinity, in both males and females, was associated with being muscular, fit, tall, self-confident, dominant, liking sport, being concerned with work and cars and having a hairy face. Femininity in both sexes was associated with being caring, well dressed, social, shy, delicate, concerned with appearance, softly spoken and liking art. As well as identifying these attributes which were representative of masculinity and femininity, masculine and feminine person descriptions generated a number of bipolar features. Opposites included big versus small, short hair versus long hair, unsocial versus social, self-confident versus insecure, dominant versus passive, aggressive versus non-aggressive, not emotional versus emotional, tough versus weak, and uncaring versus caring. Thus it appears that although masculinity and femininity can be defined independently of sex, attributes that are traditionally associated with males or females are still incorporated. Interestingly the social desirability theme was evident in that the less favourable attributes in Helgeson's study tended to be identified with 'gender role incongruent stimulus persons' such as masculine females and feminine males.

In summary then, early research on sex-stereotypes suggested that people associate quite distinct and separate traits with males than they do with females. However the research methods predominantly employed in this area of research involved cued ratings or lists of attributes which tend to polarise the male and female attributes. More recently researchers have proposed that although sex is a primary dimension used in the perception process, other characteristics such as social roles and masculinity/femininity are embedded in the sex categorisation. The focus on measurements of sex-stereotypes in association with social roles has found less distinct differences in perceptions of men and women, a change which is influenced by societal shifts in cognition and definitions of 'femaleness' and women.

Age Stereotypes

As with sex-stereotype research, the past twenty five years or so has seen an increased interest in perceptions of older persons, many of which are believed to be negative.

More recent investigations have set out to test this, as well as the idea that there are various subtypes of perceptions of older people rather than one homogeneous representation (Knox, Gekoski & Kelly, 1995). A comparison of stereotypes of the young and the elderly (Hummert, 1990) examined Brewer, Dull and Lui's (1981) notion of the existence of multiple stereotypes of the elderly. They were interested to see whether particular stereotypes would be held consistently across groups, and whether a similar multiplicity of stereotypes exists for young people. Although Brewer et al.'s (1981) theory proposed three representations of the elderly - grandmother, elder statesman and senior citizen - subsequent research identified 12 (Schmidt & Boland, 1986). Hummert (1990) used a set of 84 traits which were sorted into sets representing the same older person (or young adult). The author concluded that the results confirmed the existence of multiple stereotypes of both the young and the elderly, but demonstrated little similarity between stereotypes of the two age groups. Of the ten subcategories of the elderly, eight were the same as in a previous study (Schmidt & Boland, 1986), showing a consistency across populations. Typicality ratings revealed that the negative stereotypes were not considered more typical of the elderly than the positive ones but the positive young adult stereotypes were thought to be more typical of them than the negative. The ten sets of traits produced in Hummert's (1990) study, three of which were positive and seven negative, were named: perfect grandparent, liberal matriarch/patriarch, John Wayne conservative, severely impaired, inflexible senior citizen, self-centred, recluse, despondent, shrew/curmudgeon and vulnerable.

A subsequent study (Hummert, 1994) used the same sets of traits in connection with photographs of elderly people. Participants paired photographs of men and women who had previously been categorised as young-old (55-64), middle-old (65-74) and old-old (75 and over) with the sets of stereotypical traits. A significant trend was found in that "participants associated physiognomic cues indicative of young-old age with positive stereotypes of elderly individuals more than with the negative stereotypes, and physiognomic cues to middle-old age equally with positive and negative stereotypes, and physiognomic cues to advanced old age with negative

stereotypes more than with the positive ones" (p. 17). This effect was particularly strong for female targets.

Kite, Deaux and Miele (1991) compared stereotypes of young (35 years) and old (65 years) males and females and found that the age of the target was more influential than the sex of the target. When asked to generate attributes they associated with men and women of these ages, the participants described the younger males and females as achievement oriented, intelligent and emotionally mature whereas the older people were said to be family oriented, generous to others, friendly and to enjoy hobbies, as well as aging and having health problems.

As was mentioned previously, television advertising is a powerful influence on our perceptions of others and the way in which older people are presented is likely to both represent and reinforce the conservative view. A study of British commercials (Atkins, Jenkins & Perkins, 1990/91), found that people aged over 50 were under-represented in television advertisements and were presented in connection with consumer services, health, food and household products rather than with clothing, cars, recreation or cosmetics. They also found an interaction between age and sex in that more older males (71%) than females appeared in advertisements and males were more often presented as authority figures, spokespersons and main characters than older women. They concluded that with respect to the increase in numbers of people aged over 50 in the U.S.A and their various needs, "designers and producers responsible for TV commercials have not yet brought their messages in line with reality" (p. 36).

Branco and Williamson (1982) presented a number of stereotypes of the aged which represent three categories: biological, psychological and social. The biological stereotypes discussed by these authors concern the notion that elderly people experience uniform aging processes and poor health. Psychological stereotypes relate to the elderly being associated with senility, intellectual decline and sexual decline and the social stereotypes concern the elderly living in poverty and social isolation and having specific and similar voting behaviours. Although, as always, there is a kernel of truth underlying generalised stereotypes of the elderly, they tend to apply to some

subgroups more than others (Branco et al., 1982), which provides further support for the idea of multiple stereotypes of the elderly.

The obvious strength of sex and age in person perception and stereotypes suggests that these characteristics should also be influential when people are considered in conjunction with pets. The multiple stereotype notion is likely to be evident in this context as different views of particular individuals may result in different person-pet combinations. The current lack of clarity and consensus about male and female attributes and roles means that views of person-pet combinations are likely to vary depending on the social positions attributed to particular individuals.

Other Influences on Impression Formation

Facial Characteristics

Facial perception has been a well researched and documented area within social cognition for several decades. Shepherd (1989) presented a comprehensive review of research pertaining to the face and social attribution which will form the basis of this section. He begins by introducing three approaches to face perception in an effort to explain why perceivers link physiognomy to personality despite a lack of evidence to suggest that there is, or even should be, any clear connection. Secord (1958, cited in Shepherd, 1989) proposed that, as has been mentioned already, people tend to put others into categories, and form stereotypes, based on primary attributes such as age, gender or race. Because valid physiognomic cues for such categories are readily available, this process can take place quite accurately. There is also the tendency to attribute a stable state to a stimulus from the expression of a temporary emotion or mood. Attribution theory (Heider, 1958) suggests that when perceiving others, particularly strangers, we are likely to explain behaviour as resulting from internal, dispositional causes whereas when considering ourselves or others known to us, we are more likely to take situational factors into account. When information about a person is limited, especially if a photograph constitutes all the available knowledge, internal attribution is even more likely. The third approach stems from ethological views that certain facial characteristics have evolved for the signalling of dependence, submissiveness and dominance states. Although these messages are in part

communicated through age and sex, the facial attributes are also assumed to have a direct influence on perceivers' judgements.

Most investigations into facial perception have used three main types of stimuli: schematic faces, line drawings and photographs. According to Shepherd (1989), schematic faces have an advantage in that all other cues, other than the ones under investigation, can be eliminated from the representation. Studies of physiognomic cues to personality have found that subjects agreed upon the age, intelligence and personality of schematic faces when lines representing eyes, nose and mouth were varied. These results were replicated using schematic faces, but not when the stimuli were replaced by real photographs depicting faces with similar attributes. A disadvantage of schematic faces is therefore that "simplicity is gained at the expense of realism and generalisability" (Shepherd, 1989, p. 291). Artists' impressions or Identikit composites fall in between schematic faces and photographs in terms of realism, and have the advantage that certain features can be changed while others are kept constant. Still photographs are the most realistic of the three types of stimuli and have proved to be the most popular. Ratings of physiognomic features have been the usual method of assessment and generally high levels of accord have been reached. However, as Shepherd (1989) points out, the size of the sample of faces employed is generally small, representativeness of the stimuli unknown, and subjects have tended to be university students, all of which affect the generalisability of findings.

Alley (1988) reviewed the research on physiognomy and social perception and concluded that the results of experiments using photographs and schematic drawings suggest that adults make, and generally agree upon, physiognomic judgements. Some studies have found that the entire face is focused on in the judgement process, whereas others have identified differential effects related to specific facial features. Attractiveness is one area of perception which is stereotypically associated with particular personality traits and behaviours. Some of the traits associated with physically attractive people are modesty, sociability, kindness, strength, sexual responsiveness and outgoingness (Schneider et al., 1979). A study of primary school age children discovered a link between level of attractiveness and intelligence.

Attractive children were rated as more intelligent than their less attractive classmates, even when the childrens' grades were available (Clifford & Walster, 1973, cited in McArthur, 1982). People with less attractive faces are more likely to be associated with less favourable traits such as social deviance (Alley, 1988). There is also evidence for the existence of a criminal face stereotype, a perception held even amongst the police.

As was mentioned in an earlier section, age is one of the most readily identified aspects of a person. Research suggests that the ability to identify people as belonging to different age groups develops early, and is strongly related to facial characteristics. Edwards (1984, cited in Shepherd, 1989) demonstrated three year olds' abilities to sort photographs of children into 'babies', 'little girls and boys' and 'big girls and boys', and adults into 'parents' and 'grandparents'. Although size cues may have assisted the sorting process, especially of the children's photographs, specific facial features have been found to influence judgements of age. When Jones and Smith (1984, cited in Shepherd, 1989) asked four year olds how they estimated the age of a face, hair colour, presence or absence of facial hair and wrinkles were mentioned, along with person types such as grandmothers. Shepherd, Davies and Ellis (1981, cited in Shepherd, 1989) also found hair to be important in the assessment of age, in terms of it's colour and also quantity. These authors suggested that the combination produces a physical dimension correlated with age.

Individual features of faces have also been associated with particular personality traits. Studies on hair, for example, have found that people who are either bald or have hair parted in the middle are considered to be less energetic than those with side partings. Consistent judgements of males with various quantities and qualities of hair have been found, and stereotypes about hair colour are also evident. McArthur (1982) notes that "although stereotypes based on hair colour may be of little social significance, they bear mention because they provide the most uneqivocal support for the thesis that physical appearance per se is an important determinant of stereotyping. While the kernel of truth hypothesis provides a feasible explanation for stereotypes about people with particular facial features or body builds, it seems far less plausible to suggest that

the cultural stereotypes about people with particular hair colours are

overgeneralisations from some actual hair-linked traits. And such stereotypes are widely held" (p. 163). Research on hair colour has found a linear relationship between the negativity of ratings and the frequency with which a particular hair colour occurs in the population. Brunettes received the most favourable ratings, followed by blondes and redheads. Certain traits tend to be associated with specific colours, brunettes were considered to be intelligent, ambitious, sincere, predictable, strong and dependable; blondes were seen as delicate, weak-willed, simple and beautiful, and redheads were said to be cold, tense and excitable. (Lawson, 1971, cited in McArthur, 1982). Bearded men are generally seen more favourably than men with less facial hair, and are considered to be more intelligent, likeable, healthy, popular, sensitive to others and sexually appealing (Alley, 1988).

Studies of forehead areas have tended to find associations between size and intelligence. It is suggested that the forehead may be the main facial feature leading to the considerable agreement between judges as to which are the brightest and which are the dullest people in photographs (Alley, 1988).

Results of the few studies on the influence of eyes on person perception have been variable. Protruding eyes in males have been associated with excitability, narrow eyes with arrogance and being unlikeable, large eyes with warmth and kindness and small eyes with dominance. Eyebrows too apparently influence perceptions of others, the higher arched brows generally associated with women are said to create impressions of submissiveness and credulity, whereas low, heavier eyebrows, generally associated with men, increase ratings of dominance (Alley, 1988).

The mouth, particularly the position of it, is apparently of primary importance for physiognomy. A high mouth has been found to create the impression of a gay, young, unintelligent, unenergetic person. Bowed lips in women have led to the image of a conceited, demanding, immoral and heterosexually receptive person. Thin lips have been associated with dominance as well as sociability and energy. A smile has a

consistently positive effect on ratings of intelligence, humour, kindliness, and generally honesty. Upwardly curved mouths produce similar effects (Alley, 1988).

Facial cosmetics and glasses have also been investigated. Makeup tends to produce more favourable ratings of women, possibly by enhancing the existing positively viewed features. Although a commonly held belief is that wearers of glasses are likely to be thought of as intelligent, research in this area has been inconclusive. Bespectacled people have been rated as more intelligent (as well as less attractive and sophisticated, and more conventional, shy and religious) but in another study were perceived to be less intelligent.

Two general conclusions can be drawn from the face perception studies. Firstly, it appears that faces with distinctive features are more likely to be associated with extreme personality traits, which supports the idea of stereotype formation (McArthur, 1982). Secondly, results of studies concerning personality judgements being made from faces reflect the use of sex and age related cues which are then influenced by cognitive schemata of the personality attributes generally associated with these categories (Shepherd, 1989). Thus the primacy effect of age and sex (Brewer & Lui, 1981) appears to be present in face perception as well as in the more general stereotyping process that occurs within person perception.

Clothing

Kaiser (1985) considered the social psychology of clothing and concluded that clothing influences social perception and shapes attributions along with the other previously mentioned characteristics. Although it has been shown that perceivers tend to view another person globally, in that they base impressions on the total picture without necessarily focusing on specific cues, clothing can be regarded as compatible or incompatible with a person's general appearance. Additionally, people who appear, dress or behave similarly to the perceiver tend to be viewed more positively. The influence of cognitive schemata means that perceivers tend to look for cues that reinforce their stereotypes of an individual, which means searching for consistencies

between social roles and clothing. Inconsistencies may lead to more negative impressions being formed.

Stewart et al. (1979) point out that "manner of dress has a marked influence in moderating behaviour by allowing one to infer, with varying degrees of accuracy, social class, occupation and income, propensity for deviation and delinquency, and in a more general sense, life style and values" (p. 20). The strength of the influence of clothing on both perceptions and future behaviour is likely to be variable. As was indicated earlier, some researchers have found it to be secondary, in that other characteristics such as age and gender carry more weight, however Eicher and Kelly (1972, cited in Stewart et al., 1979) found that amongst high school aged girls, it was dress, followed by personality and then common interests that resulted in the formation of friendships. Experimental studies reviewed by Stewart et al. (1979) found that the way in which experimenters were dressed influenced people's willingness to sign petitions, answer market research questions, lend small amounts of money and cross at traffic lights when the pedestrian signal was red.

Presence of Animals

Lockwood (1985) introduced an additional factor that influences the impression or judgement formed of somebody; that of the nonhuman company they keep. It appears that the presence of an animal companion can significantly influence the way a person is perceived by others.

It has been noted in the literature (Lockwood, 1985; Rowan, 1984; Serpell, 1986) that politicians demonstrate a connection with animals, presumably as a ploy for increasing their popularity with the public in order to gain political advantage. Examples include politicians discussing their own animal companions in speeches (e.g. Franklin Roosevelt and Richard Nixon);

Pat and I have the satisfaction that every dime that we've got is honestly ours. I should say this - that Pat doesn't have a mink coat. But she does have a respectable Republican cloth coat. And I always tell her that she'd look good in anything. One other thing I probably should tell you, because if I don't they'll probably be saying this about me too, we did get something -a gift- after the election ... It was a little cocker-spaniel dog... And our little girl -Tricia, the 6-year-old-named it Checkers. And you know the kids love that dog and I just want to say this right now, that regardless of what they say about it we're going to keep it.

<div align="center">

Richard Nixon
Speech on television, 23 September, 1952
(Augarde, 1991, p. 161)

</div>

Other politicians, such as Ronald Reagan, were photographed with animals. For Americans the correct image to project is apparently that of being part of a nuclear family, including a dog. Consequently, the 1980 Republican candidates for the general election were told to have themselves photographed with their pet dogs (Fogle, 1983). In New Zealand, advertising companies employ animals to sell products, not only pet products such as tinned and dry food and flea controls, but also products that are difficult to advertise gracefully, or which are unpopular or expensive. Examples include toilet duck, Purex toilet paper (Roly the dog), Telecom (Spot the dog), Ansett (Fluffy the cat), and New Zealand on Air (Eric the goldfish). Lockwood (1985) notes that American advertisements often portray a human model with an animal companion to make the model, and by association the product, appear attractive. Generally men feature with canine or equine companions while women are accompanied by felines - perhaps this advertising gambit also affects our perceptions of suitable pets for males and females?

Studies of the effects of animal companions on social interactions have found that people with disabilities experience more and longer communications with others if accompanied by a service dog (Eddy, Hart & Boltz, 1987). Messent (1983) discovered that dog owners walking around London with and without their pets were more likely to interact with the people they met when the dog was in attendance. Presumably the companion of a pet is perceived as being somehow more approachable

or is viewed positively as a result of the animal connection. It thus appears that a stereotype can be formed concerning "people with animals" and this preconceived belief about such people allows for a positive impression to be formed which in certain situations such as dog walking, facilitates social interaction. Robins, Sanders and Cahill (1991) discussed a series of events which occurred in a park in a Western American city where people habitually exercise their dogs. One of the researchers, with his dog as an 'entry ticket', regularly joined the walkers throughout a three month study interval and observed the interactions. He noted that although the presence of the dog provided him with a badge of membership at the meetings of owners, until he had been accepted as a 'regular', conversation revolved solely around the dogs and any attempts to converse on a more personal level were diverted. Gardner (1980) suggests that when people come face to face with another person with the same type of car, a dog of the same breed or a child of a similar age, they are in some way licensed to make a comment. "The use of "badges", as they may be called, announces some characteristic of the possessor that is usually unavailable to the public, but that, once displayed, becomes a resource for focused interaction and conversation" (p. 332).

Lockwood (1983) designed the Animal Thematic Apperception Test (ATAT) to assess individuals' attitudes towards people in the presence of animals. It consists of two sets of five scenes based on those used in the Thematic Apperception Test (Murray, 1943). One set of pictures includes an animal or animals, such as dogs or birds, the other set is identical but the animals are omitted. Subjects are asked to rate the scenes and the people involved using adjectival checklists. The initial results showed that the people pictured in situations including animals were described as being friendlier, less threatening, and happier than those in scenes without animals. This finding suggests that the presence of an animal projects something about a person to the observer. In this case people with animals were perceived more favourably than those without. Lockwood (1983) also asked the subjects about their own attitudes towards animals to rule out the possibility that previous bad experiences with animals were influencing subjects' perceptions of people connected with animals in the experiment. Even, however, in the cases where subjects had been involved in negative experiences with

dogs they still rated the animal scenes more positively. In explaining the apparent positive influence of the presence of animals on social perception, the author surmised that there is a possible correlation between attitude similarity and attraction to others. The fact that the majority of the subjects expressed positive attitudes towards animals might mean that they projected similar attitudes onto those stimulus persons pictured with animals and found them more attractive as a consequence. Another suggestion was that there really is a difference between those connected with animals and those who are not and the subjects' more positive ratings of the people presented with pets reflects their own understanding and experience of pet owners.

Friedmann and Lockwood (1991) provided validity and reliability data for the ATAT and again examined the effects of the presence of animals on perceptions of the scenes and the people involved in them. Perceptions of the three scenes used in the study were influenced differently by the presence of animals. In the scene with a man sitting on a bench, both the scene and the man were rated more positively when birds were present. Another scene consisted of a woman leaning against a post talking to a man with or without a dog, and in this context the dog did not significantly affect the ratings. In the third scene of a woman holding a crying child at the edge of a road, however, the presence of a dog in the road had a negative impact. The items used to rate the people in the scenes were split into two scales: one had a happy, healthy and wise theme, the other a nurturing, caring theme. Again, results were scene specific with the sex of the person as well as the sex of the participant influencing the effect of the presence of animals on perceptions of the people. Men in the scenes were rated by women to be more nurturing in scenes where there was an animal present. The woman was seen to be less nurturing with the crying child when the dog was present, and the man on the bench was rated as more nurturing when surrounded by birds than when alone. In the leaning against the post scene, the man was rated as more successful and more nurturing with the dog present.

Rossbach and Wilson (1992) performed two studies to investigate whether the presence of a dog makes a person appear more likeable. In the first study subjects viewed photographs of people pictured alone, with a dog and with a bunch of flowers,

and rated the person in the photos in terms of approachability, how happy they appeared and how relaxed they appeared, and then judged the best photo. The results revealed that subjects awarded significantly higher ratings of happiness, relaxation and best photo to those photographs containing a dog and a person when compared to a person alone or with flowers. The second study required subjects to view slides of specific scenes (winter nature, neighbourhood street, downtown city) containing the scene alone, the scene with a man or woman walking through it, and the same man or woman accompanied by a dog. The subjects were assigned to groups viewing one of the three scenes and either the man or the woman. Again, people seen with a dog were judged as happier than when seen alone; they were also perceived as being safer but no more relaxed than people alone. When asked to decide which slide they preferred looking at, subjects chose the scene alone, regardless of which scene they had viewed, then the person with a dog. Similarly, when asked which setting they would like to be placed in, subjects again chose the scene alone followed by the one containing a person and a dog. Overall these results supported Lockwood's (1985) findings with the ATAT and suggest that people are in general viewed more positively when accompanied by an animal than when alone.

Very little research has been carried out to test the idea that people hold particular views about the suitability of person-pet combinations. One such study, however, investigated the factors that influence the selection and naming of pets (Harris, 1983). Participants were required to read a description of a target person and select for that person a large, medium or small male or female dog; a long or short haired male or female cat; a bird; or a fish. The target person varied in terms of age, sex, dwelling and type of activity enjoyed. Results showed that there was a tendency for dogs to be selected for males and small breeds of dog to be chosen for females. Male pets were significantly more likely to be chosen for male stimulus persons, and indoor type people were most likely to be given a bird, fish, cat or small dog. The size of dwelling was related to the size of dog prescribed for the stimulus person but not to the type of pet.

Human-Pet Stereotypes

Research into the animal-human connection has demonstrated that people accompanied by animals are viewed differently to those who are not, but there is little information available about how the presence of different types of animals influences our judgements of others. The suggestion of there being stereotypes about people formed on the basis of their animal companions is a new one. Consequently there is a lack of specific theory and research to support it. It can be argued, however, that if the presence of an animal somehow influences our perceptions of the owner, then by drawing on past experiences and perceptions of human-animal combinations, and motivated by the need to categorise people on the basis of characteristics, it is likely that stereotypes are held. Given the multiplicity of person types, pet types, and even greater numbers of potential combinations of people and pets, it seems likely that there would be a number of different stereotypes.

As human-pet stereotypes have not been previously examined, it was decided that inititally two characteristics should be considered in the following studies: namely, the sex of the human, as it is a primary focus in person perception, and the species of the animal. Fox (1981) discusses the idea that we perceive other people, as well as ourselves, as either cat-people or dog-people. He describes preferences for one animal and/or aversions for another as indicators of inner needs, prejudices and expectations. He says that "the more clear-cut one's preferences or aversions, the more of a problem one may have, I believe, in relationships with others, be they animal or people. A tendency to dislike cats because they are supposedly distant and aloof or to abhor dogs because they are so subservient and dependent may indicate a basic flaw in human nature, one which is the root of human conflict, prejudice and destructiveness" (p. 284-5). This logic when applied to other people, in making judgements about their being cat or dog-people, corresponds well to the concept of a stereotype. The idea of sex being a primary factor in the formation of stereotypes has already been proposed (p. 33). Thus, stereotypes of person-pet combinations are likely to be influenced by the sex of the person. If we can draw conclusions about other people's pet preferences then we are mentally assigning them to a particular category or stereotypical group which contains those who are cat-people, dog-people or perhaps non pet-people.

Members of each group will share common characteristics that are different from those in other groups. Just as cats and dogs, like many other species, are perceived to possess particular characteristics, so are the people associated with them. Similarly, if observers are able to make attributions about other people's personalities, lifestyles and behaviours on the basis of limited information, then it follows that they will also be able to make attributions about the pets they associate with. In order to examine perceptions of people in combination with various animal companions, and to investigate the possibility of human-pet stereotypes, three studies were designed.

Stereotype Studies

Study One: Person-Pet Photograph Matching Study

The first study was a photo matching task which required participants to pair up photographs of five male and five female target people of various ages, with photographs of dogs and cats. This study was designed to elicit participants' stereotypes of people, animals and the combination of the two, in that, although the task did not require the participants to categorise the stimulus persons and animals, as is commonly done in perception research, it did ask them to state which features they used in performing the matching task. This approach was used to generate stereotypical beliefs held about the people and animals involved in the study. The first study therefore explored people's stereotypes about person-pet combinations to see firstly, whether they could be detected, and secondly if so, what they are and which human and animal characteristics they involve.

Previous research has suggested that beliefs about people result in categorisation in terms of gender, age, race, occupation, etc., and the same can be assumed for animals in that people will have stereotypical beliefs about animals of different species, breed, gender and age. The main interest, however, is in the stereotypes held about the person/pet combination. The photographic stimuli present visual images only. Participants were free to infer other characteristics of the people, cats and dogs at will. The photographs were fixed in terms of genders of people and numbers and breeds of cats and dogs and, as all photos had to be used but only once each, there was no

opportunity for participants to do anything other than match each person with one pet as required by the task. If there are no stereotypes informing participants about the suitability of particular combinations, an even distribution of the animals across all ten target persons would be expected. Therefore, the presence of stereotypes would be evidenced by trends in the pairings of the target individuals and frequencies of similar reasons for particular pairings.

Study Two: Pet Selection Study

The second study, based on Harris (1983), provided participants with nine target person descriptions which varied systematically in terms of sex, age, accommodation, interests, ethnicity and occupation. As in Harris's study, participants were required to choose a suitable pet for each person, but specific options were not provided. Instead they were asked to decide on the species, breed, sex and name of each target person's pet. Study Two was both more and less defined than than the previous one in that it controlled the information given about the stimulus persons, but allowed for more imagination with respect to the animal selections. This pet description study followed a similar theme to Study One in that it sought to elicit stereotypical views of the potential animal-owner combinations. The human component of each partnership was clearly defined but, beyond the four prompts mentioned above, the participants were provided with no other cues about the kind of pet to match up with each person. The objective again was to investigate the presence and types of pet-owner stereotypes which were identified by trends in the animal selections for each target person. There were two hypotheses for this study, the first of which was based on findings from studies by Harris (1983), and Edelson and Lester (1983). Results of the former suggested that women are more likely than men to own smaller breeds of dog; results from the latter suggested that women are more likely than men to own cats. The first hypothesis therefore proposed that the female target persons would be given more small dogs and cats than larger animals and male target persons would be given more larger dogs than smaller dogs and cats. The second hypothesis, based on Harris (1983) was that the target persons would receive more same sex than opposite sex pets. It was expected that the matching decisions and comments made during the first study and

the animal choices in the second, would reveal the characteristics of people and animals that are considered to be relevant to the matching process and therefore potentially to compatibility.

Study Three: Gender and Species Stereotype Study

The final study differs from the other two in that it was based on the premise that there *is* at least one commonly held stereotype about pets and their owners, namely that women are more often connected with cats and small dogs, and men with larger dogs than vice versa. This was a predicted finding for Study Two, and there is evidence for this hypothesis both in previous research (Edelson & Lester, 1983; Harris, 1983) and in the media. In Study Three, slides of a man with a large dog and of a woman with a cat were presented to a group of participants who quantified their perceptions of the target people by rating them on 40 psychological attributes using five point scales. Another group of participants saw the combinations reversed, and rated the man with the cat and the woman with the dog. A final group rated the man and the woman alone, thus providing comparative samples. There were two hypotheses for this study. Firstly, based on previous findings (Friedmann & Lockwood, 1990; Rossbach & Wilson, 1991), it was predicted that the presence of an animal should have an enhancing effect on perceptions of their owners, regardless of the species of the animal, cat or dog, or the gender of the persons. Secondly, it was expected that gender and species would interact rather than act independently, due to the different stereotypes of gender and species combinations. Thus it was predicted that, in line with stereotypical perceptions of woman with cat and man with dog combinations, the woman would be perceived more positively with the cat than with the dog, and the man more positively with the dog than with the cat.

In summary, the three stereotype studies were designed to investigate possible stereotypes of human-pet combinations, and to identify the components of such stereotypes, should they exist. Each study adopted a different but complementary approach in order to elicit the kinds of information that underlie stereotypes of people and their pets. The photograph matching study sought common trends in particular

pet selection task allowed for a larger range of pairing possibilities, limited only by participants' imaginations, but again aimed to identify stereotypical combinations. The final study assessed the different ways in which disrupting the assumed gender-species stereotype would influence perceptions of the target people.

The next three chapters present the method and results for studies one to three respectively, and a combined discussion of the findings of these studies appears in Chapter 7.

CHAPTER 4

Study One: Person-Pet Photograph Matching Study

Method

Participants

One hundred and two students and university employees at Massey University served as participants. The participant group consisted of 58 females and 44 males, 73 of whom were aged up to 25 years, 23 were aged 26-49 and 6 were aged 50 and over. Recruitment was through advertisements placed on notice boards positioned around the university campus.

Materials

The materials used for this study included ten colour photographs of people and ten colour photographs of pets. Head and shoulder shots of five men and five women of various ages were used. All ten were photographed wearing their own clothes. The target person photographs used in this study can be found inside the back cover of the thesis. The pet photos were of seven dogs: Rottweiler, Labrador, Greyhound, Australian Terrier, Maltese Terrier, Old English Sheepdog and Border Collie; and three cats: Siamese, Persian and Domestic Shorthair. The dogs were chosen to represent the canine range in terms of sizes, colours and coat lengths. The cats were chosen on the basis of their identifiability. The questionnaire for this study started with a section of demographic questions concerning respondents' age, sex, pet affiliation and occupation. The task section provided simple instructions and asked participants to note briefly what influenced their choices. It was made clear that any characteristics could be chosen and a few examples - hair, facial features, clothing and jewellery - were provided. This was followed by a column of letters (A to J) corresponding to those on the stimulus person photographs. Beside each letter was a response space for a number (1 to 10), corresponding to the stimulus pet photographs, to be entered, and

a space for reasons. A copy of the questionnaire is presented in Appendix A. Ethical approval for this, together with the two subsequent studies, was obtained from the Massey University Human Ethics Committee.

Procedure

The participants met with the researcher individually and had the task explained to them. They were asked to pair up the photographs of people and pets in the most appropriate way and were advised that each photograph could only be used once. They were informed that there were no right or wrong answers as the people pictured in the stimulus materials did not actually own the pets in the photographs. After reading the instructions and signing a consent form, participants performed the task by placing the pet photograph on top of the photograph of the person with whom they wished to match it. There was no time limit imposed and if they wished to change the pairing at any time they were able to do so. When the participants had reached their final decisons they filled in the number on the animal photograph beside the matched person's letter on the response form, and provided brief comments about the reasons underlying each pairing. The researcher was available to answer participants' queries but was in a separate part of the room while the task was being performed.

The comments provided by the participants were collated and categorised according to content. They were initially divided into two main categories, appearance and attribution. The appearance comments dealt only with observable characteristics, i.e. the information available to all participants. Comments in this category therefore concerned the physical appearance of the target persons and pets in terms of their age, sex, clothing, build, facial expression etc. The attribution category consisted of those comments in which inferences or assumptions about the target people or pets had been made. Thus they went beyond straight description by presenting an image of what the person/pet might be like and attributed personality characteristics, likes and dislikes and occupations to human and animals. As the main interest in this study focused on the association between a particular person and pet, the third category incorporated comments which somehow linked the two with respect to the perceived compatibility

of the pair. Comments in this category included those which concerned compatibility of appearance and attributed characteristics.

Within each category comments centering on general themes, many of which are similar to those which arose in previous studies of person perception, were classified under suitable subcategory headings. Two postgraduate students grouped the comments according to their common themes and discussed any disparities of opinion until they had reached agreement.

Results

The aim of this study was to investigate stereotypic perceptions of people accompanied by cats or dogs. The photo matching task required participants to pair each of ten target people with either a cat or dog from a set of ten. There were two predictions about stereotypes, one general and one specific. Firstly it was expected that the existence of stereotypic perceptions of whatever type, would be evidenced by significant agreement amongst participants in their choice of pairings. Secondly, it was hypothesised that women would be matched with a cat or small dog more often than a larger dog and men would be more often paired with a large dog that with a smaller dog or cat.

Quantitative Results

In the following quantitative analyses, each of the ten target persons was analysed separately to meet the independence assumptions necessary for chi-square tests, and to provide more detailed information. To test the first hypothesis, the frequency with which each of the target person-pet combinations was selected were calculated and goodness of fit chi-square analyses were carried out. The null hypothesis was that there would be no stereotypic patterning, and therefore the ten animals should be assigned with equal frequency to a target person. The frequencies and chi-square results are presented in Table 4.1.

Table 4.1:

Frequencies with which animals were assigned to each of ten target persons ($N = 102$)

Animal	A	B	C	D	E	F	G	H	I	J
					Target Persons					
Greyhound	4	16	7	9	25	8	10	4	14	3
Labrador	0	1	24	15	15	6	9	3	4	27
Maltese terrier	34	13	2	6	1	9	0	33	4	0
Old English sheepdog	5	7	1	12	14	15	4	4	25	15
Rottweiler	1	1	9	5	13	2	47	0	4	20
Australian terrier	12	17	3	10	6	8	5	24	15	2
Border collie	5	2	45	10	6	3	4	1	13	13
Persian	20	22	1	7	6	13	2	17	6	8
Domestic shorthair	6	7	7	16	11	13	15	3	13	11
Siamese	15	16	3	12	5	25	6	13	4	3
χ^2	96.8*	50.8*	177.2*	11.7	42.1*	40.4*	163.9*	111.1*	43.9*	67.6*

* $p < .001$

The results in Table 4.1 show agreement patterns in the assignment of animals to target persons, i.e. stereotypes, in that nine of the ten chi-square tests are statistically significant as well as being notably high in magnitude. The strongest evidence of a stereotypical influence on the pairing task occurred with Person G, a young, slightly unconventional looking male. Nearly half of the participants assigned him the Rottweiler, then there was a large decrease to the next most frequent choice, the domestic cat. Another example of strong agreement amongst the respondents arose with Person C, a young male dressed in a driazabone raincoat. Again nearly half of the respondents assigned him the same animal, the Border Collie, and another quarter of the participants matched him with the Labrador. Strong agreement was also apparent in the frequencies with which animals were matched with Persons A and H, both older women. For both of these target persons, the two terriers, the Persian and the Siamese constituted approximately 80% of the allocations. With the exception of Person D, the distribution of dogs and cats for the remaining persons, while being significantly different from random, was spread across a larger range of animals. A nonsignificant result for Person D, however, suggests that this young fair haired woman was not viewed within a particular stereotype with respect to human-pet combination. This is possibly due to the variety of social roles she could be perceived as occupying, each of which could be associated with a different type of pet. This notion will be explored further, later in this chapter, with the examination of participants' comments.

The second hypothesis suggested that there would be a specific stereotypic pairing whereby women would be given the cats and small dogs more frequently than the larger dogs with the reverse being true for men. In order to test this prediction, the rows of Table 4.1 were collapsed into two categories: small dog or cat, and large dog. The 'small' group consisted of the three cats and the two Terriers, the 'large' group of the Greyhound, Labrador, Old English Sheepdog, Rottweiler and the Border Collie. Goodness of fit chi-square analyses with equal expected frequencies were again performed, and the frequencies and chi-square results appear in Table 4.2. The target

Table 4.2:
Frequencies with which small and large animals were assigned to
the ten target persons ($N = 102$)

Target Person *Female*	Small dog and cat	Large dog	χ^2
A	87	15	50.82*
B	75	27	22.59*
D	51	51	0.00
F	68	34	11.33*
H	90	12	59.65*
Male			
C	16	86	48.04*
E	29	73	18.98*
G	28	74	20.75*
I	42	60	3.18
J	24	78	28.59*

* $p < .001$

persons have been regrouped so that the predicted gender differences can be examined.

It can be seen from these results that eight of the target persons were assigned predominantly more of one size of pet than the other, all in the predicted direction. Four of the five females received significantly more small dogs and cats than larger dogs, with the most marked differences occurring for the two older women, Persons A and H. Only for Person D was there a lack of definition in choices of pets with exactly half of them being large dogs and half small dogs and cats. With respect to the male target persons, four of the five received significantly more large dogs than small dogs and cats. Although the most pronounced differences occurred for Person C, with the exception of Person I, who still received more of the larger animals than the small, all differences were highly significant.

Qualitative Results

The quantitative results provide clear support for the two hypotheses with strong evidence of stereotypical trends in the human-pet combinations, both in general and with respect to gender of the target person and the size of the animal. However, in order to explore the reasoning underlying the stereotypical perceptions, it is necessary to examine the comments provided by the participants as they performed the photo matching task.

The mean number of comments across the ten target persons was 98.3 ranging from 96 to 99. As was mentioned earlier, the comments were categorised under three major headings, namely appearance, attributions and compatibility, and then into subcategories which further define the information presented in the comments. The remainder of the results chapter presents a summary of the comments in each of the three categories in tabular form, accompanied by descriptions and examples of the most typical comments within the subcategories. The majority of the comments made several different points and consequently fitted into more than one subcategory. Therefore, many of the comments were included in more than one, and in some cases up to five, different subcategories.

Table 4.3:
Frequencies of comments relating to appearance by subcategory
($N = 1056$)

Subcategory	Frequency	Percent of Total
Clothing	198	18.8
Age	194	18.4
Face	174	16.5
expression	67	6.3
facial features	63	6.0
eyes	31	2.9
moustache	7	0.7
other features	6	0.6
Hair	156	14.8
General Appearance	93	8.8
Similarity to other people	60	5.7
person types	41	3.9
known others	19	1.8
Sex	44	4.2
Accessories	43	4.1
jewellery	27	2.6
animal	12	1.1
glasses	8	0.8
cosmetics	7	0.7
Weight/Build	38	3.6
Body Position	35	3.3
Imagined scenes	5	0.5
Background	5	0.5

Appearance

The appearance section was the largest, containing 1056 comments which made reference to the appearance of the person or the animal in the photographs. Frequencies with which comments were made, grouped by subcategory, are presented in Table 4.3. It is noticeable that the first four subcategories are fairly balanced in terms of comment frequencies and together account for nearly 70% of the appearance comments. However, even the largest subcategory, clothing, contains less than 20% of the total number of comments. The remainder of the subcategories contained considerably fewer comments respectively, percentages of the total number of comments ranging from 0.5 to 8.8%

The clothing subcategory included a large variety of comments ranging from mere mentions of the word 'clothing' to detailed descriptions of particular garments, "bright colours in her clothing, flowery patterns indicate to me she [B] is a fun person ... looks like she would want a fun lively animal with lots of energy [Australian Terrier]", or images portrayed by clothing, "this man [G] strikes me as being an 'arty type' with the hat and interesting clothes. So I chose this cat, who is an interesting colour and type [Domestic Shorthair]". The article of clothing to receive the greatest number of comments (56) was Person C's driazabone coat which was, almost without exception, mentioned in connection with farming or the outdoors, and linked with the Border Collie or Labrador as a consequence. Person G's garb also received considerable attention (30), "person G's clothing and earring is a sort of rebellious image, and a dog like a Rottweiler sort of adds to that image. Tough looking", and "man's earring and black hat give him 'tough' image and he needs tough, vicious dog to maintain it. Black t-shirt and cap go with the black coat of dog [Rottweiler]". Comments made about clothing worn by the other male stimulus persons made reference to shirts worn by Persons I (6) and J (8). The Calvin Klein label was associated primarily with individual or stylish taste, "he had a stripy Calvin Klein shirt and obviously liked unique things and the dog certainly was that [Greyhound]", while the denim shirt was said to denote a casual but trendy look. Comments about women's clothing tended to focus on the bright coloured jersey worn by Person D

(13), "lively, happening jersey ... looks like she would like to cuddle up to a big friendly lab", and another worn by Person F (13). The latter's garment appeared to be associated with white long haired animals as the following comments demonstrate, "note cuddly fluffy jersey and how it complements cuddly, fluffy cat [Persian]", "her hair and jersey correspond with the dog's two fur colours [Old English Sheepdog]".

Person A generated the largest number of age related comments (46) and she was defined as 'older', 'elderly', 'oldish' and as being in 'late middle age'. A few comments made reference to her advanced age by comparing her grey hair with the grey or white hair of one of the stimulus animals, "grey of the cat [Domestic Shorthair] reflects the age of its owner". Person I was also consistently perceived to be an older person (27), "a sense of humour and bonhomie in an elderly man should link well with this tactile and appealing animal [Old English Sheepdog]". At the other extreme, Person D (30) was seen as being younger than she actually is, and was described as a 'girl' as well as a 'young woman' and 'very young'. Her youthfulness was associated with a variety of the pets depending on the social position she was perceived to occupy, "young woman probably fairly active but into partying. Needs more of a stable type dog [Labrador]", "the girl is youngish, probably just finished with being a student so had a plain 'flat' cat which she has kept from her student days [Domestic Shorthair]". Person G was also exclusively seen as being a young man (29), typically "a young male just seems to go with a big dog [Rottweiler]". The remaining age comments (62) were distributed more evenly across the other five stimulus persons.

Comments about faces, facial features and expressions constituted the third largest category. They ranged from very general references, "facial similarities between pet [Australian Terrier] and Person A" to more specific descriptions, "older man [I], gentle eyes, soft face, looks more like a cat person [Domestic Shorthair]". The major theme was similarities between human and animal, "believe it or not, the dog appears to be smiling in the same way that the person is", "both dog [Rottweiler] and person [C] have keen eyes". Eyes were described as being similar to those of an animal, or as

having a similar expression " this guy [C] looks a bit weird, 'eyes - manic stare and big coat' and the cat [Domestic Shorthair]does too - I can imagine a sort of independent bachelor buddies relationship here". Comments about the mouth tended to focus on smiles, for example "smile suggests an adventurous person who would like a character dog [Old English Sheepdog]" and "she's [B] got very feminine hair appears quite sensuous - lovely smile, she'd want a down to earth dog [Old English Sheepdog]".

The next largest category encompassed observations about hair colour or style. Person H received the most comments (23) the general theme being that her hair colour matched that of the Australian Terrier (10). Another colour match was noted between Person J and the Border Collie (3) and Labrador (2) and the same person's hairstyle was said to resemble that of the Old English Sheepdog (5), "large shaggy guy, large shaggy dog! Both look like they need to be clipped in summer". Suggestions were made about Person B's hair matching the animals, similarly to Person H, she was matched with the Australian Terrier (5) and the Siamese (5).

General appearance comments made up the next sub-category. Frequent references were made to the person and animal looking alike, with no elaboration of how (23). This section also included remarks about the overall appearance of the person or animal, with no mention of specific features. For example "the dog here looks cute and cuddly [Maltese Terrier]", and "this man [J] projects a macho image which would see him own a macho type dog [Rottweiler] in my opinion".

The similarity comments (60) presented reasons for forming specific pairs on the basis of previous associations and could be further divided into two subcategories, associations of the target persons or animals with general 'types' (41) or 'known others' (19) on the basis of their appearance. The 'types' subcategory revealed associations based on generalisations about types of people and types of animals. For example one comment paired up a man with the Labrador on the basis of weight, "this man [J] looks a little heavy and Labradors tend to have a weight problem so it

probably appeals to him to get a dog to keep him fit - at least he will have to take the dog for a walk", while others associated older people with dogs that were either small or perceived as needing little attention, or exercise, "because this man is slightly older [I] I assumed that he might like a little dog that didn't need as much exercise as a large dog [Australian Terrier]". Examples of comments referring to people known by the participants include "this dog [Border Collie] looks like the dog my Aunty had when she was that woman's age. And the woman [D] looks like my Aunty!", "looks like Chris Dickson [G]. The wire haired dog [Australian Terrier] could crawl along on a boat O.K." and "the person H reminds me of relatives - female, middle aged, rings, spectacles, watch all seem to belong to a readily identifiable "type" of person. This sort of dog is one that they favour in my experience [Australian Terrier]". Alternative associations of specific people with animals were made on the basis of clothing, image, posture and even smile lines which apparently denoted someone of "real cat owner material".

Comments pertaining to the sex of the target figures (44) were, without exception, made with respect to the people. Although many of these responses simply listed sex as being a reason for matching particular individuals, for example "age, sex, hair", others linked the pairs with generalisations about the sex of animal owners and the pets that were appropriate as a consequence of their being male or female. These generalisations were often associated with age also. Typical examples included "the middle aged male's [E] way of getting into the outdoors - owning a dog who is a good retriever [Labrador]" and "women tend to be more cat people, and they are quiet and neat" and "dog usually belongs to young males" [Rottweiler].

Various attitudes or behaviours were associated with the attention to detail and grooming of the female stimulus persons, particularly the older ones. Most of the references to accessories pertained to women's rings, jewellery and glasses, although Person G's earring received some attention (9), for example "earringed, bereted has the look of a tortured cynical intellectual. I think he'd appreciate a dark, macabre feline [Domestic Shorthair] prowling his house as he listens to his Doors albums".

Some of the themes associated with the females' jewellery were that the wearer had plenty of time, and/or an interest in grooming a pet, "woman [A] looks sophisticated, glasses matching clothing, pearl earrings, haircut, makeup - looks like she would be the type of person to pamper her pet e.g. put a bow in it and nicely brushed [Maltese Terrier]". Other types of comments linked human and pet, "she [H] seems a bit pretentious (wedding bands up to her knuckle). The dog [Maltese Terrier] also looks pretentious and the tacky pink bow goes well with the tacky pink lipstick".

The common theme amongst the weight or build comments again noted similarities between pet and owner. The majority of comments concerned males looking 'big', 'beefy' or 'stocky' and being suited to the more solid dogs. "I choose the Rottweiler for this man [J] because Rottweilers typically belong to people of short, stocky build. He looks the sort who would want to cultivate a 'macho' image and the Rottweiler would certainly do that for him". The fewer comments concerning the build of women related to them being 'compact', or 'slim', again matching the build of one of the pets, "thin and blond lady [D] - thin blond dog [Greyhound]".

The body position comments (35) can be further divided into three groups. Firstly, those which simply list body position as a reason with no further explanation (8), "body language". Secondly, responses which suggest that the human's body position reveals something of their personality or behaviour (19), "the whippet (?) is a racing dog - the guy [E] dresses low key and looks like a typical racing dog trainer. Posture also looks like a betting man", and thirdly those which indicate a resemblance between positioning of human and pet (8), such as this comment comparing person F with the Siamese, "nose is similar - also she (the woman) is in a cat like stance - looks like she's going to lick her paws".

The final two subcategories of appearance related comments were to do with imagined scenes and photo backgrounds. The imagery group (5) consisted of descriptions of images participants had built up around the person and pet concerned, such as, "only an older woman [H] could want a cat like this [Persian]. I can see her pouring the

Table 4.4:
Frequencies of comments relating to attributions by subcategory
($N = 883$)

Subcategory	Frequency	Percent of Total
Personality	425	48.1
description	373	42.2
requirements	52	5.9
Likes/dislikes	175	19.8
cats	77	8.7
dogs	56	6.3
other	32	3.6
no pet	6	0.7
all pets	4	0.4
Occupation	84	9.5
Behaviours	59	6.7
Hobbies/Interests	39	4.4
Family	32	3.6
Time	25	2.8
Wealth	23	2.6
Living situation	15	1.7
Sexuality	4	0.4
Nationality	2	0.2

cream into the bowl". Background comments were thus classified because participants had used features of the background of the photograph to aid them in their matching, "he [E] looked sort of like the dog [Australian Terrier] - unkempt look about him sort of went with the dog. The house in the background suits the guy."

Attributions

The following results present the attributional comments, again by subcategory, and frequencies are presented in Table 4.4. The largest subcategory of comments in this table consists of personality related attributes, of people, pets or both. Most of these were descriptions of personality characteristics individuals were perceived to possess with various levels of detail, "both man [J] and cat [Persian] look slightly eccentric", "a mellow looking man [J], reserved and timid, big and cuddly looking like the dog [Old English Sheepdog)". Other descriptors referred to personality requirements a pet or person was seen to have, "[J] has a strong male body with a tidy appearance - could look after a big dog which needs to be dominated [Rottweiler]", "younger woman [D] needs bigger animal [Old English Sheepdog]". The range of personality descriptions of people when combined with particular animals is presented in greater detail in Table 4.5.

The second most frequent type of attributional comments made inferences about the target persons' likes or dislikes, particularly with respect to cats and dogs, not surprisingly. The majority of these statements suggested that a person was, or was not, a dog or cat person, and some continued to specify the type of animal the person was suited to "facial expression lead me to believe he [I] was a cat man. He didn't look the type to buy a pedigree, due to his general facial features and image [Domestic Shorthair]". Other comments drew comparisons between species and stated why one was better suited to an individual than another, "[J] looks like a softie who would prefer a cat [Domestic Shorthair] rather than having to exercise a dog". The comments which related to other kinds of likes and dislikes tended to describe activities or characteristics which were complemented by a particular animal. For example "this woman [H] looks as if she would like to have something to pamper and spoil. I chose

Table 4.5:
Personality characteristics attributed to target persons in combination with particular animals

Animal	Owner characteristics
Greyhound	individualistic, unique tastes, serious, original, quiet
Labrador	hard working, stern, down to earth, lonely, friendly (4)*, efficient, charming, well mannered, honest, outgoing, cheerful (2), bouncy, practical, vibrant, earthy, stable, reliable, alert, playful, warm, caring, unsophisticated, peaceful, happy, easygoing, proud, informal, no nonsense, energetic
Maltese terrier	pretentious, feminine, maternal, shy, gentle, considerate, quiet, good sense of humour
Old English Sheepdog	affectionate, dopey, fun, easy going (2), laid back, happy-go-lucky (2), playful (2), friendly, kind, jolly, sense of humour, outgoing, warm, energetic, dependable, arty, gentle (2), character, carefree, relaxed, bouncy, impish
Rottweiler	staunch (3), tough (4), wild at heart, determined, arrogant, proud, strong, macho, energetic, independent, non-conformist, unconventional, male, rugged, rough but soft, keen, casual, gentle, devoted, well natured
Australian terrier	bubbly (2), fun (2), cheerful, amiable, considerate, sense of humour, happy, spontaneous, intelligent, cheeky, lively, yappy, highly strung
Border collie	happy (3), intelligent (2), friendly (3), bouncy, outgoing, playful, athletic, patient, caring, relaxed, active, practical, lively
Persian	comical, eccentric, mad, zany, unusual, grumpy, pampered, rebellious, cuddly, fluffy, affectionate, benign, fussy, showy
Domestic shorthair	independent (3), confident, quiet (2), serious, conservative, practical, non pampering, ordered, calm, self-reliant, no nonsense, cool, conventional, gentle, busy, arty, individual, character (2), sensitive, not totally self-assured
Siamese	vocal, neurotic, moody, self-sufficient, creative, artistic (2), alternative, independent (2), trendy, different, individual tastes (3), interesting (2), off-beat, unique, image conscious, professional, in charge, refined, practical, competent, confident, friendly, gentle, intelligent, kind

* The numbers in the brackets refer to the frequency with which these words were used.

the Maltese because it is small and she looks like the person who is willing to devote grooming time", and "he [I] had a stripy Calvin Klein shirt and obviously liked unique things and the dog certainly was that [Greyhound]". The no pet comments generally started with a statement to that effect, but continued to justify the pet chosen, "another non-pet person [H] - but would possibly have a friendly trouble free pet - hence this little toy dog [Maltese Terrier]".

Specific occupations were attributed to some but not all of the target persons, and although the comments classified in this subcategory refer to the humans' occupations, a couple of them seemed to be associated with the roles commonly played by the animals. For example, the largest number of occupational comments (39) were made with respect to Person C. He was described as a farmer or an outdoors type, as a result of his driazabone coat, who was then linked with the working dog or the Labrador. "In his rain/stock coat the guy looks like he has just come off the farm after working with livestock, so I chose for him the Border Collie which is commonly used for herding sheep". Another occupation associated with a stereotypical perception of an animal was that of a Greyhound racer/trainer. Persons I and E (5,3) were said to be racing types, but the comments started by defining the animal's role, for example "this dog appears to be a racing dog, therefore the owner may very well be the trainer. Middle-aged people seem to best fit the role of trainers [Greyhound]". Persons G and D were described as students (6,2) and the stereotypical pet for a student appeared to be the domestic cat, "young student, has a flat cat more functional than pretty, something to look after". The remaining comments either described people as being retired, "this man [I] looks retired, so the cat [Domestic Shorthair] is a wonderful pet", or as career persons without further details as to the type of career, or were individual perceptions of one target person "neither of these two really appeal to me. She [F] looks like a raving thespian/dancer and the dog ... well, Greyhounds are just plain ugly".

The behaviours subcategory included comments about the kinds of activities or behaviours a target person might indulge in and how a particular pet would

consequently be suitable, "he [J] looks casual in his jean shirt and looks like the type of guy to get out and romp around with his mate - the dog. You think of Labradors as being - man's best pal". Attributed behaviours included grooming, pampering pets (17) for example "hair matches his dog and he [I] would spend many hours getting the coat just right [Old English Sheepdog]", exercising (9), talking to or about pets (5), "she [H] appears an animal lover who would enjoy talking to her pets. Siamese are renowned for their vocal abilities", and playing with pets (4).

The hobbies and interests attributed to the target persons were again mostly related to the animal with which the person was matched. People who were described as sports people were either racing types associated with the Greyhound (8), or hunters, shooters and general outdoor people associated with the Labrador or the Border Collie (12). Another suggestion was that people were interested in showing dogs (7), "she [A] looked like she would 'live for' her dog. I could imagine she would show it [Maltese Terrier]".

Family comments were mostly associated with the middle-aged people having families and thus needing a family type animal, "person J looks like a family man, the Labrador would suit the needs of his children and meet his needs" or guard dogs, "this dog may guard this man's [J] young family and new house [Rottweiler]".

Some of the target persons, typically the older ones, were reported to have sufficient time to look after pets which were perceived as needing more than the average amount of care, "another person [H] who would enjoy a pet that looks elegant and has a lot of time to care for this type of pet [Maltese Terrier]". Other people were said to be too busy to care for a pet and were therefore paired with a less time consuming breed, "he [F] looks like a busy man and would have a plain cat [Domestic Shorthair] who looks after itself".

The comments related to the wealth of particular target persons were mostly explicit in that they described the individual as having money or being well off, "... she [A]

also looks of retirement age, and fairly comfortably off, so would have time and money to show dogs [Maltese Terrier]". Some comments, however, made implications about wealth by suggesting that somebody could afford an expensive animal, or by describing the animal as expensive, "a person [I] who is slightly older, has a power of distinction or even good taste. A very special and expensive dog, can be a status symbol of a sort [Greyhound]".

The perceived living situations of various individuals meant that some animals were seen to be better suited than others. For example the comments about target persons being city or urban dwellers (7) tended to link them with small dogs or cats, "quite a classy lady [H], with a long haired white cat to keep in town [Persian]". Rural people (comments about person C living on a farm were left out as they have already been described) were matched with larger animals as they were seen as having access to space for exercise, "older person [A], but active quiet dog. Wealthy, rings and watch, has nice big section for her dog [Border Collie]".

The perceived sexuality of three of the male target persons received comments, one being described as heterosexual, one as gay, and another as gay, and ambiguous "the man [J] looks like an actor. He could be either straight or gay. Likewise the dog is 'ambiguous'. It's strange looking, yet not immediately identifiable in terms of who'd own it [Greyhound]". Finally two comments about nationality were made: person I was said to look Scottish and person A English. Both were matched with the Australian Terrier!

Further information about the personality characteristics associated with the owners of particular breeds of pet is summarised in Table 4.5.

The most notable feature of these results is the consistency of the personality attributes associated with owners of specific canine and feline breeds. In general, the descriptors of people associated with each animal centre around one or two themes. For example the owner of a Rottweiler is perceived either as a strong, traditionally masculine

Table 4.6:

Frequencies of comments relating to compatibility of target person and pet by subcategory ($N = 729$)

Subcategory	Frequency	Percentage of Total
Appearance	217	29.8
Personality	179	24.6
Lifestyle	131	18.0
Status/Image	48	6.6
Age	37	5.1
Association	30	4.1
Size	30	4.1
Time	14	1.9
Just go together	13	1.8
Ability to handle	12	1.6
Money	11	1.5
Gender	7	1.0

individual, or as a more sensitive good natured person. Siamese owners are described as being arty, alternative types, or practical, gentle, friendly people. The predominant descriptors identified with the owners of the two terriers, particularly the Maltese, were traditionally feminine such as maternal, gentle, considerate and shy. The owners of the larger dogs, however, were associated with more masculine characteristics such as efficiency, practicality, pride, energy and independence. This provides further evidence of the existence of female-small animal and male-large animal stereotypes. Interestingly, although some of the terms connected with the Persian could be described as feminine, the human associates of the other two cats were not obviously gender typed.

Compatibility

The final category for comments was that of compatibility of the person-pet combination. The results of these classifications appear in Table 4.6. Although the majority of the comments classified in this table have already appeared elsewhere, the distinction is that all of the comments provided evidence for compatibility of particular human-pet combinations. The basis for the compatibility comments form the subcategories used in the table. The appearance comments include all those in which a person and an animal were said to appear similar. The range of characteristics which were perceived to be shared was considerable and incorporated perceptions of size, hair, colouring, age, facial expressions and general looks. Typical examples are, "same colouring, even look similar [H, Australian Terrier]" and "the wiry moustache [I] goes well with the wiry hair of the terrier. Both are a little 'old world' and both seem to need a little maintenance". Other comments in the appearance subcategory were less precise but suggest a level of compatibility on an appearance basis, "these two appear made for each other [H, Maltese Terrier]" and "young male [C] very similar to dog [Labrador], looks like a person who would have a dog like this".

The personality comments again included ways in which the pet and owner were compatible as a result of similar personality characteristics, and reasons why one party suited the other's personality. Examples include, "both the cat [Persian] and the person

[I] seem to be the 'sitting back' sort of personalities", "man [J] has a sort of tousled look - looks like he could be a bit of a larakin - dog looks really playful [Border Collie]" and "this woman [H] looks cheerful and friendly like she really enjoys living. Her dog [Border Collie] would be like her and have a really good personality. They'd both get on well with people".

Compatibility of lifestyle was suggested by approximately 18% of the comments, and many suggested activities which particular combinations of pet and owner would enjoy, "looked as though these two would enjoy having a bit of fun together - maybe a spot of fishing [J, Border Collie]". The farming theme with the collie and person C being linked was obviously prevalent, but non work related companionship, "this lady [H] looks like a person who would seek the companionship of a little dog [Australian Terrier]", and family lifestyle were also frequently mentioned, "friendly family dog [Labrador] for a friendly family man [J]".

The idea of an animal complementing a person's image is a generally accepted, albeit uncommon, reason for owning an animal, and certain comments validated the notion. For example person G, who received nearly half of the image related comments (21), was described as being "an arty poseur, so he should have a dog that fits that image [Greyhound]" as well as a "young macho guy who needs a macho dog [Rottweiler]". Two other male target persons received the next most frequent number of image descriptions, the Greyhound was said to enhance the image of person E who was said to "sport a very professional styled pose. A Greyhound is a good pet for someone who thinks they are professional. Status symbol like a racehorse". Person J was linked either with the Labrador because of his "average guy image" and with the Rottweiler for a tougher image, "I chose the Rottweiler for this man because Rottweilers typically belong to people of short stocky build. He looks the sort who would want to cultivate a 'macho' image and the Rottweiler would certainly do that for him".

There were two ways in which age was considered to be a compatible feature. Firstly, when the ages of person and pet seemed similar, "young pup [Labrador], younger man

[J]", "both of these two look a bit worn with age. He [I] just suits a grey cat really [domestic]". Secondly, the age of the person dictated the perceived suitability of a particular animal, "this woman [H] is quite elderly so she'd probably want a small house dog [Australian Terrier]" or the characteristics of the animal meant that a person of a particular age would make a suitable owner, "only someone young [D] would have a dog that is such hard work! [Old English Sheepdog]".

The association subcategory generally identified particular types of person as being appropriately matched with specific pets, "large dogs, particularly Rottweilers in recent years, are popular among men since they have a 'macho' image of aggression which by association extends to the owner [E]". Other comments likened one or both of the human-pet combination to known others, "the person [H] reminds me of relatives - female, middle aged, rings spectacles, watch all seem to belong to a readily identifiable 'type' of person. This sort of dog [Australian Terrier] is one that they favour in my experience". A couple of comments demonstrated the participant's identification with one of the target persons which influenced the type of pet chosen, "I can relate to the girl [D] as being in my own age group and this is the type of dog which I would like [Australian Terrier]".

A few of the size related comments suggested that the human and pet were perceived to be similar, "big man [E], big dog [Greyhound]", but the majority associated the size of the pet with the person's age, or way of life, "smaller dog [Australian Terrier] for the older person [H]", "lively outgoing person [F] who would enjoy an 'outsize' pet [Old English Sheepdog]".

People who were perceived as having plenty of time were generally matched with long haired animals such as the Maltese Terrier or the Persian cat, "Person H is immaculately groomed and obviously takes the time to do so. She seemed the most likely to have this dog as it would involve quite a bit of fussy care [Maltese Terrier]". Conversely, people who were perceived to have little time, mainly due to work or family pressures, were associated with the domestic cat, "this person [D] looks like

she wants a pet but has little time for one so therefore a cuddly cat for when she's at home I think suits her best".

A small group of comments suggested that a particular combination of human and animal was appropriate but did not elucidate why. Examples of these include "this man [J] just sort of suits a dog [Labrador]" and "the dog [Australian Terrier] suits him [I] for some reason".

The next subcategory incorporates comments, generally pertaining to a large dog such as the Rottweiler, about a person's suitability as an owner based on their ability to handle a particular pet. "This woman [D] looks very capable and fit like she can handle a lot. I think her dog would be like a friend and she would take it on walks and trips to places [Rottweiler]". Other comments suggested that somebody was unable to handle a dog and was therefore better suited to a cat, "she [H] looks like a cat person, doesn't look like she would be able to handle a big dog [Persian]".

Comments about money, as it relates to compatibility, suggested that the person is able to afford the animal which is either perceived to be expensive to buy, show, or feed, "the age of the person [I] suggests wealth enough to be spent on more exotic purebreds [Greyhound]", "Person B is dressed very Englishly, sort of poshly and could probably afford to feed a big dog like this [Old English Sheepdog]".

Gender comments associated particular breeds with male or female target persons, for example "dog good for the image of maleness [Rottweiler]" and "young woman's dog [Labrador]".

Overall, the main themes that emerged from this study provide evidence for the existence of human-pet stereotypes both in the frequencies with which particular people and pets were combined, and in the reasons given for the specific combinations. It has been suggested that age and sex take priority when perceptions of others are formed and there is some support for this with respect to the frequency

of age related comments, but not with sex. However, there was a strong gender effect in that, with the exception of Person D, women were most commonly associated with the smaller dogs and cats and the men with the larger dogs. It appears from the comments that clothing was an important consideration in this task, target persons' attire was perceived as an expression of their personalities and the images they wished to portray. The number of clothing related comments suggests that it played a bigger part in the matching task than would have been assumed from the person perception literature.

In summary, the way in which the target people and pets were matched provides support for the notion of pet-owner stereotypes as there were significant trends in the person and pet combinations for all but one of the target persons. The reasons given for the matches provided further evidence of stereotypes, and suggests that they involve a number of physical and psychological characteristics, of both animals and humans. The results generated by this study will be discussed, in conjunction with those of the other stereotype studies, in Chapter 7.

CHAPTER 5

Study Two: Pet Selection Study

Method

Participants

The participant group for this study was again university based and consisted of 172 people, 63 percent of whom were female and 37 percent male. Forty seven percent of the participants were aged up to 25 years, 30 percent were aged 26 to 49 and 23 percent were 50 and over. Recruitment was performed in three ways, undergraduate internal and extramural students were approached in tutorial classes, an advertisement was placed in the Massey University Campus News, and a random town delivery was attempted in an effort to sample from the wider community. The results of a geodemographic survey of Palmerston North (Corlett, 1983) were used to determine the parts of the city that were predominantly inhabited by people other than students and commercial businesses. The streets in these areas were arranged alphabetically and every seventh street was chosen. A random number table (Eton, 1960) provided house numbers which were paired up with the selected streets. This technique yielded 13 replies from 100 delivered questionnaires.

Materials

The questionnaire started with a demographic information section as for study one. The task, based on Harris (1983), consisted of profiles of nine people. The profiles were composed by the researcher and varied along several dimensions; age, sex, race, family status, accomodation, occupation and interests. The instructions requested participants to select a pet (unconstrained choice) for each person profiled and specify the species, breed, sex and name of each pet. The words 'type', 'breed', 'sex' and 'name', each followed by a response space appeared below each target person profile. The target person profiles can be found in Appendix B.

Procedure

The context for this study depended on the way in which each participant had been recruited. Those who received the questionaire through the post, were asked to fill it out individually and return it in a pre-paid envelope. Those participants who were approached through tutorial classes, filled out the questionnaires during class time. Firstly, the participants read the information sheet and signed a consent form. The participants then read the task instructions and, after reading each profile, selected a pet for each stimulus person specifying the species, breed, sex and name of each pet. No time limit was stated, and most participants completed the task in about 15 minutes.

Results

There were two hypotheses for this study. Firstly, it was predicted that the female target persons would be given more small dogs and cats than larger animals, and male target persons would be given more larger dogs than smaller dogs and cats. Secondly, it was expected that the target persons would receive more same sex than opposite sex pets. The analysis strategy adopted for this study involved treating each target as independent from the others, since each character was created to be distinctive in terms of age, gender, ethnicity, occupation, housing and interests. Thus statistical tests were conducted and results will be described with respect to individual target persons - who are referred to by name throughout this section. Chi-square analyses were also conducted to examine the homogeneity of the sample in terms of their age and sex characteristics. Only one significant difference was found, in the species of animals given to Elizabeth by female and male participants, χ^2 (4, N = 172) = 11.94, $p < .05$. (Examination of these allocations suggested that although similar numbers of male and female participants gave Elizabeth dogs, more females than males gave her cats). This general lack of age and sex effects meant that the entire sample could be employed in subsequent analyses. Descriptive analyses were also used to explore the relationships between species and the target person characteristics of age, interests, housing, ethnicity and occupation. The chapter concludes with a qualitative section summarising the names of the animals awarded to each of the target persons.

Table 5.1:

Frequencies and percentages of species allocations for each target person ($N = 172$)

Target Person *Female*	Dog Freq.	%	Cat Freq.	%	Bird Freq.	%	Fish Freq.	%	Other Freq.	%	No Pet Freq.	%
						Animal Species						
Aroha	74	(43.0)	80	(46.5)	6	(3.5)	5	(2.9)	6	(3.5)	1	(0.6)
Elizabeth	90	(52.3)	62	(36.0)	12	(7.0)	3	(1.7)	5	(2.9)	0	(0.0)
Edith	22	(12.8)	115	(66.9)	29	(16.9)	6	(3.5)	0	(0.0)	0	(0.0)
Kylie	69	(40.1)	61	(35.5)	8	(4.7)	7	(4.1)	18	(10.5)	9	(5.2)
Male												
Martin	89	(51.7)	68	(39.5)	5	(2.9)	7	(4.1)	1	(0.6)	2	(1.2)
Simon	126	(73.3)	28	(16.3)	6	(3.5)	6	(3.5)	2	(1.2)	4	(2.3)
Frank	17	(9.9)	36	(20.9)	49	(28.5)	43	(25.0)	13	(7.6)	14	(8.1)
John	138	(80.2)	8	(4.7)	0	(0.0)	4	(2.3)	16	(9.3)	6	(3.5)
Rangi	92	(53.5)	20	(11.6)	3	(1.7)	12	(7.0)	6	(3.5)	39	(22.7)

Analysis of Species-Sex Relationships

Table 5.1 shows the frequencies with which species were selected for each of the target persons. The less common species have been categorised as 'other' and more detail of these is provided in Appendix C.

Table 5.1 demonstrates that for the female target persons, dogs were the most frequent pet choices for Elizabeth and Kylie, and cats for Edith and Aroha. Edith was allotted more birds than dogs, but none of the less common species. Kylie, on the other hand, received the largest number of other types of pet.

Four of the five male target persons were given more dogs than cats, only Frank received a more even distribution of pet types, the most popular choice for him being a bird. Frank and John received the largest group of other types of pet. Although the task instructions did not suggests that they were able to make a no pet choice, a considerable number of the participants opted for that decision, especially with respect to Rangi and Frank. The frequency with which particular species were allocated reflects the actual distribution in western countries, in that dogs and cats are the most popular companion animal species.

The first hypothesis for this study was that women would be given a greater number of cats and small dogs than larger dogs, and men would be given medium to large sized dogs more frequently than small dogs and cats. In order to facilitate this comparison, two veterinarians and the researcher independently assigned dog breeds to small, medium and large size categories, with almost complete agreement. The few disputes were settled by taking the majority view, and the resulting size categories are presented in Appendix D. The results of goodness of fit chi-square analyses with equal expected frequencies for each of the target persons are presented in Table 5.2.

The results in this table demonstrate some, but not complete, support for the hypothesis. The pets allocated to Simon, John, Rangi, Aroha, Elizabeth and Edith showed the predicted trend, in that the females received more smaller dogs and cats

Table 5.2

Frequencies of medium/large dog and small dog/cat allocations for male and female target persons

Target Person Female	Medium and Large Dog	Small Dog and Cat	χ^2
Aroha	49	86	10.14*
Elizabeth	46	95	17.03*
Edith	3	116	107.30*
Kylie	59	60	0.01
Male			
Martin	69	76	0.34
Simon	110	38	35.03*
Frank	5	44	31.04*
John	131	13	96.69*
Rangi	82	27	27.75*

* p < .001

and the males received more of the larger dogs. However, selections for Martin and Kylie were fairly evenly balanced between the smaller and larger pets, while Frank received significantly more of the smaller types.

Analysis of Sex of Pets and Target Persons

The second hypothesis was that the female target persons would receive more female than male pets, and the male target persons would receive more male than female pets. Goodness of fit chi-square analyses with equal expected frequencies were performed to test this hypothesis for each target person, and the results are presented in Table 5.3.

It can be seen from this table that two of the four female stimulus persons were given significantly more female than male pets and four of the five male stimulus persons were given significantly more male than female pets. The results for Edith, Kylie and Simon, although not significant, were in the predicted direction. Overall, these results provide support for the prediction about the sex of pets being the same as the sex of their owners.

Relationships Between Target Person Characteristics and Animal Species

The target person profiles were devised in such a way as to provide variation in age, living situation, housing, interests and ethnicity in addition to sex. This section provides descriptive information on the relationships between species and these other characteristics. The relevant results for each of these associations are presented in Table 5.1 above.

Age

The target persons were divided into three age categories to facilitate comparisons of species assigned to young (Aroha, Simon, Rangi and Kylie), middle aged (Martin, Elizabeth and John) and older (Edith and Frank) target persons. The main differences in species allocations for stimulus persons in the three age categories appear to be between the older group, and the other target persons collectively. The older recipients

84

Table 5.3:
Sex of pets given to female and male target persons

Female	Sex of Pet		
	Male	Female	χ^2 value
Aroha	59	88	5.72*
Elizabeth	55	100	13.07***
Edith	64	85	2.96
Kylie	66	82	1.73
Male			
Martin	100	50	16.67***
Simon	84	64	2.70
Frank	88	39	18.91***
John	113	39	36.03***
Rangi	103	15	65.62***

* $p < .05$ ** $p < .01$ *** $p < .001$

were given fewer dogs (22 and 17 as compared with 69 to 138), and more of the other kinds of small pets. Cats predominated for Edith (115), birds were popular choices for both (29 and 49) and fish were a frequent selection for Frank (43).

Interests

The target persons were grouped into those with interests that were sedentary or active. Because, for the sake of realism, each person's interests were not consistently sedentary or active, they were classified according to the predominant theme. The species allocations in Table 5.1 show that for the five stimulus persons with predominantly active interests (Aroha, Simon, Elizabeth, John and Kylie), all but Aroha were given more dogs than cats, and she only received 3.5% more cats than dogs. The males with active interests both received considerably more dogs than any other pet type. Of the four people with predominantly sedentary interests, Martin and Rangi received more dogs than cats, Edith received more cats than any other type and Frank was given mainly birds, fish and cats in that order.

Housing

When the influence of housing on participants' pet selections is considered, most of the target persons can be seen as having average 'house with garden' type accommodation, but Kylie, John and Frank are representative of more extreme situations. Kylie's position in a house in the country appeared to influence not only the range of species she was provided with (see Table 5.1) but also the breeds of dog. Of the 69 dogs she was allocated, 59 were medium or large types. Overall though, she still received more small animals than large. John's farm setting similarly provided space which was reflected in the numbers of large dogs he was given, as well as the other large animals such as horses and livestock. Frank was at the other end of the accommodation spectrum as he lived in a second floor apartment. This appeared to influence the species he was given (see Table 5.1) as he received considerably fewer cats and dogs and substantially more birds and fish than did the other stimulus persons. The breeds of dog he did get were primarily the smaller varieties. The other six target persons, from their descriptions, could be considered to live on more average

sized properties. Four of these six, three of whom were female, received greater numbers of small than large animals. The other two, both male received a greater proprtion of larger animals. It would appear from these results that when the accommodation and surrounding property is of average size, the influence of the sex of the target person is evident.

Ethnicity

An examination of the pets awarded to Rangi and Aroha was made, as they could be considered similarly on the basis of their perceived ethnicity. With respect to species allocation, the only outstanding difference for Rangi was that he received the largest number of 'no pet' responses (39) but this was not so for Aroha. When the breeds of cats and dogs for these two target persons are examined (Appendix D), it can be seen that both received a considerably greater proportion of domestic than pedigree cats, but there were no real similarities in the types of dogs they were allotted.

Occupation

When examining the species given to the respective target persons, the only one for whom a strong occupational effect was apparent was John, who received large numbers of working dogs (75) and horses (9). In only a few other instances did the occupation of the prospective owner appear to have an influence on pets, and then only with respect to the animals' names which will be presented next.

Analysis of Breeds and Names

The name given to an animal is believed to indicate something about how the owner perceives it and the role it is intended to play within the human-pet relationship. Thus the names awarded to the animals in this study were therefore expected to provide further insight into the stereotypes held about people and their pets with respect to the types of animals the target persons were matched with. A complete list of animal breeds and the frequencies with which they were allotted to each target person are presented in Appendix D. The dog breeds have been collapsed into four categories: medium to large family dogs, small family dogs, working dogs and tough dogs; and

Table 5.4:
Percentages of human and animal names for dogs given to
nine target persons

Stimulus Person	Named dogs	Percent human names	Examples of human names	Examples of animal names
Aroha	69	37.7	Hemi Maggie Sasha	Datsun Rover Goldie
Martin	85	71.7	George Sigmund Oscar	Boss Bouncer Poochi
Simon	121	55.4	Toby Sam Max	Goldie Sheckle Budget
Elizabeth	88	65.9	Dominic Jessie Lucy	Pooch Jip Satan
Edith	23	47.8	Edward Felicity Anton	Muffy Precious Buttons
Frank	17	58.8	Max Basil Jack	Rusty Chess Doggie
John	136	45.6	Jill Sam Jess	Spot Lass Dog
Rangi	89	27.0	Tyson Sam Max	Killer Butch Prince
Kylie	66	39.4	Janie Anton Meg	Benefit Shep Queenie

the cat breeds were collapsed into two categories: pedigree and domestic cats. The classification process was once again performed with the consultation of two veterinarians.

This section presents a summary of the names the participants considered that the stimulus persons would give their pets. The names assigned to dogs are presented first followed by those for cats and finally the other varieties of pets.

Canine names

Percentages of human and animal names given to dogs assigned to the nine target persons appear in Table 5.4 along with typical examples. Overall, equal proportions of human and animal names were given to the dogs in this study. However, some people were given considerably more pets with animal names, for example Rangi, and to a lesser extent Aroha and Kylie. The names associated with dogs given to particular target persons add the most information when considered in conjunction with the type of dogs they were given to. When the predominant types of dogs are combined with the types of names awarded to these canines, the outcome provides quite a consistent picture of the way in which the stimulus persons were perceived.

The most popular type of dog given to Aroha was the medium/large family type dog, followed by the smaller family type, tough dogs and finally working dogs. The predominant type of name for all of these dogs were ordinary human or pet names and Maori (10%) names. With the occasional exception (Rottweiler called Butcher, Doberman called Brutus) even the tough dogs had either human (e.g. Sasha, Bob) or traditional animal names (e.g. Prince, Rex, Gentle Ben).

The person who was given the largest proportion of tough dogs was Rangi. The names these dogs were given had names such as 'Satan', 'Butch' (7), 'Bruiser', 'Uggness', 'Rambo' (2),'Killer' (4) and 'Javla - the devil'. Other animal and name combinations went either to the other extreme, for example a Poodle called 'Terrance', or were more neutral such as a Scottish Terrier called 'Scotty' and a Dachshund called 'Chico'. One

of the name themes to emerge with this stimulus person was connected with his interest in drinking with his friends. This interest elicited names such as 'D.B.', 'Vodka', 'Tequila', 'Beer' and 'Foster'. Sport was also connected with Rangi as he had dogs selected for him called 'Tyson' (3), and 'Rocky' (2). Randomly bred dogs were another popular choice for Rangi and these had a variety of names ranging from 'Jess' to 'Killer'. Maori names such as 'Kuri', 'Hemi', 'Kahu' and 'Honi' were all awarded to the tougher types.

Another person to receive a notable proportion of tough dogs was Kylie. In contrast to Rangi's dogs, however, the names for these dogs - with a few exceptions (Ratface, Killer, Rogue) - were no different to the names provided for the dogs of other breeds selected for Kylie. For example German Shepherds were called 'Betsy', 'Minder' and 'Sheba', Rottweilers were named 'Major', 'Girl' and 'Rocky' and Dobermans were called 'Spot', 'Stent' and 'Arny'. The main type Kylie received was the medium to large family dogs which had with predominantly 'feminine' names such as 'Cassie', 'Honey' and 'Sheila'. Randomly bred dogs tended to have basic names such as 'Scruffy', 'Judy' and 'Lucky', and examples of the names given to the smaller family dogs included 'Kitty', 'Thomas' and 'Pepie'. One of the themes which appears intermittently throughout this study is that of the person's occupation being reflected in their animal's name. Kylie was reported to be unemployed and was assigned a Labrador called 'Benefit'. She also received two dogs called 'Jason', which may have been prompted by the Kylie and Jason characters of the Australian soap opera Neighbours.

The occupational theme also appeared when names for dogs given to Simon are considered. He received a Border Collie called 'Sheckle' and a German Shepherd called 'Budget'. The main type of dog chosen for Simon was the medium/large sized family variety with Labradors and Retrievers alone making up 38.8% of the total. The most popular names across all the types of dogs given were, with the exception of a Poodle named 'Killer' and a German Shepherd called 'Butch', nice middle class human or pet names such as 'Mac', 'Sandy', 'Toby' and 'Peppermint'. Nearly all (23)

the tough dogs allotted to Simon were German Shepherds and they had names like 'Prince', 'Bud' and 'Ralph'.

A religious theme emerged when Elizabeth's dog selections were named, apparently her husband's occupation overruled her own in participant's minds. She received dogs called 'Jonah', 'Moses', 'Goliath', 'Satan', 'Solomon' and 'Joseph' (2). With respect to breed types, she too was mainly given the larger family dogs. Corgis and Poodles were especially well represented breeds, all but two of the Corgis having human names, whereas the Poodles had a mixture of human (Tilly, Tiffany, Jackie) and animal names (Cuddles, Pompom, Bubbles). Elizabeth was one of the stimulus persons who was given few of the tougher breeds and these dogs had names such as 'Donut', 'Sticks' and 'Bruno'.

The predominant type of dog for Martin was the larger family variety, and these received names very like those chosen for Simon. He received very few tough dogs and these were called 'Sasha', 'Rangi', 'Shirley' and 'Bully'. The majority of the names chosen for Martin's dogs were masculine and human, with many of them being traditional names such as 'Charles', 'Sigmund' and 'Roderick'.

The occupation of John the farmer had an overwhelming influence on the participants selections of dog breeds and names. He received more working dogs than all of the other stimulus persons put together and most had short, masculine names such as 'Bob' (4), 'Sam' and 'Dog' (7) - the latter was possibly precipitated by the character in Footrot Flats. John's sporting interests were represented by dogs called 'Front Row', 'Rugby' and 'ZinZan', but his occupation was the main influence on the selection of names for dogs of all breeds, short, typical working dog names predominating.

The final two stimulus persons, Edith and Frank received the smallest number of dogs overall. With the exception of one Rottweiler called 'Butch', Edith was assigned small family dogs such as Corgis and Terriers with fairly even proportions of human and

Table 5.5:
Percentages of human and animal names for cats given to nine target persons

Target Person	Named Cats	Percent Human names	Examples of human names	Examples of animal names
Aroha	77	24.7	Hemi Lucy Susie	Fluffy Tinker Puss
Martin	65	49.2	Alfred George Rupert	Sooty Socrates Timy
Simon	29	27.6	Doris Sam Lisa	Puss Truffels Speedy
Elizabeth	58	46.6	Milly Jemima Toby	Kittie Moses Fluffy
Edith	111	46.8	Bernard Hamish Polly	Fluffy Blackie Tiger
Frank	34	64.7	Sebastian Fred Alice	Cirrus Spot Buster
John	7	71.4	Tom Zinzan Celia	Pooch Dickweed
Rangi	19	21.1	Tom Sasha Johnny	Spew Zeppelin Pin
Kylie	56	48.2	Jason Jasmine Benjamin	Puss Porky Ginger

animal names. Some of the less ordinary names were given to Edith, 'Mai-Ling', 'Anton', 'Precious' and 'Felicity' although the ubiquitous pet names appeared also, e.g 'Fluffy' (2), 'Prince' and 'Rex'.

Of all the stimulus persons, Frank was given the smallest proportion of dogs and those chosen for him were small to medium sized and most had human names. Examples of Frank's dogs are a Fox Terrier called 'Basil', a Retriever called 'Max', a mongrel called 'Flag' and a Corgi called 'Nicki'.

Feline names

Table 5.5 presents a summary of the cats names in a similar format to those for the dogs selected for the target persons. Just as the dog types selected for the stimulus persons could be divided into groups, so were the cat breeds. The distribution of pedigree and domestic breeds varied across the stimulus persons. The vast majority of cats Aroha received were of the domestic variety (90.1%) and there was no apparent difference between the names chosen for these animals when compared with the pedigrees. Most of the names were very conventional cat names such as 'Fluffy' (4), 'Tiger' (3) and 'Puss' (4) and when human names were chosen they were predominantly female, 'Samantha', Harriet' and 'Leigh'. Maori names featured again (6.5%), examples being 'Rewi' and 'Hapai'. Only a few less ordinary names such as 'Cactus', 'Sly' and 'Pumpkin' emerged, all of which were assigned to domestic cats.

Martin was provided with a bigger range of cats as well as more imaginative names. The majority of his cats were pedigrees (60%), and most had sophisticated or unusual names. Examples of this group were Siamese called 'Hamlet', 'Jah' and 'Simon', Persians by the name of 'Moka', 'Hobbit' and 'Franklyn' and Burmese called 'Desmond', 'Khan' and 'Chaung'. The only other pedigree breeds represented were an Abyssinian called 'Charlie' and a Birman, 'Samantha'. The domestic short and longhaired cats, conversely, were typified by names such as 'Tiddles', 'Sam' and 'Fluffy' although the occasional more interesting name appeared, 'Jesus' and 'Chaz', for example. The only other theme seemed to be the influence of Martin's occupation

with a few learned felines being named 'Socrates', 'Scholastica', 'Aristotle' and 'Cleopatra'.

Simon was given one of the smallest collections of cats, the majority being of the domestic type (65.5%). With respect to names, most were common or garden cat names regardless of the breed in question. Typical examples include 'Fluffy' (3, again!), 'Sally' and 'Cleo' but a few more interesting ones were 'Alouisious', 'Poof' and 'Adena'.

Of the cats selected for Elizabeth, just over half were pedigrees (53.4%) with a wide variety of breeds. The names chosen for the pedigree cats were not obviously different to those for the domestic varieties, most being ordinary human or cat names such as 'Sophie', 'Kitty', 'Ginger' and 'Jemima'. The biblical theme apparent in the selection of dog names also applied to some of the cats with names like 'Moses', 'Jesus', 'Mary', 'Samson' and 'Gabreal'. These names were applied to both domestic and pedigree cats.

Edith received the largest number of feline companions, slightly more of which were domestic (58.6%) than pedigrees. The names for the domestic cats were evenly split between human and animal names, whereas more of the pedigree cats (58.7%) were given animal names. The type of cat, however, did not appear to influence the kind of names selected for it. For example the more unusual names, were assigned as follows; domestic cats were called 'Carsiopia', 'Nankipoo', 'Cealie' and 'Moon', a Persian, 'Galileo', an Abyssinian 'Simkin' and Burmese 'Twiggy' and 'Miko'. The vast majority of the names selected for Edith's cats were very ordinary and repetitive; 'Fluffy' (15), 'Kitty' (3) and 'Tiger' (2) for example. Another recurrent theme was that many of the chosen names, whether human or animal, ended in 'y' or 'ie' (Libby, Smokey, Sooty, Suzie, Patsy, Algie, Harry, Betsy, Millie, Jinny, Nellie, Elsie ...).

Frank's felines were predominantly domestic (61.8%) and approximately two thirds of both groups had human names. There was a wide range of types within the human

and the animal names, human names ranged from 'Fred' the tabby to 'Cleopatra' the Siamese while animal names included 'Spirit' for a domestic cat and 'Pansy' a British blue.

Nearly all of the few cats given to John were domestic cats (85.7%). With respect to names, the Siamese was called 'Celia' and the others called 'Nicky', 'Tom', 'Pooch', 'Sammy', 'Dickweed' and 'Zinzan' - the rugby theme emerging in the cats names also despite the small numbers.

Another person to be allotted relatively few cats was Rangi and only a few of these were pedigrees. Some of the names selected for Rangi's cats reflected his interest in drinking (Bourbon and possibly Spew) and another his occupation, 'Spanner'. Overall he had some of the more unpleasant examples such as 'Fart' and 'Scrounger', but also some unusual ones, 'Zeppelin', 'Nashi' and 'Maverick'. 'Hori' was the only Maori suggestion.

Finally, Kylie too was given many more domestic cats (88.9%) than pedigrees, and the pedigrees she did receive had fairly ordinary names such as 'Peter' and 'Samantha'. In fact, with the exception of a domestic cat called 'Mestophalies' and a Siamese called 'Death', interesting names were conspicuous by their absence. Choices included 'Rosie', 'Missy', 'Crystal', 'Tom' and 'Fluff'.

Names of Other Pets

With the exception of Frank, the stimulus persons were mainly allocated cats and dogs as companions, consequently the rest of the animals have been combined to form a group called 'other' pets. A summary of the names for animals other than cats and dogs appears in Table 5.6.

The total number of pets other than cats and dogs given to Aroha was 17 and of these 15 were given names. One was a Maori human name (Kiri) given to a guinea pig, other human names (5) included 'Sam', 'Sammy', 'George', 'Harry' and 'Cleo' and

Table 5.6:
Percentages of human and animal names for the other pets given to nine target persons

Stimulus Person	Named Other Pets	Percent Human Names	Examples of human names	Examples of animal names
Aroha	15	40.0	Sam Harry Kiri	Sliver Cat Splash
Martin	12	75.0	Cecil Oscar Fred	Bubbles Spud Boo Boo
Simon	10	40.0	Alice Penny Marge	Eepp Beauty Flip
Elizabeth	19	63.2	Polly Doug Isaac	Squeaky Flipper Tweety
Edith	31	48.4	Peter Gloria Freda	Bluey Birdie Jaws
Frank	88	56.8	Fred Pandora Gemma	Sausage Screechy Dash
John	17	29.4	Miranda Bob Maggy	Anon Red Rover
Rangi	18	27.8	Fred Bart Charlie	Kai Spike Floppsy
Kylie	31	45.2	Shane Gilbert Dorothea	Ba Ba Lucky Tweetie

were predominantly male names. This group involved birds and fish only. Examples of the nine animal names are 'Fluffy', 'Goldie', and 'Cat', some were named after characters such as 'Sooty' and 'Bugs' (2) and others were named for their species characteristics, for example goldfish called 'Splash' and 'Sliver' and a rabbit called 'Floppy'. There do not appear to be any particular trends in the names for the pets selected for Aroha except that, like Rangi, her Maori name elicited some Maori names for pets.

Martin was allotted 13 other pets and all but one of these were provided with a name. Human names made up nine of the 12 and all were male. This group included a turtle called 'Harry', birds called 'Cecil', 'Oscar', 'Joey', 'Fred' and 'Dickie' and fish called 'Perry', 'Bob' and 'Zac'. The three animal names were given to fish; 'Spud', 'Bubbles' and 'Boo Boo'. As with Aroha the most interesting pet names appear to have been given to fish although an element of humour was present with 'Dickie' bird!

The less mainstream animals Simon received included birds, fish, a goat and a pig, and of the total 14, ten were given names. The four human names were for a goat (Alice), the pig (Marge) and two birds; a budgerigar called 'Sam' and a cockatiel called 'Penny'. The other birds, 'Chatterbox', 'Eepp' and 'Sweetie' and the goldfish 'Flip', 'Beauty' and 'Jaws' all received animal names

Elizabeth was given 20 pets other than cats and dogs and 19 of these were named. The animals with human names (12) constituted 8 of the 12 birds and included 'Polly', 'Percy', 'Johnny' and 'Mary'. The other animals with human names were a horse called 'Isaac', a turtle called 'Sylvia', a fish called 'Doug' and a rabbit called 'Jemima'. Animal names (7) were given to the frog (Limp), birds (Tweety (2), Squeaky and Birdie), a rabbit (Fluffy) and a goldfish (Flipper).

Edith was a popular person to give pets other than cats and dogs to but had the smallest range of animals, only four. Birds and fish were the only other animals given

to her and of these only one fish remained unnamed. The predominant breed thought to be appropriate for Edith was the budgerigar of which she received 17. Eight of them had human names; 'Peter' (2), 'Georgie', 'Freda', 'Claire', 'Arthur', 'Harriet' and 'Gloria'. The pet names for the budgerigars included 'Bluey', 'Smokey', 'Beauty', 'Cheeky-Boy', 'Monty', 'Birdie', 'Doc', 'Tweety' and 'Beakie'. The other birds included canaries called 'Tweety' (2), 'Sparky', 'Lucy', 'Charlie', 'Sunny' and 'Fred', a finch called 'Joe', a cockatoo, 'Georgie' and an undefined bird called 'Fred'. Three of the four fish were goldfish, called 'Goldfish', 'Nathan' and 'Flip', and a guppy called 'Jaws'.

Frank received the highest proportion of pets other than cats and dogs (105) 88 of which were given names - 50 human and 38 animal. The most frequently allocated species within this group was birds (45) 26 of which had human names (e.g. Frank, Charlie, and Polly), with the majority being male. The remainder had animal names (e.g. Tweeter, Pick, and Tricky Boy). Fish (30) were the next most popular type of pet for Frank and of these, 14 had human names (e.g. Fred (5), Elle, and George) and 16 had animal names (e.g. Paperwork, Dash, Lightening, Jaws (3)). The name 'Paperwork' is presumably related to his former employment. The other named animals were rats (Hercules, Gemma, Freddy, Tim and George), turtles (Flash, Arthur and Leonardo), hamsters (Doogel, Bob and Fred), a guinea pig (Sausage) and a snake (Sid). Interestingly nearly all the less common pets were given male human names. The common theme for Frank's potential pets was that they were a less conventional collection than those suggested for the other stimulus persons, and that the majority had male human names, 'Fred' being the most popular choice.

John the farmer also received a reasonable variety of animals but with the exception of dogs (80%), in far fewer numbers than Frank. Only 20 pets other than dogs and cats were selected. Of these, 17 were allocated names only five of which were human and 12 pet. The human names were attached to a bull (Bob), a sheep (Rodger), and three goats (Miranda, Graham and Maggy). The animal names were given to fish (Anon, Rover), horses (e.g. Bronson, Blue and Maple) and another goat (Lonely).

Animals other than cats and dogs chosen for Rangi numbered 22 and 18 of these were named, five with human names and 13 with animal names. Of the 11 fish recommended, the three with human names were goldfish called 'Bart' and 'Jeremy Radcliffe the third' (!) and an axolotyl called 'Jose'. The other fish included goldfish called 'Fishface', 'Glub' and 'Jaws', a piranha also called 'Jaws' and an axolotyl by the name of 'Pedro'. Both the birds suggested for Rangi were budgerigars, one called 'Fred', the other 'Chook' and there was also a mouse called 'Sucker', a snake called 'Crusher', a lizard called 'Spike', a rat called 'Charlie' and a turtle called 'Kai'. Rangi therefore only received one animal with a Maori name and most of the names chosen for his pets were animal names with 'Jaws' (3) being the most popular.

Finally, Kylie was allocated a wide range of pets 31 of the 34 pets other than dogs and cats receiving names. Five of the seven fish had human names; an axolotyl (Max), three goldfish (Dorothea, Charles and Gilbert) and a tropical fish (Harry). The other goldfish were called 'Lucky' and 'Splash'. All four horses had animal names, 'Tansy', 'Prancer', 'Blackie' and 'John Peel', whereas all four rabbits had human names, 'Seamus', 'Hazel', 'Tammy' and 'Elvis'. With respect to the birds, there were four budgerigars called 'George', 'Pretty Boy', 'Tweetie' and 'Jesamine', three canaries called 'Popeye', 'Butter' and 'Chirpy', a cockatiel called 'J.R.' and a chicken called 'Coo-ey'. There were two hamsters called 'Sleepy' and 'Mr Bolger', a lamb called 'Ba-Ba', a cow 'Myrtle', a tortoise 'Shane', a guinea pig named 'Pepper' and a goat called 'Nanny'.

When all the 'other' pets allocated to female stimulus persons are combined and averaged, 49.2 percent had human names and 50.8 percent had animal names. The same procedure for the male stimulus persons revealed that 45.8 percent had been given human names and 54.2 percent animal. It would appear therefore that there was a slight tendency for males to receive more pets with animal than human names. The combined summary shown as the total in Table 5.6, however, shows that there is virtually no difference in the numbers of 'other' pets with animal and human names.

Summary

In conclusion, the names given to the pets in this study varied according to the characteristics of the stimulus persons as well as the breeds they were associated with. The sex, occupations and interests of the characters were reflected in a number of the names, and this information, in connection with the breeds they were assigned, adds to the general themes suggesting how the individuals were perceived. These ideas will be considered further in Chapter 7.

CHAPTER 6

Study Three: Gender and Species Stereotype Study

Method

Participants

Five hundred and forty two first year students enrolled in a business studies paper at Massey University took part in this experiment. Fifty four percent were male and 46 percent female with an age range of 14 to 47 years ($M = 20.8$, $SD = 5.3$). The students were initially divided into three groups on the basis of lecture streams, and each group was divided into two on the basis of seating position within the lecture theatre. This assignment process produced six groups ranging in number from 64 to 134.

Materials

A slide projector and projection screen were used to present two of a total set of six coloured slides to each participant group. The slides pictured a man alone, the man with a dog and the man with a cat, a woman alone, the woman with the dog and the woman with the cat. In each slide as many features as possible were held constant: the individuals, the background, the camera settings and the positioning of the stimulus persons and animals. A mixed breed dog (Weimaraner/Labrador) was chosen to minimize the effect of previous experiences with dogs of a particular breed. The cat was a purebred Abyssinian, chosen for his amiable disposition and willingness to be held for the duration of the photographic session. Neither of the stimulus persons owned either animal to eliminate any perceptible difference in familiarity with them.

Measure

Forty descriptors of psychological attributes were selected from a large pool of adjectives which had been generated in study one by participants who had been instructed to match photographs of people with those of cats and dogs, and to provide written explanations of their choices. Physical descriptors were discarded, leaving only

97

those words used to describe personality traits. The resulting 166 words were then presented to 50 undergraduate students who judged the suitability of each word for describing a person, with or without an animal, in a photograph. The words that were considered to be suitable by at least 60 percent of the raters were selected to create the list of 40. Four were subsequently dropped, following the analyses described below, and the remaining 36 are presented in Table 6.2. Each adjective was rated on a five point Likert type scale ranging from 0 (not at all) to 4 (extremely), indicating how well each word applied to each stimulus person. A copy of the questionnaire can be found in Appendix E.

To help identify clusters of adjectives and thus subscales, the data were subjected to principal components analysis (PCA) using a range of extractions and rotations. These analyses were conducted separately for the ratings of the male and female target person. As it was not expected that a simple structure would emerge, the PCA was used only as an exploratory technique to examine the way in which the items clustered. The themes arising from the four emergent item clusters were consistent enough across the male and female target persons for four subscales to be created by summing the item ratings contained in each cluster. The respective content of the four clusters led to their being labelled as: 'Nice', 'Style', 'Action' and 'Nasty'. The subscale scores were all relatively normally distributed with the exception of 'nasty' which was positively skewed in both the male and female scales. A list of the items comprising each of the subscales appears in Table 6.2. The alpha reliability coefficients for the female subscales were: 'Nice' .85, 'Style' .83, 'Active' .83 and 'Nasty' .80. For the male subscales the reliability coefficients were: 'Nice' .82, 'Style' .83, 'Active' .82 and 'Nasty' .75. These analyses thereby demonstrated that the subscales exhibited good content validity and internal consistency.

Procedure

For the slide study, subjects were initially told that the study was concerned with person perception. After reading the information sheet and signing a consent form, they were told to rate the stimulus persons on the adjective list using the scale

Table 6.1:
Differences in mean subscale ratings of the male and female target persons among the three viewing conditions

		Viewing Conditions			t values		
Female		Cat (C)	Dog (D)	Alone (A)	C vs D	D vs A	C vs A
Nice	M	2.60	2.86	2.78	-3.84***	1.44	-2.69**
	SD	0.57	0.59	0.57			
Style	M	1.64	1.88	1.74	-3.66***	2.37*	-1.53
	SD	0.50	0.58	0.60			
Action	M	1.41	2.10	1.56	-8.53***	7.94***	-1.86
	SD	0.68	0.70	0.68			
Nasty	M	0.83	0.72	0.98	1.40	-3.96***	-1.87
	SD	0.71	0.66	0.68			
Male							
Nice	M	2.97	2.70	2.78	4.29***	-1.37	3.67***
	SD	0.53	0.50	0.49			
Style	M	2.00	1.55	2.01	6.95***	-7.05***	-0.07
	SD	0.53	0.57	0.53			
Action	M	2.11	1.76	2.32	4.32***	7.13***	-3.19**
	SD	0.69	0.68	0.67			
Nasty	M	0.62	0.77	0.94	-2.28	-2.30	- 5.40***
	SD	0.60	0.60	0.62			

* $p < .05$ ** $p < .01$ *** $p < .001$

NB: *Ns* for groups rating male and female targets in different viewing conditions are:
Female (C) 115; (D) 206-208; (A) 205-207. Male (C) 204-205; (D) 110-114; (A) 207-210.

provided. Participants were asked to use their first impression and not to spend too much time thinking about each descriptor. Each group saw slides of a man and a woman in sequence. Two groups viewed the woman with the dog and the man with the cat, another two groups saw the man with the dog and the woman with the cat and the final two saw the target people alone. The two groups in each of these three pairs had the slides presented in reverse order to counteract any rating bias resulting from participants seeing one slide before another. The data were subsequently re-organised to produce six sets of ratings, one for each of the slides. On completion of the task the subjects were debriefed by being given further information about the study and a chance to ask questions.

Results

The results relating to the two hypotheses for this study are presented in Table 6.1. The first hypothesis was that both the man and the woman would be perceived more favourably when accompanied by an animal. This implies that there should be significant differences in mean ratings between the cat and alone (C vs A) and the dog and alone (D vs A) viewing conditions for both target persons across all four subscales. Independent t-tests were performed to compare appropriate pairs of means and since these were planned contrasts, no adjustment for multiple comparisons was used.

The t-test results in Table 6.1 provided little support for this hypothesis. The woman was rated as nicer alone than with the cat, but not nicer alone than with the dog. She was seen to be significantly more stylish and active with the dog, but not with the cat, than when alone. She was also perceived to be less nasty with a dog than when alone, but no differently with a cat than when alone. Thus there was no general enhancement effect for the woman when both animal species are considered.

The comparisons of ratings of the man again provided little support for the hypothesis. He was perceived to be nicer with the cat, but not with the dog, than when alone. In

Table 6.2:
Differences in mean ratings of items involved in significant subscale contrasts

'Nice' Items	Cat[a] vs Dog[b] M	Cat[a] vs Dog[b] F	Dog[a] vs Alone[b] M	Dog[a] vs Alone[b] F	Cat[a] vs Alone[b] M	Cat[a] vs Alone[b] F
Cheerful	+	−				−
Down to Earth	+	−				
Warm	+				+	
Playful	+	−			+	
Natural	+	−				
Relaxed	+	−				−
Likes Animals	+				+	+
Loving	+				+	
Easy going			−			−
Casual						
Gentle	+				+	
Happy	+	−				−

'Action' Items	Cat[a] vs Dog[b] M	Cat[a] vs Dog[b] F	Dog[a] vs Alone[b] M	Dog[a] vs Alone[b] F	Cat[a] vs Alone[b] M	Cat[a] vs Alone[b] F
Active	+	−	−	+	−	
Sporty		−	−	+	−	
Outdoor			−	+		
Energetic	+	−	−	+	−	
Lively	+	−	−			−
Athletic	+	−	−	+		

'Style' Items	Cat[a] vs Dog[b] M	Cat[a] vs Dog[b] F	Dog[a] vs Alone[b] M	Dog[a] vs Alone[b] F	Cat[a] vs Alone[b] M	Cat[a] vs Alone[b] F
Upper class	+	−	−	+		
Confident	+	−	−			
Professional	+	−	−	+		
Proud	+	−	−			
Dignified	+		−			
Sophisticated	+	−	−			
Self-assured	+	−	−			
Trendy	+		−			
Masc/Fem	+		−			
Stylish	+		−			
Interesting	+	−	−			
Attractive	+	−	−	+		

'Nasty' Items	Cat[a] vs Dog[b] M	Cat[a] vs Dog[b] F	Dog[a] vs Alone[b] M	Dog[a] vs Alone[b] F	Cat[a] vs Alone[b] M	Cat[a] vs Alone[b] F
Uncaring				−		−
Unkind				−		−
Unhealthy				−		−
Unpleasant						−
Discontented				−		−
Unfriendly						−

+ Significant t-value (p < .05) where a > b   M: male
− Significant t-value (p < .05) where a < b   F: female

contrast he was seen as more stylish alone than with the dog and, interestingly, more active alone than with either of the animals. The man was also considered to be less nasty with the cat, but not the dog, than when alone. Again, the presence of animals produced no overall enhancement effect on perceptions of the man.

The second prediction was that gender and species differences would interact. The expectation was that the woman would be rated more positively with the cat and the man with the dog. The results in Table 6.1 (C vs D), however, suggested that the woman's image was enhanced more by the presence of the dog than the cat. She was perceived to be nicer, more stylish and more active with the dog than with the cat. Conversely, the man was seen more positively with the cat than with the dog as indicated by higher ratings of niceness, style and action.

In order to look more closely at this unexpected pattern of findings, the individual items comprising the subscales were examined. Independent t-tests were performed on each of the items involved in those subscales which had exhibited significant differences between conditions. A summary of these t-test results appears in Table 6.2. Overall, they show that nearly all of the male subscale items are making a significant contribution to the relationships previously found at the subscale level. Fewer of the female items are contributing significantly, especially within the style subscale.

If the influence of each of the companion animal species is considered independently, it can be seen that the cat has an enhancing effect on the image of the man. In comparison with the dog, the cat elicits significantly higher ratings on all the Style items and all but two of the Nice and the Active items. When compared with the ratings of him alone, however, a pattern emerges such that he is considered to like animals more as well as being warmer, more playful, loving and gentle. He was also perceived to be consistently nastier alone than with the cat. Interestingly, the cat had the opposite effect on ratings of the woman, in that it appeared to detract from rather than enhance her image. She was seen to be more cheerful, relaxed, easy going and happier alone than with the cat, although she was perceived as liking animals more when seen with the cat.

In the other conditions the woman was seen more favourably with the dog than with the cat. She was considered to be more cheerful, down to earth, playful, natural, relaxed, easy going and happier with the dog. With all of the Action items and most of the Style items she was rated more highly with the dog than with the cat. With respect to the nasty items, she was considered to be more uncaring, unkind, unhealthy and discontented alone than with the dog. The presence of the dog generally did less for the man's image than either the cat or being alone. He was seen to be more active on all but one of the items, and consistently more stylish, alone than with the dog.

Exploratory analyses were conducted to examine whether the above results were confounded by the age or sex of the raters. Firstly, for the age analysis, ANCOVAs were run using the eight (male and female target) subscales as dependent variables, the viewing conditions as an independent variable and age as a covariate. Age did not change the pattern of results found previously in any of the analyses. Secondly, for the sex analysis, sex was included in ANOVAs as a second independent variable in addition to viewing condition, and the results revealed that for only one variable, the male 'nasty' subscale, was there a change to the previous result ($F = 4.11$, $p < .05$). Examination of the group means for this analysis showed that male participants' nastiness ratings of the man were higher than females' ratings in each of the three conditions. These results in general reassure that the main findings of this study were not confounded by the age or sex of the participants.

Although the four subscales were treated as if they were separate, most of them were significantly correlated (r's range .02 to .62) raising the further possibility that the differences in subscale means were confounded with each other. Consequently, ANCOVAs were performed to investigate this type of confounding. Where two subscales were correlated, mean differences on the first were reanalysed using the second as a covariate. In two of the analyses (style with action as a covariate, and style with nice as a covariate - both for the female target) the effects were reduced to borderline significance, but in general the results remained unchanged. This suggests

that the findings for individual subscales were not confounded with each other despite their inter-correlations.

In summary, the results of this study provide evidence for the existence of stereotypes about person-pet combinations. They also suggest that these stereotypes involve sex and species information and that being accompanied by a different animal can influence the way in which a person is seen. Interestingly, although the results do not discount the notion of female with cat and male with dog stereotypes, they do suggest that people are seen more favourably in the opposite configurations of female with dog and male with cat. These ideas will be discussed in the following chapter. A paper based on these findings is currently in press with Anthrozoös.

CHAPTER 7

Human-Animal Stereotype Studies

Discussion

The preceding studies had two main objectives. The first was to see whether empirical evidence could be found for human-pet stereotypes, the second was to discover which human and animal characteristics they entailed. Previous studies have attempted to classify pet owners in terms of their attitudes towards animal ownership in general or towards animal of particular species (Allen et al., 1982; Bergler, 1988, 1989; Wilbur, 1976), or have attempted to distinguish between personality characteristics of owners of various species (Kidd & Kidd, 1980). However, the present set of empirical studies is the first, to the writer's knowledge, to focus on human-pet stereotypes as such. The idea that stereotypes are used in person perception is well accepted, and it is logical to assume that the aspects of a person that are involved in the perception process can be broadened to encompass a non-human companion, as suggested by Lockwood (1985). Additionally, it is likely that different animals help to create different images of a person, which makes the notion of a variety of stereotypes of particular person and pet combinations feasible. The three studies in the first part of the thesis were thus used to elicit and define stereotypes of pet-owner combinations as an extension of the traditional use of stereotypes.

Affirmative evidence of stereotypy was provided in the photo matching study by clear trends in the pairing frequencies for nine of the ten target persons. The level of agreement on the suitability of particular combinations was particularly pronounced in certain cases, for example Person G was matched with the Rottweiler by nearly half of the participants but with the Maltese Terrier by none of them. The existence of stereotypes was also supported by the general consistency with which species, and in some cases breeds, were chosen for the persons profiled in the pet selection study. The

103

changes in ratings of the target persons in the gender and species stereotype study when viewed with different animals provided further evidence.

Having found support in all three studies for stereotypical perceptions of person-pet combinations, the second objective was to investigate the nature of these stereotypes, particularly with respect to the gender of the owner and the species of the pet. Two of the studies achieved this through participants' perceptions of people and pets in photographs. Person perception research has tended to ask participants to perform categorization tasks. For example, face studies have required participants to group photographs according to trait, character or physical similarities (Brewer & Lui, 1989) or similarity of physiognomy and personality (Secord, Dukes & Bevan, 1954; Secord & Muthard, 1953). The current photo matching study adopted a different approach to eliciting stereotypes. Rather than requiring classifications or ratings of the people concerned, the task was simply to match people with animals and it was the reasons supplied by participants as they performed the task that shed considerable light on the characteristics they were using to match the photographs. This technique allowed participants freedom to define the specific human and pet attributes they had focused on in performing the task, and thus provided a more spontaneous set of (stereotyped) characteristics. The participants in the photo matching study were given four examples of the types of characteristics they were being asked to describe, all of which were physical. The number and variety of physical and psychological attributes generated in this study suggests that most participants followed the task instructions as intended and described the person and pet characteristics they actually used in performing the matching task. The similarity between the types of reasons generated about the target persons' physical and psychological attributes in this study and those used by researchers in previous person perception studies, provides validation for the categories employed in social perception research. References to the target persons' age and sex were frequent, in accordance with Brewer and Lui (1989). Aronson (1992) suggested that not only are perceptions influenced by target persons' age, sex and race (Fiske, 1993) but also by their physical attractiveness and social status. Evidence of this was apparent in the comments concerning physical features and overall attractiveness, and

financial position with respect to being able to afford particular animals which were perceived to be costly and/or status symbols such as Siamese cats and Greyhounds.

In most cases, pets for a specific target person were chosen for quite specific reasons which were agreed upon by many of the participants. Physical characteristics of the target persons, such as age, appeared to influence pairings. The two older women, Persons A and H, were perceived to be alike in terms of their being still active and interested in their appearance but needing less active, smaller animals. The physical similarity theme emerged quite strongly with these women also, in that they were consistently paired with animals whose colouring matched their own with respect to hair and/or clothing. Attributions about occupation or personality were also evidenced. Person C being nominated a farmer generated associations with the working dog, and Person G's slightly unconventional image was interpreted as being representative of arrogance or macho-maleness, in which case he was linked predominantly with the Rottweiler, or as arty, and sensitive, in which case the domestic cat was considered appropriate.

Perception is socially defined in that it combines the perceiver's personal theories with the cues provided by the situational context. In the photo matching study the latter was influenced not only by the fact that visual information was the only type available, but also by the context of the task. In order to complete it, participants were only required to concentrate on, and write about, those aspects of the target persons that were associated with animal ownership. The outcome, however, was the participants' perceptions of both pets and people, embedded in their reasons for the pairing decisions. Perception of an actual person is influenced by a number of factors: the person in question, the behaviour of that person and the context or situation. However, when photographs are being used as stimuli, unless the target person is photographed in action, the behavioural and many of the contextual cues are absent. In the present study the target persons were photographed against a plain backdrop and were wearing their own clothes. Some were more 'posed' than others, thus displaying behavioural cues by way of body language, but the contextual and behavioural cues were in the

main absent. However, the animal photographs varied in background thus providing situational information for the perceivers. Indeed the setting did play a part for some participants, as was illustrated by comments about the orchard background for the Labrador and the wooden house behind the Australian Terrier. Despite the relative absence of information about the target persons, the participants were still able to produce likely combinations of pets and people, with a high level of agreement, from a restricted pool of photographs.

The gender and species stereotype study also presented limited information about two target persons, either alone or in the company of a cat or a dog. Again participants were able to form impressions of and make judgements about these people, by attributing personality characteristics in the form of descriptive ratings. This study endeavoured to test the gender-species component of human-pet stereotypes by presenting a male and female target person in what were intended to be conventional and less conventional combinations. The results showed that the effect of the presence of an animal on how its owner is perceived varies according to the pet's species and the owner's gender. However, the specific effects do not appear to conform with conventional man-dog and woman-cat stereotypes, as predicted. In this study the female target person was considered to be nicer, more stylish and more active with the dog than with the cat. Conversely, the male target person was viewed as nicer, more stylish and more active with the cat than the dog. Although both were seen as less nasty with either the dog or the cat then when alone, there does not seem to be a general enhancement effect of animal presence regardless of species, as reported by Lockwood (1983) and Rossbach and Wilson (1992). This set of results was unexpected, but it exhibits a coherent pattern which might be explained by recent changes in gender stereotypes.

Sex-role stereotype research received increasing attention in the 1970s, at which time there was strong agreement about the existence of stable and differing characteristics for men and women (Broverman et al., 1972). Many of the adjectives used in the gender and species stereotype study provide examples of these traditional 'male' and

'female' descriptors. Traditional male adjectives include confident, self-assured, down to earth, and active, whilst female descriptors include warm, loving and gentle. The specificity hypotheses, associating women with cats and men with dogs, were guided by these traditional gender stereotypes.

The actual ratings of the target people with a cat or a dog deviate from these traditional stereotypes, and might suggest some shifting of gender attributes. For example, the woman appeared more confident, professional, active, and down to earth in the presence of a dog rather than a cat. In contrast, the presence of the cat as opposed to the dog made the man appear more warm, loving, gentle and natural. This is similar to Friedmann and Lockwood's (1990) finding that men were rated as more nurturing when seen in the Animal Thematic Apperception Test scenes where there was an animal present. In the present study it was interesting that for the male target person these types of attributes appeared to be added to the traditional male ones, whilst for the woman there seemed to be a replacement of traditional female attributes with male ones. These shifts are consistent with findings from stereotype research since the 1980s. For example Ashmore (1981) reported that distinctions between 'male' and 'female' traits were becoming less pronounced, and that female traits in particular were difficult to define and measure. These findings were interpreted as reflecting changes in societal views of gender roles and the diversification of female images portrayed in the media.

A change in perceptions of young women may also explain the lack of agreement on an appropriate animal for Person D in the photo matching study. The absence of a significant pairing trend may not have demonstrated an absence of stereotypical views so much as the presence of multiple stereotypes. One of the suggestions in the introduction was the demarcation between individual, social and multiple stereotypes (Stewart et al., 1979). These authors suggested that a multiple stereotype contains two socially held but opposing stereotypes about the same theme. They proposed that the presence of multiple stereotypes indicates that a social role is in transition. This provides a possible explanation for the lack of a consistent trend in the matching of

pets with Person D. As a young woman she is likely to elicit a number of different stereotypes concerning her roles as a student, career woman, girl, and young woman alone. Of all social roles, it is probably the young woman's role that is currently least well-defined, and if she was perceived as differently as the comments suggest she was, then it would make sense that she was matched with different animals depending on the role she was perceived to occupy. This was evidenced by her links with the Labrador and the Border Collie on the basis of her youth, vitality and friendliness, the Maltese Terrier as a result of her femininity and 'little girl' image, the Old English Sheepdog or Rottweiler because of her casual clothing and perceived need for a bigger animal and the cats because of her unstable domestic situation, lack of time as a result of being a career woman and being perceived as a 'cat person'.

Brewer and Lui's (1989) notion that age and sex are primary features of person perception was borne out by the number of age related comments generated by the photo matching study participants, but less so by the frequency of sex related comments. With respect to appearance, there were more statements about clothing and facial features than there were about gender. However, Brewer's (1988) model of the structure of person categories provides a possible explanation for this observation. The model proposes that person types are nested within the primary dimensions of age and sex. An example they provided was that of social roles such as occupations. The occupation of a person and the traits and features associated with that person type will differ, in many cases, depending on the sex of the person. The results of the photo matching study provided evidence of this in that the few occupations generated by the participants tended to be traditionally gender specific. Person C, in his 'Driazabone' coat for example, was predominantly viewed as a farmer. The only other person to be described as a farmer was also male and was considered to be retired as he was an older person. Person E was considered to be a Greyhound racer, as were two of the other men, but none of the women. There is evidence that the sex of the target person influenced the selection of a suitable pet, as well as other attributed characteristics. However, gender may have not have been mentioned as frequently because it was such an available piece of information, unlike age which, although generally agreed

upon, was open to interpretation and consequently needed to be defined if it was considered to be important.

There is also evidence to support Brewer and Lui's (1989) other proposal, that subcategories make up the basic categories people use in their perceptions of others. These consist either of combinations of the basic categories such as age and gender, or of specific types within a basic category, such as blacks or grandmothers. The present findings provide support for both these ideas with the target persons being described in terms of category combinations, i.e. an older woman, or a type within a category, i.e. a grandfather. Both of these distinctions enabled participants to define the target persons in such a way as to facilitate the matching process and provide rationales for the resulting combinations.

In accordance with the gender-species stereotype, it was predicted for both the photo matching study and the pet selection study that the female target persons would be associated with smaller dogs and cats and males with larger dogs. In the photo matching study, the size of the animals paired with the target persons provided significant support for this hypothesis. The previously mentioned young woman, Person D, was one of the only two who did not fit the expected pattern. The disparity between small and larger pet frequencies was the greatest for the two older women, further supporting the idea that it is the young woman's role which is under review rather than the more traditional perceptions of the older woman. Apparently she is still seen as requiring a small, less active pet. Edith in the pet selection study provided additional support for this idea with the relatively large numbers of cats and birds she was assigned. In general, the women in this study were associated with smaller dogs and cats more often than men who were more often associated with the larger dog breeds. Secondly, as in Harris's (1983) study, female stimulus persons were given mostly female pets whereas the males received male pets. These two findings are in keeping with the idea that sex is a primary factor in the perceptions formed of others (Brewer & Lui, 1989), and that the same effect occurs when the person-pet stereotype is considered. However, although the sex of the stimulus person appeared to be a

strong predictor of pet allocation, its effect could apparently be overridden in certain circumstances. For example, Frank, should have received larger numbers of bigger pets, but his lack of space meant that participants gave him relatively few dogs or cats and larger numbers of birds and fish which do not require a lot of space. This finding differed from that of Harris (1983) who found that whereas the type of home was related to the size of dog recommended, it was not associated with the species of pet recommended. Similarly, Kylie's position in the country appeared to be as important as her gender and she received equal proportions of small and larger pets. As a young woman, she too may have exemplified the change in perceptions of females and this was evidenced by the lack of distinction between small and large pets assigned to her. Age is considered to be an important factor in person perception (Fiske, 1993) and its influence was apparent in the types of pets given to Frank, and the types and names of pets supplied to Edith. Although Frank's living situation was likely to have influenced the species of pet he was matched with, cats and other pets requiring little or no exercise predominating, the dogs he did receive were also small ones. Edith received considerably more cats than any other animal type, which was probably due to her age as well as gender. Older people are generally perceived to be less active and thus requiring animals which provide companionship more importantly than opportunities for exercise. The old fashioned human and conventional pet names her animals were given also reflect her age and the generation she represents.

Although the age and sex of people appeared to have a strong influence on the way in which they were perceived, other factors were also found to be influential. When the breeds of animals given to people in the pet selection study were examined, it was interesting to note that, judging by the number of German Shepherds she was supplied with, Kylie's situation of being a single young woman living in the country suggested to the participants that she was in need of a strong companion or guard dog. A pattern was evident in the distribution of cross-bred and pedigree pets. Kylie, Rangi and Aroha received the largest number of randomly bred dogs and the largest proportion of domestic cats also. Martin, on the other hand received no cross-bred dogs and larger numbers of pedigree than domestic cats. This was possibly related to the

perceived status of the different individuals. It was interesting too how the names of the tougher breeds of dog in particular, changed radically when in conjunction with different target persons and implied the role the animal was expected to play. Kylie, Aroha and Simon all received moderate numbers of the tougher breeds of dog, but nearly all had feminine, traditional names. Rangi's tough dogs, however, had equally tough names. This suggests that Rangi's animals were chosen as an extension of his self or to enhance his macho image. When all the types of animals assigned were combined for individual target persons, Rangi was the only one to receive considerably fewer with human than pet names.

The strongest occupational influence came through with John, and there was no conflict in his case as, being male, it was totally acceptable for him to have predominantly male working dogs called 'Tip' or 'Dog'. Interestingly it was the farming theme that emerged the most strongly from the photo matching study also, with Person C and his connection with the working dog. In reality, farmers are unlikely to have farm dogs as companions as the distinction between working and non-working animals is absolute. Work dogs are thought to become soft and lose their working edge if they are pampered. Other occupational influences were seen in the pet selection study, but mainly only with respect to the names animals were given. Martin's academic interests came through, especially in the feline names, which is interesting as Harris's (1988) findings suggest that people of higher educational levels are more likely to keep cats than dogs. This idea could have influenced the assignment of animal to Martin as well as their names since he received more cats than any other male in the study. The age of the target persons was also found to be associated with the types of name their pets were given. Just as generational trends can be identified in the popularity of children's names, similar patterns were observable in the names for pets of people from different age groups. Edith's pets, for example, were called traditional names (such as Nellie and Elsie) that were popular in her generation. The younger target persons, such as Kylie and Rangi, were given pets with more contemporary names like (Crystal and Rambo). The only other study to have considered the implication of animal's names under experimental conditions (Harris,

111

1983), found no association between the names and the owner's age, sex, activities or type of house. It is likely that the different way in which target persons were profiled in the present study, with more detail and personal information than Harris presented, meant that the individuals appeared more real and this elicited more information in response.

In the photo matching study, the strength of opinion on the best pet selections for at least five of the ten target persons is notable since the animal photographs could only be used once and thus were removed from the selection pool after being matched with one owner. It is likely that some of the less enlightening comments about the decision process resulted from the later matches. From discussions with participants about the process involved in the task, it became apparent that for many of them it was easy to match about six of the human-animal pairs but the decisions became increasingly difficult from that point. Many of the final pairings were made because they were the only photographs left and participants were dissatisfied with the combination and had to search quite hard to provide a justification. In retrospect it may have been better to provide the same number of animal photographs, but to allow participants to use them more than once if they wished. This would possibly have resulted in stronger evidence of gender and age related human-pet stereotypes.

Although the age and gender characteristics of target persons appeared to have a strong effect on the types of animals selected for them, the stereotypical perceptions elicited by them could be coloured by other characteristics under certain conditions. Availability of space appeared to be one such overriding consideration in the pet selection study. The results of this study, especially the combination of dog types and names for those types chosen for each of the stimulus persons suggest that the images presented by the various characters and possible pets, were viewed quite consistently by the participants in this study. Rangi's image as a tough, male individual was reinforced by his black and tan canine companion called Butch or Killer, just as John's farming occupation was represented by his working dog mate, Tip or Bess. Aroha and Elizabeth were first and foremost seen in the light of their families and given labradors

or spaniels with the occasional larger dog thrown in but all with conventional types of names, a proportion of which were Maori for Aroha. Edith and Frank are better represented by the other species selections but the dogs given to these people were still consistent with their need for small, companionable pets with traditional names. Martin and Simon too were viewed similarly as having medium sized family dogs with relatively conventional, and mostly masculine names. The scarcity of non-pedigree dogs possibly reflects the participants' views of the accountant and lecturer's socio-economic status as well as the image such men are perceived as wishing to present. Finally Kylie presented a less systematic image, possible the tougher dogs she was connected with were providing protective companionship as she was a woman alone in the country and the mongrels possibly represent her lack of income and maybe status also.

The main finding of these three person perception studies is the evidence of human-pet stereotypes which influence the perceived compatibility of various pet-owner combinations. The combination of these three person perception studies, suggests that not only are there stereotypes which govern perceptions of people in combination with pets, but also that the content of these stereotypes is quite precise. In general women are associated with the smaller breeds of dog and cats, but this effect is only consistent for older women. Younger women are less easily classified in terms of social roles and consequently the types of animals that are considered appropriate for a young woman is dependent on the role in which she is cast. Thus there may be multiple young woman-pet stereotypes and the favourability of the ratings of her as a person will vary according to the role she is perceived as occupying. The current findings do not contradict the notion of female-cat and male-dog stereotypes but suggest that in the current social climate males are seen more favourably with cats and women with dogs. Perhaps the traditional stereotype still exists but has a become a more negative image than the opposite combinations which represent a more contemporary view. Possibly the perceivers attribute less masculine characteristics to the man in the presence of a cat than with a dog, thus providing affirmation for him as a sensitive modern man rather than a tough, traditional one. Along the same theme, the modern

woman is perhaps expected to be more independent, less traditionally feminine and housebound, and as such the dog does more for her image than the cat.

If the suggested shift in gender stereotypes is occurring, its effects are particularly likely to emerge in a study such as the gender and species stereotype study. Firstly, the target persons, who were both in their thirties, would be viewed as being relatively young. Had they been older, like the two older women in the photo matching study and Edith and Frank in the pet selection study, they might have been rated more in terms of traditional gender stereotypes. Secondly, non-traditional gender stereotypes would be more prevalent in the age group represented by the study participants. It would be interesting to test these ideas by undertaking further research with targets and participants from a range of age groups. Extending the range of pet species and breeds would also serve to test the generalisability and stability of human-pet stereotype effects. The findings also suggest that the measure of owner attributes developed in the current gender and species stereotype study appears to be a useful instrument for this type of research.

CHAPTER 8

Human-Companion Animal Relationships and Health

Introduction and Literature Review

As stated in Chapter 1, the purpose of the second part of this research project was to examine some health consequences of the actual relationships between people and the pets they share their homes with. The theoretical model for this last study, which is described at the end of this chapter, focuses on three relational contrasts: compatibility of pet and owner; attachment of the owner to the pet; and the social support, from other people, experienced by the owner. The objective of the present study was to examine the impact of all three of these types of social relationships on owners' physical and mental health.

The literature on companion animals and owner health has focused on the effects of pet ownership and attachment, so this chapter will begin with a review of these areas. Social support will then be introduced, as a concept which overlaps with this field, conceptually and empirically, (Collis & McNicholas, 1995). Another, relatively unconsidered, aspect of human-animal relationships is that of compatibility between pet and owner. This concept will be re-introduced and defined before the theoretical model for this study is presented.

Pet Ownership and Mental and Physical Health
In considering the possible health benefits of owning a pet, the most basic approach involves a comparison of the health of people who own or are in contact with animals, with the health of those who are not. This section on pet ownership and health will address three issues. Firstly it will consider the evidence for links between pet ownership and health, and secondly it will provide suggestions as to how such links

115

might be explained psychologically. The third issue concerns the way in which links between pet ownership and health might be mediated physiologically.

Health Effects of Pet Ownership

The earliest and probably most often quoted illustration of the relationship between pet ownership and health, was Mugford and M'Comisky's (1975) investigation of the potential benefit of animal ownership for the elderly. The researchers placed a budgerigar or a house plant with two groups of elderly people living alone. The participants completed a questionnaire concerning social interactions and psychological and physical health, before and after the five month study period. Changes in questionnaire responses were then compared to those of a control group which had received neither plant nor pet. Although findings suggested that the presence of the bird was generally beneficial to the social and psychological condition of the participants, they should be interpreted conservatively due to the small sample size ($N = 30$).

Another much cited study is Friedmann, Katcher, Lynch and Thomas's (1980) work on survival time after discharge from a coronary care unit. They discovered, among people recovering from heart attacks, that one year after admission, the survival time of those who owned companion animals was significantly longer than that of non owners. Although the research has been criticised on the grounds of the type of analyses performed (Wright & Moore, 1982), and Friedmann (1990) herself has commented that the sample size was too small and did not allow for an enquiry into which types of pets might be of the most benefit, it initiated an interest in the connection of pets with human health.

Of the few studies that have so far been undertaken to investigate relationships between pet ownership and health most have, like Mugford and M'Comisky (1975), used elderly participants, rather than more general samples. For example, a study by Siegal (1990) considered the relationship between stressful life events and the use of physician services amongst the elderly, with pet ownership as a moderator. Results

suggested that, for respondents without pets, the accumulation of stressful life events was associated with increased doctor contact but this was not evident for pet owners. A pet-facilitated therapy programme based in a nursing home care unit investigated the utility of a dog in the treatment of clinically depressed males (Brickel, 1984). Findings suggested that participants who were involved in therapy sessions with a dog present showed larger reductions in depression levels than those in treatment sessions without the dog. It was concluded that pets can be of adjunctive value in the clinical treatment of depression. A study of recently widowed women reported significant differences between pet owners and non-owners with respect to physical symptoms, and use of medication. Participants who owned pets reported fewer physical symptoms and lower drug use (Akiyama, Holtzman & Britz, 1986-87). Ory and Goldberg's (1983, 1984) study of 1073 white married women in the United States found that pet ownership was associated with improved physical health in the preceding six months, although it was not associated with general health and well-being.

Although many studies have focused on pet ownership benefits for elderly people, others have considered different groups. A comparison study of cat owners versus non-pet owners in Australia (Straede & Gates, 1993) found the cat owners to have better general psychological health than non-owners. The two groups did not differ significantly, however, with respect to depression or anxiety. Robb (1983) compared health impaired veterans with and without pets on a number of psychosocial and physiological variables. She found that the only significant difference between the groups was that the pet owning group reported higher morale.

Both Ory and Goldberg (1983) and Robb (1983) pointed out the importance of controlling for demographic differences in samples. In response to that suggestion, Friedmann, Katcher, Eaton and Berger (1984) carried out a comparison of psychological and physical status among college students who did and did not keep pets. Findings suggested that there was a difference in vigour among the groups, but further analysis revealed that this was related to housing type. People who lived in houses rather than apartments were more vigorous and more likely to keep pets, and

once the housing variable was controlled, the pet ownership effect disappeared.

In order to determine the initial impact of pet ownership on health and well-being, Serpell (1990) carried out a prospective 10 month study of people following the acquisition of a dog or cat. An unmatched control group of non-owners was also included. Results showed that while there were no changes within the control group, the pet owners reported significant improvements in psychological well-being within six months, and for dog owners these effects were still evident at the end of the study. Additionally, significant reductions in numbers of minor physical ailments were experienced by both dog and cat owners during the first month and again these changes were maintained, for dog owners, until the end of the study period. A recent Australian study (Anderson, Reid & Jennings, 1992) demonstrated the beneficial effects of pet ownership. Risk factors for cardiovascular disease were measured in a large group of people attending a free screening clinic and, when pet owners were compared with non-owners, significantly lower blood pressure and plasma triglyceride levels were found in pet owners. The authors concluded that "pet owners in our clinic population had lower levels of accepted risk factors for cardiovascular disease, and this was not explicable on the basis of cigarette smoking, diet, body mass or socio-economic profile" (p. 298).

Overall, although studies have provided only a small amount of evidence for a connection between pet ownership and health, the results have been promising. The next section considers psychological explanations of potential health benefits of animal ownership.

Psychological Explanations

Theoretical explanations of the benefits of pet ownership, have centred on the roles that pets play and how these roles lead to interactions with their owners which facilitate health and well-being. For example, Ryder (1973) suggests that although life can be frustrating and people can feel deprived, a pet can help in a number of ways. Supplying a source of tactile contact is one purpose a pet fulfils in that it satisfies the

human need for physical contact with living beings. He states that pets are able to empathise with their owners' feelings and emotional states and provide them with a sense of importance with their dependence on us for food, water and exercise. Pets provide their owners with something to love and they reciprocate with love, or what is perceived as love, in return. People can relax in the presence of animals who do not judge them, or have expectations of socially desirable behaviour, and encourage play in a non-competitive fashion. Ryder also sees pets as supplying a form of security, either real or perceived. The animals people choose as companions he views as extensions of themselves and as such they represent what they are or would like to be. In social situations pets act as go-betweens or catalysts, facilitating contact with other people. Feldmann (1977) described the roles played by pets and included those of friend and partner, an aid to self-identity and self-esteem, facilitation of social relationships and a catalyst for social interaction, and assisting in childhood development.

Katcher and Friedmann (1980) discuss the potential value of pet ownership in terms of health benefits, and several of their categories overlap with those described by Ryder (1973). The first is that of companionship. Pets provide people with something to care for, which is especially beneficial for elderly people who tend to be experiencing diminishing roles in careers and as providers. A companion animal is something to touch and fondle, which has a relaxation effect on the owner. Animals also provide a neutral focus for attention, which acts as a distraction from internal worries and concerns, a reason for exercise, security and something to do in caring for and interacting with them. These ideas were reiterated by Wilson and Netting (1983) in their review of the companion animal literature with reference to elderly people.

Physiological Effects of Pet Contact

It is possible that the relationship between owning an animal and having better health, may be mediated by the physiological impact of contact with animals. Recently, investigators have considered the physiological effects of animal ownership, or even just episodic contact with animals, particularly dogs. An experimental study by

Sebkova (1977, cited in Friedmann, 1990) found that, according to self-report and observer ratings, people were less anxious during psychological testing when the researcher had her dog present than when she was alone. This effect was evident when testing took place in a laboratory as well as in participants' own homes. Thus it appears that the presence of an animal may have the effect of reducing anxiety, with measurable physiological consequences. The types of physiological measurement which have been of interest to researchers in this field are those of the relaxation response, which appears to accompany animal presence. This involves decreases in systolic and diastolic blood pressure, respiratory rate, heart rate, oxygen consumption and muscle activity (Baun, Oetting & Bergstrom, 1991). Generally blood pressure, and sometimes heart rate, is the measurement focused upon in the companion animal area. Tasks have typically involved reading aloud, as a strong association between speaking and elevations in blood pressure and heart rate has been well documented (e.g. Lynch, 1985). The physiological companion animal studies can be divided into two groups, those which measured cardiovascular reactivity during tasks performed while a dog was present, and those which involved physical contact with a dog.

Effects of Dog Presence

Katcher, Lynch, Messent and Friedmann (1981) measured blood pressure in children in their own homes while they either rested or read aloud in the presence and absence of a dog. Diastolic blood pressure was significantly lower when the dog was present during the reading task. Another study tested the effects of dog presence on the reduction of cardiovascular arousal-induced stress (Grossberg, Alf & Vormbrook, 1988). Normotensive students, half of whom were accompanied by their pet dogs participated in mental arithmetic and TAT tasks. Contrary to predictions, the tasks generated significant increases in heart rate and blood pressure for both groups. Mental arithmetic tasks were also used in a study by Allen, Blascovich, Tomaka and Kelsey (1991) which measured autonomic reactivity of 45 women with the experimenter alone, then with either a close female friend or their own pet dog present. Results demonstrated that the presence of the friend increased reactivity during the task while the presence of the dog reduced it.

Effects of Contact with a Dog

Oetting (1985, cited in Baun et al., 1991) measured physiological activity for three groups of participants involved in separate activities. One group practised an autogenic relaxation technique, a second petted a companion dog, and the third petted the dog while performing the autogenic relaxation task. No significant differences in blood pressure, heart rate or peripheral skin temperature were found but as Baun et al. (1991) point out, the study employed a between subjects design so results could have been masked by inter-subject differences. Additionally, the size of the sample, which was not reported, may have been too small for effects to be detected. Thoma (1984, cited in Baun et al, 1991) used a small hypertensive sample and measured peripheral skin temperature, muscle tension and blood pressure when subjects were quietly petting a dog with whom they were bonded and when petting an unknown dog. Significant differences were found for the first two measures but not for blood pressure. However both systolic and diastolic blood pressure dropped with animal contact and these results were replicated with another larger hypertensive sample by Todd-Schulke, Trask and Wallace (1988, cited in Baun et al., 1991). Significant differences were also found by Katcher (1981) who compared blood pressure values of subjects reading aloud with those who simultaneously talked to and petted their own dogs. This result was not obtained when a strange dog was used which suggests that previous bonding was important (Baun, Bergstrom, Langston & Thoma, 1984). In the same experiment it is interesting to note that blood pressure was lower, although not significantly, when subjects patted and talked to their dogs than when they were resting. This suggests that the animal interaction may be more relaxing than simply resting.

Grossberg and Alf (1985) found a significant correlation between positive pet attitudes and lower blood pressure. This introduces the idea of a different physiological response towards animals depending on one's attitude towards or feelings about the animal. This effect has been demonstrated during animal presence as well with animal contact. Friedmann, Locker and Lockwood (1993) used the ATAT (Lockwood, 1983) to assess students' perceptions of animals. They related the results to measures of

121

blood pressure and heart rate of subjects who were reading aloud with and without a dog present. The results showed that cardiovascular responses to verbalization were affected by subjects' perceptions of animals, those who perceived animals favourably had significantly lower blood pressure than those who did not. The authors concluded that the way in which people perceive animals influences their physiological responses to stressors in the presence of a dog. A similar study carried out by Jenkins (1986) utilised the Pet Attitude Scale (Templer et al., 1981) to select subjects who were positively bonded with dogs. Blood pressure and heart rate were recorded while the 20 dog owners were petting their animals and while they were reading aloud. No significant change in heart rate was found but subjects displayed a significant decrease in systolic and diastolic blood pressure while stroking their dogs.

Finally, it has been shown that animals other than dogs can produce the same relaxation effect. Katcher (1985) found that watching a tank of tropical fish in a dentist's waiting room had the effect of decreasing anxiety, measured by galvanic skin response and heart rate, in waiting patients. Similarly, Katcher, Segal and Beck (1984) studied people about to undergo oral surgery to investigate the effect of contemplating an aquarium on anxiety. Results suggested that the relaxing effect of contemplating an aquarium was superior to that of contemplating a poster (with or without the aid of hypnosis) in terms of both subjective experience and behaviour during oral surgery.

Therefore, while results of physiological studies have been inconsistent, they have generally found that the presence and petting of a dog, and the presence of colourful fish have had the effect of lowering both systolic and diastolic blood pressure in research subjects. Brickel's (1982) explanation of this phenomenon suggested that pets divert attention from an anxiety-generating situation by providing auditory, tactile and cognitive input. Thus, the fish in the dentist's waiting room facilitated an attention shift with their relaxed swimming movements and bright colours (Katcher, 1985). Further support for this idea is provided by the observation that animals can act as ice-breakers in social situations and provide an initial focus of attention and conversation. Levinson (1969) found that the presence of his own dog, during therapy sessions with

children, reduced anxiety. If, as Brodie (1981) suggests, animals serve to distract us from internal worries by acting as a neutral focus of attention, and the effect is measurable under experimental conditions, it seems that over an extended time period interactions with animals should have positive effects on health and well-being.

The results of studies into beneficial health effects of pet ownership, while promising, are so far inconclusive. It may well be that pet ownership in itself is not what influences health but more specifically the quality of the relationship between pet and owner. In order to investigate this notion it is necessary to identify the dimensions of ownership, one of which is attachment.

Pet Attachment

The notion of pet attachment has been imported from the study of human attachment, so it is useful to begin with a brief account of theory in the latter area. A fuller account can be found in Bretherton (1992). Originally, attachment theory applied to a child's attachment to a primary care-giver, generally mother, and the interaction between the two which gives rise to a particular form of attachment. When the term pet attachment is used, it relates to a human's attachment to an animal companion. This suggests that the human plays the subservient role in the relationship, which in most cases is not so. Thus parent/child attachment theory cannot be directly applied to the pet/owner situation. A more appropriate approach is provided by the more recent theory of adult attachment. Weiss (1991) equates the attachment bond in adulthood to that formed during childhood and outlines several arguments which suggest that adult attachment bonds are a further development of the childhood bonds. The situations in which adult attachment occurs are in pair-bonds, bonds with immature children, persisting attachments to parents and in client relationships with therapists or counsellors. Attachment in adulthood bears much resemblance to that in childhood as the emotional properties, such as grief produced by the loss of the attachment figure, and motivational characteristics, such as energy and desire to prolong the relationship, are principally the same. Only with respect to their perceptual qualities do they differ: the choice of attachment figure is different, as is the

relationship with the attachment figure. The purpose of adult attachment appears to be the need for a secure emotional base. In describing the pair-bond relationship Weiss (1991) writes, "as the attachment to the other person becomes reliable - and the ceremony of marriage may help this happen - less energy need be given to assuring the continuation of the attachment relationship. Instead, the secure base of the attachment relationship can be taken for granted, and attention and energy given to efforts to achieve goals in the world outside the self" (p. 73). With respect to adult-adult attachment bonds, although another human is the obvious source of this type of attachment figure, a companion animal could fulfil a similar role. Due to the unconditional positive regard that pets afford their owners (Ryder, 1973), a person can depend on the support and presence of a pet which may allow the owner to feel secure and sufficiently loved. Thus, in the absence of a human partner, a person can benefit from a similar type of attachment relationship to that which, under different circumstances, they may have experienced with another adult. The situation in which adults are attached to immature children is a transient one, and although the feelings of attachment are strong, they generally fade as the child matures. A pet which is playing the role of a child, or dependent other, in the owner's life may equally well facilitate an adult-child attachment relationship. Because the pet never 'grows up' in that it never attains independence and maturity in a human sense, this type of attachment relationship could persist for the duration of the pet's life and even after. Just as the loss of a child can give rise to grief and an ongoing sense of separation and loss, so can the death of a companion animal.

Rather than developing a theory of human attachment to animals, researchers in the pet attachment field have tended to emphasise the practicalities of studying inter-species attachment. The next section summarises some of the work carried out to define and measure pet attachment.

Defining and measuring pet attachment

A common theme within the pet attachment literature is that attachment has at least two dimensions. For example, Peretti's (1990) study of elderly pet owners alludes to

attachment *behaviours* such as feeding, exercising and stroking as well as attachment *psychology* based on an emotional bond with the pet. Stallones, Marx, Garrity and Johnson (1988) developed a six item scale to measure attachment which they too implemented with an elderly sample. The questions incorporated in the scale relate to specific behaviours such as playing with the animal and talking to others about it, plus perceptions, or to use their terminology "anthropomorphic views", of the pet such as consideration of the pet as a friend and the pet's knowledge of the owner's feelings.

Melson (1990) makes the same distinction, terming the two components an attachment system involving emotional closeness, and attachment behaviours. She developed an eight and then eleven item measurement scale incorporating these two attachment dimensions for use with children (Melson, 1988). Melson's previous work on child attachment defined attachment as "a lasting emotional tie between people such that the individual strives to maintain closeness to the object of attachment and acts to ensure the relationship continues" (Fogel & Melson, 1988, p. 190). Melson writes that "this definition, like others, assumes that attachments exist only between humans; however, the emerging data on children and pets suggest that the construct may be applied to the child-pet relationship" (1990, p. 92). Whether this same construct is applicable to the adult-pet relationship is open for debate. The original theory of attachment applies only to children's attachment to an adult and the relationship context which gives rise to attachment. Thus, the relationship involves the feelings and behaviours of a dependent juvenile towards a care-giving adult. However, the similarities between the child to adult, adult to child and pair-bond attachment relationships would suggest that certain elements may be present in a human-pet relationship. Melson's (1990) review of the child/pet relationship delineates four dimensions of attachment based on the psychological theory of human attachment. The four dimensions include time spent with and activities directed toward the attachment figure, interest in and affect expressed toward the attachment object, knowledge about the attachment object and behavioural responsiveness to the attachment object. Other authors have focused on relationships between children and pets with respect to attitudes (Kidd & Kidd, 1985; Paul & Serpell, 1993; Schenk, Templer, Peters & Schmidt, 1994), ownership (Paul &

Serpell, 1992) and psychological development (Levinson, 1978), but the focus in this study is on adult's relationships with their companion animals.

Holcomb, Williams and Richards (1985) used the Pet Attachment Survey (PAS) with two samples of pet owners, and discovered that the 29 items clustered around two subscales which they named 'relationship maintenance' and 'intimacy'. The idea of relationship maintenance compares well to Melson's (1988) definition of attachment as two elements of that definition were the desire to prolong the relationship, and interaction with the attachment figure. As the PAS was employed in the final study in this project, it is described in greater detail in Chapter 9.

Voith (1985) states that attachment can be defined in several ways and presents a definition similar to those mentioned previously. "The term can be used to describe an emotional state or 'feeling' or refer to behaviours that an individual (human or non-human) engages in to keep another in close proximity" (p. 291). Additionally she provides an explanation of how and why attachment takes place and suggests that the factors that play a role in attachment include "proximity, duration of time spent together, the sharing of emotional experiences (especially happiness and feelings associated with camaraderie in the excitement of adventure and sports), and, of course visual and tactile signals" (p. 292). Other factors said to increase the likelihood of attachment to pets include the change in family structure, with increased prevalence of marital breakdown and geographical distance between generations, and diminishing importance of religion as a societal force. According to Fogle (1983), these changes result in a social support void which can easily be filled by an animal companion. Additionally, as medical technology advances, animals are living longer and thus extending the length of time during which people have contact with their pets. This can produce stronger feelings of attachment and a greater sense of loss when the animal eventually dies.

Thus it appears that there are two major components of pet attachment, the feelings or emotions felt towards a pet and the behaviours involved in supporting or

126

maintaining the relationship between species. The next section considers the factors which influence attachment feelings and behaviours.

Influences on attachment

The main objective of most pet attachment studies performed so far has been to identify the characteristics of owners and their living situations which are related to the degree of attachment. A general finding regarding the sex of the owner is that women score more highly on pet attachment than men (Holcomb et al, 1985; Kidd & Kidd, 1989). Kafer et al. (1992) found that, in line with their previous findings (Connell & Lago, 1984; Lago, Kafer, Delaney & Connell, 1988), women report more favourable attitudes towards pets than men do. However, a study which combined self-report and observational measures of attachment found no significant differences between the sexes (Katcher, Friedmann, Goodman & Goodman, 1983). Size of the household has also been found to influence attachment with people in larger families reporting less attachment than those in smaller families. (Holcomb et al, 1985).

Another factor associated with attachment is the degree of responsibility taken for the pet's care. The strongest attachment scores have been gained by those who are the sole caretakers; attachment decreases when the responsibility is shared by another member of the household, and the lowest attachment was demonstrated by those who lived in a pet owning household but did not personally take any responsibility for the animal's care (Stallones, Johnson, Garrity & Marx 1990; Holcomb et al., 1985).

Marital status findings suggest that attachment is highest amongst those who have never married, followed by divorced, widowed, married and separated owners respectively (Albert & Bulcroft, 1988; Stallones et al, 1990; Kidd & Kidd, 1989). The same trend has been found with respect to attitudes towards pets (Kafer et al., 1992). Stallones and colleagues (1990) found that those individuals who had never been married had the strongest attachment to their pet whereas those who were divorced had the lowest.

The age at which people first become owners has also been found to influence how attached they are to pets as adults. Kidd and Kidd (1989) found that those who owned pets when they were children were more attached as adults, and Poresky, Hendrix, Mosier and Samuelson (1987) concluded that attachment was greater for those who had owned pets before the age of six than for those who obtained a pet at age twelve or older. The species of the pet has been shown to influence attachment also; Albert and Bulcroft (1988) reported that subjects who selected a dog as the favourite pet expressed stronger feelings of attachment than did owners favouring cats or other pet types. This same trend was found by Holcomb et al., (1985) but only with respect to the relationship maintenance subscale of the PAS.

From the studies of pet attachment it can be concluded that a number of factors may influence the degree of attachment which owners feel towards their pets. Size of household, sex of owner, care-giver status, species of animal, marital status and age of first pet ownership experience have been mentioned. More important for this study, however, are the consequences of pet attachment for the owners' physical and mental health, and so far few studies have addressed this issue.

Pet Attachment and Health

A study exploring pet possession and life satisfaction in elderly women (Ory & Goldberg, 1983) found that unattached pet owners were unhappier than those who were attached to their pets, and non owners. However, it should be noted that attachment was measured by a single five point rating scale ranging from 'very' to 'not at all' attached. No information is reported about the differences between those who were attached to their animal companions and those who were not. Pet attachment and social support were measured in a sample of elderly women to determine whether attachment is significantly related to physical and psychological health (Miller & Lago, 1990b). Social support was associated with a lower incidence of doctors visits, and fewer medicines bought from the chemist. Pet attachment, however, had little impact on psychological or physical well-being. In two studies with the elderly (Garrity et al., 1989), pet attachment (but not pet ownership) was related to lower

levels of depression. This same effect was present in a group of elderly bereaved, but only when few confidants were available. Miller, Staats and Partlo (1992) considered differences in older pet owners between those they termed pet interactors and non-pet interactors, and found the former group to have better self-rated physical health.

Social Support and Health

The concept of social support is clearly related to attachment and has a history in health research. The role of social support in health has been well documented and although the term has been in use only during the last two decades, the concept has been recognised throughout this century in the writings of theorists such as Durkheim and Bowlby (Sarason & Sarason, 1994). The social support literature suggests that it serves three major health functions. Firstly, it can act directly to prevent people from developing health symptoms. By fulfilling a person's needs for affiliation, belonging, respect, social recognition, affection and nurturance, it can have direct positive effects on psychological well-being (Kaplan, Cassell & Gore, 1977). In contrast, it is thought that the absence of social support may act as a stressor in itself, thus having a direct influence on health (Thoits, 1985). Secondly, it can provide a buffering effect during times of stress such that the negative effects of stressful events on health are lessened. The buffering hypothesis suggests that "high levels of social support protect one from stress-induced pathology but social support level is relatively unimportant for those experiencing low levels of stress" (Cohen & Hoberman, 1983). Thirdly, social support can facilitate recovery from illness.

The many definitions of social support have resulted in various operationalisations of the concept, which can be divided into three categories: network measures, measures of support actually received and measures of perceived availability of support (Sarason & Sarason, 1994). The first category of operationalisations, which involves the early formulations of social support, was based on the premise that the individual is part of a social network, and the frequency of interactions with other people and social groups was considered to represent the individual's level of social support. The social network consisted of specific people defined by their social roles as family members,

neighbours and friends, regardless of the helpfulness of their interactions. Measures of the existence of supportive relationships have been categorised as structural social support measures, but more recently researchers have defined and measured social support in terms of its function. Not only has it been recognized that the quantity of interaction is less important than the perceived quality of the social network (Antonucci, 1985; Dalgard, 1986), but also that inappropriate or negative support can have a detrimental rather than beneficial effect on health (Antonucci, 1985). Therefore, although early researchers thought of social support simply as social integration, later definitions, while retaining the notion of a mutual social obligation network, also incorporate the idea of an individual feeling valued and cared for by the network (Spacapan, 1988).

The second category of social support constitutes that which is actually received, or reported as being received. Sarason and Sarason (1994) point out the differences between perceived and received support: "perceived support plays a role in the stress appraisal process and serves as a coping resource. Supportive transactions, in contrast, serve as coping assistance that facilitates or hinders adjustment as a complex factor of the fit between the demands of the stressor, the type of support given, and the characteristics of the individual" (p. 46). They cite studies which found that perceived support is a better predictor of well-being than actual support, including one in which received support was found to be related positively to stress (Cummins, 1987, cited in Sarason & Sarason, 1994). It is noteworthy, however, that received support has been found to have positive effects by other researchers (e.g. Antonucci & House, 1983, cited in Antonucci, 1985).

The third category consists of perceived social support, and it is generally this type that is measured in health studies. For many people it seems that it is the perception of availability of suitable people to turn to in times of trouble which is of benefit. It may be that people think unrealistically favourably about the type and usefulness of social support that they are likely to receive in a given situation in comparison with the form and degree of support they would actually receive if that situation arose.

Perceived social support can be separated into different components according to function. Four components are described by Spacapan (1988): emotional or esteem support which confirms that one is accepted and valued as a person; informational or appraisal support which provides advice in understanding and coping with a stressful event; instrumental or tangible support which provides material or financial assistance; and belongingness or companionship support which involves sharing interests and leisure pursuits. Cohen, Mermelstein, Kamarck and Hoberman (1985) designed the Interpersonal Support Evaluation List (ISEL) to measure these four components of perceived availability of potential social resources. House (1981) defined social support as an interpersonal transaction involving one of those same four components which he called emotional concern, instrumental aid, information and appraisal.

According to Taylor and Dakof (1988), the results of studies on social support suggest that social support can reduce the impact of stress on psychological health, and for those who are already ill, make recovery more speedy. A study of schizophrenics following discharge from hospital found that adjustment was better for those with social support (Lyon & Zucker, 1977, cited in Sarason & Sarason, 1984). However, the impact of social support on physical health appears to be less clear. Whereas some studies have found no relationship between social support and physical health, others have indicated that individuals with high levels of social support are less likely to develop illnesses (Lin, Simeone, Ensel & Kuo, 1979; DiMatteo & Hays, 1981). Another study of people recovering from coronary artery surgery found "that perception of the availability of support was responsible for small changes over time in patients' health status" (King, Reis, Porter & Norsen, 1993, p. 60). An experimental study of pregnant women with a history of having produced low birth weight babies, found that the group receiving social support from research midwives had higher mean birth-weight babies. Additionally, during the first few weeks, intervention group mothers and babies were significantly healthier than those in the control group in terms of physical and psychosocial health measures and use of health services (Oakley, Rajan & Grant, 1990). Efforts to explain the effects of social environment on health led Kaplan and Toshima (1990) to propose a Functional Effects Model

which suggests that social environment can affect health outcome. The converse of this is that illness can modify the support environment. The model encompasses the idea of both negative and positive support, "when support givers reinforce maladaptive health behaviours, functional effects may have a negative influence, and so we feel it is important to distinguish between a 'Positive Functional Effects' and a 'Negative Functional Effects' model" (Kaplan & Toshima, 1990, p. 431).

While Cohen and Hoberman (1983) found that social support was not directly related to physical symptoms, their results demonstrated a buffering effect of social support with both perceived availability of social support and positive events moderating the relationship between negative life event stress and physical symptoms and depression. Another study looked at mental health in a Norwegian community, taking various macro-social variables (migration, age composition, collective resources, economic problems) into account. It was concluded that a buffering effect was present such that while lack of social support in itself did not appear to greatly increase the risk of mental disorder, the combination of lack of social support and a stressful life situation did (Dalgard, 1986). A buffering effect of social support was also identified by Fusilier, Ganster & Mayes (1987) who considered the effects of social support, role stress and locus of control on health. They concluded that social support has ameliorative effects on depression and somatic complaints and may buffer the effects of job stress on the latter. Similarly, a study of East German refugees (Schwarzer, Jerusalem & Hahn, 1994) identified a longitudinal buffering effect of social support on the negative effects of unemployment on physical health.

Cohen and Wills (1985) performed a review of social support research and concluded that, in particular, the emotional and informational forms of support have been consistently associated with moderating the effect of stress on well-being. The research on social support therefore suggests that there is a positive relationship between perceived social support and psychological health, but its relationship with physical health is not so clear.

Link Between Pet Attachment and Social Support

It has been suggested that "pet ownership and attachment are factors that operate directly to enhance health and emotional well being and/or indirectly by buffering the impact of stressful events on health and emotional well-being" (Garrity et al., 1989, p. 36). Thus, besides being an object of attachment, another role played by the companion animal is as a form of social support. Although based on findings from only one study, (Garrity et al, 1989) it seems feasible that pets may be most beneficial to those who have lower levels of social support. Thus, social support is an important factor to measure when assessing the potential benefits of animal companions. Gerstman (1987) suggests that because research on humans advises that social support is a stronger and more reliable predictor of good health in females than in males, the health benefits of pets might similarly be limited to a particular gender or age group. There appears to be a dearth of studies combining measures of pet attachment and social support, but one such study (Bolin, 1987) considered the effects of companion animals during conjugal bereavement. Bolin proposed that bonded dog owners with strong human social support would adjust best to the loss of a spouse, followed sequentially by non owners with strong social support and non owners with weak social support. Results, however, suggested that while non owners reported a deterioration in health after their loss and bonded dog owners did not, long time owners reported a greater loss of (self) control than non owners.

The relative absence of research measuring human social support among pet owners means that a fairly broad measure of support should be used as there are no clear guidelines as to which type of social support is most appropriate. Therefore, it appears that a measure of perceived social support which assesses a number of different forms of human support would be useful. A relationship with a pet can be seen as a form of social support and the inclusion of a measure of human social support, as well as measures of the pet relationship, allows for measurement of the effects of pet attachment and compatibility on health, net of the hypothesised effect of social support. If Garrity et al. (1989) are correct, further to having a direct effect on health, social support may be seen to have a moderating effect on the hypothesised

relationship between pet attachment and health. It is likely that pet attachment is most beneficial, in health terms, to those owners who experience low levels of social support, which suggests an interaction between pet attachment and social support with respect to health outcomes.

Link Between Pet Attachment and Compatibility

As part of their study on pet interaction and health, Miller et al. (1992) investigated the hassles and uplifts of pet interactions within the context of other life activities. In so doing, they went beyond measuring attachment between people and pets to considering the negative and positive sides of interactions with pets. They concluded by suggesting that the nature of pet ownership requires further investigation, and one way of doing this is to consider why people become attached to some pet species and not to others, or express greater feelings of attachment to particular pets. A possible explanation for this is that the degree of attachment is dependent on the match between the animal and its owner. This suggests that the more compatible the relationship between human and companion animal, the stronger the attachment. Thus it was hypothesised that attachment would mediate the relationship between compatibility and the owner's health.

The definition of compatibility that was presented in Chapter 1, includes physical, behavioural and psychological requirements of, and contributions to, the relationship between pet and owner. Compatibility concerns the match or mismatch between both parties on these three aspects, and makes a distinction between the owner's personal requirements of a pet and what the owner perceives the pet to require.

It is entirely possible that although an owner may be compatible with a pet in that the animal's behaviour is appropriate to the owner's requirements and the owner provides adequately for the pet's needs, there are few feelings of attachment. Similarly, a pet-owner combination may be relatively incompatible but the owner may still express feelings of warmth and love for the animal. This illustrates the point that while related, the two concepts are representative of different aspects of the pet-owner relationship.

However, although it is possible for one dimension to exist in the absence of the other, as is outlined below, it seems logical that compatibility between pet and owner with respect to three aspects of the relationship should result in stronger attachment of owner to pet.

Attachment

	present	absent
Compatibility present	1 compatible and attached	2 compatible but not attached
absent	3 incompatible and attached	4 incompatible and not attached

Figure 1: Combinations of compatibility and attachment in human-companion animal relationships.

Examples

1. A person can be compatible with and attached to a pet when the two are well suited and feel affection towards each other and wish to prolong the relationship. Examples of this scenario are common and probably represent a good proportion of pet owners who have an animal for the duration of its natural life, make provisions for its needs and feel supported and befriended by the pet. They actively spend time with the pet, consider it to be well integrated into the family with human or almost human status.

135

2.   A person can be compatible with a pet in that they suit each other's lifestyle and needs but feel emotionally uninvolved and therefore remain unattached. However, if compatibility generally impacts on attachment, this should be a less common scenario than the others.

3.   A person can be incompatible with a pet, when the two don't suit each other in terms of lifestyle and reciprocity but can still feel attached. However this attachment, unless the person is the kind who 'loves' all animals, is likely to be present in combination with some negative emotions such as frustration and anger.

4.   The incompatible and unattached scenario is easy to imagine and it is this one that in all likelihood gives rise to pets being neglected, abandoned or destroyed. In this situation the pet and owner are unsuited and there may be an absence of relationship in terms of feelings and interactions between pet and owner. As they are not meeting each other's needs, the owner feels little attachment towards the pet.

Theoretical Model

The theoretical model to be tested in this study appears in Figure 2. It proposes that compatibility will positively influence the degree of attachment that participants express towards their pets. It is further hypothesised that attachment will have a positive effect on physical and mental health. As has been found in previous studies, it is proposed that social support will also have a beneficial effect on mental and physical health. Additionally, it is expected that the relationship between pet attachment and health will be moderated by social support in that the health benefits of a high level of pet attachment may only occur in people who have low levels of social support.

136

Compatibility ⟶ Attachment ⟶ Physical Symptoms & Mental Health
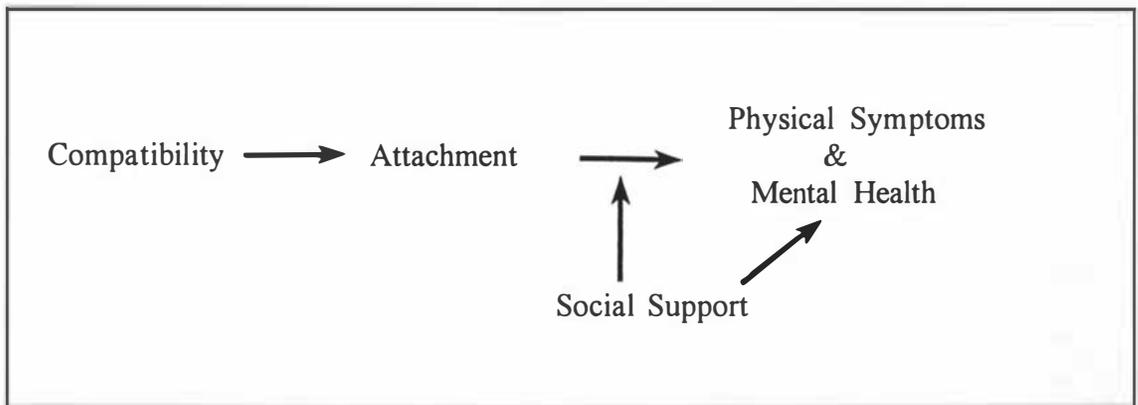
Social Support

Figure 2: Proposed relationships between compatibility, attachment and social support and their effects on physical symptoms and mental health

This model was tested through the administration of a questionnaire involving measures of each of these variables to a sample of pet owners. The development of the questionnaire and the procedures involved in collecting the data are described in the following chapter.

CHAPTER 9

**Study Four: Human-Companion Animal Relationships
and Health**

Method

Participants

Participants were contacted through a newspaper article in the local paper, through Palmerston North veterinary clinics and through mid semester on-campus courses for extramural students at Massey University. In order to supplement the student sample, extramural students were asked to encourage a family member to participate. A description of the 176 participants in this study is presented at the beginning of Chapter 10.

Measures and Procedure

Five measures were incorporated into a self-report questionnaire to assess human-companion animal compatibility, pet attachment, social support and physical and psychological well-being.

Compatibility: Since no existing measures of compatibility could be found, a new instrument, the Animal Human Compatibility Scale (AHCS) was constructed. The starting point for the AHCS was an article written by Serpell (1983), who interviewed 25 dog owners in an effort to "explore every possible aspect of each owner's relationship with his or her pet" (p. 58). This resulted in a list of 22 canine attributes which were important to most of the owners. A questionnaire was then designed in which each attribute was represented on a rating scale with the opposite poles of that attribute at either end. For example, the item concerning playfulness was presented with 'never or rarely plays' and 'very playful always enjoys games' as the respective anchor points of the scale (Serpell, 1983, p. 63).

For the present study, these 22 attributes were discussed with several pet owners including owners of cats, and two veterinarians in order to identify missing attributes which might be salient. One of Serpell's original items was dropped, and several of the attributes were separated into two or more questions as they appeared to be measuring different aspects of behaviour within the same item. This led to a measure with 28 items. Since compatibility in the present study also encompasses the notion of human behaviour towards, and feelings for, the animal, a further set of 11 items was designed to cover the owners' responses to the pet. These items arose from the previously mentioned discussions with pet owners and veterinarians as well as from my own ideas based on the compatibility definition used in this study. For example, an item in this section presented 'I never provide physical affection' and 'I always provide physical affection' as the respective attribute anchor points.

This process resulted in a questionnaire made up of two sections which assessed pet and owner attributes respectively. For each item, respondents were required to give 'ideal' and 'actual' ratings on a 10 point scale (see Appendix F). The absolute difference between their two ratings then provided an index of their compatibility on that attribute. This method of creating difference scores from ideal and actual ratings was similar to that used by Serpell (1983), but he measured the physical distance between the two points on a line rather than using a numbered scale.

Copies of this form were distributed to 16 pet owners amongst the Massey academic and support staff. Their feedback led to a second version of the questionnaire which consisted of 30 items in section one and 16 in section two. Subsequently 25 copies of this questionnaire were left at the Massey University veterinary clinic along with post paid envelopes, for interested clients to fill in and return. Twelve were returned by post and the suggestions made in these, plus ideas provided by an expert in canine behaviour at Massey, were incorporated into the 48 item measure subsequently used in the present study.

After preliminary analyses of the data from the present study ($N = 176$), 7 of the 48 items were dropped due to low response. Six of these were items which related to dogs more than cats (e.g. exercise and protectiveness) and the other concerned the pet's friendliness towards other pets in the household and thus did not apply to single pet households. The remaining 41 items were divided into two subscales: Pet Compatibility (26 items), and Owner Compatibility (15 items). To create the subscales, the absolute differences between the actual and ideal ratings for each item were summed and divided by the number of items. This produced an incompatibility score for each of the two subscales ranging in principle between 0 and 9. The pet and owner subscales had Cronbach's alpha coefficients of .84 and .87 respectively, and were moderately correlated ($r = .49$). Although the possible range for incompatibility scores was from 0 to 9, the actual ranges were from 0 to 3.81 on the Pet Compatibility subscale and from 0 to 5.47 on the Owner Compatibility subscale. The magnitude of these scores suggest that overall owner-pet compatibility levels were relatively high in this sample.

Pet Attachment: CENSHARE'S Pet Attachment Survey (PAS, 1984) was selected as the best available attachment measure. It has two subscales: Relationship Maintenance, defined as behaviours broadly related to physical and sensual interaction, communication, time and financial investment; and Intimacy, described as attitudes surrounding emotional importance, physical proximity, and planning for close physical proximity (Holcomb et al., 1985). These delineations approximate the behavioural and psychological components of attachment as previously identified. The 27 items of the PAS were derived from various sources including Ainsworth and Bell's (1974) infant/caregiver attachment studies, Katcher's (1983) attachment questions, and other research in human/pet attachment (Templar, 1981; Voith, 1983; Sheldon, Levy & Shott, 1985, cited in Holcomb et al., 1985). Analysis of data from two samples indicated that the Relationship Maintenance and Intimacy subscales had internal consistency reliabilities (Cronbach's alpha) of .83 and .74 respectively, and that the subscales were correlated with each other ($r = .59$) (Holcomb et al., 1985). Cronbach's alpha coefficients in the current sample ($N = 162$) were .85 for Relationship

Maintenance and .83 for Intimacy and the two subscales were inter-correlated (r = .76). Previous administration of the PAS with two different samples produced mean item scores of 3.18 for women and 3.02 for men (Holcomb et al., 1985) and 2.69 for women and 2.47 for men (Marks, Koepke & Bradley, 1994). In the present study the mean item scores were 2.77 for women and 2.52 for men.

Social Support: The Interpersonal Support Evaluation List (ISEL: Cohen, Mermelstein, Kamarck & Hoberman, 1985) has two forms, one for students and the other for the general population, both of which consist of four subscales; Tangible, Belonging, Self-Esteem and Appraisal. The 40 item general version was selected for the present study. The ISEL concerns the perception of available support incorporating both structural and functional components in that it measures the availability of close friends/family as well as the specific functions of social support that they provide. As there is no available information concerning the type of social support measurement which is most applicable to pet owners, the ISEL seems appropriate as it measures four diverse aspects of social support. "The 'tangible' subscale is designed to measure perceived availability of material aid; the 'appraisal' subscale, the perceived availability of someone to talk to about one's problems; the 'self-esteem' subscale, the perceived availability of a positive comparison when comparing one's self to others; and the 'belonging' subscale, the perceived availability of people one can do things with" (Cohen & Hoberman, 1983, p. 104). The items present the respondent with realistic, scenarios about which, even if they have no personal experience, they should be able to make an accurate decision concerning whether each statement is true or false for them (see Appendix F).

The general population version of the ISEL has been psychometrically tested with five samples and produced test-retest reliability coefficients ranging from .70 for the entire scale to .63 for the Appraisal subscale, over a six week period. The general population form was tested over a six month period with one sample, and test-retest correlations were .74 for the entire scale, .49 for 'tangible', .54 for 'self-esteem', .68 for 'belonging' and .60 for 'appraisal' (Cohen et al., 1985). Intercorrelations between the

four subscales range from .19 to .56. Internal consistency was reported to be from .88 to .90 and the scales are apparently free of social desirability bias (Heitzmann & Kaplan, 1988). In the present study internal consistency figures were lower with Cronbach's alpha coefficients (N = 147) ranging from .54 for self esteem to .77 for appraisal. With respect to validity, increases in the total score are consistently associated with decreases in psychological symptomatology (-.52 to -.60) but less so with physical symptoms (-.19 to -.39) (Heitzmann & Kaplan, 1988). The ISEL correlated (.30) with the Moos Family Environment Scale and also with number of close friends and number of close relatives (.46 and .42 respectively) (Cohen et al., 1985). According to these authors the ISEL has been used in studies examining the relationship between social support and well-being as well as to investigate the buffering hypothesis (see p. 129). The same authors provide a summary of six studies which reported the results of correlations between the ISEL and the Cohen-Hoberman Inventory of Physical Symptoms (CHIPS; Cohen & Hoberman, 1983). Occasional small but significant correlations were found with student samples and moderate correlations in the community sample.

Mental Health: The selection of a mental health measure was influenced by the desire to use one that was designed for use with a general population rather than a specific sample, and one that measured both positive and negative aspects of psychological well-being. This is important to consider when using a general population sample as many participants rarely or never report symptoms of psychological distress (Veit & Ware, 1983), but may express varying levels of well-being, in terms of happiness and enjoyment for example. The Mental Health Inventory (MHI, Veit & Ware, 1983) was selected, a measure which consists of two scales, Psychological Distress and Well-Being, which can be broken into five subscales; Anxiety, Depression, Emotional Ties, General Positive Affect and Loss of Behavioural Emotional Control. The 38 items ask the participant about their moods, feelings and emotions during the last month and are presented with a 7 point response scale. For example, one of the items asks "how often have you felt lonely during the last month?" with a response scale ranging from 'always' to 'never'.

Cronbach's alpha reliability estimates for the subscales (Veit & Ware, 1983) range from .83 to .91 for the five lower order subscales (cf .85 to .92 in the current study) and from .92 to .96 for the two higher order subscales and the total MHI (cf .92 to .96 in the present study). These are comparable with those reported by Zika and Chamberlain (1992). Correlations between the subscales range from .39 between Emotional Ties and Anxiety to .98 between Psychological Well-Being and General Positive Affect. Stability coefficients over a one year interval are reported to range between .56 and .64 (Veit & Ware, 1983). A more recent, New Zealand study reported the stability of Psychological Distress and Well-being scales over a six month period and reported coefficients ranging from .65 to .86. (Chamberlain & Zika, 1992). The MHI is reported to have excellent construct validity, (Wells, Manning & Valdez, 1989). Evidence of this was provided by Cassileth et al., (1984). Five groups of physically ill patients did not differ significantly from each other or from the general public, but all had significantly higher scores for psychological status than those under treatment for depression. Older respondents in all patient groups had higher mental health scores and patients with recently diagnosed illness in all groups had poorer mental health scores than those who had been diagnosed more than four months previously. A relationship between declining physical status and declining mental health scores was also observed.

Physical Symptoms: To avoid overlap of measures, a physical health measure which excluded symptoms of a psychological nature was selected. Pennebaker's Inventory of Limbic Languidness, known as the PILL (1982), is a physical symptoms checklist. Participants are required to rate how often each of 54 problems has bothered them during the last month on a five point scale ranging from 'not at all' to 'extremely'. Internal consistency for the PILL is high, with a Cronbach's alpha of .88, and its test-retest reliability over a two month period with 177 subjects was .83 (Pennebaker, 1982). The original version was considered to be rather lengthy, especially given the number and length of the other selected measures, so a shortened version was employed. This was devised for use with military populations (C. MacDonald, personal communication, 1996) by considering inter-item correlations based on three

separate sample groups then eliminating a number of repetitive items whose inter-correlations were between .6 and .9. The result was a shortened version consisting of 28 items which still covered a similar range of symptoms. Cronbach's alpha for the shortened version when used with a New Zealand sample (N = 1489) was .86 (C. MacDonald, personal communication, April 1996), compared with .81 in the current sample. The original response scale was also modified to ask for ratings of severity rather than frequency over a one month period. The rationale for this was that it is the perception of how much a problem has affected an individual, rather than how often it has occurred, which is of greater importance to the individual.

Ethical approval for the survey was obtained from the Massey University Human Ethics Committee. The five measures were presented in a 17 page questionnaire with an information and consent form attached. A copy of the entire questionnaire appears in Appendix F. Demographic questions were also included which requested information concerning participants' age, sex, marital status, occupation, size of household and pet ownership. Questionnaires were posted out to those who responded to the request in the newspaper, were left at the reception desk in veterinary clinics and were taken home by the students. Replies were returned in prepaid envelopes. The results of this study are presented in the following chapter.

Table 10.1:
Frequencies of sample demographics (Ns = 166-176)[*]

Variable	Frequency	Variable	Frequency
Marital status		Payment for pet	
Single	35	Yes	85
With Partner	138	No	91
Ownership status		Sex of pet	
Sole	65	Male	84
Shared	101	Female	90
Caregiver status		Name of pet	
Primary	35	Human	59
Shared	138	Animal	111

[*] *Ns* in this and subsequent tables vary due to missing data

CHAPTER 10

Study Four: Human-Companion Animal Relationships
and Health

Results

The model for this study proposed firstly that compatibility would be related to physical and mental health, and that this relationship would be mediated by pet attachment. Secondly, it was also expected that social support would influence mental and physical health, as in many other studies. A third hypothesis was that the relationship between pet attachment and health would be moderated by social support in that the beneficial effect of high levels of pet attachment would be more likely to occur in people experiencing low levels of social support. The results of the multiple regression analyses conducted to test these hypotheses will be presented in three sections, each of which focuses on the effects of a particular independent variable on each of the dependent variables. Description of the results will concentrate on those which were significant at the conventional alpha level of .05. Firstly though, the sample will be described and the univariate distributions and bivariate relationships of the variables will be examined.

Sample Description

The participants in this study were 176 people (32% male) who had shared their house with the same companion animal for at least a year. They ranged in age from 21 to 79 years with a mean age of 42 (SD = 11.3). The majority of participants lived with another adult (75%) and just over half (54%) had no children. The length of time the pet had been in the household ranged from one to 20 years with an average time of 5.7 years (SD = 4). Table 10.1 presents the frequencies of participants with respect to a number of socio-demographic variables which will be included in analyses later in this chapter. It can be seen that the majority of the participants were living with a partner with whom they shared ownership and care of the pet. Just under half of the

participants had paid for their pets, half of which were male. A third of the pets had human names and the other two-thirds animal names.

Univariate Distributions

Means and standard deviations for both independent and dependent variables are presented in Table 10.2. As was noted earlier, the means for the compatibility measures are low, relative to the possible score range, with participants rating themselves as owners to be more compatible with their pets than they rate their dogs and cats to be compatible with them. (Note that the way in which the compatibility scores were calculated means that a higher score represents less compatibility). The total compatibility and pet compatibility scores are relatively normally distributed, but those for owner compatibility are positively skewed. Although not a main focus for the study, it is interesting to note that when cat and dog owners were examined separately, the 57 cats were found to be significantly less compatible with their owners than the 84 dogs, $t(139) = -3.74$, $p < .001$. Means for these two groups were 1.75 and 1.24 respectively. On the total scale and the owner compatibility component, however, no significant species differences were evident. With respect to the other sample characteristics described in Table 10.1, no other compatibility differences were found.

The mean attachment scores in Table 10.2 fall between those reported in two other studies (Holcomb et al., 1985; Marks et al., 1994), and the total attachment scale and its two subscales are relatively normally distributed. On the basis of previous findings of differences in levels of attachment depending on the species owned, the sex of the owner and their marital, caregiver and ownership status, independent t-tests were performed to compare different participant groups. Differences were found such that females were higher in attachment than males, dog owners more attached than cat owners, primary caregivers and owners more attached than those who shared care of the pet or ownership and single people more attached than those with partners. Additionally participants with male pets were significantly more attached to them than those with female pets and people who had paid for their pets were more attached than those who had not. Results of these analyses are presented in Appendix G.

Table 10.3:

Correlations among independent variables ($N = 112$)

Independent Variables	1	2	3	4	5	6	7	8	9	10	11
1. Total compatibility	-	.86***	.87***	-.44***	-.43***	-.38***	-.04	-.13	-.03	.02	.05
2. Pet compat		-	.49***	-.32**	-.34***	-.24**	.00	-.14	.03	.02	.07
3. Owner compat			-	-.43***	-.41***	-.41***	-.06	-.08	-.11	.02	.01
4. Total attachment				-	.95***	.92***	-.18	-.09	-.17	-.12	-.19*
5. Maintenance					-	.76***	-.14	-.05	-.14	-.08	-.15
6. Intimacy						-	-.22*	-.12	-.19*	-.15*	-.22*
7. Total social support							-	.73***	.88***	.68***	.85***
8. Self esteem								-	.49***	.34***	.48***
9. Belonging									-	.61***	.63***
10. Tangible										-	.46***
11. Appraisal											-

* p < .05   ** p < .01   *** p < .001

The social support means appear to be relatively high, compared to the possible score range, but are only marginally higher than those reported by the authors of the scale (Cohen et al., 1985). Tangible social support was the highest and has the least variability. Total social support, self esteem, belonging and appraisal scores were all normally distributed but tangible social support scores demonstrated quite strong negative skewness.

Physical symptoms scores were again fairly normally distributed though they included two high scoring outliers. The mean and standard deviation of scores in the present study are similar to those found in another New Zealand study (M = 11.02, SD = 10.31, C. MacDonald, personal communication, April 1996).

Overall, total mental health scores were normally distributed as were all the subscale scores. The well-being mean was higher than those found in any of the other New Zealand studies (Vincent, Long & Chamberlain, 1991; Vincent, Chamberlain & Long, 1994; Zika & Chamberlain, 1992) and the psychological distress mean was higher than those found by Zika and Chamberlain (1992) but lower than those in a veteran sample (Vincent et al., 1991). The mental health scales were the only ones for which missing data at the item level were replaced with mean scores, 170 being the lowest number of cases for any one item. The number of cases included in each variable ranged from 130 for the total compatibility scale to 175 for the MHI.

Correlations between variables

The simple correlations between the independent variables are presented in Table 10.3. The decrease in the number of cases involved in these correlations is due to those with any missing data not being included in the analysis. Total compatibility was strongly correlated with its two subscales, as would be expected, but the correlation of 0.49 between the two subscales suggests that they are measuring different aspects of compatibility and are therefore worth using separately. Keeping in mind the way in which the compatibility measure was scored (the higher the score the greater the incompatibility), the negative correlation between compatibility and attachment denotes

Table 10.4:

Correlations among dependent variables ($N = 164$)

Dependent Variables	1	2	3	4	5	6	7	8	9
1. PILL	-	-.46***	.49***	-.38***	.38***	.48***	.45***	-.28***	-.35***
2. MHI.I		-	-.97***	.93***	-.92***	-.87***	-.90***	.64***	.91***
3. Distress			-	-.82***	.92***	.92***	.91***	-.55***	-.81***
4. Well-being				-	-.82***	-.70***	-.77***	.72***	.97***
5. Depression					-	.78***	.84***	-.54***	-.80***
6. Anxiety						-	.72***	-.45***	-.70***
7. Control							-	-.56***	-.74***
8. Emotional ties								-	.56***
9. Positive affect									-

** p < .01   *** p < .001

that higher levels of compatibility were associated with higher levels of attachment, as suggested by the theoretical model. Compatibility was not significantly related to any of the social support scales which suggests that it represents a different aspect of social relationships. Total attachment was strongly correlated with the two components of attachment, however, the weaker relationship between the two subscales again suggests that they are making distinct contributions to the overall measure. The negative correlation between intimacy and social support demonstrates that higher levels of human social support were associated with lower levels of intimacy in pet relationships. As would be expected, the total social support scale and the four subscales were significantly inter-correlated with coefficients ranging from .34 to .88; the relatively low magnitudes of the relationships between the subscales once more justifying their use individually.

Table 10.4 presents correlations among the dependent variables, all of which were significantly related at $p < .01$. Physical health symptoms and mental health were moderately correlated, and the various dimensions of mental health were also correlated, moderately to strongly in the expected directions. The strength of the relationships between the mental health subscales should be interpreted conservatively, however, as some of the items occur in more than one of the subscales. The significant relationships between the health variables are indicative of the link between mental health and physical symptoms in this sample. They also suggest that each of the mental health subscales is functioning appropriately.

Table 10.5 presents correlations between the dependent and independent variables. The negative correlation between compatibility and total mental health, well-being and positive affect indicates that higher levels of compatibility were associated with better mental health. Pet compatibility was similarly associated with those same three mental health measures in addition to anxiety. The negative correlations between owner compatibility and well-being and positive affect also demonstrates that people who were highly compatible with their pets were higher in well-being and positive affect. The only significant correlation involving pet attachment occurred between

Table 10.5:
Correlations between independent and dependent variables (N = 106)

	Compat-ibility	Pet Compat.	Owner Compat.	Attach-ment	Main-tenance	Intimacy	Social support	Self esteem	Belonging	Tangible	Appraisal
MHI.I	-.21*	-.20*	-.16	-.01	.03	-.06	.51***	.51***	.39***	.28**	.45***
Well-being	-.26**	-.24*	-.21*	.10	.15	.03	.54***	.53***	.40***	.32***	.47***
Distress	.17	.17	.12	.07	.04	.11	-.46***	-.46***	-.35**	-.23*	-.41***
Control	.08	.07	.07	.11	.07	.14	-.45***	-.38***	-.34***	-.28**	-.43***
Depression	.16	.15	.12	.02	-.01	.05	-.44***	-.43***	-.34***	-.18	-.39***
Positive Affect	-.26**	-.23*	-.22*	.13	.17	.07	.47***	.49***	.33***	.28**	.41***
Anxiety	.19*	.21*	.12	.08	.05	.12	-.42***	-.45***	-.31**	-.19	-.36***
Emotional Ties	-.17	-.17	-.13	.08	.05	-.05	.53***	.44***	.45***	.33***	.46***
PILL	.09	.10	.06	.19	.20*	.16	-.18	-.23*	-.09	-.19	-.12

* $p < .05$ ** $p < .01$ *** $p < .001$

relationship maintenance and physical symptoms and, unexpectedly, this relationship was a positive one. Thus, people who reported making more effort to maintain a pet relationship also reported more physical health symptoms. With the exception of self esteem, social support was not related to physical symptoms. However, with the exclusion of tangible social support, which was unrelated to depression or anxiety, all forms of social support were moderately associated with all measures of mental health.

Regression analyses

Mediating and moderating effects

The first general hypothesis was that any effects of compatibility on health would be mediated by pet attachment. For a mediating effect to be demonstrated, it is an initial requirement that both the independent and mediating variables be significantly correlated with the dependent variable (Baron & Kenny, 1986). Table 10.4 shows that this is not the case and therefore no mediating effect is present. Thus, the relationships in the model become hypothesised main effects of pet attachment, compatibility and social support on physical and psychological health, with social support also having a hypothesised moderating effect on the relationships between pet attachment and health. The presence of a moderating effect would suggest that the impact of pet attachment on health would depend on the level of social support experienced by the owner. To test this hypothesis, social support x pet attachment product terms were created (Jaccard, Turrisi & Wan, 1990) and entered on the second step of hierarchical multiple regression analyses with all main effects included in the first step. Only two interactions were found to be significant and the results of these will be presented with the pet attachment results later in this chapter.

Gerstmann (1987) suggested that because social support is a stronger and more reliable predictor of health in females than in males, the health benefits of pets might be similarly linked to a particular gender or age group. In response to this, although sex was significantly correlated only to pet attachment (total attachment $r = .25$, $p < .01$; relationship maintenance $r = .21$, $p < .05$; intimacy $r = .26$, $p < .01$), the main effect of sex on health was considered. Interactions between sex and social support, sex and

Table 10.6:
Regression analyses of the relationships of compatibility, pet attachment and social support with nine dependent health variables ($Ns = 107\text{-}112$)

Dependent Variables	Independent variables	Beta	t	Adj R²	F
MHI.I	Compatibility	-.19	-2.07*		
	Pet Attachment	.03	0.29		
	Social Support	.49	5.88***	.26	14.28***
Well Being	Compatibility	-.18	-2.10*		
	Pet Attachment	.14	1.58		
	Social Support	.55	6.94***	.34	19.86***
Distress	Compatibility	.18	1.88		
	Pet Attachment	.04	0.44		
	Social Support	-.43	-4.88***	.20	10.15***
Control	Compatibility	.10	1.03		
	Pet Attachment	.05	0.48		
	Social Support	-.41	-4.62***	.17	8.83***
Depression	Compatibility	.14	1.45		
	Pet Attachment	-.02	-0.17		
	Social Support	-.41	-4.67***	.17	8.68***
Positive Affect	Compatibility	-.18	-2.00*		
	Pet Attachment	.16	1.73		
	Social Support	.48	5.83***	.28	15.03***
Anxiety	Compatibility	.22	2.26*		
	Pet Attachment	.08	0.81		
	Social Support	-.38	-4.26***	.18	8.88***
Emotional Ties	Compatibility	-.14	-1.50		
	Pet Attachment	.08	0.81		
	Social Support	.53	6.35***	.28	15.35***
PILL	Compatibility	.19	1.81		
	Pet Attachment	.25	2.33*		
	Social Support	-.13	-1.34	.06	3.32*

* p < .05   *** p < .001

compatibility, and sex and attachment were also investigated with respect to both mental and physical health. Total scales were used in these analyses and no main or interaction effects were evident. Further, no significant correlations existed between age and any of the independent or dependent variables. Thus neither sex nor age were used as moderating variables, and the following tables show only the results of main effects analyses using standard multiple regressions where all independent variables indicated in the model are entered simultaneously.

Main effects

A series of multiple regression analyses were performed to test the main effects of compatibility, pet attachment and social support on physical and mental health. An evaluation of the standard multivariate assumptions was performed through examination of the residuals. Assumptions of normality, linearity and homoscedasticity were adequately met, so there were no transformations of variables or exclusion of outliers. The univariate skewness referred to earlier was insufficient to warrant transformations.

This first section of the results presents the outcome of multiple regression analyses performed separately for each of the nine dependent health variables. Results of the first set of analyses showing the effects of compatibility, attachment and social support, each represented by an overall score, appear in Table 10.6.

The results in Table 10.6 demonstrate that the combination of compatibility, pet attachment and social support significantly explains between 17 and 34 percent of the variance in mental health variables, and 6 percent of physical symptoms variance. Total compatibility contributes significantly to overall mental health, as well as to well-being, positive affect and anxiety. Thus, people who are more compatible with their pets are more likely to have better overall mental health and well-being, and to be less anxious than those who are less compatible. Although compatibility was associated with physical symptoms, such that more compatible people reported fewer symptoms, the effect was not significant. The only significant association of pet attachment can be seen with physical symptoms. The positive beta (.25) demonstrates

Table 10.7:
Regression analyses of relationships between compatibility components and all dependent variables, controlling for attachment and social support ($Ns = 113\text{-}123$).

Dependent Variable	Compatibility	Compatibility		Attachment		Social support		Adj R^2	F
		Beta	t	Beta	t	Beta	t		
MHI.I	Pet	-.18	-2.18*	.08	0.96	.49	6.01***	.26	14.43***
	Owner	-.13	-1.48	.04	0.46	.50	6.25***	.26	15.00***
Well Being	Pet	-.19	-2.35*	.18	2.26*	.55	7.12***	.34	20.67***
	Owner	-.13	-1.51	.14	1.63	.57	7.39***	.33	21.01***
Distress	Pet	.17	1.90	-.01	-0.16	-.42	-4.95***	.19	9.92***
	Owner	.12	1.13	.02	0.24	-.43	-5.12***	.19	10.34***
Control	Pet	.08	0.91	.00	-0.01	-.40	-4.66***	.15	7.93***
	Owner	.10	1.03	.05	0.53	-.40	-4.73***	.16	8.83***
Depression	Pet	.13	1.46	-.06	-0.72	-.42	-4.89***	.17	9.11***
	Owner	.08	0.87	-.05	-0.48	-.43	-5.04***	.17	9.35***
Positive Affect	Pet	-.17	-2.08*	.20	2.45*	.49	6.04***	.27	15.67***
	Owner	-.13	-1.52	.16	1.79	.50	6.26***	.27	15.94***
Anxiety	Pet	.23	2.60*	.03	0.37	-.37	-4.36***	.17	9.31***
	Owner	.13	1.40	.05	0.50	-.38	-4.40***	.15	8.07***
Emotional ties	Pet	-.18	-2.18*	.07	0.88	.50	6.17***	.27	15.10***
	Owner	-.09	-1.06	.04	0.45	.52	6.45***	.26	15.27***
PILL	Pet	.16	1.68	.21	2.14*	-.14	-1.44	.06	3.16*
	Owner	.14	1.42	.22	2.09*	-.12	-1.25	.04	2.66*

* p < .05   *** p < .001

that, unexpectedly, people who are highly attached to their pets are <u>more</u> likely to report physical health problems. Of the three independent variables, social support shows the strongest independent relationship with all the health outcomes: higher levels were seen in people with better mental health. Increased physical symptom reporting was also associated with lower levels of social support, but the effect was not significant.

Human-Pet Compatibility and Health

The figures in Table 10.6 relate to the total compatibility, attachment and social support scales and their independent associations with physical and psychological health. The second set of analyses considers the influence of the two components of compatibility on health. Compatibility was divided into pet compatibility and owner compatibility while the total attachment and social support variables were left intact. Table 10.7 presents the results of separate regression analyses for pet and owner compatibility on each of the health variables.

Table 10.7 demonstrates that pet compatibility was significantly associated with total mental health in addition to well-being, anxiety and emotional ties. Thus, people who were high on pet compatibility were more likely to have higher levels of psychological well-being, be less anxious, and have stronger emotional ties with others, than those with less compatible pets. However, there was no significant association between owner compatibility and mental health. Neither form of compatibility significantly influenced physical symptoms.

Pet Attachment and Health

The third set of analyses concerned the relationships of the two components of pet attachment with health. Relationship maintenance and intimacy were entered separately into regression equations while controlling for total compatibility and social support. Again, this process produced two regressions for each of the dependent health variables, and the results are presented in Table 10.8.

Table 10.8:
Regression analyses of relationships between pet attachment components and all dependent variables, controlling for compatibility and social support ($Ns = 108\text{-}114$)

Dependent Variable	Attachment	Attachment		Compatibility		Social support		Adj R^2	F
		Beta	t	Beta	t	Beta	t		
MHI.I	Maint.	.05	0.57	-.18	-1.96	.49	5.99***	.26	14.41***
	Intimacy	.01	0.12	-.19	-2.11*	.49	5.78***	.26	13.99***
Well Being	Maint.	.16	1.86	-.17	-2.01*	.55	7.01***	.34	20.42***
	Intimacy	.10	1.13	-.19	-2.31*	.55	6.82***	.33	19.13***
Distress	Maint.	.02	0.18	.17	1.76	-.43	-5.00***	.20	10.10***
	Intimacy	.04	0.44	.17	1.81	-.42	-4.78***	.19	9.89***
Control	Maint.	.03	0.32	.09	0.96	-.42	-4.74***	.16	8.32***
	Intimacy	.04	0.42	.09	0.96	-.40	-4.47***	.16	7.93***
Depression	Maint.	-.03	-0.29	.13	1.40	-.41	-4.75***	.17	8.77***
	Intimacy	-.02	-0.20	.13	1.39	-.41	-4.56***	.16	8.29***
Positive Affect	Maint.	.18	1.95	-.17	-1.93	.48	5.87***	.28	15.45***
	Intimacy	.12	1.30	-.19	-2.19*	.49	5.81***	.26	14.53***
Anxiety	Maint.	.04	0.45	.20	2.09*	-.39	-4.41***	.17	8.67***
	Intimacy	.08	0.88	.21	2.20*	-.38	-4.23***	.17	8.93***
Emotional ties	Maint.	.08	0.94	-.13	-1.43	.53	6.48***	.29	15.75***
	Intimacy	.03	0.27	-.15	-1.67	.51	5.99***	.26	14.08***
PILL	Maint.	.25	2.34*	.19	1.80	-.14	-1.51	.06	3.36*
	Intimacy	.18	1.67	.15	1.46	-.13	-1.29	.04	2.30

* p < .05   ** p < .01   *** p < .001

Table 10.8 demonstrates that, although all but one of the regression models are significant, there is only one health variable with which a component of pet attachment is significantly associated. Relationship maintenance has a significant impact on physical symptoms.

These results suggest that people who report more behaviours which act to maintain relationships with their pets are more likely to be affected by physical health symptoms than those who are less involved with their pets. Of the two components of attachment, relationship maintenance is the only significant predictor; no significant contribution is being made by intimacy. Therefore, although the results in Table 10.6 demonstrate an association between pet attachment and physical symptoms, albeit a non-beneficial one, separating the two components of attachment suggests that it is the relationship maintenance component that is connected to physical symptoms.

Another hypothesis from the theoretical model was an interaction whereby the impact of pet attachment on health would differ depending on the level of social support experienced by the pet owner. As was mentioned earlier, only two of these interactions were found to be significant when appropriate product terms were entered on the second step of the analyses shown in Table 10.8. One was the impact of self esteem support and relationship maintenance on physical symptoms, R^2 change(110) = .06, product term beta = .25, p = .008. The other was the impact of self esteem and intimacy on physical symptoms, R^2 change(112) = .08, product term beta = .28, p = .003.

In order to interpret these findings, scores were split at the median to create subgroups of participants who were low or high in relationship maintenance and intimacy, and low or high in self esteem support respectively. The mean score on physical symptoms for each subgroup was calculated and examined. The means for the interaction between relationship maintenance and self esteem suggested that relatively low levels of physical symptoms were reported by those people with high self esteem support, regardless of their level of pet relationship maintenance (*Ms* = 11.9 and 12.3 for low

Table 10.9:
Regression analyses of relationships between social support components and mental health, well-being, distress, control and depression, controlling for compatibility and pet attachment (*Ns* = 113-125)

Dependent Variable	Social Support	Social Support Beta	t	Compatibility Beta	t	Attachment Beta	t	Adj R^2	F
MHI.I	Self esteem	.48	5.74***	-.13	-1.38	.01	0.05	.24	12.99***
	Belonging	.34	4.03***	-.19	-2.02*	.00	0.00	.15	7.95***
	Tangible	.29	3.42***	-.24	-2.51*	-.04	-0.42	.11	6.34***
	Appraisal	.43	5.22***	-.26	-2.78**	-.00	-0.05	.22	12.38***
Well Being	Self esteem	.53	6.50***	-.10	-1.18	.10	1.12	.30	16.70***
	Belonging	.39	4.65***	-.18	-1.93	.11	1.14	.19	10.50***
	Tangible	.33	4.01***	-.23	-2.43*	.05	0.55	.15	8.35***
	Appraisal	.47	5.98***	-.25	-2.86**	.10	1.15	.28	16.47***
Distress	Self esteem	-.43	-4.99***	.12	1.29	.06	0.59	.19	10.03***
	Belonging	-.30	-3.46**	.19	1.93*	.06	0.64	.11	5.98***
	Tangible	-.25	-2.84**	.23	2.36*	.09	0.96	.08	4.78**
	Appraisal	-.38	-4.42***	.24	2.53*	.07	0.70	.17	9.10***
Control	Self esteem	-.36	-4.01***	.06	0.57	.07	0.68	.12	6.16***
	Belonging	-.29	-3.22**	.10	1.00	.07	0.71	.08	4.43**
	Tangible	-.27	-3.10**	.14	1.40	.09	0.95	.07	4.16**
	Appraisal	-.39	-4.50***	.15	1.57	.07	0.70	.15	8.00***
Depression	Self esteem	-.41	-4.67***	.11	01.14	.01	0.13	.17	8.60***
	Belonging	-.31	-3.62***	.18	1.82	.01	0.06	.12	6.39***
	Tangible	-.17	-1.95	.22	2.26*	.06	0.56	.05	3.16*
	Appraisal	-.37	-4.34***	.21	2.21*	.01	0.06	.16	8.35***

* p < .05   ** p < .01   *** p < .001

and high relationship maintenance respectively). However, for people with less self esteem support, more physical symptoms were associated with more pet relationship maintenance (*Ms* = 14.9 and 20.7 for low and high relationship maintenance respectively). The interaction between intimacy and self-esteem suggested that for people with high self esteem, a more intimate pet relationship was associated with fewer physical symptoms (*Ms* = 13.5 and 9.4 for low and high intimacy respectively), but for those with less self esteem support, a more intimate pet relationship was associated with higher reporting of physical symptoms (*Ms* = 14.5 and 19.8 for low and high intimacy respectively).

Social Support and Health

The final analyses examined the role of the social support components in explaining the variance in health. As before, the procedure involved dividing social support into its four subscales and considering their effects separately whilst controlling for compatibility and attachment. Standard multiple regression analyses were performed and the results appear in Tables 10.9 and 10.10.

It can be seen from these tables that each social support measure is having a significant impact on all the mental health outcomes. Thus, people who are high in social support were more likely to experience higher levels of positive, and lower levels of negative, mental health than those who are low in social support. Self esteem and appraisal of social support were consistently more strongly associated with mental health than the other forms of social support, tangible and belonging. Only tangible social support impacted significantly on physical symptoms, however, in that people with lower levels of tangible support were likely to report increased physical health symptoms.

Summary

The results suggest that the people who were more compatible with their pets had better total mental health and well-being, more positive affect well-being and less anxiety. The division of compatibility into pet compatibility and owner compatibility

Table 10.10:
Regression analyses of relationships between social support components and positive affect, anxiety, emotional ties and physical symptoms, controlling for compatibility and pet attachment
(*Ns* = 113-125)

Dependent Variable	Social Support	Social Support		Compatibility		Attachment		Adj R²	F
		Beta	t	Beta	t	Beta	t		
Positive	Self esteem	.47	5.66***	-.12	-1.26	.13	1.41	.25	13.36***
Affect	Belonging	.32	3.78***	-.18	-1.91	.12	1.31	.15	8.22***
	Tangible	.29	3.44***	-.22	-2.34*	.08	1.84	.13	7.09***
	Appraisal	.42	5.15***	-.24	-2.68**	.13	1.36	.24	13.36***
Anxiety	Self esteem	-.42	-4.87***	.15	1.61	.08	0.82	.20	10.12***
	Belonging	-.25	-2.85**	.22	2.25*	.09	0.96	.09	5.26**
	Tangible	-.22	-2.50*	.25	2.61**	.12	1.20	.08	4.60**
	Appraisal	-.33	-3.78***	.27	2.84**	.10	1.06	.15	7.92***
Emotional	Self esteem	.44	5.06***	-.08	-0.89	.02	0.18	.19	9.74***
Ties	Belonging	.40	4.75***	-.12	-1.30	.03	0.27	.17	9.01***
	Tangible	.35	4.16***	-.17	-1.85	-.02	-0.21	.13	7.21**
	Appraisal	.45	5.42***	-.20	-2.13*	.02	0.18	.22	11.82***
PILL	Self esteem	-.19	-2.02*	.14	1.37	.23	2.21*	.07	3.77*
	Belonging	-.05	-0.59	.19	1.90	.23	2.19*	.03	2.35
	Tangible	-.19	-2.08*	.20	1.96*	.21	2.07*	.06	3.72*
	Appraisal	-.10	-1.10	.22	2.10*	.24	2.29*	.05	2.92*

* p < .05   ** p < .01   *** p < .001

demonstrated that it was the former that was influential in those aspects of mental health as well as being associated with stronger emotional ties. Pet attachment was associated with physical health symptoms but, unexpectedly, the results showed that people who were strongly attached to their pets reported <u>more</u> physical symptoms. Dividing pet attachment into two components revealed that it was the relationship maintenance component that was responsible for the effect. Although the general trend was a lack of association between total pet attachment and mental health, relationship maintenance was related to positive affect such that people reporting more relationship maintenance behaviours with their pets, were higher in positive affect. Total social support was consistently associated with all forms of mental health, but not with physical symptoms. When the four social support components were considered individually, self esteem and appraisal of social support were most strongly associated with mental health. Tangible support was the only component to be associated with physical symptoms in that people reporting higher levels of tangible social support were most likely to report fewer effects of physical health symptoms. The results revealed no mediating or moderating effects other than the interactions between the self esteem component of social support and pet attachment in their effect on physical symptoms.

CHAPTER 11

Study Four: Human-Companion Animal Relationships and Health

Discussion

The main focus of this study was the compatibility between a pet and its owner and how, relative to pet attachment and social support, it influenced the mental and physical health of the owner. The results suggest that human-pet compatibility was successfully measured and differentiated from pet attachment and social support. The mean pet compatibility score was higher than the owner compatibility score suggesting that the participants rated themselves as being closer to the ideal owner than they rated their pets in comparison with the ideal pet. This could arise from people being able to view others, in this case their pets, more objectively than they view themselves, and so be able to contrast actual and ideal dimensions more realistically. Alternatively it is likely that, as a result of the way pets are viewed in western society, people are not accustomed to considering their own abilities as owners. In other words, they tend to view the pet-owner relationship predominantly from the human angle in terms of what the pet does for them, and give less consideration to what they can, or should, provide for the animal's needs.

Compatibility did not affect health through pet attachment as expected, but had an independent effect on mental health. People who were more compatible with their pets experienced better overall mental health, greater well-being, more positive affect and less anxiety. When compatibility was separated into two, it appeared that it was the pet rather than the owner component that was associated with mental health. The compatibility results suggest that being highly compatible with your pet has beneficial mental health consequences. Perhaps a good, interactive relationship with a companion animal increases feelings of happiness, releases tension and adds to the quality of life

155

so that we are less affected by problems and feel more positive about ourselves and our lives in general. A less compatible relationship is likely to create, rather than reduce, tensions and may introduce stress into a household if a pet is disobedient, destructive or hard to control in some way. This may then produce, or add to existing, feelings of anxiety, or a lack of well-being.

The pet attachment results were unexpected as, not only was the level of attachment not correlated with any of the mental health measures, but it was positively correlated with physical symptoms. This implies that people who are more attached to their pets, and specifically are more involved in pet relationship maintenance behaviours, report being more affected by physical symptoms. A possible explanation for this unexpected finding could be that the people in this sample were over reporting both attachment and physical symptoms, even though a comparison of pet attachment scores with those found in previous studies found them to be similar. Overall, mean scores for men and women were lower than those found by Holcomb et al, (1985) and marginally higher than those found by Marks et al., (1994). Women scored significantly higher than men on both intimacy and relationship maintenance, replicating findings of the first study (Holcomb et al., 1985), but not the second (Marks et al., 1994) which found females to have higher scores than males but not significantly so. An alternative explanation could be that people who spend a lot of time in close proximity to their pets are more attached to them and are also affected physically by symptoms related to this closeness. For example symptoms associated with asthma or dust allergies may be exacerbated by close contact with animals. Further investigation of the types of symptoms reported by those who were strongly attached to their pets may provide some support for this explanation.

Considering the attachment finding from a reverse perspective, it could also suggest that people who reported being more affected by physical symptoms are also strongly attached to their pets. Perhaps people who are physically unwell are also less involved in activities and so spend more time with their pets, maybe using them as a form of compensation, and grow more attached to them as a result. Alternatively, the degree

to which people are attached to their pets and report physical health symptoms could be influenced by a third factor such as neuroticism for example. People with neurotic tendencies report more physical symptoms (Watson & Pennebaker, 1991) and may also be neurotically attached to their pets. However, it should be noted that particular ways of responding that arise from another unmeasured factor such as neuroticism may affect responses to other measures such as compatibility, and the same anomalous relationship was not found between compatibility and physical symptoms.

A previous study which employed an elderly sample (Garrity et al., 1989) found that although pet ownership alone was not associated with either emotional or physical health status, those people who expressed strong attachment to an animal companion were less depressed than non owners or less attached participants. In the current study, however, pet attachment and depression were not significantly correlated suggesting that attachment was unrelated to depression.

Previous research on social support suggested that it is positively associated with mental health but less obviously related to physical health. The results of this study provide support for this idea with social support being associated with all types of mental health but not with physical symptoms. The mental health findings are consistent with those of previous studies summarised by Cohen et al. (1985), in that high levels of total social support have been consistently positively associated with psychological well-being and negatively with psychological symptoms. In the present study, the perceived availability of a positive model to compare oneself with, and the perceived availability of people to do things with, were found to be most strongly associated with mental health. The perceived availability of material help was least related to mental health. This pattern also replicates previous findings (Cohen et al., 1985). Cohen et al. also found some associations between social support and physical health with their community sample. Limited support for these findings was provided by the current results as the correlations demonstrated a negative relationship between self-esteem and physical health but this was not evident with total social support. At a multivariate level, two of the social support components were linked with physical

symptoms: the perceived availability of material aid and the perceived availability of someone with whom to compare oneself.

The suggestion that in terms of health, women benefit more than men from social support (Gerstman, 1987) was not supported in this study. The sex of the participants was not significantly correlated to any variable except pet attachment and did not interact with social support for either physical or mental health. Gerstman also suggested that age may influence how much one benefits from having a pet, but this was also unsupported in this study.

The predicted interaction between pet attachment and social support with respect to beneficial health effects was derived from previous work carried out by Garrity et al. (1989) and Ory and Goldberg (1983). It has been proposed that pet attachment may be more beneficial for those owners who are low in human social support, because pets take over some of the social support role for those who have fewer meaningful links with other people. Overall, this suggestion was not supported in this study as a form of social support moderated the relationship between pet attachment and health in only two of the component analyses. The physical health of those with more self-esteem support was unaffected by the degree to which they maintained a relationship with their pet, but they reported fewer health symptoms if they had an intimate relationship with the pet. The trend for people with less self-esteem support was the same across both types of pet attachment: higher levels of relationship maintenance or intimacy were associated with increased symptoms reporting. This finding suggests that people with low levels of self-esteem support may be disadvantaged by being highly attached to their pets, while those who have more self-esteem support may be advantaged with respect to physical health or at least their perceptions of how much they are concerned by health symptoms. In general, however, social support and pet attachment were not seen to interact with respect to either physical or mental health.

A possible explanation for this is that the interaction does exist but that, due to limited variability in levels of social support and pet attachment, the phenomenon was not

apparent in the current sample. The participants in the study were mainly people enrolled in extramural university courses and their spouses, and as such they are likely to be fairly well integrated into social networks and experience relatively high levels of social support. Although the average social support scores of the people involved in this study were comparable to those found by previous researchers (e.g. Cohen et al., 1985), they too used predominantly student samples which may also have demonstrated limited variability. If a range of people experiencing quite different degrees of social support could be sampled, it would be interesting to design a measure targeting support from companion animals with the expectation that people with compatible pets may experience them as a form of social support in the absence of high levels of human support. However, the effect may only be evident in those who are socially isolated and by definition such people are hard to find, especially in sufficient numbers to fulfil statistical power requirements. The group of people who are most likely to be socially isolated are the elderly, which possibly explains the use of elderly samples in the few studies of social support and pet attachment studies. Evidence for this was provided by Garrity et al. (1989) who found strong pet attachment to be linked to less reported illness in elderly bereaved people, but only for those who had less available social support.

With respect to pet attachment, it is likely that the voluntary nature of participation in the study resulted in an unbalanced sample with a predominance of strongly attached owners. People who dislike or are annoyed by their pets are less likely to be prepared to fill in a lengthy questionnaire involving pet ownership details, although the process would allow people who are upset by their pets an opportunity to complain about them. In order to test the predicted relationship between social support and pet attachment further, it would be necessary to identify sufficient numbers of people who are low in social support and also people who are less attached to their pets, to provide the necessary comparison.

The foregoing suggestions revolve around the sampling issues inherent in most small scale studies. Failure to detect interactions which do actually exist may also reflect

purely statistical issues as explained by McClelland and Judd (1993). These authors discuss the statistical difficulties of detecting interaction effects in field research where effects may be swamped by uncontrolled error variance, in contrast to the more controlled conditions achievable in experiments.

The most important aspect of compatibility, and that which differentiates it from other conceptualisations of the human-animal relationship, is that of matching a person's and pet's needs. People have specific expectations of a pet and of the relationship they experience with it and companion animals also require certain contributions from their owners in order to enjoy a good quality of life. By facilitating a comparison of ideal and actual behaviours, feelings and needs, the compatibility measure endeavoured to capture this matching process. Another contribution made by the compatibility concept was the distinction between owner compatibility and pet compatibility. Previous quantifications of the human-companion animal relationship have dealt with behaviours and feelings associated with it, but have focused mainly on the owners' feelings about, and behaviours towards the pet in terms of attitudes or attachment. A neglected aspect has been the measurement of people's feelings and assessments of themselves as owners, who may or may not consider the animal's needs. However, it is notable that the compatibility means suggest that overall pet-owner compatibility was high in this sample and, as with pet attachment and social support, more variability in compatibility might enhance the existing effects. The correlation between pet attachment and compatibility was moderate in magnitude, and this, in conjunction with their different impacts of compatibility and attachment on health, suggests that the two measures were capturing different aspects of the pet-owner relationship.

The measure of compatibility developed for this study therefore makes a useful contribution to the human-companion animal relationship field. It proved to be reliable, and its construct and criterion validity were supported by appropriate correlations with an established measure of pet attachment and with mental health variables respectively. This reliability and validity may be partly due to the specific nature of the experiences which respondents were asked to rate. They were asked to

160

consider daily interactions they have with their pets, such as exercising and feeding, as well as ongoing issues such as the animal's temperament and their own lifestyle.

Despite the psychometric strength of the compatibility measure, this was its first trial and the process highlighted a number of improvements which could be made. For example, in developing the AHCS for use in this study 7 of the 48 items were dropped from the analysis due to a lower than average response rate. In six of the seven, the lack of response was due to the questions being more appropriate to dog than cat owners, which suggests that two versions of the compatibility measure could be developed, one for dog owners and one for cat owners. Another possible change concerns the way in which the items were presented. To discourage any tendency for participants to respond in a set fashion by choosing the same response for each question, the scales were reversed for some items such that the positive end of the scale, when there was one, was not always represented by the same number. Although this appeared to work for most participants, some were confused, or did not read each item carefully, and consequently responded to certain items without noticing the change in the anchor points. This meant that while they answered correctly with respect to providing an ideal and an actual rating on each item, the number associated with each rating was not always correct. Thus the difference scores, which were calculated in the present study by taking the absolute difference between the ideal and actual ratings, were the only ones which could be used. In future studies it would be better to rearrange the scales so that the positive poles are aligned, thus keeping the position of similar responses consistent. Under such conditions a meaningful average ideal score and an average actual score, in addition to the difference score, would be produced. It should be noted, however, that because not all items have obvious positive and negative anchors, an absolute difference score nonetheless provides the most appropriate measure of compatibility.

As outlined in the introductory overview of this thesis, the present conceptualisation of compatibility distinguishes three dimensions for both owner and animal: physical, behavioural and psychological. The items included in the measure were selected to

represent all three dimensions within both the pet and the owner sections. Further work with this measure could involve creating subscales that are different from the pet and owner subscales used in this study, consisting of the physical, behavioural and psychological items respectively. It may be that one dimension is more strongly associated with mental and/or physical health than the others, and this may vary with respect to owners and pets of different species.

In summary, the findings of the present study provide further support for the general proposition that the quality of the relationship between people and their pets has consequences for the owner's health. The particular theoretical model which was tested proved to be inaccurate in various respects, but the constructs it contained all showed some empirical connection. In addition to rethinking some of these theoretical links in future studies, it might also be fruitful to extend the health variables. For example, it would be interesting to examine specific physical illnesses rather than to rely solely on self-reports of physical symptoms with all their well known biases (Pennebaker, 1982). More generally, it might also be enlightening to consider the effects of the pet-owner relationship on the animal's health, and perhaps the implications of this for the owner's health.

CHAPTER 12

Future Directions

This thesis investigated a little studied aspect of human-pet relationships, namely compatibility. Two theoretically distinct approaches were adopted, to examine how the compatibility of owners and pets is perceived and how the experience of compatibility impacts on the owner's health, respectively. The first theoretical approach emphasised cognitive schemas, notably in the form of common stereotypes, which we use to assess the apparent compatibility of particular owner-pet combinations. The second approach focused on the wide range of needs, behaviours and feelings which underlie the actual experience of compatibility. These conceptualisations of compatibility gave rise to two separate research approaches. The first three experimental studies considered the existence and substance of pet-owner stereotypes, and the fourth survey study investigated how the experience of compatibility affects the owner's physical and mental health.

Despite the differing theoretical emphasis of the two parts, an overlap must be acknowledged. Although the health survey focused on the experience of compatibility, the 'actual' and 'ideal' ratings used to measure compatibility were still perceptions, albeit of oneself rather than of others. The 'actual' ratings reflected people's perceptions of their animals as pets and themselves as owners. These perceptions would have been influenced by all the usual self-report biases as well as by the unfamiliarity of the self-rating task. The 'ideal' ratings of pets and owners are clearly perceptions and even more likely to be subject to a range of influences. In particular, they may be informed by social stereotypes about 'perfect' human-pet relationships and combinations, as well as by social comparisons with specific others who are pet owners. Thus, the theoretical approaches overlapped to the extent that they both involved perceptions, but especially to the extent that stereotypes influence self-ratings of compatibility.

Assessing compatibility in others may still involve different processes to those used when assessing oneself, despite the fact that both are based on perceptions. It has been noted that stereotypes are often applied in situations where information is lacking (Aronson, 1992). Thus, they are likely to be more influential in judgements of others than of oneself.

The extent of the information taken into account when considering types of pets which might be suitable for oneself means that stereotypes are less likely to form the basis of judgements. The results of the stereotype studies bear this out to some degree, as there was a lot of emphasis placed on physical attributes, such as hair colour, particularly in the photograph matching study. It seems unlikely that such physical attributes would be influential in making judgements about one's own compatibility.

Whatever arguments are made about connections between perceptions of compatibility and experienced compatibility, it was not the purpose of this thesis to analyze them, either theoretically or empirically. The linkages provide a fruitful line for future research, but would be best approached by investigating both stereotypes and the experience of compatibility using comparable measures within the same sample. The different designs, measures and samples used in the present studies meant that the information obtained was not directly comparable. For example, it was not possible to examine whether the specific characteristics participants used in pairing owners and pets were different from those which informed the self-ratings of compatibility.

Any future studies of compatibility need to take account of change in a number of senses. Because stereotypes are socially held beliefs, they are influenced by changes in social and cultural norms and expectations. This makes them dynamic phenomena which vary from generation to generation and across different cultures. This theme was signalled in the discussion of the stereotype studies where shifts in gender roles were proposed as an explanation of the anomalous findings on gender-species pairings. Comparative historical and cross-cultural analyses of pet-owner stereotypes might provide a fruitful line of inquiry. Such changes and differences in compatibility

stereotypes suggest that the experience of compatibility itself may not be a constant. Just as certain animal breeds fluctuate in popularity and characteristics change with selective breeding, suitability of particular pets for people will also change. Compatibility is consequently a dynamic and relative concept which can only be understood within a given socio-historical context.

The notion of change is also relevant to the experience of compatibility in a particular owner-pet history. The compatibility of a person and pet combination has the potential to change as the respective requirements and expectations of both pet and owner develop. The health study provided a very limited view of this process. Compatibility ratings were correlated with length of ownership, but there appeared to be no association. However, since compatibility was measured at only one point in time, unless a sufficient number of the participants experienced a similar trend in the development of compatibility, a relationship between time and the development of compatibility would not be readily identified. Future research could adopt a longitudinal approach in order to investigate the development of compatibility within a human-pet partnership over time. A longitudinal study would also assist in further identifying the elements of compatibility, and enable the consideration of longer term effects of incompatibility with respect to owners' health and well-being.

In addition to the preceding theoretical conclusions and recommendations for future research, there is at least one applied aspect of the thesis which could be developed further. The measure of pet-owner compatibility was designed to assess existing relationships. It could be developed for use in assisting prospective owners in the selection of compatible pets. Enabling people to identify the aspects of their respective lifestyles and expectations of the relationship which are important for a good match between pet and owner could result in fewer unwanted pets or pets with behavioural problems.

Whether the particular lines of research identified above are considered worthwhile or not, it seems clear that the construct of pet-owner compatibility is both viable and fruitful. The multiple dimensions of the construct, the relative ease with which they can be operationalised, and the coherence of the present findings all suggest that the introduction of the compatibility perspective to research on pets and owners constitutes a substantive contribution to the field.

References

Ainsworth, M. D. S., & Bell, S. M. (1974). Mother-infant interaction and the development of competence. In K. J. Connoly & J. Bruner (Eds.), *The growth of competence* (pp. 97-118). London: Academic Press.

Akiyama, H., Holtzman, J. M., & Britz, W. E. (1986-87). Pet ownership and health status during bereavement. *Omega, 17*(2), 187-193.

Albert, A., & Bulcroft, K. (1988). Pets, families and the life course. *Journal of Marriage and the Family, 50*, 543-552.

Allen, K. M., Blascovich, J., Tomaka, J., & Kelsey, R. M. (1991). Presence of human friends and pet dogs as moderators of autonomic responses to stress in women. *Journal of Personality and Social Psychology, 61*(4), 582-589.

Allen, R. D., Westbrook, W. H., Cartier, M., Burnette, P., & Hoag, T. (1979). Attitude and personality surveys. In R. D. Allen & W. H. Westbrook (Eds.), *The handbook of animal welfare* (pp. 129-147). New York: Garland STPM Press.

Alley, T. R. (1988). Physiognomy and social perception. In T. R. Alley (Ed.), *Social and applied aspects of perceiving faces* (pp. 167-186). Hillsdale, New Jersey: Erlbaum.

Anderson, W. P., Reid, C. M., & Jennings, G. L. (1992). Pet ownership and risk factors for cardiovascular disease. *The Medical Journal of Australia, 157*, 298-301.

Antonucci, T. C. (1985). Social support: Theoretical advances, recent findings and pressing issues. In I. G. Sarason & B. R. Sarason (Eds.), *Social support: Theory, research and applications* (pp. 21-37). Dordrecht: Martinus Nijhoff Publishers.

Arkow, P. (1985). The humane society and the human-companion animal bond. *Veterinary Clinics of North America: Small Animal Practice, 15*(2), 455-466.

Aronson, E. (1992). *The social animal.* New York: W. H. Freeman & Co.

Ashmore, R. D. (1981). Sex stereotypes and implicit personality theory. In D. L. Hamilton (Ed.), *Cognitive processes in sterotyping and intergroup behaviour* (pp. 37-81). Hillsdale, New Jersey: Erlbaum.

Ashmore, R. D., & Del Boca, F. K. (1981). Conceptual approaches to stereotypes and stereotyping. In D. L. Hamilton (Ed.). *Cognitive processes in stereotyping and intergroup behaviour* (pp. 1-35). Hillsdale, New Jersey: Erlbaum.

Atkins, T. V., Jenkins, M. C., & Perkins, M. H. (1990-91). Portrayal of persons in television commercials age 50 and older. *Psychology: A Journal of Human Behaviour, 27*(4), & *28*(1), 30-37.

Augarde, T. (1991). *The Oxford Dictionary of Modern Quotations.* Oxford: Oxford University Press.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1175-1182.

Baun, M. M., Bergstrom, N., Langston, N. F., & Thoma, L. (1984). Physiological effects of petting dogs: Influences of attachment. In R. K. Anderson, B. L. Hart & L. A. Hart (Eds.), *The pet connection* (pp. 162-170). Minnesota: Centre to Study Human-Animal Relationships and Environments.

Baun, M. M., Oetting, K., & Bergstrom, N. (1991). Health benefits of companion animals in relation to the physiologic indices of relaxation. *Holistic Nursing Practice, 5*(2), 16-23.

Beaver, B. V. (1976). Animal behaviour: Pets and people. In *Proceedings of the National Conference on Dog and Cat Control* (pp. 37-39). Denver, Colorado.

Bem, S. L. (1974). The measurement of psychological androgyny. *Journal of Consulting and Clinical Psychology, 42*, 155-162.

Bergler, R. (1988). *Man and dog: The benefits of dog ownership*. Oxford: Blackwell Scientific Publications.

Bergler, R. (1989). *Man and cat: The benefits of cat ownership*. Oxford: Blackwell Scientific Publications.

Bodenhausen, G. V., & Wyer, R. S. (1985). Effects of stereotypes on decision making and information processing strategies. *Journal of Personality and Social Psychology, 48*, 267-282.

Bolin, S. E. (1987). The effects of companion animals during conjugal bereavement. *Anthrozoös, 1*(1), 26-35.

Branco, K. J., & Williamson, J. B. (1982). Stereotyping and the life cycle: Views of aging and the aged. In A. G. Miller (Ed.), *In the eye of the beholder* (pp. 364-410). New York: Praeger.

Branscombe, N. R., & Smith, E. R. (1990). Gender and racial stereotypes in impression formation and social decision-making processes. *Sex Roles, 22*(9/10), 627-647.

Bretherton, I. (1992). The origins of attachment theory: John Bowlby and Mary Ainsworth. *Developmental Psychology, 28*, 759-775.

Brewer, M. B. (1988). A dual process model of impression formation. In T. K. Srull & R. S. Wyer Jr. (Eds.), *Advances in social cognition, Vol 1* (pp. 1-36). Hillsdale, New Jersey: Erlbaum.

Brewer, M. B., Dull, V., & Lui, L. (1981). Perceptions of the elderly: Stereotypes as prototypes. *Journal of Personality and Social Psychology, 41*, 656-670.

Brewer, M. B., & Lui, L. N. (1989). The primacy of age and sex in the structure of person categories. *Social Cognition, 7*, 262-274.

Brickel, C. M. (1982). Pet-facilitated psychotherapy: A theoretical explanation via attention shifts. *Psychological Reports, 50*, 71-74.

Brickel, C. M. (1984). Depression in the nursing home: A pilot study using pet-facilitated psychotherapy. In R. K. Anderson, B. L. Hart & L. A. Hart (Eds.), *The pet connection* (pp. 407-415). University of Minnesota: Centre to Study Human-Animal Relationships and Environments.

Brigham, J. C. (1971). Ethnic stereotypes. *Psychological Bulletin, 76*, 15-33.

Brodie, J. D. (1981). Health benefits of owning pet animals. *Veterinary Record, 109*, 197-199.

Broverman, I. K., Vogel, S. R., Broverman, D. M., Clarkson, F. E., & Rosenkrantz, P. S. (1972). Sex-role stereotypes: A current appraisal. *Journal of Social Issues, 28*(2), 59-78.

Brown, L. T., Shaw, T. G., & Kirkland, D. (1972). Affection for people as a function of affection for dogs. *Psychological Reports, 31*, 957-958.

Budge, R. C. (1990). *Companion animals in families and households: A survey of attitudes.* An unpublished masterate thesis. Palmerston North: Massey University.

Burrows, I. E. (1990). Introduction in I. H. Burger (Ed.), *Waltham Symposium 20: Pets, Benefits and Practice (pp.* i). London: B.V.A. Publications.

Bustad, L. K. (1979). Profiling animals for therapy. *Western Veterinarian, 17*(1), 2.

Cameron, P., Conrad, C., Kirkpatrick, D. D., & Bateen, R. J. (1966). Pet ownership and sex as determinants of stated affect toward others and estimates of others' regard of self. *Psychological Reports, 19*, 884-886.

Cameron, P., & Mattson, M. (1972). Psychological correlates of pet ownership. *Psychological Reports, 30*, 286.

Campbell, W. E. (1975). *Behaviour Problems in Dogs.* California: American Veterinary Publications.

Case, D. B. (1987). Dog ownership: A complex web. *Psychological Reports, 60*, 247-257.

Cassileth, B. R., Lusk, E. J., Strouse, T. B., Miller, D. S., Brown, L. L., Cross, P. A., & Tenaglia, A. N. (1984). Psychosocial status in chronic illness. *The New England Journal of Medicine, 311*, 506-11.

Chamberlain, K., & Zika, S. (1992). Stability and change in subjective well-being over short time periods. *Social Indicators Research, 26*, 101-117.

Coffey, D. (1982). *A veterinary surgeon's guide for cat owners.* England: World's Work Ltd.

Cohen, S., & Hoberman, H. M. (1983). Positive events and social supports as buffers of life change stress. *Journal of Applied Social Psychology, 13*(2), 99-125.

Cohen, S., Mermelstein, R., Kamarck, T., & Hoberman, H. M. (1985). Measuring the functional components of social support. In I. G. Sarason & B. R. Sarason (Eds.), *Social support: Theory, research and applications* (pp. 73-94). Boston: Martinus Nijhoff Publishers.

Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin, 98*, 310-357.

Collis, G. M., & McNicholas, J. (1995). *Health benefits of pet ownership: Attachment versus psychological support*. Paper presented at the 7th International Conference on Human-Animal Interaction, Geneva.

Connell, C. M., & Lago, D. (1984). Favourable attitudes towards pets and happiness among the elderly. In R. K. Anderson, B. Hart & L. A. Hart (Eds.), *The pet connection* (pp. 241-50). Minneapolis: Centre to Study Human-Animal Relationships and the Environment.

Cook, M. (1979). *Perceiving others*. London: Methuen.

Corlett, D. G. (1988). *The development of a geodemographic classification system in Palmerston North*. An unpublished honours project. Palmerston North: Massey University.

Corson, S. A., Corson, E. O., & Gwynne, P. H. (1975). Pet facilitated psychotherapy. In R. S. Anderson (Ed.), *Pet animals and society*. New York: Ballière-Tindall.

Council for Science and Society. (1988). *Companion animals in society*. Oxford: Oxford University Press.

Covert, A. M., Whiren, A. P., Keith, J., & Nelson, C. (1985). Pets, early adolescents, and families. *Marriage and Family Review, 8*(3-4), 95-108.

Dalgard. O. S. (1986). Living conditions, social network and mental health. In S-O Isacsson & L. Janzon (Eds.), *Social support - Health and disease* (pp. 71-85). Stockholm: Almqvist & Wiksell International.

Day, C. T. (1983). Urban pet neuroses. In R. W. Murray (Ed.), *The Proceedings of the Urban Animal Integration Symposium (pp. 37-48)*. Brisbane: Queensland Division of the Australian Veterinary Association.

DiMatteo, M. R., & Hays, R. (1981). Social support and serious illness. In B. H. Gottlieb (Ed.), *Social networks and social support*. Beverly Hills: Sage.

Dunbar, I. (1987). Animal behaviour: The animal's side of the bond. In P. Arkow (Ed.), *The loving bond: Companion animals in the helping professions* (pp. 83-105). California: R & E Publishers.

Eagly, A. H., & Steffen, V. J. (1984). Gender stereotypes stem from the distribution of men and women into social roles. *Journal of Personality and Social Psychology, 46*, 735-754.

Endenburg, H., Hart, H., & de Vries, H. W. (1990). Differences between owners and nonowners of companion animals. *Anthrozoös, 4*(2), 120-126.

Eddy, J., Hart, L. A., & Boltz. (1987). The effects of service dogs on social acknowledgements of people in wheelchairs. *The Journal of Psychology, 122*(1), 39-45.

Edelson, J., & Lester, D. (1983). Personality and pet ownership: A preliminary study. *Psychological Reports, 53*, 990.

Feldmann, B. M. (1977). Why people own pets: Pet owner psychology and the delinquent owner. *Animal Regulation Studies, 1*, 87-94

Fiske, S. T. (1993). Social cognition and social perception. *Annual Review of Psychology, 44*, 155-194.

Fiske, S. T., & Taylor, S. E. (1991). *Social cognition: Second edition*. New York: McGraw-Hill.

Fogel, A., & Melson, G. F. (1988). *Child development: Individual family and society*. St Paul, Minnesota: West.

Fogle, B. (1983). *Pets and their people*. London: William Collins Sons & Co.

Fogle, B. (1990). *The dog's mind*. London: Pelham Books \ Stephen Greene Press.

Fox, M. W. (1975). Pet-owner relations. In R. S. Anderson (Ed.). *Pet animals and society* (pp. 37-53). London: Ballière-Tindall.

Fox, M. W. (1981). *How to be your pet's best friend*. New York: Coward, McCann & Geoghegan.

Friedmann, E. (1990). The value of pets for health and recovery. In I. H. Burger (Ed.), *Waltham Symposium 20: Pets, Benefits and Practice*, (pp. 8-18). London: B.V.A. Publications.

Friedmann, E., Katcher, A. H., Eaton, M., & Berger, B. (1984). Pet ownership and psychological status. In R. K Anderson, B. L. Hart & L. A. Hart (Eds.), *The pet connection* (pp. 301- 308). Minnesota: Centre to Study Human-Animal Relationships and Environments.

Friedmann, E., Katcher, A. H., Lynch, J. J., & Thomas, S. A. (1980). Animal companions and one year survival of patients after discharge from a coronary care unit. *Public Health Reports, 95*, 307-312

Friedmann, E., Locker, B. Z., & Lockwood, R. (1993). Perception of animals and cardiovascular responses during verbalization with an animal present. *Anthrozoös, 6*(2), 115-134.

Friedmann, E., & Lockwood, R. (1991). Validation and use of the animal thematic apperception test (ATAT). *Anthrozoös, 4*(3), 174-183.

Fusilier, M. R., Ganster, D. C., & Mayes, B. T. (1987). Effects of social support, role stress and locus of control on health. *Journal of Management, 13*(3), 517-528.

Gardner, C. (1980). Passing by: Street remarks, address rights, and the urban female. *Sociological Inquiry, 50*(3), 328-356.

Garmonsway, G. N. (1979). *The Penguin English dictionary (3rd Ed.)*. Harmondsworth, England: Penguin Books Ltd.

Garrity, T. F., Stallones, L., Marx, M. B., & Johnson, T. (1989). Pet ownership and attachment as supportive factors in the health of the elderly. *Anthrozoös, 3*(1), 35-44.

Gerstman, B. B. (1987). Pet ownership and human well-being. *Compendium of Continuing Education for Practising Veterinarians, 9*(2), 132-137.

Goodwin, R. D. (1975). Trends in the ownership of domestic pets in Great Britain. In R. S. Anderson (Ed.). *Pet animals and society* (pp. 96-102). London: Ballière-Tindall.

Grossberg, J. M., & Alf, E. F. (1985). Interaction with pet dogs: Effects on human cardiovascular response. *Journal of the Delta Society, 2*(1), 20-27.

Grossberg, J. M., Alf, E. F., & Vormbrook, J. K. (1988). Does pet dog presence reduce human cardiovascular responses to stress? *Anthrozoös, 2*(2), 38-44.

Guttman, G. (1981). The psychological determinants of keeping pets. In B. Fogle (Ed.), *Interrelations between people and pets* (pp. 89-98). Springfield, Illinois: Charles C. Thomas.

Hafez, E. S. E. (1975). *The Behaviour of Domestic Animals*. London: Ballière Tindall.

Hamilton, D. L., & Trolier, T. K. (1986). Stereotypes and stereotyping: An overview of the cognitive approach. In J. F. Davidio & S. L. Gaertner (Eds.), *Prejudice, discrimination and racism* (pp. 127-163). London: Academic Press.

Harris, C. T. (1988). Human-pet relationships among veterinary clients. *Compendium of Continuing Education for the Practicing Veterinarian, 10*(2), 193-200.

Harris, M. B. (1983). Some factors influencing selection and naming of pets. *Psychological Reports, 53*, 1163-1170.

Hart, B. L. (1979). Feline behaviour: Breed-specific behaviour. *Feline Practice, 9*(6), 10-13.

Hart, B. L. (1980). Feline behaviour: Prescribing cats. *Feline Practice, 10*(1), 8-12.

Hart, B. L., & Hart, L. A. (1984). Selecting the best companion animal: Breed and gender specific behavioral profiles. In R. K. Anderson, B. L. Hart & L. A. Hart (Eds.), *The pet connection: Its influence on our health and quality of life* (pp. 180-193). St Paul: Centre to Study Human-Animal Relationships and Environments.

Hart, B. L., & Hart, L. A. (1985). Selecting pet dogs on the basis of cluster analysis of breed behaviour profiles and gender. *Journal of the American Veterinary Medicine Association, 186*(11), 1181-1185.

Hart, B.L., & Hart, L.A. (1988). *The perfect puppy: How to choose your dog by its behaviour*. New York: W.H. Freeman & Co.

Heider, F. (1958). *The psychology of interpersonal relations*. New York: Wiley.

Heiman, M. (1965). Psychoanalytic observation on the relationship of pet and man. *Veterinary Medicine Small Animal Clinician, July*, 713-718.

Heitzmann, C. A., & Kaplan, R. M. (1988). Assessment of methods for measuring social support. *Health Psychology, 7*(1), 75-109.

Helgeson, V. S. (1994). Prototypes and dimensions of masculinity and femininity. *Sex Roles, 31*(11/12), 653-682.

Holcomb, R., Williams, R. C., & Richards, P. S. (1985). The elements of attachment: Relationship maintenance and intimacy. *Journal of the Delta Society, 2*(1), 28-34.

Holmes, R. (1993). Helping clients to choose the right dog. In *Animal Behaviour: The T.G. Hungerford Refresher Course for Veterinarians Proceedings 214 (pp. 291-302)*. Sydney: University of Sydney.

Horn, J. C., & Meer, J. (1984). The pleasure of their company. *Psychology Today, 18*(8), 52-58.

House, T. A. (1981). *Work stress and social support*. Reading M.A: Addison-Wesley.

Hummert, M. L. (1990). Multiple stereotypes of elderly and young adults: A comparison of structure and evaluations. *Psychology and Aging, 5*(2), 182-193.

Hummert, M. L. (1994). Physiognomic cues to age and the activation of stereotypes of the elderly in interaction. *International Journal of Aging and Human Development, 39*(1), 5-19.

Hyde, K. R., Kurdek, L., & Larson, P. (1983). Relationships between pet ownership and self-esteem, social sensitivity, and interpersonal trust. *Psychological Reports, 52*, 110.

Jaccard, J., Turrisi, R., & Wan, C. K. (1990). *Interaction effects in multiple regression*. London: Sage.

Jenkins, J. L. (1986). Physiological effects of petting a companion animal. *Psychological Reports, 58*, 21-22.

Johnson, S. B., & Rule, W. R. (1991). Personality characteristics and self-esteem in pet owners and non owners. *International Journal of Psychology, 26*(2), 241-252.

Joubert, C. E. (1987). Pet ownership, social interest,and sociability. *Psychological Reports, 61*, 401-402.

Kaiser, S. B. (1985). *The social psychology of clothing*. New York: Macmillan Publishing Co.

Kafer, R., Lago, D., Wamboldt, P., & Harrington, F. (1992). The pet relationship scale: Replication of psychometric properties in random samples and association with attitudes towards wild animals. *Anthrozoös, 5*(2), 93-105.

Kaplan, B. H., Cassell, J. C., & Gore, S. (1977). Social support and health. *Medical care, 15*, 47-58.

Kaplan, R. M., & Toshiba, M. T. (1990). The functional effects of social relationships on chronic illnesses and disability. In B. R. Sarason, I. G. Sarason & G. R. Pierce (Eds.), *Social support: An interactional view* (pp. 427-453). New York: John Wiley & Sons.

Karsh, E. (1983). The effects of early handling on the development of social bonds between cats and people. In A. H. Katcher & A. M. Beck (Eds.), *New perspectives on our lives with companion animals* (pp. 22-28). Philadelphia: University of Pennsylvania Press.

Katcher, A. H. (1981). Interactions between people and their pets: Form and function. In B. Fogle (Ed.), *Interrelations between people and pets* (pp. 41-67), Springfield, Illinois: Charles C. Thomas.

Katcher, A. H. (1985). Physiologic and behavioural responses to companion animals. *Veterinary Clinics of North America: Small Animal Practice, 15*(2), 403-410.

Katcher, A. H., & Friedmann, E. (1980). Potential health value of pet ownership. *The Compendium on Continuing Education, 2*(2), 117-121.

Katcher, A. H., Friedmann, E., Goodman, M., & Goodman, L. (1983). Men, women and dogs. *California Veterinarian, 2*, 14-16.

Katcher, A. H., Lynch, J. J., Messent, P. R., & Friedmann, E. (1981). The effect of the presence of a dog on children's blood pressure. *Pedigree Digest, Autumn.*

Katcher, A. H., Segal, H., & Beck, A. (1984). Contemplation of an aquarium for the reduction of anxiety. In R. K Anderson, B. L. Hart & L. A. Hart (Eds.), *The pet connection* (pp. 171-178). Minnesota: Centre to Study Human-Animal Relationships and Environments.

Katz, D., & Braly, K. (1933). Racial stereotypes of one hundred college students. *Journal of Abnormal and Social Psychology, 28*, 280-290.

Kidd, A. H., & Kidd, R. M. (1980). Personality characteristics and preferences in pet ownership. *Psychological Reports, 46*, 939-949.

Kidd, A. H., & Kidd, R. M. (1985). Children's attitudes towards their pets. *Psychological Reports, 57*, 15-31.

Kidd, A. H., & Kidd, R. M. (1987). Pet owner psychology: The human side of the bond. In P. Arkow (Ed.), *The loving bond: Companion animals in the helping professions* (pp. 66-82). California: R & E Publishers.

Kidd, A. H., & Kidd, R. M. (1989). Factors in adults' attitudes towards pets. *Psychological Reports, 65*, 903-910.

Kidd, A. H., & Feldmann, B. M. (1981). Pet ownership and self-perceptions in older people. *Psychological Reports, 48,* 867-875.

Kidd, A. H., Kelley, H. T., & Kidd, R. M. (1983). Personality characteristics of horse, turtle, snake and bird owners. *Psychological Reports, 52,* 719-729.

King, K. B., Reis, H. T., Porter, L. A., & Norsen, L. H. (1993). Social support and long-term recovery from coronary artery surgery: Effects on patients and spouses. *Health Psychology, 12*(1), 56-63.

Kite, M. E., Deaux, K., & Miele, M. (1991). Stereotypes of young and old: Does age outweigh gender? *Psychology and Aging, 6*(1), 19-27.

Knox, V. J., Gekoski, W. L., & Kelly, L. E. (1995). The Age Group Evaluation and Description (AGED) Inventory: A new instrument for assessing stereotypes of and attitudes towards age groups. *International Journal of Aging and Human Development, 40*(1), 31-55.

Lago, D., Kafer, R., Delaney, M., & Connell, C. (1988). Assessment of favourable attitudes towards pets: Development and preliminary validation of self-report pet relationship scales. *Anthrozoös, 1*(4), 240-54.

Lemonick, M. D. (1995). Terrible beauty. *Time, January 23,* 32-38.

Levinson, B. M. (1969). *Pet-oriented child psychology.* Springfield, Illinois: Charles C. Thomas.

Levinson, B. M. (1972a). *Pets and human development.* Illinois: Charles C Thomas.

Levinson, B. M. (1972b). Man and his feline pet. *Modern Veterinary Practice, 53,* 35-39.

Levinson, B. M. (1975). Forecast for the year 2000. In R. S. Anderson (Ed.). *Pet animals and society* (pp. 155-159). London: Ballière-Tindall.

LEvinson, B. M. (1978). Pets and personality development. *Psychological Reports, 42,* 1031-38.

Leyens, J. P., Yzerbyt, V., & Schadron, G. (1994). *Stereotypes and social cognition.* London: Sage.

Lin, N., Simeone, R. S., Ensel, W. M., & Kuo, W. (1979). Social support, stressful life events, and illness: A model and empirical test. *Journal of Health and Social Behavior, 20,* 108-119.

Lindner, M. A., Ryckman, R. M., Gold, J. A., & Stone, W. F. (1995). Traditional vs. nontraditional women and men's perceptions of the personalities and physiques of ideal women and men. *Sex Roles, 32*(9/10), 675-690.

Lockwood, R. (1983). The influence of animals on social perception. In A. H. Katcher & A. M. Beck (Eds.), *New perspectives on our lives with companion animals* (pp. 64-71). Philadelphia: University of Pennsylvania Press.

Lockwood, R. (1985). The role of animals in our perception of people. *Veterinary Clinics of North America: Small Animal Practice, 15*(2), 377-385.

Lynch, J. J. (1985). *The language of the heart: The human body in dialogue.* New York: Basic Books.

Macrae, C. N., & Hewstone, M. (1991). Stereotypes as cognitive heuristics. In M-F. Pichevin, M-C. Hurtig & M. Piolat (Eds.), *Studies on the self and social cognition* (pp. 272-288). Singapore: World Scientific.

Manstead, A. S. R., & McCulloch, C. (1981). Sex-role stereotyping in British television advertisements. *British Journal of Social Psychology, 20*, 171-80.

Marder, A. R., & Marder, L. R. (1985). Human-companion animal relationships and animal behaviour problems. *Veterinary Clinics of North America: Small Animal Practice, 15*(2), 411-421.

Marks, S. G., Koepke, J. E., & Bradley, C. L. (1994). Pet attachment and generativity among young adults. *The Journal of Psychology, 128*(6), 641-50.

Marshall, R. T. (1979). Pet care and responsibility. In R. D. Allen & W. H. Westbrook (Eds.), *The handbook of animal welfare*, (pp. 36-46). New York: Garland STPM Press.

Martinez, R. L., & Kidd, A. H. (1980). Two personality characteristics in adult pet owners and non owners. *Psychological Reports, 47*, 318.

McArthur, L. Z. (1982). Judging a book by its cover: A cognitive analysis of the relationship between physical appearance and stereotyping. In A. H. Hastorf & A. M. Isem (Eds.), *Cognitive social psychology* (pp. 151-211). New York: Elsevier.

McClelland, G. H., & Judd, C. M. (1993). Statistical difficulties in detecting interactions and moderator effects. *Psychological Bulletin, 114*, 376-390.

Melson, G. F. (1988). Availability of and involvement with pets by children. Determinants and correlates. *Anthrozoös, 2*(1), 45-52.

Melson, G. F. (1990). Studying children's attachment to their pets: A conceptual and methodological review. *Anthrozoös, 4*(2), 91-99.

Messent, P. (1983). Social facilitation of contact with other people by pet dogs. In A. H. Katcher & A. M. Beck (Eds.), *New perspectives on our lives with companion Animals* (pp. 37-46). Philadelphia: University of Pennsylvania Press.

Messent, P. R., & Serpell, J. A. (1981). An historical and biological view of the pet-owner bond. In B. Fogle (Ed.), *Interrelations between people and pets* (pp. 5-22). Springfield, Illinois: Charles C. Thomas.

Miller, M., & Lago, D. (1990a). Observed pet-owner in-home interactions. Species differences and association with the pet relationship scale. *Anthrozoös, 4*(1), 49-54.

Miller, M., & Lago, D. (1990b). The well-being of older women: The importance of pet and human relations. *Anthrozoös, 3*(4), 245-251.

Miller, D., Staats, S., & Partlo, C. (1992). Discriminating positive and negative aspects of pet interaction: Sex differences in the older population. *Social Indicators Research, 27*, 363-374.

Mugford, R. A., & M'Comisky. J. G. (1975). Some recent work on the therapeutic value of cage birds with the elderly. In R. S. Fox (Ed.), *Pet animals and society* (pp. 54-65). London: Ballière-Tindall.

Murray, H. A. (1943). *Thematic Apperception Test manual*. Cambridge, MA: Harvard University Press.

Netting, F. E., Wilson, C. C., & Fruge, C. (1988). Pet ownership and nonownership among elderly in Arizona. *Anthrozoös, 2*(2), 125-132.

Oakley, A., Rajan, L., & Grant, A. (1990). Social support and pregnancy outcome. *British Journal of Obstetrics and Gynaecology, 97*, 155-162.

Ory, M., & Goldberg, E. (1983). Pet possession and life satisfaction in elderly women. In A.H. Katcher & A.M. Beck (Eds.), *New Perspectives on our lives with companion animals* (pp. 303-317). Philadelphia: University of Pennsylvania Press.

Ory, M. G., & Goldberg, E. L. (1984). An epidemiological study of pet ownership in the community. In R. K. Anderson, B. L. Hart & L. A. Hart (Eds.), *The pet connection* (pp. 320-330). Minnesota: Centre to Study Human-Animal Relationships and Environments.

Paden-Levy, D. (1985). Relationship of extraversion, neuroticism, alienation and divorce incidence with pet ownership. *Psychological Reports, 57*, 868-870.

Paul, E. S., & Serpell, J. (1992). Why children keep pets: THe influence of child and family characteristics. *Anthrozoös, 5*(4), 231-244.

Paul, E. S., & Serpell, J. A. (1993). Childhood pet keeping and humane atitudes in young adulthood. *Animal Welfare, 2*, 321-337.

Pennebaker, J. (1982). *The psychology of physical symptoms*. New York: Springer-Verlag.

Peretti, P. O. (1990). Elderly-animal friendship bonds. *Social Behaviour and Personality, 18*(1), 151-156.

Pettigrew, T. F. (1981). Extending the stereotype concept. In D. L. Hamilton (Ed.), *Cognitive processes in sterotyping and intergroup behaviour* (pp. 303-331). Hillsdale, New Jersey: Lawrence Erlbaum Associates Inc.

Poresky, R. H., & Hendrix, C. (1990). Differential effects of pet presence and pet-bonding on young children. *Psychological Reports, 67*, 51-54.

Poresky, R. H., Hendrix, C., Mosier, J. E., & Samuelson, M. L. (1987). Young children's companion animal bonding and adults' pet attitudes: A retrospective study. *Psychological Reports, 62*, 419-425.

Posner, M. I., Nissen, M. J., & Klein, R. M. (1976). Visual dominance: An information-processing account of its origins and significance. *Psychological Review, 83,* 157-170.

Reiter, H. H., & Battiato, S. (1984). Relationship between dog preference and selected personality variables. *Indian Psychological Review, 26*(3), 25-28.

Robb, S. (1983). Health status correlates of pet-human association in a health-impaired population. In A. H. Katcher & A. M. Beck (Eds.), *New perspectives on our lives with companion animals* (pp. 318-327). Philadelphia: University of Pennsylvania Press.

Robins, D. M., Sanders, C. R., & Cahill, S. E. (1991). Dogs and their people. *Journal of Contemporary Ethnography, 20*(1), 3-25.

Rossbach, K. A., & Wilson, J. P. (1992). Does a dog's presence make a person appear more likable?: Two studies. *Anthrozoös 5*(1), 40-51.

Rowan, A. N. (1984). Attitude to animals - A brief review. In *Proceedings of the First New England Conference on Animals and Society* (pp. 9-16). Boston, MA: Tufts University School of Veterinary Medicine.

Ryder, R. D. (1973). Pets in man's search for sanity. *Journal of Small Animal Practice, 14,* 657-668.

Salmon, P. W., & Salmon, I. M. (1983). Who owns who? Psychological research into the human-pet bond in Australia. In A. H. Katcher & A. M. Beck (Eds.), *New perspectives on our lives with companion animals* (pp. 245-265). Philadelphia: University of Pennsylvania Press.

Sarason, I. G., & Sarason, B. R. (1984). Life changes, moderators of stress, and health. In A. Baum, S. E. Taylor & J. E. Singer (Eds.), *Handbook of Psychology and Health, Volume IV* (pp. 279-299). Hillsdale, New Jersey: Lawrence Erlbaum Associates Inc.

Sarason, B. R., & Sarason, I. G. (1994). Assessment of social support. In S. A. Shumaker & S. M. Czajkowski (Eds.), *Social support and cardiovascular disease* (pp. 41-63). New York: Plenum Press.

Schenk, S. A., Templer, D. I., Peters, N. B., & Schmidt, M. (1994). The genesis and correlates of attitudes toward pets. *Anthrozoös, 7*(1), 60-68.

Schmidt, D. F., & Boland, S. M. (1986). Structure of perceptions of older adults: Evidence for multiple stereotypes. *Psychology and Aging, 1,* 255-260.

Schneider, D. J., Hastorf, A. H., & Ellsworth, P. C. (1979). *Person Perception (2nd ed.).* Phillipines: Addison-Wesley Publishing Company, Inc.

Schwarzer, R., Jerusalem, M., & Hahn, A. (1994). Unemployment, social support and health complaints: A longitudinal study of stress in East German refugees. *Journal of Community and Applied Social Psychology, 4,* 31-45.

Scott, J. P. (1962). Critical periods in behavioural development. *Science, 138*(3544), 949-958.

Scott, J. P. (1992). The phenomenon of attachment in human-nonhuman relationships. In H. Davis & D. Balfour (Eds.), *The inevitable bond: Examining scientist-animal interactions* (pp. 72-92). New York: Cambridge University Press.

Secord, P. F., Dukes, W. F., & Bevan, W. (1954). Personalities in faces: I. An experiment in social perceiving. *Genetic Psychology Monographs, 49*, 231-279.

Secord, P. F., & Muthard, J. E. (1953). Personalities in faces: IV. A descriptive analysis of the perception of women's faces and the identification of physiognomic determinants. *Journal of Psychology, 39*, 261-278.

Selby, L. A., & Rhoades, J. D. (1981). Attitudes of the public towards dogs and cats as companion animals. *Journal of Small Animal Practice, 22*, 129-137.

Serpell, J. A. (1981). Childhood pets and their influence on adults' attitudes. *Psychological Reports, 49*, 651-654.

Serpell, J. A. (1983). The personality of the dog and its influence on the pet-owner bond. In A. H. Katcher & A. M. Beck (Eds.), *New perspectives on our lives with companion animals* (pp. 57-65). Philadelphia: University of Pennsylvania Press.

Serpell, J. A. (1986). *In the company of animals.* Oxford: Basil Blackwell.

Serpell, J. A. (1990). Evidence for long term effects of pet ownership on human health. In I. H. Burger (Ed.), *Waltham Symposium 20: Pets, Benefits and Practice* (pp. 1-7). London: B.V.A. Publications.

Shepherd, J. (1989). The face and social attribution. In A. W. Young & H. D. Ellis (Eds.), *Handbook of research on face processing* (pp. 289-320). Holland: Elsevier Science Publishers.

Siegal, J. M. (1990). Stressful life events and use of physician services among the elderly: The moderating role of pet ownership. *Journal of Personality and Social Psychology, 58*(6), 1081-6.

Spacapan, S. (1988). Social psychology and health. In S. Spacapan and S. Oskamp (Eds.), *The social psychology of health* (pp. 17-29). California: Sage.

Spence, J. T., Helmreich, R. L., & Stapp, J. (1974). The Personal Attributes Questionnaire: A measure of sex-role stereotypes and masculinity-femininity. *JSAS Catalogue of Selected Documents in Psychology, 4*, 127.

Stallones, L., Johnson, T. P., Garrity, T. F., & Marx, M. B. (1990). Quality of attachment to companion animals among U.S. adults 21 to 64 years of age. *Anthrozoös. 3*(3), 171-176.

Stallones, L., Marx, M. B., Garrity, T. F., & Johnson, T. P. (1988). Attachment to a companion animal among older pet owners. *Anthrozoös, 2*(2), 118-124.

Stalnaker, M. (1992). Choosing the right obedience dog. *Purebred American Kennel Gazette, 109*(2), 47-50.

Stewart, R. A., Powell, G. E., & Chetwynd, S. J. (1979). *Person perception and stereotyping.* Farnborough, U.K: Saxon House.

Straede, C. M., & Gates G. M. (1993). Psychological health in a population of Australian cat owners. *Anthrozoös, 6*(1), 30-42.

Taylor, S. E., & Dakof, G. A. (1988). In S. Spacapan and S. Oskamp (Eds.), *The social psychology of health* (pp. 95-116). California: Sage.

Teclaw, R., Mendlein, J., Garbe, P., & Mariolis, P. (1992). Characteristics of pet populations and households in the Purdue Comparative Oncology Program catchment area, 1988. *American Veterinary Medicine Association Journal, 201*(11), 1725-1729.

Templer, D. J., Salter, C. A., Dickey, S., Baldwin, R., & Veleber, D. M. (1981). The construction of a pet attitude scale. *The Psychological Record, 31*, 343-48.

Thoits, P. A. (1985). Social support and psychological well-being: Theoretical possibilities. In I. G. Sarason and B. R. Sarason (Eds.). *Social support: Theory, research and applications* (pp. 51-72). Dordrecht: Martinus Nijhoff Publishers.

Veevers, J. E. (1985). The social meanings of pets: Alternative roles for companion animals. *Marriage and Family Review, 8*(3-4), 11-30.

Veit, C. T., & Ware, J. E. (1983). The structure of psychological distress and well-being in general populations. *Journal of Consulting and Clinical Psychology, 51*(5), 730-42.

Vincent, C., Long, N., & Chamberlain, K. (1991). *Health, mental health and well-being of New Zealand Vietnam veterans.* Palmerston North: Dept. of Psychology, Massey University.

Vincent, C., Chamberlain, K., & Long, N. (1994). *New Zealand Vietnam war veterans twenty years on: 1: Mental health, physical health, and stress.* Palmerston North: Dept. of Psychology, Massey University.

Voith, L. V. (1985). Attachment of people to companion animals. *Veterinary Clinics of North America: Small Animal Practice, 15*(2), 289-295.

Watson, D., & Pennebaker, J. W. (1991). Situational, dispositional, and genetic bases of symptom reporting. In J. A. Skelton & R. T. Croyle (Eds.), *Mental representations in health and illness* (pp. 61-84). New York: Springer-Verlag.

Wells, K. B., Manning, W. G., & Valdez, R. B. (1989). The effects of insurance generosity on the psychological well-being of a general population. *Arch Gen Psychiatry, 46*, 315-320.

Weiss, R. S. (1991). The attachment bond in childhood and adulthood. In C. M. Parkes, J. Stevenson-Hinde & P. Marris (Eds.), *Attachment across the lifecycle* (pp. 66-76). London: Routledge.

Wilbur, R. H. (1976). Pets, pet ownership and animal control: Social and psychological attitudes, 1975. In *Proceedings of the National Conference on Dog and Cat Control* (pp. 21-34). Denver, Colorado.

Wilson, C. C., & Netting, F. E. (1983). Companion animals and the elderly: A state-of-the-art summary. *Journal of the American Veterinary Medical Association, 183*(12), 1425-1429.

Wright, J. C., & Moore, D. (1982). Comments on animal companions and one year survival of patients after discharge. *Public Health Reports, 97*, 380-81

Zika, S., & Chamberlain, K. (1992). On the relation between meaning in life and psychological well-being. *British Journal of Psychology, 83*, 133-145.

APPENDIX A

Photograph Matching Study Questionnaire

Task

Please match the photos of people with pets in the way you think is most suitable or likely. For example if you think Person A goes with pet 1, write a 1 in the box beside letter A. For each response note briefly what influenced your choice, was it hair, facial features, clothing and jewellery, or something else?

Person	**Pet**	**What influenced your choice?**
A	☐	....
B	☐	....
C	☐	....
D	☐	....
E	☐	....

APPENDIX B
Pet Selection Study - Target Person Profiles

A   Aroha is a social worker aged 26. She is a solo mother and has two preschool children. She lives in a small rented house with a garden, and enjoys gardening, aerobics, walking and films.

B   Martin is a university lecturer aged 55. He is married with three adult children and he owns a character home near the centre of town. He is a member of Rotary and is a regular church attender. He enjoys socialising, watching sport, reading and photography.

C   Simon is an accountant aged 32. He has a wife and baby on the way. He owns an average sized house on the edge of town and enjoys home handy person jobs, gardening, tramping and cycling.

D   Elizabeth is 45 years old, her husband is a vicar. She has three teen-age children and she teaches part-time. The family live in the vicarage next to the church. She enjoys swimming, walking and reading.

E   Edith is a widow aged 80. A retired librarian, she lives alone in a small rented flat. She enjoys knitting, reading, watching television and visiting neighbours.

F   Frank is a retired office worker. He is single and lives in a second floor apartment in the city. He likes building models, painting, walking and chess.

G   John is a dairy farmer with a large block of land and farmhouse 10 kms from the nearest town. Aged 40, he has a wife and four school-age children. He has little free time but plays rugby and watches sport on television.

H   Rangi is a 20 year old trainee mechanic. He lives in a flat with other students. He enjoys watching rugby and drinking with his friends at the pub.

I   Kylie is an unemployed school leaver. She lives with another unemployed woman in a house in the country and spends most of her time at home or walking around town.

APPENDIX C

Table C1:
Frequencies of Pet Species other than Dogs, Cats, Birds and Fish allocated to each of Nine Target Persons

Species	Target Person								
	A	B	C	D	E	F	G	H	I
Chicken	0	0	0	0	0	0	0	0	1
Cow	0	0	0	0	0	0	1	0	1
Frog	0	0	0	1	0	0	0	0	0
Goat	0	0	1	0	0	0	5	0	2
Guinea Pig	2	0	0	0	0	1	0	0	1
Hamster	0	0	0	0	0	3	0	0	2
Horse	0	0	0	1	0	0	9	0	5
Lizard	0	0	0	0	0	0	0	1	0
Mouse	0	0	0	0	0	0	0	1	0
Pig	0	0	1	0	0	0	0	0	0
Rabbit	3	0	0	2	0	0	0	0	4
Rat	1	0	0	0	0	5	0	1	0
Sheep	0	0	0	0	0	0	1	0	1
Snake	0	0	0	0	0	1	0	1	0
Tortoise	0	0	0	0	0	0	0	1	1
Turtle	0	1	0	1	0	3	0	1	0
Total	6	1	2	5	0	13	16	6	18

APPENDIX D

Table D1:
Frequencies of small family dog breeds allocated to each of nine target persons

Breed	Target Person								
	A	B	C	D	E	F	G	H	I
Australian Terrier	0	0	0	1	0	0	0	0	0
Cavalier K C Spaniel	2	4	1	3	0	0	0	0	0
Chihuahua	0	1	1	1	2	1	0	0	1
Corgi	1	4	2	9	5	1	0	0	1
Dachshund	2	1	1	0	1	2	0	1	0
Fox Terrier	7	3	2	3	1	3	3	1	2
Griffin	0	0	0	1	0	0	0	0	0
Jack Russell Terrier	2	0	0	2	0	1	2	1	0
Kelpie	0	0	0	0	0	0	0	0	1
Lap dog	0	0	0	0	1	0	0	0	1
Maltese Terrier	0	1	0	0	0	0	0	0	0
Pekingese	0	0	0	1	3	0	0	0	0
Pomeranian	0	0	0	0	0	1	0	0	0
Poodle	0	3	2	13	5	1	0	1	2
Pug	0	0	0	1	0	0	0	0	0
Scottish Terrier	0	0	1	2	0	0	0	1	0
Shetland Sheepdog	0	0	0	1	0	0	0	0	0
Shih Tzu	1	0	0	1	0	0	0	0	0
Sydney Silkie	0	1	0	0	0	0	0	0	0
Terrier	3	1	1	4	1	1	1	3	0
West Highland White Terrier	0	0	0	0	1	0	0	0	0
Total	18	19	11	43	20	11	6	8	8

Table D2:
Frequencies of medium to large family dog breeds allocated to each of nine target persons

Breed	Target Person								
	A	B	C	D	E	F	G	H	I
Afghan Hound	0	2	0	0	0	0	0	0	1
Airedale Terrier	0	0	1	0	0	0	0	0	0
Basset Hound	0	0	1	0	0	0	0	0	0
Beagle	1	0	0	0	0	0	1	0	0
Boxer	0	2	2	0	0	0	1	2	0
Bull Mastiff	0	0	1	0	0	0	0	1	0
Cocker Spaniel	5	4	3	6	0	0	0	1	0
Dalmation	1	1	2	2	0	1	0	1	1
Giant Schnauzer	0	0	0	0	0	0	0	0	1
Great Dane	0	2	0	0	0	0	0	0	0
Keeshond	0	0	0	0	0	0	1	0	0
Labrador	11	28	44	15	0	1	18	2	8
Old English Sheepdog	0	1	0	0	0	0	1	0	0
Pointer	1	1	0	0	0	0	3	0	0
Red Setter	2	4	5	2	0	1	0	0	0
Retriever	1	10	10	3	0	1	1	1	5
Rhodesian ridgeback	0	0	0	0	0	0	1	0	0
Samoyed	1	0	1	0	0	0	0	0	0
Siberian Husky	0	0	0	0	0	0	0	0	1
Spaniel	4	5	2	6	1	0	1	0	3
Springer Spaniel	0	0	2	1	0	0	0	0	0
St Bernard	0	0	1	0	0	0	1	0	0
Staffordshire Terrier	0	0	2	0	0	0	0	2	0
Weimeraner	0	1	3	1	0	0	1	0	0
Total	27	61	80	36	1	4	30	10	20

Table D3:
Frequencies of tough, working, and randomly bred dog breeds allocated to each of nine target persons

Dog Breeds	Target Person								
	A	B	C	D	E	F	G	H	I
Tough Breeds									
Bull Terrier	0	1	0	0	1	0	0	15	2
Doberman	1	0	2	2	0	0	1	9	5
German Shepherd	10	3	23	2	0	0	16	8	17
Pitbull Terrier	0	0	0	0	0	0	0	7	0
Rottweiler	4	1	1	2	1	0	4	26	3
Total	15	5	26	6	2	0	21	65	27
Working Breeds									
Pig Dog	0	0	0	0	0	0	0	1	0
Sheepdog	2	3	6	1	0	0	75	0	2
Total	2	3	6	1	0	0	75	1	2
Randomly Bred	5	0	1	3	0	1	5	7	10

Table D4:
Frequencies of pedigree and domestic cat breeds allocated to each of nine target persons

Cat Breeds	Target Person								
	A	B	C	D	E	F	G	H	I
Pedigree Breeds									
Abyssinian	1	1	0	0	2	0	0	0	0
Birman	0	1	0	2	0	0	0	0	0
Burmese	0	10	1	4	8	1	0	0	1
Chinchilla	0	0	0	0	2	0	0	0	0
Himalayan	0	0	0	1	0	0	0	0	0
Manx	0	0	0	0	0	1	0	0	0
Pedigree	0	0	0	0	1	0	0	0	0
Persian	3	11	2	9	25	5	0	0	2
Russian Blue	0	0	0	0	1	1	0	0	0
Siamese	4	16	6	16	8	7	1	3	3
Total	8	39	9	32	47	15	1	3	6
Domestic Breeds									
Domestic Longhair	5	3	3	3	11	0	0	0	5
Domestic shorthair	33	7	12	9	24	11	4	11	31
Tabby	21	7	1	7	14	6	2	3	8
Tortoiseshell	1	1	0	1	0	1	0	1	2
Total	60	18	16	20	49	18	6	15	46

Table D5:
Frequencies of bird and fish breeds allocated to each of nine target persons

| | Target Person | | | | | | | | |
Bird Breeds	A	B	C	D	E	F	G	H	I
Budgerigar	4	2	3	6	18	14	0	3	4
Canary	2	1	2	4	8	12	0	0	3
Cockatiel	0	1	1	1	0	5	0	0	1
Cockatoo	0	0	0	0	1	3	0	0	0
Finch	0	0	0	0	1	0	0	0	0
Galah	0	0	0	0	0	1	0	0	0
Lovebird	0	0	0	0	0	1	0	0	0
Macaw	0	0	0	0	0	1	0	0	0
Parakeet	0	0	0	0	0	2	0	0	0
Parrot	0	1	0	1	0	5	0	0	0
Pigeon	0	0	0	0	0	1	0	0	0
Total	6	5	6	12	28	46	0	3	8
Fish Breeds									
Angel	0	0	0	0	0	0	0	1	0
Axolotyl	0	0	0	0	0	0	0	2	1
Goldfish	4	4	3	2	4	23	1	4	6
Guppy	0	0	0	0	1	0	0	0	0
Piranha	0	0	0	0	0	0	0	1	0
Tropical	1	3	2	1	1	15	3	2	0
Total	5	7	5	3	6	38	4	10	7

Table D6:
Frequencies of 'other' species breeds allocated to each of nine target persons

	Target Person								
Breed	A	B	C	D	E	F	G	H	I
Clydesdale	0	0	0	0	0	0	1	0	0
Hack	0	0	0	0	0	0	1	0	0
Station hack	0	0	0	0	0	0	1	0	0
Thoroughbred	0	0	0	0	0	0	2	0	1
Hereford	0	0	0	0	0	0	1	0	0
Romney	0	0	0	0	0	0	1	0	1
Kune Kune	0	0	1	0	0	0	0	0	0
Feral Goat	0	0	0	0	0	0	0	0	1
Angora rabbit	0	0	0	2	0	0	0	0	0
Dutch rabbit	1	0	0	0	0	0	0	0	0
White rabbit	1	0	0	0	0	0	0	0	1
Black & White rat	0	0	0	0	0	2	0	0	0
White rat	0	0	0	0	0	2	0	1	0
Boa Constrictor	0	0	0	0	0	0	0	1	0

APPENDIX E

TASK

The 40 words below may be used to describe the man in the photograph. Please indicate how well each word describes the man by using the scale provided. Place the appropriate number in the box beside each word.

SCALE

0 ---------- 1 ---------- 2 ---------- 3 ---------- 4
not at all   extremely

1 ☐ active   11 ☐ dignified   21 ☐ unpleasant   31 ☐ discontented

2 ☐ tough   12 ☐ warm   22 ☐ sporty   32 ☐ casual

3 ☐ cheerful   13 ☐ playful   23 ☐ average   33 ☐ lively

4 ☐ down to earth 14 ☐ unkind   24 ☐ loving   34 ☐ serious

5 ☐ upper class 15 ☐ natural   25 ☐ easy going   35 ☐ unfriendly

6 ☐ confident   16 ☐ sophisticated   26 ☐ outdoor   36 ☐ gentle

7 ☐ uncaring   17 ☐ likes animals   27 ☐ interesting   37 ☐ energetic

8 ☐ professional 18 ☐ unhealthy   28 ☐ trendy   38 ☐ attractive

9 ☐ rural person 19 ☐ self-assured   29 ☐ athletic   39 ☐ stylish

10 ☐ proud   20 ☐ masculine   30 ☐ relaxed   40 ☐ happy

TASK

The 40 words below may be used to describe the woman in the photograph. Please indicate how well each word describes the man by using the scale provided. Place the appropriate number in the box beside each word.

SCALE

0 ---------- 1 ---------- 2 ---------- 3 ---------- 4
not at all   extremely

1 ☐ active   11 ☐ dignified   21 ☐ unpleasant   31 ☐ discontented

2 ☐ tough   12 ☐ warm   22 ☐ sporty   32 ☐ casual

3 ☐ cheerful   13 ☐ playful   23 ☐ average   33 ☐ lively

4 ☐ down to earth 14 ☐ unkind   24 ☐ loving   34 ☐ serious

5 ☐ upper class 15 ☐ natural   25 ☐ easy going   35 ☐ unfriendly

6 ☐ confident   16 ☐ sophisticated 26 ☐ outdoor   36 ☐ gentle

7 ☐ uncaring   17 ☐ likes animals 27 ☐ interesting 37 ☐ energetic

8 ☐ professional 18 ☐ unhealthy   28 ☐ trendy   38 ☐ attractive

9 ☐ rural person 19 ☐ self-assured 29 ☐ athletic   39 ☐ stylish

10 ☐ proud   20 ☐ feminine   30 ☐ relaxed   40 ☐ happy

PETS AND PEOPLE

This questionnaire consists of five sections. The first two ask you about the relationship you have with one of your pets, the third concerns your friends and family and the final two are about your own health. Firstly, however, there are some general questions about you and your pet. In each section of the questionnaire, please fill in the spaces/boxes within the questionnaire or circle the appropriate number as instructed. Please do not write in the boxes on the right hand side of each page.

Background Information:

Personal details:

Age: .... Sex: male ☐ female ☐

Marital status: single ☐ with partner ☐ separated/divorced ☐ widowed ☐

Occupation: ....

Number of people in household: children .... adults ....

Previous pets owned:

Were there pets in your childhood home: yes ☐ no ☐

If yes, describe the pet that was most important for you during childhood:
....

Present pet details:

Describe your present pet by answering the following questions. If you have more than one pet, please choose one and answer the pet questions here, and in the next two sections, about that one pet only.

Species .... Breed .... Age ....

Name .... Sex ....

Length of time this pet been in your household: Years .... Months ....

Source of pet: friend/relative ☐ pet shop ☐ breeder ☐
other ☐ specify ....

Did you pay for this pet: yes ☐ no ☐

This pet is owned by: me ☐ me and someone else in the household ☐

someone else in the household ☐

This pet is cared for by: me alone ☐ me with somebody else ☐ somebody else ☐

Human/Pet Relationship

The following questions ask you about the relationship you have with your pet. **Remember to answer these questions with respect to the pet you have just described.** Each item consists of a pair of opposite descriptions joined by a 10 point scale. For example never bites --- very often bites, as shown below. I would like to know how you describe the way your pet actually is, and the way you would ideally like it to be. To show how your pet <u>actually</u> is, write an A beneath the appropriate number. To show how you would <u>ideally</u> like it to be, write an I beneath the appropriate number. Please write an A and an I for every item, even if they are underneath the same number. Some items may not apply to all species but please answer as many questions as you can. In the example below, the owner has written A beneath the 7, and I beneath the 2. So she thinks her pet bites fairly often (7) but would prefer it to bite much less often (2).

<u>Example</u>

biting

never bites	1	2	3	4	5	6	7	8	9	10	very often bites
		I					A				

<u>Items</u>

playfulness

not at all playful	1	2	3	4	5	6	7	8	9	10	very playful

enjoyment of walks

always enjoys walks	1	2	3	4	5	6	7	8	9	10	never enjoys walks

excitable temperament

very excitable	1	2	3	4	5	6	7	8	9	10	unexcitable

attitude to food

rarely refuses food offered	1	2	3	4	5	6	7	8	9	10	often refuses to eat even favourite foods

friendliness to other pets

always friendly towards other pets in my household	1	2	3	4	5	6	7	8	9	10	never friendly towards other pets in my household

intelligence

not at all intelligent, slow to learn	1	2	3	4	5	6	7	8	9	10	very intelligent, quick learning

barking

always noisy	1	2	3	4	5	6	7	8	9	10	never noisy

attachment

      very attached   1   2   3   4   5   6   7   8   9   10   not at all attached
      to me   to me

obedience at home

      always obeys   1   2   3   4   5   6   7   8   9   10   never obeys
      commands at home   commands at home

feeding routines

      never demanding   1   2   3   4   5   6   7   8   9   10   always demanding about
      about feeding   feeding routines
      routines

nervousness

      very nervous of   1   2   3   4   5   6   7   8   9   10   not at all nervous of
      anything strange   anything strange
      or unusual   or unusual

sense of humour

      never makes   1   2   3   4   5   6   7   8   9   10   always makes
      me laugh   me laugh

obedience on walks

      never obedient   1   2   3   4   5   6   7   8   9   10   always obedient
      on walks   on walks

separation

      well behaved when   1   2   3   4   5   6   7   8   9   10   badly behaved when
      left alone for a   left alone for a
      short time   short time

sensitivity to owner's moods

      not at all   1   2   3   4   5   6   7   8   9   10   extremely sensitive
      sensitive to   to my moods
      my moods

attentiveness

      always attentive   1   2   3   4   5   6   7   8   9   10   never attentive
      to me   to me

protectiveness

      always protective   1   2   3   4   5   6   7   8   9   10   never protective
      of property/me   of property/me

friendliness to other's pets

      always friendly   1   2   3   4   5   6   7   8   9   10   never friendly
      towards pets from   towards pets from
      other households   other households

expressiveness

      very expressive   1   2   3   4   5   6   7   8   9   10   not at all expressive
      of feelings/moods   of feelings/moods

pets on furniture

      often climbs on beds   1   2   3   4   5   6   7   8   9   10   never climbs
      or chairs   on beds or chairs

loyalty

not at all loyal   1   2   3   4   5   6   7   8   9   10   extremely loyal

reaction to homecoming

always ignores my arrival   1   2   3   4   5   6   7   8   9   10   never ignores my arrival

eating behaviour

regularly steals food that is not provided   1   2   3   4   5   6   7   8   9   10   never steals food, only eats food provided

friendliness to strangers at home

never friendly towards strangers in my home   1   2   3   4   5   6   7   8   9   10   always friendly towards strangers in my home

friendliness to strangers when away from home

never friendly towards strangers when away from home e.g. in the street   1   2   3   4   5   6   7   8   9   10   always friendly towards strangers when away from home e.g. in the street

possessiveness

extremely jealous or possessive   1   2   3   4   5   6   7   8   9   10   not at all jealous or possessive

exercise routines

never demanding about exercise   1   2   3   4   5   6   7   8   9   10   always demanding about exercise

affection

very affectionate   1   2   3   4   5   6   7   8   9   10   not at all affectionate

neighbour's reactions

always annoys neighbours   1   2   3   4   5   6   7   8   9   10   never annoys neighbours

companionship

is a very good companion   1   2   3   4   5   6   7   8   9   10   is a very poor companion

toilet habits

always urinates or defecates in house   1   2   3   4   5   6   7   8   9   10   never urinates or defecates in house

biting behaviour

never bites people   1   2   3   4   5   6   7   8   9   10   always bites people

The next questions still concern the relationship you have with your pet, but this time they require you to think about <u>yourself as a pet owner</u>. Again each item consists of a pair of opposite descriptions joined by a 10 point scale, but this time we would like you to rate <u>your actual feelings and behaviours</u> towards your pet and how, ideally, <u>you would like to feel and behave</u>. Please answer as before by writing an A and an I beneath appropriate numbers on each line. Remember to write an A and an I for every item, even if they are underneath the same number.

pride in ownership

I feel very proud to own this pet   1   2   3   4   5   6   7   8   9   10   I feel no pride in owning this pet

owner's behaviour

I never attend to this pet's needs   1   2   3   4   5   6   7   8   9   10   I always attend to this pet's needs

family membership

I consider this pet to be a family member   1   2   3   4   5   6   7   8   9   10   I do not consider this pet to be a family member

physical affection

I never provide physical affection   1   2   3   4   5   6   7   8   9   10   I always provide physical affection

health care

I always take this pet to a vet as soon as a health problem arises   1   2   3   4   5   6   7   8   9   10   I never take this pet to a vet when a health problem arises

lifestyle

I always provide variety in this pet's lifestyle   1   2   3   4   5   6   7   8   9   10   I never provide variety in this pet's lifestyle

owner's consideration

I never consider pet's feelings   1   2   3   4   5   6   7   8   9   10   I always consider pet's feelings

time

I spend no time with this pet   1   2   3   4   5   6   7   8   9   10   I spend all my spare time with this pet

pet status

I consider this pet to be an animal   1   2   3   4   5   6   7   8   9   10   I consider this pet to be human

holiday arrangements

I never arrange holiday care for this pet   1   2   3   4   5   6   7   8   9   10   I always arrange holiday care for this pet

routine health care

I never groom   1   2   3   4   5   6   7   8   9   10   I always groom
this pet   this pet

I always treat   1   2   3   4   5   6   7   8   9   10   I never treat
this pet for   this pet for
worms and fleas   worms and fleas

attachment

I am very   1   2   3   4   5   6   7   8   9   10   I am not at
attached to   all attached to
this pet   this pet

space

I provide   1   2   3   4   5   6   7   8   9   10   I provide very
a lot of space   little space for
for this pet   this pet

tolerance

I am very   1   2   3   4   5   6   7   8   9   10   I am very
intolerant of this   tolerant of this
pet's behaviour   pet's behaviour

exercise

I always provide   1   2   3   4   5   6   7   8   9   10   I never provide
the exercise this   the exercise this
pet needs   pet needs

The questions you have just answered made comparisons between the actual and the ideal situation. The following questions concentrate on the current relationship. They concern the level of attachment between you and your pet. Please indicate how well each of these items applies by circling one of the numbers for each item. If the item almost always applies, circle the 4. If the item almost never applies, circle the 1, and so on.

1 ------------------- **2** ----------------- **3** ----------------- **4**

almost never   **sometimes**   **often**   **almost always**

Within your family, your pet likes you best 1   2   3   4

You like to touch and stroke your pet 1   2   3   4

You are too busy to spend time with your pet 1   2   3   4

You prefer to be with your pet

more than with most people you know 1   2   3   4

You spend time each day playing with or exercising your pet 1   2   3   4

Your pet comes to greet you when you arrive 1   2   3   4

When your pet misbehaves, you hit him/her 1   2   3   4

1 -------------------- **2** ----------------- **3** ----------------- **4**

almost never   sometimes   often   almost always

You talk to your pet as a friend 1 2 3 4

Your pet is aware of your different moods 1 2 3 4

Your pet is a nuisance and a bother to you 1 2 3 4

Your pet pays attention and obeys you quickly 1 2 3 4

You confide in your pet 1 2 3 4

You consider your pet to be a member of your family 1 2 3 4

You play with your pet when he/she approaches 1 2 3 4

You spend time each day training your pet 1 2 3 4

You show photos of your pet to your friends 1 2 3 4

When you feel bad, you seek your pet for comfort 1 2 3 4

You spend time each day grooming your pet 1 2 3 4

You feel sad when you are separated from your pet 1 2 3 4

You ignore your pet when he/she approaches 1 2 3 4

When you come home, your pet is the first one you greet 1 2 3 4

You like to have your pet sleep near your bed 1 2 3 4

You like to have your pet sleep on your bed 1 2 3 4

You have your pet near you

when you study, read, or watch T.V. 1 2 3 4

Your pet tries to stay near you by following you 1 2 3 4

You buy presents for your pet 1 2 3 4

You don't like to have your pet get too close to you 1 2 3 4

The questions you have just completed end the section on your pet and the relationship you have with it. The following sections deal with yourself. The first part is about your friends and family.

Each of the statements listed below may or may not be true of you. For each statement, please circle the T (probably true) if the statement is true of you, or F (probably false) if the statement is not true of you. You may find that many of the statements are neither clearly true nor clearly false. In these cases, try to decide whether probably true (T) or probably false (F) is most descriptive of you.

There is at least one person I know whose advice I really trust ....   T   F

If I decide on a Friday afternoon that I would like to go
to a movie that evening, I could find someone to go with me .... T   F

If for some reason I were put in jail, there is someone I
could call who would bail me out .... T   F

In general, people don't have much confidence in me .... T   F

There is someone I could turn to for advice about
changing my job or finding a new one .... T   F

If I wanted to go out of town (e.g. to the coast) for the day
I would have a hard time finding someone to go with me .... T   F

I am able to do things as well as most other people .... T   F

Most people I know think highly of me .... T   F

If I needed a ride to the airport very early in the morning,
I would have a hard time finding anyone to take me .... T   F

There are very few people I trust to help solve my problems .... T   F

I feel that I'm on the fringe in my circle of friends .... T   F

If I had to mail an important letter at the post office by 5:00
and couldn't make it, there is somebody who could do it for me .... T   F

I have someone who takes pride in my accomplishments .... T   F

I regularly meet or talk with members of my family or friends .... T   F

There is really no one I can trust to give me good financial advice ..... T   F

If I were sick, there would be almost no one
I could find to help me with my daily chores .... T   F

Most people I know don't enjoy the same things that I do .... T   F

If I needed a quick emergency loan of $100,
there is someone I could get it from .... T   F

I have a hard time keeping pace with my friends .... T   F

When I feel lonely, there are several people I could call and talk to ...   T   F

Most of my friends are more interesting than I am .... T   F

If a family crisis arose few of my friends would be able
to give me good advice about handling it .... T   F

If I needed some help moving to a new home, I would
have a hard time finding someone to help me .... T   F

There is someone who I feel comfortable going to for advice
about sexual problems .... T   F

If I got stranded 10 miles out of town, there is someone I
could call to come and get me .... T   F

Most of my friends are more successful at making changes
in their lives than I am .... T   F

If I had to go out of town for a few weeks, someone I know would
look after my home (the plants, pets, yard etc.) .... T   F

I don't often get invited to do things with others .... T   F

I feel that there is no one with whom I can share my most private
worries and fears ....T   F

If I wanted to have lunch with someone, I could easily find
someone to join me ....T   F

There is no one I could call on if I needed to
borrow a car for a few hours ....T   F

I am more satisfied with my life than most people are with theirs .... T   F

I am closer to my friends than most other people .... T   F

If I were sick and needed someone to drive me to the doctor,
I would have trouble finding someone .... T   F

No one I know would throw a birthday party for me .... T   F

When I need suggestions for how to deal with a personal
problem I know there is someone I can turn to .... T   F

There are several different people with whom I enjoy spending time .... T   F

I think that my friends feel that I'm not very good at
helping them solve problems .... T   F

There is someone I can turn to for advice about handling
hassles over household responsibilities .... T   F

There is really no one who can give me objective feedback
about how I'm handling my problems .... T   F

The next section concerns how you have been feeling recently, in terms of your moods, feelings and emotions.

These questions are about how you feel, and how things have been with you over the last month. For each question, please circle a number for the one answer that comes closest to the way you have been feeling.

How happy, satisfied, or pleased have you been with your personal life during the past month?

          1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
     extremely happy   extremely unhappy

How much of the time have you felt lonely during the past month?

          1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
        all of   none of
        the time   the time

How often did you become nervous or jumpy when faced with excitement or unexpected situations during the past month?

1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
always   never

During the past month, how much of the time have you felt that the future looks hopeful and promising?

1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
all of   none of
the time   the time

How much of the time, during the past month, has your daily life been full of things that were interesting to you?

1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
all of   none of
the time   the time

How much of the time, during the past month, did you feel relaxed and free of tension?

1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
all of   none of
the time   the time

During the past month, how much of the time have you generally enjoyed the things you do?

1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
all of   none of
the time   the time

During the past month, have you had any reason to wonder if you were losing your mind, or losing control over the way you act, talk, think, feel, or of your memory?

1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
not at all   very much

Did you feel depressed during the past month?

1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
very much   not at all

During the past month, how much of the time have you felt loved and wanted?

1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
all of   none of
the time   the time

How much of the time, during the past month, have you been a very nervous person?

1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
all of   none of
the time   the time

When you got up in the morning, this last month, about how often did you expect to have an interesting day?

        1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
     always   never

During the past month, how much of the time have you felt tense or "high-strung"?

        1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
       all of   none of
     the time   the time

During the past month, have you been in firm control of your behaviour, thoughts, emotions, feelings?

        1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
     yes, very   no, I am very
     definitely   disturbed

During the past month, how often did your hands shake when you tried to do something?

        1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
     always   never

During the past month, how often did you feel that you had nothing to look forward to?

        1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
     always   never

How much of the time, during the past month, have you felt calm and peaceful?

        1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
       all of   none of
     the time   the time

How much of the time during the past month, have you felt emotionally stable?

        1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
       all of   none of
     the time   the time

How much of the time, during the past month, have you felt downhearted and blue?

        1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
       all of   none of
     the time   the time

How often have you felt like crying, during the past month?

        1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
     always   never

During the past month, how often did you feel that others would be better off if you were dead?

1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
always   never

How much of the time, during the past month, were you able to relax without difficulty?

1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
all of   none of
the time   the time

During the past month, how much of the time did you feel that your love relationships, loving and being loved, were full and complete?

1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
all of   none of
the time   the time

How often, during the past month, did you feel that nothing turned out for you the way you wanted it to?

1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
always   never

How much have you been bothered by nervousness, or your "nerves", during the past month?

1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
extremely   not at all

During the past month, how much of the time has living been a wonderful adventure for you?

1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
all of   none of
the time   the time

How often, during the past month, have you felt so down in the dumps that nothing could cheer you up?

1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
always   never

During the past month, did you ever think about taking your own life?

1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
very often   never

During the past month, how much of the time have you felt restless, fidgety, or impatient?

1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
all of   none of
the time   the time

During the past month, how much of the time have you been moody or brooded about things?

<pre>
        1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
       all of   none of
      the time   the time
</pre>

How much of the time, during the past month, have you felt cheerful, lighthearted?

<pre>
        1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
       all of   none of
      the time   the time
</pre>

During the past month, how often did you get rattled, upset, or flustered?

<pre>
        1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
       always   never
</pre>

During the past month, have you been anxious or worried?

<pre>
        1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
      extremely so   not at all
</pre>

During the past month, how much of the time were you a happy person?

<pre>
        1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
       all of   none of
      the time   the time
</pre>

How often during the past month did you find yourself having difficulty trying to calm down?

<pre>
        1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
       always   never
</pre>

During the past month, how much of the time have you been in low or very low spirits?

<pre>
        1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
       all of   none of
      the time   the time
</pre>

How often, during the past month, have you been waking up feeling fresh and rested?

<pre>
        1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
       always   never
</pre>

During the past month, have you been under or felt you were under any strain, stress, or pressure?

<pre>
        1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
     yes, more than   no, not
     I could bear   at all
</pre>

The final section concerns how you have been feeling physically over the same time period.

Below are listed a number of common symptoms or bodily sensations. Most people have experienced them at one time or another. Using the scale below, please indicate how much each of the following problems has bothered or disturbed you during the last month. Circle only one number for each item. If you haven't been bothered by the problem circle 0. If the problem has been an extreme bother circle 4, and so on.

0 ----------	1 -------------	2 ---------------	3 ---------------	4 ●
not at all	**a little**	**moderately**	**quite a bit**	**extremely**

Eye problems	0	1	2	3	4
Ear problems	0	1	2	3	4
Nose problems	0	1	2	3	4
Asthma or wheezing	0	1	2	3	4
Breathing difficulties	0	1	2	3	4
Chest pains	0	1	2	3	4
Racing heart	0	1	2	3	4
Cold hands or feet even in hot weather	0	1	2	3	4
Leg cramps	0	1	2	3	4
Insomnia or sleep problems	0	1	2	3	4
Toothaches	0	1	2	3	4
Stomach upset or pain	0	1	2	3	4
Problems passing urine or motions	0	1	2	3	4
Muscle or joint pain	0	1	2	3	4
Sensitive, itching or tender skin	0	1	2	3	4
Acne or pimples	0	1	2	3	4
Boils	0	1	2	3	4
Sweat even in cold weather	0	1	2	3	4
Headaches	0	1	2	3	4
Hot flushes, face flushes	0	1	2	3	4
Chills	0	1	2	3	4
Dizziness, feel faint	0	1	2	3	4
Numbness or tingling in any part of the body	0	1	2	3	4

```
    0 ----------- 1 ------------ 2 -------------- 3 -------------- 4
not at all      a little      moderately       quite a bit        extremely
```

Twitching of eyelid 0 1 2 3 4

Twitching other than eyelid 0 1 2 3 4

Hands tremble or shake 0 1 2 3 4

Sore throat 0 1 2 3 4

Nausea, vomiting 0 1 2 3 4

Thank you very much for taking part in this research. Could you please now check that you have answered all the questions and post this questionnaire back to me in the envelope provided. If you have any further questions, please call me, (06) 350-4151. If you would like a summary of the results of this study once it is completed, please tick the following box and state where you would like them to be sent to.

☐   Yes, I would like a summary of results.

Address: ....

Claire Budge.

Table G1:
Differences in mean attachment scores for participants grouped according to demographic variables

Attachment Variable		Sex		Species		Marital status		Ownership status		Caregiver status		Payment		Sex of pet	
		Male	Female	Dog	Cat	Single	With partner	Sole	Share	Sole	Share	Yes	No	Male	Female
Attachment	M	67.94	74.92	74.40	69.89	78.88	71.25	77.6	71.02	78.09	72.11	74.27	71.37	75.12	70.71
	t	-3.26**		2.09*		3.07**		3.32**		2.52*		1.43		2.17*	
	df	160		159		157		151		157		160		159	
Relationship Maintenance	M	39.66	43.69	44.19	39.56	45.53	41.73	45.07	41.60	45.29	42.16	43.78	41.24	43.46	41.49
	t	-3.08**		3.73***		2.52*		2.87**		2.18*		2.1*		1.59	
	df	163		161		160		154		160		156		161	
Intimacy	M	28.48	31.46	30.40	30.60	33.52	29.76	32.68	29.60	32.97	30.17	30.77	30.26	31.87	29.35
	t	-3.12**		-0.21		3.33**		3.39**		2.57		0.56		2.80**	
	df	166		164		163		156		163		166		165	

* p < .05   ** p < .01

Errata

Page 30, line 22	Full reference should be 'Allen, Westbrook, Cartier, Burnette & Hoag (1979)'
Page 61, line 1	A missing line should read "... human and pet pairings accompanied by participants' reasons for their matches. The ..."
Page 67, line 18	'... driazabone ...' should read '... brown, kneelength, oilskin raincoat...'
Page 77, line 2	'... larakin ...' should read '... larakin (sic) ...'
Page 81, line 17	'... accomodation ...' should read '... accommodation ...'
Page 102, line 10	The paper in press should be identified as (Budge, Spicer, Jones & St George, in press)
Page 104, line 27	'... were frequent ...' should read '... were relatively frequent ...'
Page 129, line 12	'... health symptoms.' should read '... ill-health symptoms.'
Page 140, line 15	'CENSHARE ...' should read 'Centre for Studying Human Animal Relationships and the Environment (CENSHARE) ...'
Page 177, line 22	'... THe influence ...' should read '...The influence ...'